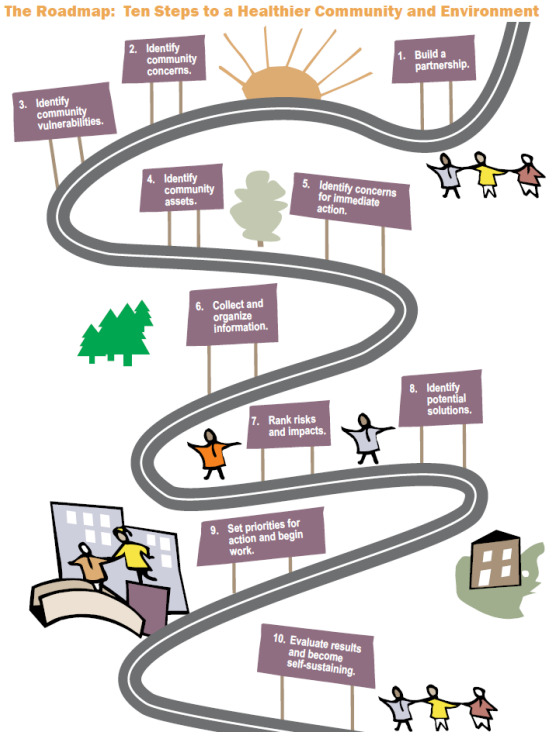
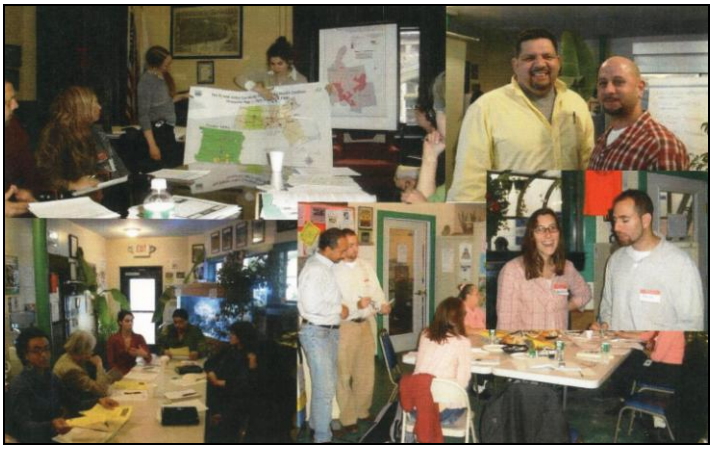
EPA CARE Level I
Final Report

Nuestras Raíces, Inc.

Holyoke, Massachusetts

"Creating the Community Environmental Health Coalition"





October 2006 – September 2009

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Grantee: **Nuestras Raíces, Inc.**
Project location: **Holyoke, Massachusetts**
Project title: **Creating the Community Environmental Health Coalition**
Grant period: **October 2006 - September 2009**
Project Manager: Giovanna Di Chiro
EPA Project Officer: Marybeth Smuts

I. **Our Partnership**

With the EPA CARE roadmap as a helpful guide, Nuestras Raíces' Level I focus was to organize the Community Environmental Health Coalition to identify, assess, rank, and prioritize the multiple environmental health risks facing our community: Holyoke, Massachusetts.

Organization Overview

Nuestras Raíces (Our Roots), the grantee and lead organizer of the Coalition, is a community-based organization whose mission is to promote economic, human, and community development in Holyoke through projects relating to food, agriculture, and environmental protection. Nuestras Raíces' projects build sustainable community resources and socio-economic capacity while celebrating the vibrant culture of Holyoke's low-income Puerto Rican/Latino residents. Founded in 1992, Nuestras Raíces has grown into a 501(c) 3 organization with programs serving the broader community. Our current projects include:

- Community Gardens: Manage 10 community gardens and 2 youth gardens with 125 families and 90 youth participants. New urban lots are developed into new gardens each year.
- Youth Agriculture, Leadership, and Advocacy: Run after-school programs in agriculture, social documentation/ videography, conservation, and environmental organizing. The RootsUp Green Jobs Program trains youth for jobs in solar hot water systems and renewable energy.
- Environmental and Community Organizing: Adults and youth identify, research, and educate the community about environmental problems disproportionately affecting the low-income Latino residents. Focus on food and environmental policy issues at the city and state levels.
- Enterprise and Cultural Development: Support community development and entrepreneurship promoting enterprises and jobs in the fields of agriculture, food systems & healthy food options, environmental sustainability, and cultural renewal. Provide training, technical assistance, access to loans and IDAs, markets, and unique incubator facilities. Launched over 25 new farms and sustainable businesses in Holyoke, including the new company, Energia, a green energy services business hiring local, low income youth. Support area farmers' markets and develop plant varieties and techniques enabling Latino specialty crops to be grown in New England climate.

