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United States
Environmental Protection
Agency

A Collaborative Effort to Assess Environmental Health in Newport News, Virginia

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Developed by the U.S. Environmental Protection Agency

Office of Research and Development (ORD)

National Exposure Research Laboratory (NERL)

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Executive Summary/Abstract

The Region 3 “Making a Visible Difference in Communities” (MVD) initiative for Southeast Newport News, VA has taken a community-centric, place-based approach to identifying and delivering service to the area’s residents and the city as a whole. Beginning with a CARE (Community Action for a Renewed Environment) Level 1 cooperative agreement (a grant with substantial government involvement and required outputs) in 2011, Region 3 funding helped to establish the Southeast CARE Coalition (“the Coalition”), and quickly formed a bond with the organization. Two years later, Region 3, the US EPA Office of Research and Development (ORD) and the Coalition embarked on a scientific, socio-demographic Regional Sustainable Environmental Science (RESES) research project to assess local pollutant sources and their potential impacts to the community. These efforts helped EPA select Newport News as an MVD community, resulting in an expanded partnership that now includes the City of Newport News. Through this association and the MVD designation, the partners have identified and prioritized environmental and other concerns (e.g., improving air and water quality, adapting to extreme weather, promoting equitable development, improving transportation). Newport News has recently held workshops and training on topics such as environmental health, asthma, weather events, and equitable development, and continues to improve the community’s health, its knowledge of the relevant environmental health issues, and its wellbeing.

1.0 Introduction

Environmental and public health impacts affect people most significantly where they live – at the community level. Through the MVD initiative, EPA identified more than 50 environmentally overburdened, underserved, and economically distressed communities for more focused and coordinated action. This initiative involved listening to community leaders and residents to understand their needs, and working with local, state and other federal partners to leverage collective resources more efficiently and effectively in support of local goals. This report summarizes the community involvement and coordinated local and federal efforts to analyze, prioritize, and remediate environmental health issues in Newport News, Virginia, one of the 'Making a Visible Difference' (MVD) communities.

The city of Newport News, Virginia is located along the James River, adjacent to the cities of Norfolk and Virginia Beach (Figures 1 and 2). It has a long history of shipbuilding, maritime commerce, and military activity. As of the 2010 U.S. census[1], there were 180,719 people residing in the city, with a racial makeup of 49.0% White, 40.7% African American, 0.5% Native American, 2.7% Asian, 0.2% Pacific Islander, 2.7% from other races, and 4.3% from two or more races. Hispanic or Latino of any race were 7.5% of the population. The median income for a household in the city was $36,597, and the median income for a family was $42,520. About 11.3% of families and 13.8% of the population were below the poverty line, including 20.6% of those under age 18 and 9.8% of those age 65 or over.

The Southeast Community of Newport News is generally defined by the areas within zip codes 23605 and 23607. When compared to the city of Newport News and state of Virginia, residents in southeastern Newport News are predominantly African American and low-income citizens. Residents have higher age-adjusted death rates for heart disease, diabetes, and chronic lower respiratory disease than the rest of Virginia. The Virginia Health Opportunity Index (HOI[2]) provides a composite measure of the social determinants of health – the social, economic, educational, demographic and environmental factors that relate to a community's well-being. The southeast community also has four out of the top five census tracts with the lowest HOI. Four out of five of the top census tracts for lowest life expectancy in Virginia are also located in southeast Newport News.

The southeast Newport News community has a legacy of industrialization (Figure 3), with the creation of Old Dominion Land Company in 1880, Newport News Shipbuilding and Dry Dock Company in 1890, and Coal Pier in 1982. The community's residents are faced with a disproportionate variety of chemical and non-chemical stressors that impact local health outcomes, due largely in part to the close proximity of industry to residential areas.

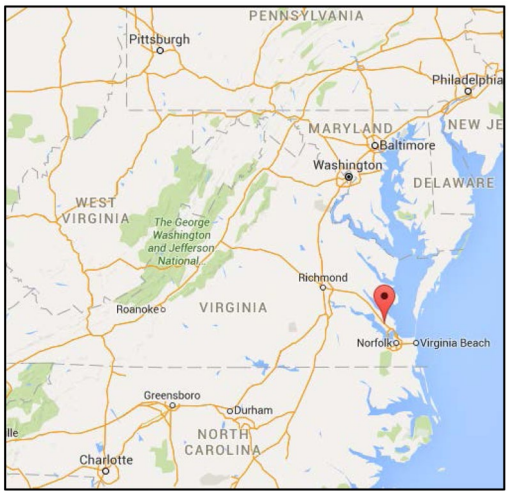

Figure 1: Map of Newport News, VA

Figure 2: Port operations in Newport News

[1] http://www.census.gov/quickfacts/table/PST045215/51700

[2] http://www.vdh.virginia.gov/OMHHE/policyanalysis/virginiahoi.htm

Figure 3: Industrial operations and coal piles in southeast Newport News

Community members in southeastern Newport News have a history of political and social activism through both individuals and community groups. During the course of this Community-Based Participatory Research (CBPR) project, residents of southeast Newport News worked with community organizations, academia, and local, state, and federal government to identify and prioritize their environmental health concerns. Given the relatively high density of industrial activity and pollution sources in southeastern Newport News, and its impact on air quality, residents identified a number of potential issues for data collection and exploration, including concerns related to: port and terminal operations; an interstate highway; a wastewater treatment facility; stormwater and sewer line breaks, and; access to healthy foods and transportation. After a collaborative, iterative process, community members decided on Interstate 664, the local port, toluene ($C_6H_5CH_3$) emissions, and asthma rates as priority areas of focus for an EPA RESES project. In addition to the RESES project, a Building Blocks for Sustainable Communities project incorporated green infrastructure (GI) into stormwater management planning. Citizen-based air quality monitoring was also implemented to help the community identify sources of air pollution, and increase capacity in the southeast community to better compete for brownfield (reclamation) opportunities.

2.0
Partners

The Coalition has been a driving force in this project to assess and improve environmental health outcomes in Newport News. The Coalition formed when it received a CARE cooperative agreement (a grant with substantial government involvement and required outputs) from EPA in 2011. The Coalition is a large, community-based partnership working to address environmental health issues in the southeast community, and has worked with representatives from EPA Region 3, EPA Office of Research and Development (ORD), the University of North Carolina at Chapel Hill (UNC-CH), and the Sierra Club to address cumulative impacts from multiple chemical and non-chemical stressors present in the community (Figures 4 & 5).

The Greater Southeast Development Corporation (GSDC) played a significant role in the Coalition. After receiving the CARE cooperative agreement in October 2011, GSDC began the process of accomplishing the first goal for the CARE project: The creation of a resident-led coalition focused on generating action around reducing exposure to toxic pollutants and improving the environment of the Southeast Community of Newport News, VA. The GSDC solicited residents, businesses, academic institutions, non-profit/grassroots organizations, and city/state/federal organizations for committed partnership and participation in the Coalition. Additional goals of the Coalition were to:

1. Fulfill an informational void regarding community specific impacts of toxic pollutant exposure on the environment and the health of the residents in the Southeast Community of Newport News, Virginia, and
2. Generate action that improves local environmental quality and reduces associated risks and impacts.