Urban agriculture has proven to be an effective way to promote community development and environmental improvements because it allows Holyoke residents to maintain a connection to their culture while putting down roots in their new home. Projects based on agriculture build on the skills, knowledge, and Latino heritage of our members, who proudly use their experience to improve their community, steward their environment, and educate the younger generation. Nuestras Raíces has 12 years of experience with urban conservation and environmental research, education, and improvement projects such as community gardens, vacant lots mapping and reclamation, urban forestry, air & water quality testing, and bilingual community educational

forums. We have extended our local impact with a leadership role in founding several community coalitions including the Holyoke Youth Task Force, Holyoke Food & Fitness Policy Council, Community Environmental Health Coalition, and Community Involved in Sustaining Agriculture.

Our Community Profile

Holyoke has been called the Paper City because it was once a center of the world's paper industry. Its strong industrial economy from the 19th century to WWII provided employment for waves and generations of immigrants, from Ireland, French-Canada, Germany, and Poland. Today, the dam and the canals remain, but the economy, infrastructure, and population are vastly different. The mill closings in the 1940s left many abandoned factories, 17 of which are now classified by the EPA as brownfields. In addition, Holyoke's urban landscape is strewn with 600 other vacant properties and abandoned buildings, which often become convenient sites for illegal waste dumping and drug dealing. Holyoke's history of de-industrialization left it with a struggling economy and a poverty rate that currently stands at 33%. This same era of industrial flight also forced thousands of Puerto Ricans to migrate to the U.S. in search of a better life. Many came to western Massachusetts in the early 1950s to work in the region's agricultural fields and set up residence in Holyoke in the multi-family housing projects and tenements that had once housed European immigrant factory workers.

Today, the Puerto Rican population comprises 41% of the city of Holyoke and represents 85% of the downtown neighborhoods served by Nuestras Raíces. The unemployment rate in these neighborhoods hovers around 35% (9% citywide) and approximately 28.6% of households earn less than $15,000 annually, statistics that help explain Holyoke's status as the poorest city in Massachusetts and the 6th poorest city in the U.S. Other pertinent socio-economic and public health indicators that have led to the classification of Holyoke an Environmental Justice Community by the MA Executive Office of Energy and Environmental Affairs include: 60% of Puerto Rican adult population has no high school diploma (15% statewide), 97/1000 teenage pregnancy rate (21/1000 statewide), 42% childhood poverty rate (75% for Latino families), 43% Spanish-speaking households with 1/5 speaking English "less than very well" (U.S. Dept. HUD, 2003). Public health estimates from 2000-2006 document a rate of 1,778 /100,000 asthma related inpatient hospitalizations (782.7 statewide rate), a 468.4/ 100,000 rate of diabetes hospital admittances (297.3 statewide rate), and a 11.8/1000 infant mortality rate (4.8 statewide) (Massachusetts Department of Public Health, Research and Epidemiology, 2007).

Together with our partners and the technical assistance afforded us through the CARE Level I grant (invaluable resources from our project officer, Dr. Marybeth Smuts, and several EPA Region 1 and ORD scientists), we compiled these and other relevant statistics to use in our bilingual risk identification and educational outreach activities. During the Level I process, we have succeeded in opening new channels for fruitful dialogue and collaboration with Holyoke city officials and businesses. The heritage of agriculture and stewardship of elder community residents from Puerto Rico, the energy of Holyoke's people, and Holyoke's passion for finding a cleaner, greener, more unified future, are all assets for collaborative environmental change.

a. What environmental problems does your community face that brought people together?

The environmental problems that were most salient to the community were air quality and asthma, water quality and fishing in the Connecticut River, and the city-wide problems of abandoned lots and contaminated brownfields. The issue of asthma and other respiratory problems rose to the top, and residents were highly concerned about the high rates of these illnesses in children. Many community members experience the outdoor environment through

fishing and fish is a popular and affordable source of protein. Residents were very concerned about the lack of information about mercury contamination and its effects on children and pregnant women. The problem of trash in the streets, contaminated factories, and abandoned lots attracting unsavory and illegal behavior were issues that most groups identified. People discussed how these issues produced negative images of the city (Holyoke as a "dump") and created environmental health risks from exposure to toxic substances.

b. How many individuals and their organizational affiliations were involved?