The Coalition employed a CBPR approach that specifically addressed historical environmental health concerns of community members. The Coalition assembled, analyzed, and disseminated community specific information on:

1. Toxic pollutants
2. Environmental risks due to exposure to those pollutants
3. Community impacts of those environmental risks

The Coalition is comprised of both primary and secondary partners. Primary partners were defined as residents, community-based organizations, community-based businesses (including local industry), local academic institutions, and local media outlets. Secondary partners were defined as City, State, and Federal agencies. Over the course of the cooperative agreement period, numerous individuals

Figure 4: Community members meeting in Newport News

Figure 5: Southeast CARE Coalition group tour for RESES collaborative

attended Coalition meetings or participated in Coalition events. However, individuals who regularly attended meetings and participated in Coalition activities and events were considered Coalition partners.

Of the most active partners, a few were critical to supporting the Coalition's partnership and endeavors. These critical partners were residents, community-based businesses/organizations, local academic institutions, and city/state/federal organizations. The aforementioned residents and community-based organizations played a critical role in providing a diverse prospective of community guidance as the Coalition developed and achieved their goals. An ongoing barrier for the Coalition was the involvement of community-based industry. Although numerous attempts were made to engage others in this sector, only Dominion,

one of the two coal piers in the community, agreed to participate, and played the critical role of providing the only industry perspective and guidance for the Coalition. Local academic institutions provided important technical support, ranging from community-specific environmental information for the Coalition to logistical support for Coalition events. The following list highlights some of the key partners and their contributions. For the full list of partners, see Appendix A.

- EPA

  The EPA (Region 3 and ORD) facilitated the link between local efforts and national research, and provided near-port and near-road air quality monitoring.

- Sierra Club

  The Sierra Club planned community events, organized tours, and helped the Coalition stay on target and maintain a positive attitude.

- University of North Carolina at Chapel Hill (UNC-CH)

  10 undergraduate students at UNC completed their capstone project by running air quality models. They considered roadways and ports as well as food deserts and asthma.

- Old Dominion University (ODU)

  Old Dominion University received a sub-award to generate a report that that identified the major sources of toxics in the community and the health risk associated with exposure to the toxics. This report was distributed amongst the Coalition and served as another source of information that assisted in identifying toxic risks and setting priorities.

3.0
Issue Identification

The Coalition hosted three environmental health symposiums throughout the Southeast Community of Newport News, VA during the summer of 2013 in an effort to begin the process of developing a prioritized community list of environmental concerns. At the end of each symposium, participants were asked to list all of their environmental concerns. Participants were then asked to select the environmental concern that was "Most Concerning", "Somewhat Concerning", and "Least Concerning" out of all of the concerns listed. A numerical value of 3, 2, and 1 was assigned to colored sticky dots with the designation of "Most Concerning" (red), "Somewhat Concerning" (yellow), and "Least Concerning" (green) respectively. Each environmental concern with numeral values was summed and divided by the total number of individuals participating in the ranking process. The three lists that were generated were compiled into one master list. Concerns that received a ranking of 0 were not included in the compiled master list.

Coalition members then grouped each concern into one of the five categories that make up the definition of "environment" for this project (Table 1). In this project, the "environment" refers to the natural (air, water, land), cultural (ethnic identity and history of community), social (existing and lacking public services), economic (local business, health care cost), and political (local, state, federal) components of the Southeast Community. Once each environmental concern was grouped into a category, Coalition members began the process of ranking the concerns in each category. Members were asked to select the concern that was "Most Concerning", "Somewhat Concerning", and "Least Concerning" out of all of the concerns listed for each category. A numerical value of 3, 2, and 1 was assigned to the designation of "Most Concerning", "Somewhat Concerning", and "Least Concerning" respectively. All concerns with numeral values were summed and divided by the total number of Coalition members participating in the ranking process. The rank values were then ranked from highest to lowest and the top three rank values were listed as the top three environmental concerns for each category. The top 3 environmental concerns for each category are shown in Table 1. See Appendix B for the full ranking list.

Table 1: Newport News Coalition Prioritized Environmental Concerns and Project Focuses

Natural (air, water, land, etc.)		
Rank	Environmental Concern	Rank Value (14 participants)
1	Air Quality	1.429
2	Environmental Toxicity	1.071
3	Toluene	0.786
Cultural (ethnic identity and history of community)		
Rank	Cultural Concern	Rank Value (9 participants)
1	Lack of Community Unity	2.000
2	Lack of preserving cultural heritage	1.889
3	Lack of local grassroots networking	1.111
Social (existing and lacking public services)		
Rank	Social Concern	Rank Value (9 participants)
1	Chronic Disease	1.333
2	Community Health	1.111
3	Apathy in the community	0.667
Economic (local business, health care cost)		
Rank	Economic Concern	Rank Value (8 participants)
1	Employment opportunity	1.750
2	Unemployment	1.250
3	Food Desert	1.125
Political (local, state, federal)		
Rank	Political Concern	Rank Value (8 participants)
1	Socioeconomic issues; living wage; lack of community specific environmental data; brownfields	0.750
2	Desire for increased local political support and collaboration; Lack of positive marketing of SE Community	0.625
3	Unused Green Space	0.500

In Fall 2013, the southeast Newport News community and Region 3 received a RESES grant for a two-year project to address multiple stressors using and applying EPA's research and tools. The RESES approach aims to increase local capacity for integrative decisions that lead to sustainable outcomes in environmental and human health, and establish and quantify linkages between the built and natural environment and human health and well-being. The approach considers 3 main elements:

1. Cumulative Risk Assessment – an analysis, characterization, and possible quantification of the combined risks to human health or the environment from multiple agents or stressors.
2. Environmental Justice – the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
3. Sustainability – The creation and maintenance of conditions under which humans and nature can exist in productive harmony, permitting fulfillment of the social, economic, and other requirements of present and future generations.

Using the RESES approach, this project began by building partnerships and assembling a team of collaborators and contributors, described above. With representatives from EPA regional offices and research laboratories, nonprofits, universities, and community groups, the team generated a shared set of objectives and goals for the project.

The RESES project leveraged results from the CARE cooperative agreement. From that process, the Coalition identified multiple potential stressors including: the widening of Interstate 664 (I-664), port operations (i.e. expansion of Craney Island), coal piers, toluene (from the Asheville-Schoonmaker Mica Co.), Newport News Shipbuilding, brownfields, Hampton Roads Sanitation District's boat harbor treatment facility, food deserts, sewer and pipeline breaks, and PCB contamination.