The Community Environmental Health Coalition has grown and many partners continue to collaborate:

Organization Name	**Contact Information**
Holyoke Conservation Commission	Alicia Zoeller, 413-322-5615
Holyoke Task Force for Excellence in Latino Education	Gustavo Acosta, gacosta@hcc.mass.edu
University of Massachusetts, Amherst	Joseph Krupzynski, 413-577-2773
Holyoke Health Center	Judy Sopenski, 413-420-2108
Holyoke Board of Health	Dan Bresnahan, 413-322-5595
Toxics Action	Sylvia Broude, 617-747-4407
Mayor, City of Holyoke	Elaine Pluta, 413-322-5510
North End Outreach Network	Maira Velez, 413-205-1231
Holyoke School Committee	Gladys Lebron, 413-535-5075
Lean on Me, Inc	Yvonne Garcia, 413-532-0403
Massachusetts Public Health Association	A.J. Juarez, 413-750-2060
Holyoke Friends of the River	Shemaya Laurel, shemayalaurel@yahoo.com
Enlace de Familias/Holyoke Family Network	Betty Medina Lichtenstein, 413-532-9300
Clean Water Action	Melquis Naveo, 617-314-2347
Pioneer Valley Planning Commission	Catherine Ratte, 413-781-6045
Sisters of Providence	Sr. Elizabeth Oleksak, 413-562-1486
Holyoke City Council	Aaron Vega, 413-552-0268
Hispanic Chamber of Commerce of Western Massachusetts	Sandra Santiago, 413-391-0157
Pioneer Valley Asthma Coalition	Kathleen Szegda, 413-794-2945
Alternatives for Community and Environment	Marina Spitzkovskaya, marina@ace-ej.org
The Community Education Project	Irma Medina, imedina@hcc.mass.edu
Nueva Esperanza	Carlos Vega, carlosvega26@gmail.com
Trustees of Reservations	Andrew Kendall, 781-784-0567
Boys and Girls Club of Greater Holyoke	413-534-7366
Co-op Power	Lynn Benander, lynn@cooppower.coop
Connecticut River Watershed Council	Andrea Donlon, crwc@ctriver.org
Girls, Inc.	Daisy Jimenez, 413-534-6247
Office of Industrial and Economic Development	Karen Mendrala, 413-322-5575

HAP, Inc. (regional housing partnership)	Rudy Perkins, 413-233-1500
HOPE (Holyoke Organized to Protect the Environment)	Diosdado Lopez, diasdadolopez@hotmail.com
Youth Task Force	Rebecca Masters, 413-532-6247
Connecticut Environmental Justice Coalition	Mark Mitchell, 860-548-1133
NESCAUM	George Allen, 617-259-2035
HolyokeWorks	Laura Porter, 413-532-2683
STCC	Elsie Rodriguez, 413-781-5640
Regional Employment Board	Larry Martin, 413-787-1547
Alteris Solar	Paul Raducha, 413-734-1456
El Arco Iris	Imre Kepes, 413-695-9671
Holyoke Housing Authority	Rita Mancini, 413-539-2220
Mt. Holyoke Management	Julia Cintron, 413-534-0955
Keene State College	Nora Traviss, 603-358-2974
Career Point	David Gadaire, 413-532-4900
GreenHolyoke	Rebecca Lisi, rlisiward7@hotmail.com
Health and Human Services	Marcus Weiss, 617-742-4481
Energia Energy Services Company	Tom Rossmassler, 413-525-1789

c. Did this project bring any new partners into your work? How did the new partners aid the partnership and project?
The project brought many new partnerships to our efforts, including business partners and potential employers for our green jobs graduates.

d. **What role did your organization play in this partnership? What skills were most important from your organization to implement the project?**
Nuestras Raices played the central organizing and educational role in this project. Our organization is well respected in the community, and has well established cross-sector collaborations. We are one of the local CBOs that is trusted by the target community, because many of our leaders and organizers are drawn from the low-income Puerto Rican neighborhoods of downtown Holyoke. The central skills that we brought to the project and to the Coalition included: communication skills, bilingual programming, technical expertise on environmental health issues, partnership- and coalition-building skills, and policy advocacy to take the organizing efforts and actions to the next level.

e. **Which partners were most active?**
We worked closely with several environmental organizations (CleanWater Action, Toxics Action, and ACE), with the Holyoke Office of Planning and Economic Development and the Holyoke City Council, with NESCAUM, and with the Pioneer Valley Asthma Coalition. These were partners who reliably provided us with technical expertise, in-kind services, and organizing resources to help organize large events.

f. **What efforts did you make to ensure that the most vulnerable community members were included in the partnership?**

Nuestras Raices organizers and leaders are from the vulnerable populations who we are targeting in this project and live in the neighborhoods most affected by diesel emissions and poor air quality. Our programming and outreach are all bi-lingual and we also provided information to the community with a weekly program broadcasted on the local Spanish language radio station. A significant amount of organizing and outreach occurred in the community gardens and at the Nuestras Raices farm; the gardeners and farmers share the information with their neighbors and bring other families to our community forums.

g. What role did your EPA Project Officer play in the partnership?
Dr. Marybeth Smuts was an invaluable resource throughout the project. She frequently traveled to the western part of the state to consult with us and to help design and plan our community research activities. She often took the lead in establishing connections with key partners (NESCAUM, Boston Public Health Association), so that we could access important technical information and expertise. Her reliability and sense of responsibility in providing us with information and feedback on the status of our project were essential to the success of the work. We feel that the EPA project officer's active engagement in the process is centrally important.

h. **What barriers did your partnership experience and how did you overcome them?**
The primary barrier our project faced was dealing with a mayor who was somewhat hostile to the idea that environmental racism played a role in the documented health and economic disparities that exist in the city of Holyoke. This distrust and unwillingness at the highest level of city government to address issues of environmental justice sometimes resulted in tensions with other city agencies (Health, Planning, Economic Development). Our partnership was able to demonstrate the scientific validity of our claims (that there were disproportionate impacts of environmental illnesses such as asthma in Holyoke) and we were able to present clear evidence and arguments in favor of taking action and developing policy to bring about change. This reliance on evidence and bringing the facts to the table, as well as bringing the stories and experiences of our community members to the table, allowed us to garner the support of several city administrators and elected officials. This strategic community organizing, building alliances rather than creating foes, helped to create the conditions that brought about a change in leadership and the election of a new mayor of Holyoke. The new mayor is very supportive and an active partner in our efforts to create a healthier and greener city.

j. **How has this partnership improved relationships among those involved?**
The EPA CARE grant has provided us with a level of credibility that has opened doors for our organization. City officials working on brownfields assessment and remediation projects have now reached out to us to partner on grants and projects. Our partnership has created new allies who are now working together to seek resources and funding to support sustainable, green industries and jobs in the region. Agencies and organizations who never saw connections, now are willing to collaborate on different issues (green jobs, diesel retrofitting of city fleet, expansion of green spaces/gardens, local food systems infrastructure, extended producer responsibility policy).

k. **Has your organization engaged in a similar process to CARE in which you had a similar role?**
Nuestras Raices was a leader and founder of the Holyoke Food and Fitness Policy Council, which received a large WK Kellogg Foundation grant to develop a similar cross-sector cooperative focusing on developing policies that would reduce the levels of childhood obesity

and increase the healthy foods infrastructure in the Holyoke public schools and access to affordable, fresh foods in the inner city neighborhoods. Nuestras Raices played the central role in the partnership building process that has built bridges and created joint projects (among partners including the Holyoke Health Center, the Holyoke YMCA, Holyoke School Committee, the Youth Task Force, the Planning Department) advocating for policy changes around healthy food access, urban "walkability," and a cleaner environment).

II. Our Project

a. How did you go about identifying toxic risks and setting priorities?

Over the past two and a half years, our multi-stakeholder Community Environmental Health Coalition has emerged as one of the leading voices for positive change and environmental sustainability addressing the needs and priorities of the city and helping to amplify the voices of residents who have been historically marginalized in the environmental and health decision-making processes. Working in this coalition, we assessed several, multi-media environmental health risks facing the target communities in Holyoke. By engaging in our community-based process, residents and stakeholders examined detailed issue profiles that we produced with help from our EPA partners, several government databases, and our own community-based research, and generated a list of 43 concerns about environmental health issues facing the community. Through regular meetings, we have successfully developed an inclusive process with a strong community base. We invited all the governmental and non-governmental agencies working on environmental and health issues in greater Holyoke and the region and local businesses and business support groups. We organized community representatives and conducted bilingual environmental leadership development classes. We supported the founding of the resident-driven organization Holyoke Organized to Protect the Environment (HOPE) and integrated its environmental concerns into our CARE planning process.

Our Coalition engaged in a cross-sector process of risk identification and prioritization and gained consensus on the risk reduction activities that we would include in our CARE Level II action plan. Nuestras Raíces and partners convened 6 community-based forums, 4 neighborhood questionnaire campaigns, 12 environmental health risk educational workshops for youth and adults, and 10 stakeholder coalition meetings. Nuestras Raíces and partners took responsibility for meeting preparation and coordination, translation services, facilitation, minute taking, and follow up. Smaller work groups met for special projects (eg., CleanWater Action, PVAC, Holyoke Health Center, and youth leaders met 5 times for Healthy Homes and Asthma Education gatherings). From the 43 issues of concern generated from these meetings and activities examining detailed issue profiles, partners and residents selected 9 priority concerns that spanned the three exposure media we identified: Air (asthma, diesel exhaust, air toxins), Water (pollution of Connecticut River, mercury in fish, drinking water toxins), and Land (trash & dumping, vacant lots, toxins in soil). All partners were in consensus that community priorities should guide the implementation plan directions, and at the two final community forums and the three final core Coalition member meetings, our decision-making process considered the following criteria for choosing risk reduction activities: significance to the community, feasibility/doability, broadest stakeholder buy-in, small scale/capacity to see accomplishments, affordability/accessibility.

b. What were the top risks identified and why?