In Fall 2014, team members iteratively developed a comprehensive list of environmental health stressors and issues in the community. The Coalition prioritized environmental concerns based on evidence of established broad-based partnerships and organizational sustainability (Table 2). Emphasis was placed on issues where organizations worked in or with communities impacted by ports or goods movement. The RESES project focused on community-based cumulative risk assessments (CBCRA) and near-source air quality, especially how it relates to roadways and ports. The Coalition identified port operations, coal piles, shipbuilding, toluene, I-664, asthma, brownfields, food deserts, wastewater treatment facility, stormwater and sewer line breaks, PCB contamination, and susceptible and vulnerable populations as the environmental concerns for southeast Newport News. The top four issues for the RESES assessment were narrowed to I-664, the (Newport News) port, Toluene emissions, and asthma rates.

Table 2: Southeast CARE Coalition Prioritized Environmental Concerns and Project Focuses

Priority Environmental Concerns	Social Category	Cultural Category	Economic Category	Political Category
Air quality	Chronic disease (asthma / cardiac)	Community unity	Employment	Socioeconomic
Toluene	Community health (full health assessment)	Cultural sites (preservation/ awareness)	Unemployment	Living wage
Environmental toxicity	Apathy in community	Grassroots networking	Food deserts	Lack of positive marketing and political support
Goals Identified				
Information collection	Toxic pollutant exposure	Local environmental quality	Environmental risk	Community impacts
Legacy pollution	Air pollutants	Port and transportation	Mobile pollution sources	Industrial operations

3.1. Environmental Health Concerns

3.1.1. Air Quality

Air quality is a major concern for residents of Southeast Newport News (Figure 6). Asthma, heart disease, and chronic lower-respiratory disease age-adjusted death rates are higher for African Americans in Newport News than in other areas of the Peninsula Health District and in the state of Virginia. Local sources of contamination include I-644, which leads to concerns about ozone, particulate matter, acetaldehyde, acrolein, benzene, 1,3 butadiene, formaldehyde, diesel particles, carbon monoxide, nitrogen oxide (NOx), sulfur oxide (SOx), and volatile organic compounds (VOCs). Newport News experiences heavy evening rush hours and also has embarked on a number of road widening projects.

Coal holding facilities led to additional concerns about air quality. Coal worker pneumoconiosis, also known as Black Lung Disease, can exacerbate asthma and chronic obstructive pulmonary disease (COPD), and create chronic bronchitis. Coal particles also contain metals such as mercury, chromium, and uranium. These, along with other pollutants from coal combustion, can have negative respiratory health impacts, contributing to asthma, lung disease, and cancer. The coal particles may also lead to cardiovascular disease and impact the nervous system.

3.1.2. Shipyard Facility

Newport News is home to the largest shipbuilding company in the U.S. (Newport News Shipbuilding, a division of Huntington Ingalls Industries), and while it is the largest industrial employer in Virginia, its operations also lead to environmental and occupational health concerns. Small amounts of the toxic metal beryllium are found in coal slag, a product used as a blast abrasive to prepare the hulls and tanks of ships for coats of paint. When coal slag is blasted against the side of ships, large clouds of dust form. While workers in the immediate area typically wear personal protective equipment (PPE) to avoid inhaling the dust, there is a concern that workers nearby without protection may inhale the dust. According to NIOSH, the National Institute for Occupational Safety and Health (2011)[3], "workers exposed to particles, fumes, mists and solutions from beryllium-containing materials may develop beryllium sensitization or chronic beryllium disease, a potentially disabling or even fatal respiratory disease." Breathing in fumes or dusts of beryllium compounds may injure the lungs. Beryllium may also affect such organs as the liver, kidneys, heart, nervous system, and the lymphatic system.

Shipbuilding and occupational health is not a new issue for Newport News. Until the mid-1970s, the U.S. Navy used asbestos-containing materials to build ships. Prolonged and persistent exposure to asbestos can cause a buildup of asbestos fibers in the lining of lungs. This can lead to tumor growth, mesothelioma cancer, asbestosis, and other asbestos-related conditions.

3.1.3. Toxic Release Inventory Facilities

There are multiple Toxic Release Inventory (TRI) facilities in Southeast Newport News. One TRI facility of primary concern was the Asheville-Schoonmaker Mica Company, with reported releases of toluene from 1987-2013. Toluene was the 2nd highest chemical (lbs) released, at 2,908,751 lbs. Potential health effects from toluene include exposure central nervous damage, fatigue, headaches, nausea, cardiac arrhythmia, and reproductive effects.

3.1.4. PCB Contamination

In 2007, polychlorinated biphenyl (PCB) contamination was found underground in the Newport News' Seafood Industrial Park[4]. The EPA has required Newport News to remove the contaminated soils, which will reduce the potential for the contamination to spread into the adjacent boat harbor. Exposure to PCBs may lead to disrupted reproductive function, developmental effects, and cancer. Fish contamination is also a concern, as eating contaminated fish may lead to PCB exposures.

3.1.5. Brownfields

Newport News' Terminal Avenue Redevelopment Project consists of approximately 22 acres, which have historically contained a number of residential and commercial structures, including a restaurant and playground. In 2007, a Final Conceptual Cleanup Plan was prepared for the site based on the information and analytical data contained in the 2005 Phase I Environmental Site Assessment (ESA) and 2007 Phase II ESA.

Based on available data, the limited human health risk screening found that site soil contained arsenic and chromium at concentrations greater than EPA residential soil risk-based concentration (RBC) values, and the soil had arsenic at concentrations greater than EPA RBC values in the industrial soil. However, due to regional soil characteristics, which include naturally occurring concentrations of metals greater than EPA RBCs, the site soil was not considered for mitigation efforts.

The human health screening found that site's groundwater contained arsenic, barium, chromium, lead, and mercury in concentrations that exceeded their respective maximum contaminant levels (MCLs). In addition, the groundwater samples were found to contain arsenic, barium, chromium, mercury, selenium, and naphthalene exceeding their respective tap water RBCs. These RBCs are also used to screen for potential adverse effects on others, such as construction workers, who may come into contact with groundwater for use in non-drinking purposes. Since the shallow groundwater is not normally potable due to naturally occurring aesthetic issues such as color and odor, and the City of Newport News has a restriction on consumption and use of groundwater, the constituents that exceeded their MCLs were not considered a significant source of risk to potential receptors (e.g., humans, animals, etc.) with respect

[3] http://www.cdc.gov/niosh/nioshtic-2/20038367.html

[4] http://www.cdc.gov/niosh/nioshtic-2/20038367.html

to drinking water consumption, as the exposure pathway is mitigated by the city's ordinance. Those metals that were detected on-site and above their RBCs have been identified as potential sources of risk for future on-site receptors. However, the groundwater samples were collected through an unfiltered Geoprobe bore hole, a method that is prone to collecting samples with overly high concentrations of suspended solids. Samples with high levels of suspended solids can overestimate the concentrations of metals in groundwater due to the addition of acid to the sample, required for sample-preservation purposes. This condition is believed to have biased the analyses. The groundwater investigations at the site have focused solely on the uppermost aquifer. Additional investigation into risks are planned to continue in order to determine the risk and reuse of this site.