Air Quality (diesel/asthma/air toxins): A significant proportion of residents and partners were concerned about diesel emissions from truck traffic, air toxics from industry, and the risks of outdoor and indoor asthma triggers. Key partners aided us in collecting air quality data from EPA databases and in conducting our own community-based air monitoring in Holyoke. EPA scientists helped us access its air pollution tools (Envirofacts, WME, ECHO, NATA, AirData) to provide scientific facts to the community about the levels of air pollution from point and non-point (mobile) sources to which people were exposed. These data indicated that local 24-hour PM2.5 levels regularly exceeded the EPA's standard of 35ug/m^3. GIS maps revealed to residents the dense network of highways (I-91, I-90, I-291, I-391, Rte. 5, Rte. 202, Rte. 141) and 69 facilities emitting air pollutants that exposed them to higher risks for asthma, respiratory ailments and cancer. Technical assistance from Dr. Smuts and Dr. Allen (NESCAUM) allowed us to conduct local air testing using a direct read aetholometer to measure black carbon levels and diesel PM, showing levels of black carbon (and estimated total diesel PM) exceeding the California Office of Environmental Health Hazard Assessment cancer benchmark of 1ug/m^3 (an estimation of 300 excess cases of cancer in over 1 million exposed over a lifetime to the inhalation route). This benchmark cancer risk level is at the lower end of the range (1.07 to 3.28 ug/m^3) estimated for diesel PM in Holyoke. (See Figure 1)

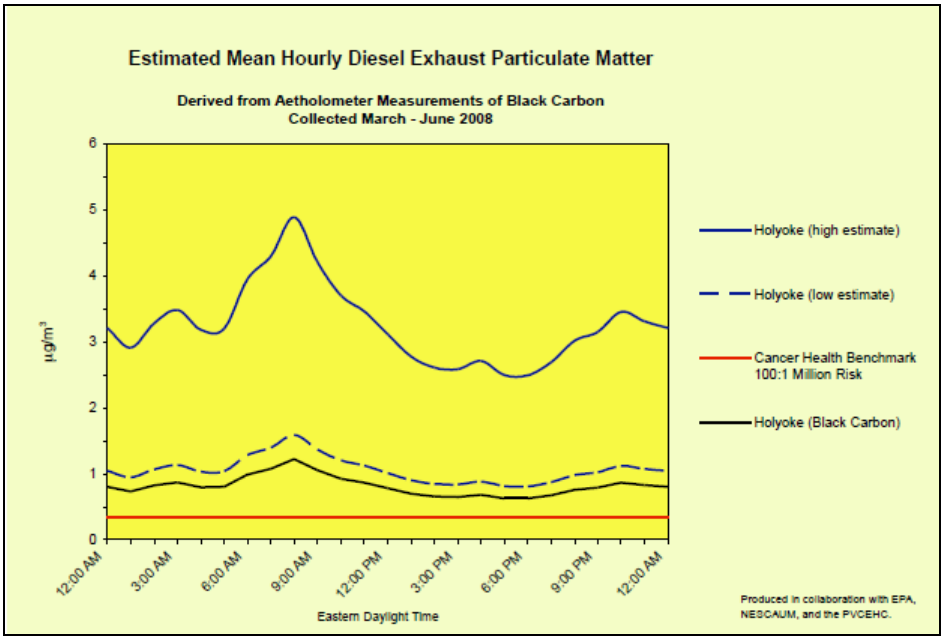


Figure 1. Estimated Mean Hourly Diesel Exhaust Particulate Matter

The Environmental Team at Nuestras Raíces organized city-wide Soot Patrols with over 40 youth representing 5 youth agencies to document diesel vehicle counts at major intersections. (See Figure 2)

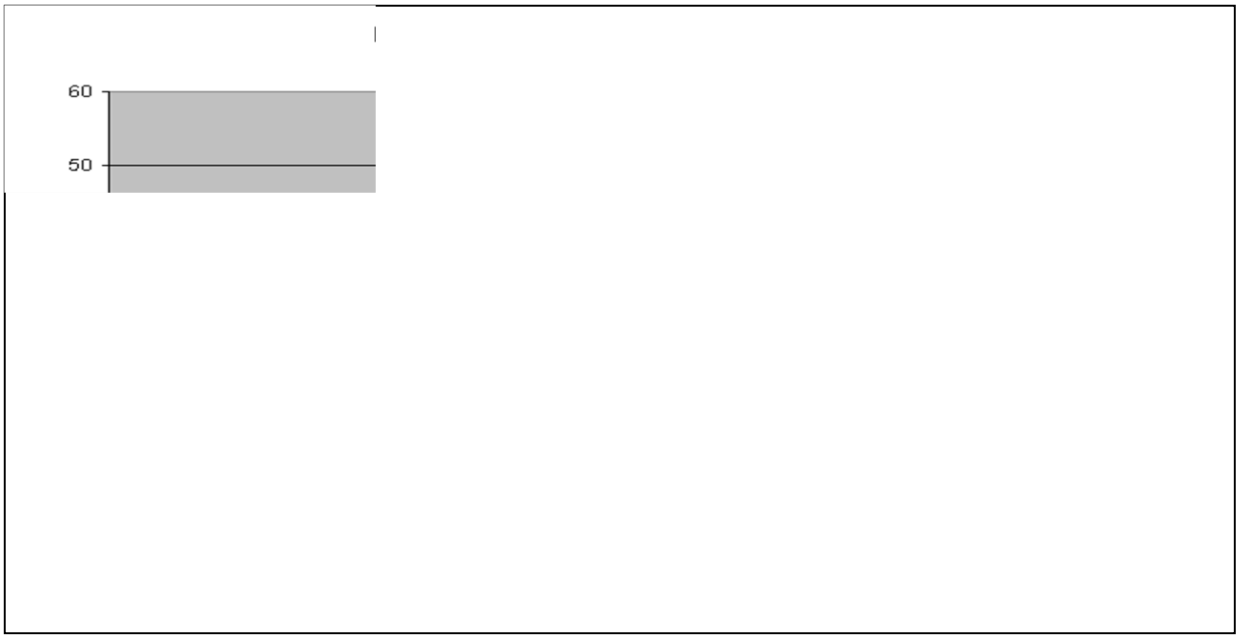


Figure 2. Soot Patrol Results – Number of Diesel Vehicles/Hour

The youth team used a hand-held personal/DATARAM Particulate Monitor to collect PM data at the soot patrol monitoring sites and found PM levels spiking as high as 87 ug/m^3. College interns worked with youth using air canisters to measure VOC levels at key intersections and industrial facilities. University of New Hampshire's Climate Research Center analyzed the canisters and found levels of benzene and toluene to be 3-4 times higher than the cancer benchmark. With our public health partners (Holyoke Health Center, and MPHA) we collected data on asthma rates in the city (see above). Residents also learned that the pediatric asthma levels in Holyoke's schools (20-33% prevalence compared to 10.6% statewide) were disproportionately high (MDPH, 2007). With partners, CleanWater Action and the Pioneer Valley Asthma Coalition (PVAC), we helped residents to understand how the use of toxic cleaning products and pesticides increase indoor asthma triggers and may increase risks for asthma attacks and other health concerns (See Appendix I).

Water Quality (tap water/river contamination/mercury in fish): Community residents and partners are also concerned about area water quality specifically with regard to the safety of drinking water ("it tastes bad"), the contamination of the Connecticut River by sewage and run-off (out of compliance CSOs), and the safety of swimming in and eating fish from the river. With help from the EPA, Holyoke Conservation Commission, Connecticut River Watershed Council, and Mass DEP databases, we collected information about water quality issues in the region. In assessing the data on drinking water quality, it seemed to residents that, despite its taste, Holyoke's water is safe and most likely poses little health risk. Residents learned that since the upgrading of the Holyoke Water Treatment Facility in 2003, there have been fewer overflowing CSO violations, but the section of the Connecticut River below the Holyoke Dam is designated a Class B and temporary Class C river during storm-related CSO overflows. Because many Puerto Rican residents enjoy fishing for family outings and for an important source of affordable protein, the issue of mercury contamination of fish raised people's concerns. Several popular species of fish consumed by local fishers (including Small Mouth Bass and Yellow Perch) contain levels of mercury above the health criteria (.049ppm) (MassDEP Water Quality Assessment, 2007).

Land Use (Trash/Vacant Lots/toxins in land): Community members and partners identified priority issues of concern relating to land use, particularly trash in the streets, illegal dumping on vacant lots, abandoned and crumbling buildings, and the lack of safe open/green space accessible to downtown residents. Using "community risk mapping," digital photos, and community-based GIS techniques, Coalition partners conducted community forums to identify neighborhood "hotspots" of concern to residents, which highlighted garbage and overflowing dumpsters attracting vermin, abandoned and unmonitored buildings luring in illegal and gang activity, and rising numbers of shuttered, contaminated factories (and brownfields), some of which have recently been targets for arson. Joining with the Holyoke Planning Department, Coalition members prepared GIS maps of the city's identified brownfields and other vacant, city-owned properties that residents targeted as public health and safety concerns. This collaborative mapping effort led to the selection of several vacant lots for possible renovation (as new community gardens, pocket parks, or farmers' market sites). The Coalition was a key organizer of an HUD - sponsored "Community Visioning" process that brought together over 200 downtown residents in a multi-stage process to identify areas of concern—issues of trash, clean industry/green jobs, and access to green space were highlighted. Residents were particularly concerned about a proposed 750-ton/day waste transfer station that would be built in one of the downtown neighborhoods. Climatological data, information, traffic studies, and air and water quality data relating to this facility were collected and/or generated to help residents understand their risks. Many community residents and partners felt the risks of living next to a high-impact WTS were too high.

c. What process did your community partnership use to reach formal agreement on what toxic risks to tackle first?