3.1.6. Lead

Lead is also an issue in Newport News. In January 2016, an elementary school was closed after finding lead paint[5]. A playground, basketball court, and community garden were also shuttered in 2007 because of high lead concentrations found in soil nearby. Lead can cross the placental barrier, which means pregnant women who are exposed to lead also expose their unborn child. Exposure to lead (even at low levels) can damage a developing-baby's nervous system, affecting behavior and intelligence. Lead exposure can cause miscarriage, stillbirths, and infertility (in both men and women). People with prolonged exposure to lead may also be at risk for high blood pressure, heart disease, kidney disease, and reduced fertility.

3.1.7. Additional Concerns

Residents were also concerned about the Hampton Roads Sanitation District's Boat Harbor Treatment Facility, including its water discharges, releases, and spills, that could potentially impact coastal, surface, and groundwater sources. They were also concerned about air emissions from the facility. In addition, stormwater and sewer line breaks were also a concern, especially with respect to potential flooding and overflow.

[5] http://wtkr.com/2016/01/12/newport-news-elementary-school-closed-after-lead-based-paint-found-inside

Figure 6: Multiple Pollutant Sources in SE Newport News. (A) Port/terminal operations, (b) Interstate 644, (C) Shipyard facility, (D) Wastewater treatment facility, (E) Coal holding facilities, (F) Other industrial facilities. Photos courtesy of Southeast CARE Coalition.

4.0
Data-Driven Prioritization

The RESES project employed a collaborative process to integrate community knowledge, scientific analysis and programmatic activities to address select stressors. Models, databases, local knowledge, and expert input were used extensively to determine stressors' impacts on the community and environment. Table 3 shows the concerns, data, and potential actions for each of the priority environmental issues.

Table 3: Issues, data, and potential approaches identified in RESES project

Issue	Concerns	Data	Potential Actions
Ports	Increased traffic Air emissions from port activity Daily imports/exports (Goods movement) Before/after expansion plan Water quality – effluent Water quality – coast	C-PORT, C-LINE NEI (National Emissions Inventory), NATA (National Air Toxics Assessment), C-PORT Ambient air quality (AQ) data (Air Quality System: AQS) Results from prior studies TRI emissions/spills	Connect with Port Authority Run C-LINE and C-PORT air quality models Organize core group of community members Cooperative agreement template proposal
Coal Piles	Coal dust pollution (AQ) Numbers of piles Locations of piles How long piles stay at terminal	Results from prior studies Coal pier/pile surface area and locations and prevailing wind direction	Proximity analysis of local schools
Shipbuilding	Air emissions Water quality near facility	NATA, NEI TRI emissions/spills	Characterize possible emissions and exposures
Toluene	Ambient air concentrations Sources (including Asheville-Schoonmaker Mica Company) Production, use, and disposal of industrial and consumer products (haz waste)	NATA RCRA (Resource Conservation and Recovery Act) Ambient AQ data (AQS) Results from prior studies C-LINE Results Toxicity (dose/response) NEI (main sources and volume) Related chemicals	Health impact analysis
I-664	Traffic patterns and congestion Trucks through neighborhoods Diesel pollution Benzene pollution Diesel emissions and PM associated w/heavy traffic during rush hour and the detour traffic uses to bypass the congestion Asthma and respiratory illnesses	Traffic Counts Local truck counts NATA, C-LINE Ambient AQ data (AQS) Results from prior studies	Hotspot Analysis Run C-LINE to isolate high-concentration areas Determine target audience using C-LINE Incorporate truck counts into model runs Create educational material package

Table 3: Issues, data, and potential approaches identified in RESES project (continued).

Issue	Concerns	Data	Potential Actions
Asthma	Asthma incidences Missed days of school/work Hospitalizations Ambient air pollution Medical costs	Ambient AQ data (AQS) NATA Results from prior studies Near-road populations (C-LINE results)	Asthma educational packages Characterize asthma health data Organize trigger and exposure reduction information
Brownfields	Decreased property values Increased crime rates Aesthetic Chase Bag Company brownfield site	Zoning County reports Green space data Phase I ESA; Freedom of Information Act: FOIA # Brownfields (disproportionate impacts)	Brownfields characterization and potential exposures
Food Deserts	Number of grocery stores in community Number of families that qualify for food stamps/school lunches Access to fresh produce Malnutrition; BMI	USDA food desert maps Public transportation to stores	Map local food sources Education on healthy eating Encourage infrastructure development
Wastewater Treatment Facility	Water quality near plant Air emissions near plant Respiratory issues including asthma	Hampton Roads Sanitation District's Boat Harbor Treatment Facility NEI, NATA Ambient AQ data (AQS) TRI emissions/spills	Characterize emissions and potential exposures
Stormwater and Sewer Line Breaks	Infrastructure Water quality	n/a	Connect with local agencies to understand conditions
PCB contamination in Lower James Watershed, Greater Chesapeake Bay Watershed	Beach closings Concerns about subsistence fishing	Results from prior studies TRI emissions/spills	Water sampling
Vulnerable Populations	Income (poverty level) Education (< HS) Race/Ethnicity Mixed zoning Proximity Density # Children # Elderly	EJ Screen	Map hotspots and potentially vulnerable populations

4.1. Health Data

Community knowledge, and local and national sources of health data were gathered together for this project. The Virginia State Health Department, Health Profile for Newport News[6] lists information on births, deaths, and pregnancies. The data show that in 2009, Newport News had a higher rate of infant deaths, a higher age adjusted death rate of heart disease, cerebrovascular disease, diabetes mellitus, chronic liver disease, and primary hypertension and renal disease compared to the rates in Planning District 21 and the state of Virginia. The Robert Wood Johnson Foundation also ranked Newport News as 83rd out of 133 counties in Virginia for health outcomes[7]. EPA also assessed the National Cancer Institute Cancer Mortality Maps and Graphs[8].

[6] https://www.vdh.virginia.gov/healthstats/NewportNews09.htm

[7] http://www.countyhealthrankings.org/app/virginia/2014/rankings/newport-news-city/county/outcomes/overall/snapshot

[8]

Table 4: 2005 NATA Risk Estimates[9]

	Cancer Risk (Persons per Million)	Neurological Hazard Risk	Respiratory Hazard Risk
HAMPTON (CITY), VA	46.03 (91.6 Percentile)	.05 (83.9 Percentile)	1.65 (86.9 Percentile)
NEWPORT NEWS (CITY), VA	45.98 (91.5 Percentile)	.05 (86 Percentile)	1.67 (87.2 Percentile)
Virginia	46.29 (75 Percentile)	.05 (51.9 Percentile)	1.76 (63.5 Percentile)

[9] http://www.epa.gov/ttn/atw/nata2005/ Values are derived from 2005 National-Scale Air Toxics Assessment (NATA) Cancer Risk Estimates and Non-Cancer Hazard Index Scores. Percentiles are ranking of Counties and States from 0 (lowest) to 100 (highest).

Table 5: US EPA National Air Toxics Assessment (NATA), 2005. Data processing by C/T-FERST.

Indicators and Indices	User Defined Polygon	Newport News city	Virginia	National Average
Environmental Concentration Estimates				
Outdoor Air - Acetaldehyde (µg/m³)	1.8	1.7	1.9	1.9
Outdoor Air - Acrolein+ (µg/m³)	0.03	0.02	0.03	0.04
Outdoor Air - Arsenic (µg/m³)	0.0034	0.0034	0.0022	0.0006
Outdoor Air - Benzene (µg/m³)	1.0	0.9	0.9	1.1
Outdoor Air - Butadiene (µg/m³)	0.06	0.06	0.05	0.06
Outdoor Air - Chromium (µg/m³)	0.0026	0.0026	0.0017	0.0009
Outdoor Air - Diesel PM (µg/m³)	NaN	NaN	NaN	NaN
Outdoor Air - Formaldehyde (µg/m³)	2.02	1.79	1.99	2.09
Outdoor Air - Lead (µg/m³)	0.004	0.004	0.003	0.002
Outdoor Air - Naphthalene (µg/m³)	0.02	0.02	0.03	0.07
Outdoor Air - PAH (µg/m³)	0.005	0.005	0.010	0.010
Human Exposure Estimates				
Outdoor Air - Acetaldehyde (µg/m³ **annual avg in human breathing Zone)**	1.4	1.3	1.5	1.5
Outdoor Air - Acrolein+ (µg/m³ **annual avg in human breathing Zone)**	0.02	0.01	0.02	0.03
Outdoor Air - Arsenic (µg/m³ **annual avg in human breathing Zone)**	0.0017	0.0017	0.0010	0.0003
Outdoor Air - Benzene (µg/m³ **annual avg in human breathing Zone)**	0.9	0.8	0.8	0.9
Outdoor Air - Butadiene (µg/m³ **annual avg in human breathing Zone)**	0.06	0.05	0.05	0.06
Outdoor Air - Chromium (µg/m³ **annual avg in human breathing Zone)**	0.0024	0.0024	0.0013	0.0008
Outdoor Air - Diesel PM (µg/m³ **annual avg in human breathing Zone)**	NaN	NaN	NaN	NaN
Outdoor Air - Formaldehyde (µg/m³ **annual avg in human breathing Zone)**	1.6	1.4	1.6	1.7
Outdoor Air - Lead (µg/m³ **annual avg in human breathing Zone)**	0.0022	0.0023	0.0016	0.0013
Outdoor Air - Naphthalene (µg/m³ **annual avg in human breathing Zone)**	0.03	0.02	0.03	0.06
Outdoor Air - PAH (µg/m³ **annual avg in human breathing Zone)**	0.004	0.004	0.007	0.010

Table 5: US EPA National Air Toxics Assessment (NATA), 2005. Data processing by C/T-FERST (continued).

Indicators and Indices	User Defined Polygon	Newport News city	Virginia	National Average
Health Risk Estimates				
Cumulative Air Toxics Cancer Risk[1] (risk per one million persons)	50.8	47.1	46.3	49.8
Outdoor Air - Acetaldehyde Cancer Risk1 (risk per one million persons)	3.1	3.0	3.2	3.3
Outdoor Air - Arsenic Cancer Risk1 (risk per one million persons)	7.3	7.4	4.1	1.3
Outdoor Air - Benzene Cancer Risk1 (risk per one million persons)	7.1	6.5	6.6	7.4
Outdoor Air - Butadiene Cancer Risk1 (risk per one million persons)	1.91	1.69	1.57	1.95
Outdoor Air - Chromium Cancer Risk1 (risk per one million persons)	2.4	2.4	1.5	1.4
Outdoor Air - Formaldehyde Cancer Risk1 (risk per one million persons)	21.3	18.8	20.9	22.5
Outdoor Air - Naphthalene Cancer Risk1 (risk per one million persons)	1.1	0.9	1.3	2.3
Outdoor Air - PAH Cancer Risk1 (risk per one million persons)	0.5	0.5	0.9	1.5
Cumulative Air Toxics Non-Cancer Respiratory Risk (Hazard Quotient)	1.97	1.73	1.76	2.28
Outdoor Air - Acetaldehyde Non-Cancer Respiratory Risk (Hazard Quotient)	0.2	0.1	0.2	0.2
Outdoor Air - Acrolein Non-Cancer Respiratory Risk+ (Hazard Quotient)	1.1	1.0	1.1	1.7
Outdoor Air - Chromium Non-Cancer Respiratory Risk (Hazard Quotient)	0.0020	0.0020	0.0012	0.0011
Outdoor Air - Diesel PM Non-Cancer Respiratory Risk (Hazard Quotient)	NaN	NaN	NaN	NaN
Outdoor Air - Formaldehyde Non-Cancer Respiratory Risk (Hazard Quotient)	0.2	0.1	0.2	0.2
Outdoor Air - Napthalene Non-Cancer Respiratory Risk (Hazard Quotient)	0.010	0.008	0.010	0.020
Cumulative Air Toxics Non-Cancer Neurological Risk (Hazard Quotient)	0.05	0.05	0.05	0.06
Outdoor Air - Lead Non-Cancer Neurological Risk (Hazard Quotient)	0.012	0.013	0.010	0.008

Figure 7: C-PORT Benzene concentration differences after expanded port scenario

4.2. Air, Water, and Soil Contamination

The Southeast Community's highest priority concern was air quality, and EPA's Community-Focused Exposure and Risk Screening Tool (C-FERST) was used to assess air concentrations, exposures, and risks. C-FERST is a community mapping, information access tool to help inform community assessments and decision-making. C-FERST is available at: https://www.epa.gov/c-ferst, and was used to process EPA's National Air Toxics Assessment (NATA) data from 2005 (Table 4) to estimate environmental concentrations, human exposure, and health risks of air toxics in southeast Newport News (Table 5).

4.3. Air Quality Modeling

The C-LINE and C-PORT models (available at: https://www.cmascenter.org/c-tools/) were used primarily for data collection related to the interstate and port, modeling current conditions and alternative scenarios based on potential changes to highway and port traffic patterns. C-LINE is a web-based model that estimates emissions and dispersion of toxic air pollutants for roadways in the U.S. This reduced-form air quality model can examine 'what-if' scenarios for changes in emissions, caused by changes in traffic volume, fleet mix and vehicle speed. C-LINE accesses inputs, performs atmospheric dispersion calculations, visualizes results, provides options to manipulate input variables, and performs basic data analysis to present model results in an interpretable manner. C-PORT is a similar web-based tool that models emissions related to port-related activities – including, but not limited to ships, trucks, cranes, – and is capable of identifying potential locations of elevated air pollution concentrations in nearby areas. It is based on dispersion algorithms, local emissions and meteorology, and GIS methodology.