After extensive community outreach and forums introducing the issue profiles mentioned above, Nuestras Raices leaders and partners led three final, comprehensive bilingual community meetings at the downtown community center, El Mercado, at which the residents were asked to select the three issues from the 9 multi-media, priority issues identified earlier that were of most concern to them and about which they would want risk reduction actions to be taken. Organizers used a "dot" system in which residents were provided with three dots to select their three choices. At these same meetings, we also asked residents to select three potential actions that they would like to see taken to reduce environmental health risks in the community and to improve the community's overall health and well being. We then asked the participants to discuss the reasons behind their choices. From these meetings and conversations a sub-committee compiled the data and represented them in the following charts (only the English versions are included here) and then asked community members to respond to the charts. Residents were in agreement that the ranking percentages represented their concerns and Nuestras Raices organizers then made some suggestions for existing EPA programs that could be implemented in our CARE Level II plan. (see Figures 3, 4 & 5)

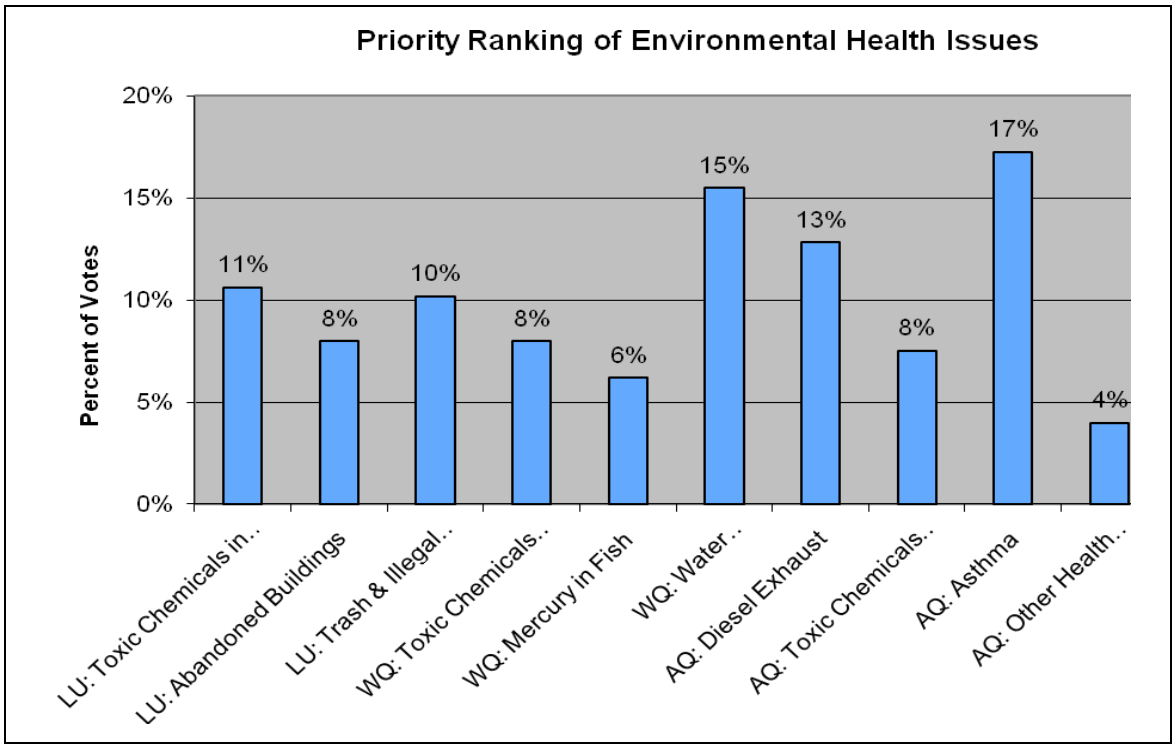


Figure 3. Priority Ranking of Environmental Health Issues

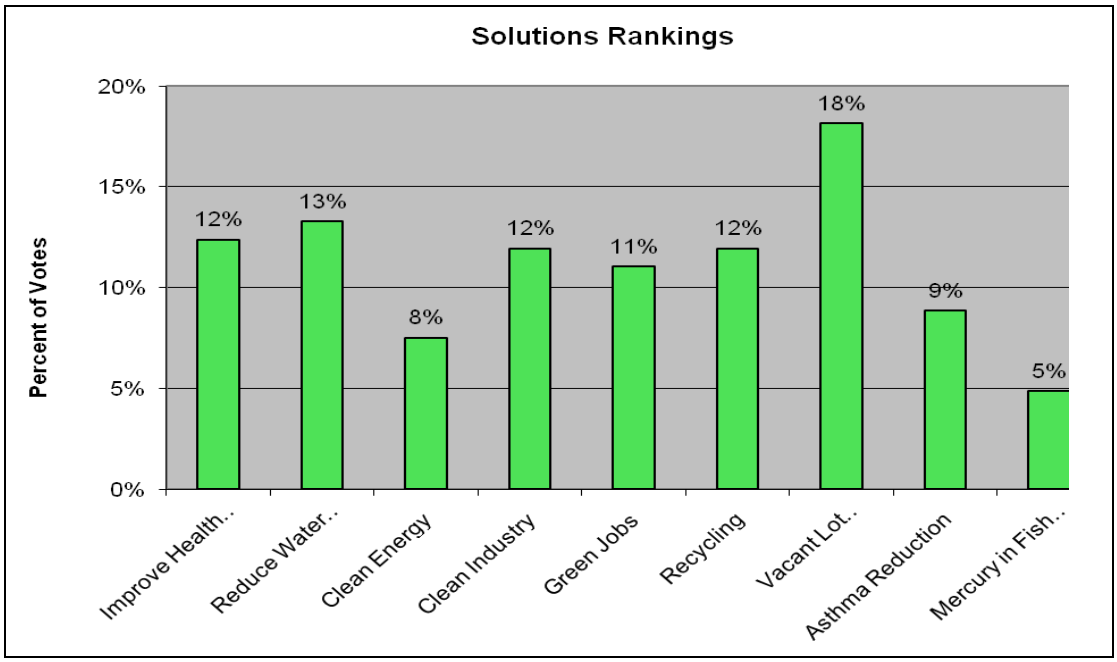


Figure 4. Priority Ranking of Potential Solutions

Figure 5. Community Priorities and Proposed Toxin Reduction Action Initiatives

	Air Quality			Water Quality			Land Use		
	Asthma	Air Toxins	Diesel Exhaust	Water Pollution of Conn. River	Mercury in Fish	Drinking Water Toxins	Trash & Dumping	Vacant Lots	Toxins in Land
Action Initiative									
Healthy Homes	X	X				X	X		
Tools for Schools	X		X						
Design for the Environment/ Best Practices in Auto Shops		X	X	X					X
Monitoring & Assessing Water Quality/Adopt a Watershed/ Safe Oil Disposal				X		X			
Recycling Campaign/ E-cycling			X				X	X	X
Anti-idling Campaign/ Soot Patrols/ Diesel Exhaust Education Project	X	X	X						
Mercury Campaign/ Safe Fishing		X		X	X				
Green Jobs/ Solar Hot Water Heaters	X	X		X	X				X
Land Use & Gardens/ GreenScapes Program		X	X	X		X	X	X	X

d. **How did you inform the broader community of the results of the risk ranking and priority setting?**