Students from the University of North Carolina at Chapel Hill (UNC-CH) helped to expand the geographic scope of C-PORT in order to increase the model's coverage of the southeast community. They ran multiple scenarios, including expansion of port operations (Figure 7). In 2028, Craney Island is expected to open, increasing the container volumes that post-Panama Canal ships will be able to deliver to Newport News. Students modeled particulate matter 2.5 ($PM_{2.5}$), oxides of nitrogen (NOx), elemental carbon ($EC_{2.5}$), and benzene. Additional scenarios considered the expansion of I-644 interstate, Newport News Shipbuilding, and the Asheville-Schoonmaker Mica Production Company. These scenarios took the community's concerns about asthma, cardiovascular disease, and diabetes into account. The students also worked to collect and organize data related to asthma and toluene emissions, and presented their findings to EPA employees and community members in May 2015.

5.0
Actions to Reduce Environmental Health Risks

After data collection, the RESES project contributors discussed different risk-reduction options for each of the main issues, and eventually determined which options would be most effective and practical, and in what timeframe. The team decided that potential future actions could include development of a near-roadway educational package, an asthma educational package, a template cooperative agreement proposal, and to establish a line of communication with the Virginia Port Authority. These actions extended beyond the timeframe of the RESES project, and most were carried out in some fashion by the Southeast CARE coalition after the collaborative RESES project ended.

The near-roadway package would organize and present various sources of information on health effects and pollution dispersion from mobile sources of emissions, including, C-LINE model runs which include locally-collected truck and car count data, showing how different traffic pattern scenarios affect local air quality, as well as who is most impacted by those emissions. The Coalition was supplied with model runs and information resources to implement this effort.

The asthma educational package will include educational and outreach materials that are targeted to three main audiences, adults in the community, children, and the housing authority. Information for the adults focuses on personal risk-reduction actions in the home for relatively immediate, low-cost mitigation options. Information for the housing authority will emphasize the importance of integrated pest management (IPM), and how it can affect asthma triggers and attacks. The EPA Region conducted additional asthma outreach after the RESES project ended.

By drafting a template cooperative agreement proposal, the southeast community members will be able to tailor it to each specific funding source they would like to apply for to continue learning about and characterizing the local air quality in their community, in the hopes of better understanding of both where pollution sources are, and what can be done to mitigate their impacts. While a specific template was not created within the RESES timeline, the Southeast CARE Coalition had access to all presentations, data files, and informational resources to assist with future cooperative agreement-related funding requests.

Finally, by establishing a relationship with the Virginia Port Authority, the community will open a line of communication for potential collaboration on ways to make port expansion and operations sustainable and incorporate community concerns. Using C-PORT results can help bolster the community's calls for changes and improvements to some port operations, while establishing a rapport with the Virginia Port Authority will likely make them more receptive to changes. This type of partnership building is an ongoing effort by the Southeast CARE Coalition and the EPA.

6.0
Additional Outcomes and Next Steps

The Newport News community projects described above resulted in a number of activities, partnerships, and plans for future improvements for the residents of southeast Newport News. Ongoing and future activities are described below.

6.1. Air Quality

Based on the air modeling results, potential solutions were proposed to mitigate health effects related to port operations and other industrial-source stressors. Individual/interpersonal, community, and state/federal solutions were investigated and provided. These solutions have revealed the importance of academic and community partnerships with federal involvement for addressing issues related to air quality in Newport News, VA.

EPA hosted a training webinar to share tools used to conduct citizen science projects involving Next Generation Air Monitoring (NGAM) technology (e.g., miniature air pollution sensors) and to educate interested groups and individuals on best practices for successful air monitoring projects. Participants learned about air quality basics, air pollution monitoring, how to start a citizen science program, citizen science study design, how to obtain funding, what to look for in an air pollution sensor, sensor applications and performance goals, how to collect useful data using sensors, data management and quality, maintaining sensors, and interpreting and communicating data.

The Coalition also reached out to EPA to receive assistance understanding the air permit renewal public comment process for the Mica Company, a major source of local air emissions in the community. EPA worked with the Virginia Department of Environmental Quality (VADEQ) to conduct a tutorial for this community group on the public participation process for facilities applying for or renewing permits in the Commonwealth of Virginia. The spirit of this engagement was also to make initial introductions to the VADEQ staff, as well as to set expectations for fuller discussions in the future with the community. As further follow-up, EPA sponsored a webinar with Melissa Collier, Office of Community Engagement, and Mississippi Department of Environmental Quality. The webinar presented information to the Coalition on effective community engagement in the Title V permitting process. It not only reinforced the information given to the community earlier, but also helped them to better construct and present their concerns from a community's perspective.

6.2. Brownfields Technical Assistance

In July 2015, Newport News participated in a Brownfields 101 Workshop hosted by EPA, VADEQ, the New Jersey Institute of Technology (NJIT) Technical Assistance to Brownfield (TAB) Communities, and the City of Norfolk. The purpose of the seminar was to teach communities in the Hampton Roads, VA area how to identify brownfields opportunities and to develop a vision of what sustainable revitalization can be. Topics discussed included an overview of the brownfield process, grant and other funding opportunities, and examples of three communities who have successfully completed brownfields redevelopment projects.

6.3. City of Newport News Involvement and Action

In the summer of 2015, the City of Newport News, VA considered the community work and concerns that came out of the Coalition's actions, RESES project, and MVD work. The city identified five key priorities:

1. Increase Trust - Engage local groups that represent different perspectives to reduce the mistrust between these groups and the City. Have City employees get a better comfort level with community-based organizations.
2. Encourage Business Development – Secure HUD funds from programs like Choice Neighborhoods Initiative for the Southeast community for properties including Chase Bag. Create an environment for small business to open and thrive to make the city more livable.
3. Transportation – Many jobs are located well north of the Southeast community. The City wants quick, reliable transportation options to shuttle workers to jobs without lengthy bus rides to facilitate local employment and create more livable circumstances in the community.
4. Promote Home Ownership – Develop a rental rehabilitation and rental inspection program with the goal of encouraging affordable housing for city workers by offering funds to rehabilitate properties without bankrupting employees. Explore an education program for banks and borrowers to promote relationship with the banks to assist with financing property rehabilitation and renovation. Explore a demolition program to take down old infrastructure and vacant lot rehab.
5. Infrastructure – Promote building of a new grocery store. Work to increase natural landscape by planting trees.

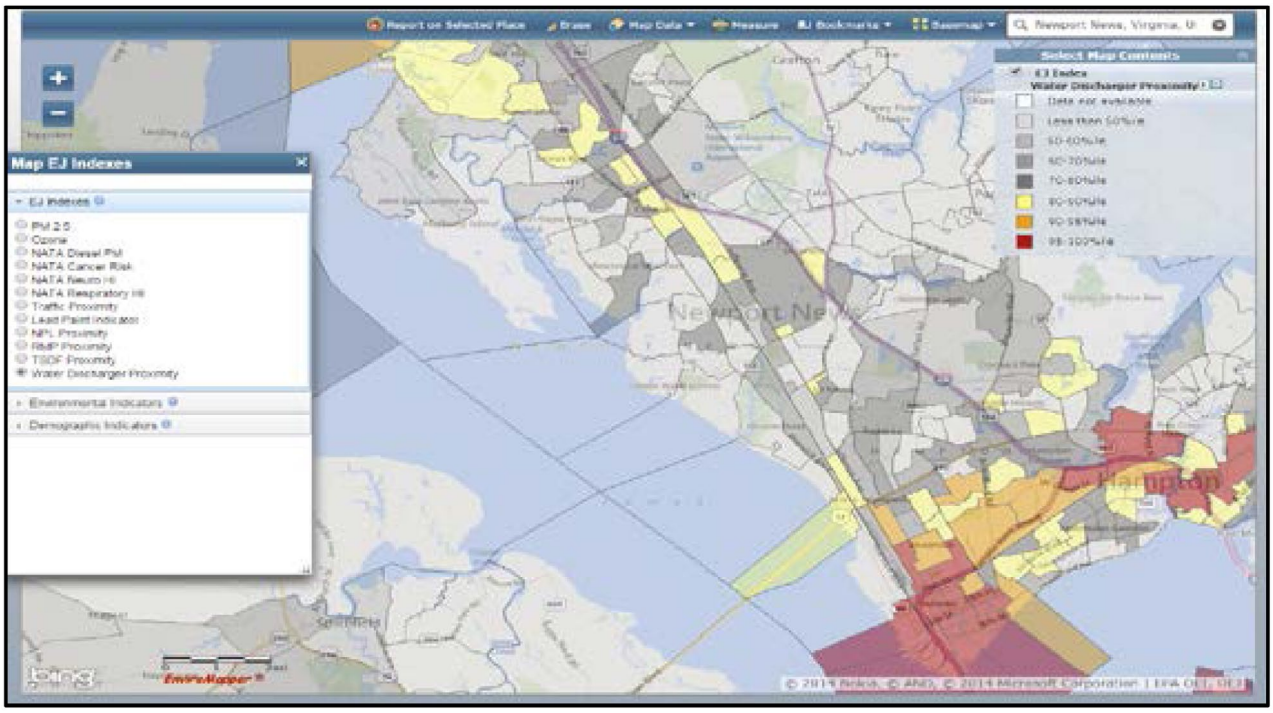

Figure 8: EJSCREEN of Environmental Justice Indexes and Water Discharger Proximity.

6.4. Equitable Development Building Blocks Workshop

Through the Office of Sustainable Communities, EPA Region 3 coordinated with the Coalition and the City of Newport News to host a Building Blocks workshop to address Equitable Development in Newport News, VA. The Building Blocks program supports the priorities of the Partnership for Sustainable Communities, a collaborative effort among the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA) to improve access to affordable housing, increase transportation options, and lower transportation costs while protecting the environment. The 1.5-day facilitated workshop incorporated multiple methods including self-assessments, community input, and municipal planning to identify and create an action plan for moving forward on a limited number of discrete projects promoting equitable development. Events were held on March 17 - 18, 2015, beginning with an extensive community tour and a community meeting/ strategy session. Community members, neighborhood organizations and the Coalition were joined by local luminaries such as Mayor McKinley Price, Delegate Marcia Price, Councilwoman Sandra Perry, Councilwoman Tina Vick, Assistant City Manager Cynthia Rohlf, state senate and house representatives, local police, academia, and numerous city and school board personnel. Commercial representatives from the Port of Newport News, local banks and the Economic Development Agency also attended. The workshop culminated with the core planning group developing a draft action plan/next steps table based on stakeholder input. Facilitators will use the information to craft recommendations into a report and distribute to participants.

6.5. Southeast CARE Weekend

On September 11-12, 2015, the Coalition, EPA, and Southeast Newport News Community sponsored and participated in activities promoting asthma awareness, improving air and water quality, understanding climate change impacts, increasing community resiliency, and establishing organizational partnerships at an outdoor information session/cookout for community residents. These and other topics are part of the Coalition's effort to contend with local environmental challenges. Later at the monthly community meeting, the Coalition was joined by the Hip Hop Caucus[9] whose "Act On Climate" National Bus Tour was traveling the country to communicate how climate change is disproportionately impacting people of color and low-income communities.

The 25th annual Southeast Community Day Parade also featured participation by the Southeast Asthma Network, which marched to promote asthma awareness and health. Additionally, Region 3's Janice Bolden joined with the Southeast Asthma Network and the Boys & Girls Club to distribute asthma-related materials to hundreds of parade-goers.

6.6. Food Deserts

Food deserts are areas where fresh fruit, vegetables, and other healthful whole foods are not readily available. These areas, usually in impoverished areas, tend to lack grocery stores, farmers' markets, and healthy food providers. Southeastern Newport News was identified as a food desert, and over 35%

[9] http://www.hiphopcaucus.org/act-on-climate-national-bus-tour/

of the population does not have cars to reach healthier food options. The Southeast Community Redevelopment plans included raising awareness and implementing solutions to help solve the community's obesity problem. Additionally, the redevelopment plans will aid in the development of recreational areas, safe walkways, farmers' markets, local restaurants, and community gardens.

6.7. Environmental Justice

EJSCREEN was used to assess the proximity and prevalence of pollution, the prevalence of health effects, disproportionate impacts compared to other areas, and the history of environmental justice in the community (Figure 8). The EJView Environmental Report for southeast Newport News listed potentially hazardous sites, including 29 air facility systems, 8 toxic releases, 130 hazardous waste, 8 water dischargers, 4 brownfields, 1 radiation information database site, 1 Toxic Substances Control Act (TSCA) site, 8 impaired water bodies, 1 impaired stream, and 7 Storage and Retrieval (STORET) water quality monitoring sites.

During the past several years, VADEQ has received approximately $20,000 each year for the hiring of two summer interns from Norfolk State University (NSU) and/or Hampton University (HU) to work in the field office with the Air Compliance & Monitoring team, conducting air monitor testing/analysis to monitor compliance and enforcement requirements. EPA Region 3 Air Protection Division (APD) will be working with VADEQ to enhance the internship by incorporating real-world experience and promoting environmental stewardship with the summer interns by training them to use the EPA guidance tool called EJSCREEN. The interns and VADEQ will present the outcomes to local community organizations or their respective Universities. The project will require two students to create an EJSCREEN map for VADEQ focusing on a proximity analysis to assist VADEQ in achieving carbon pollution reduction from sources in the Commonwealth of Virginia.

Southeast Newport News received an environmental justice grant for the project, *Community-based Participatory Approach for Southeast Community Resilience and Adaption to Address Lung Health Impacts Exacerbated by Climate Change*. This project aims to build an effective, resident-led partnership that uses a community-based participatory research approach for lessening impacts to respiratory health as a result of increased air pollution associated with climate change in the Southeast Community, Newport News, VA. Specific goals are to: 1) create a resident-led coalition that implements an educational program to improve the health of residents in the Southeast Community; 2) increase residents' awareness about respiratory disease; 3) increase residents' awareness about air pollutants and climate stressors associated with respiratory disease, and; 4) develop self-care strategies for respiratory health as a mechanism for adapting to climate change. Southeast Newport News will host forums, workshops and a summer camp to disseminate scientifically sound and community specific information to educate residents about respiratory disease risks, air pollutants, and climate stressors. Additionally, they will aim to assist residents to develop common-sense, flexible approaches for sustaining self-care management as a long-term approach to adapting to climate change.

6.8. Extreme Weather Events

Through the Conflict Prevention and Resolution Center, EPA Region 3, working with Old Dominion University (ODU) and Coalition and community leaders, is funding and developing a workshop to engage with underserved communities at the neighborhood level to promote preparedness for extreme weather events, with the goal of increasing the capacity of citizens and other stakeholders to respond to flooding and sea level rise. The project will establish a lasting dialogue among the diverse interests of the Southeast community of Newport News and thereby create an authentic, long-term collaborative effort, one based on shared power and reciprocity, one addressing community response to the impacts of sea level rise and recurrent flooding.

- Training sessions on extreme weather events for lay-educators among the Southeast community of Newport News are also being planned. The training sessions will create an authentic, long-term, educational platform among community members. The project will use existing educational materials to deliver a train-the-trainer session for lay educators in the community that will address questions including:
- What are extreme weather events?
- What are the causes and effects coastal flooding?
- What are preparedness measures for extreme weather?

The project lead will partner with the Southeastern Childhood Asthma Coalition to develop an asthma educational outreach project. The asthma education outreach project will incorporate information from the train-the-trainer sessions to identify the adverse impacts of weather on environmental asthma triggers and identify asthma mitigation techniques. The final task will include creating a community adaptation asset list, which will incorporate regional educational materials (factsheets, web links, podcasts, etc.) into a resource guide for the community.

6.9. Newport News Forum

In September 2016, Newport News held a forum to present best practices (case studies, success stories) for addressing local priorities in Newport News. It will also highlight quantifiable outcomes of experiences and provide information on how city and local organizations can secure resources (cooperative agreements, grants, contract funds, etc.). Federal agencies, philanthropic organizations, universities, and community/city representatives were invited.

7.0
Conclusions

Southeast Newport News has demonstrated the importance of strong partnerships between community groups, industry, and government for improving the quality of life and health in a community. Beginning as a grassroots effort from an EPA CARE cooperative agreement, the work to improve health outcomes and improve the southeast Newport News community now involves multiple partners and has the attention of the local city government. Newport News has developed the capacity to educate individuals in their community, influence political decisions that impact their quality of life, and promote sustainable solutions.

APPENDIX A:
List of Partners

List of partner affiliations representing all aspects of work within this report, including Southeast CARE Coalition, Regional Sustainability and Environmental Sciences (RSES), Making a Visible Difference (MVD), and related ancillary projects and collaborations (in no particular order).

Southeast CARE Coalition

1. EPA Region 3
2. University of North Carolina Lecturer
3. UNC College Undergraduate (Self-Guided) Capstone Course (9 students)
4. Virginia Sierra Club
5. EPA Office of Research and Development (ORD)
6. Oak Ridge Institute for Science and Education (ORISE) Research Fellow
7. Greater Southeast Development Corporation
8. Southeast Newport News Community
9. Communities in Hampton Roads Planning District (including cities of Hampton, Norfolk)
10. Huntington Ingalls Industries (parent company of Newport News Shipbuilding)
11. Kinder-Morgan
12. Mica Company
13. Virginia Port Authority
14. Virginia Department of Transportation
15. Tidewater Department of Environmental Quality
16. Dominion Terminal and Associates
17. Southeast Newport News residents
18. All From One Inc.
19. Pearlie's Restaurant
20. Old Dominion University (ODU)
21. Hampton University (HU)
22. Office of Congressman Robert "Bobby" C. Scott

APPENDIX B:
Southeast CARE Coalition Ranking of Environmental Concerns

Natural (air, water, land, etc.)

1. Environmental Concentration
2. Lead
3. Toluene
4. Coal Dust
5. Port Issues
6. Chemical Pollution
7. Air Quality
8. Environmental Toxicity
9. Water Contamination
10. Flooding Issues/drainage/stormwater
11. Lead and asbestos in homes and environment
12. Soil quality
13. Water quality
14. Food Contamination/Fish

Cultural (ethnic identity and history of community)

1. Lack of Community Unity
2. Parks
3. Mentor Programs (STEM: Science Technology Engineering Mathematics)
4. Lack of preserving cultural heritage
5. Lack of local grassroots networking

Social (existing and lacking public services)

1. Throat Issues
2. Chronic Disease
3. Community Health
4. Mental Health
5. Pulmonary Disease
6. Asthma
7. Swimming Pool
8. Community Leadership
9. Labeling of Community Children
10. Building Community Relations
11. Reaching out to Community with mailing of list of toxics released
12. Lack of Safe After School Program
13. Stray animals/rodents
14. Lack of Health Care Facilities
15. Litter
16. Youth Violence/gangs
17. Lack of Youth Leadership
18. Increase in diabetes
19. Chronic Diseases
20. Lack of parental support programs
21. Infant Mortality
22. Lack of parental control of children 18 under
23. Poverty Pimps
24. Lack of info dissemination
25. Apathy in the community
26. Drug traffic

Economic (local business, health care cost)

1. Employment Opportunity
2. Food Desert
3. Company/Industry Participation
4. Import/Export Issues
5. Scholarship Assistance
6. No Grocery Stores
7. Unemployment
8. Over Policing of citizens
9. Lack of community Investment (public and private)
10. Guns

Political (local, state, federal)

1. Children Recreational Parks
2. Lack of youth programs
3. State/City participation
4. Interstate/Highways
5. Socio Economic Issues
6. Unused Green Space
7. Longitudinal Study for ADHD: Attention-Deficit and Hyperactivity Disorder Chemicals
8. Installation of Environmental Quality Monitoring Systems/Programs

Reaching out to Community with mailing of list of toxics released

1. Retesting of Children in the Community
2. Lack of Trees/Green Space
3. Living Wage
4. War
5. Lack of community specific environmental data
6. Lack of resources for Vets
7. Flooding Issues/drainage/storm water
8. Political
9. Desire for increased local political support and collaboration
10. Easy access to tobacco and alcohol
11. Over Policing of citizens
12. Over Policing of citizens
13. Lack of traffic control
14. Redevelopment and razing of older homes and potential environ. Health effect
15. Absentee landlord/substandard housing
16. Structural safety concerns of residential and public buildings
17. Brownfields
18. Guns
19. Lack of positive marketing of SE Community
20. Lack of renovation of local community centers

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