Nuestras Raices and the Coalition informed the broader community of the results of our ranking and prioritization through our various communication networks – weekly Spanish language radio program, email lists, and posters at our community locations in Holyoke.

e. How far did you get in planning your toxic reduction strategies?
We discussed possible toxic reduction strategies with our members and residents and then residents had the opportunity to identify their top three strategies in our final community meetings.

f. To what degree did your project raise awareness and build support for action?
The CARE coalition was instrumental in helping to raise awareness in the community about local environmental health risks. The activities we undertook with the Coalition provided a solid base of support for collectively generating effective strategies for action. Our Coalition helped to build a strengthened commitment to improving the health of the environment and the quality of life of Holyoke residents.

g. How did you build momentum over the course of your project? Did you secure any "early wins" to help build momentum? Did you look for additional funding early on?
We built momentum over the course of the project by bringing more community members into the conversation and by incorporating the environmental health dialogue into our already successful community events, such as the annual Harvest Festival and the Puerto Rican Day Parade. We were instrumental in helping to secure commitment by the City Council and the Holyoke Board of Health to impose 42 environmental and health conditions of operation on the proposed permitting of a 750 ton/day waste transfer station in one of the poorest and most environmentally distressed wards in the city. Although we were not successful in stopping the WTS project, we were able to generate considerable interest in seriously addressing issues of air quality and environmental health. We are always seeking new funding sources, and we have secured an HHS community development grant to start a new clean energy services company in Holyoke that will include a "holistic healthy homes" education component to the project.

h. What technical resources (e.g., data sources, modeling or mapping tools, programs, or approaches) were important to support local decisions? Where did you turn for help?
We used several EPA and MassDPH data bases to help us with generating evidence of exposure and risk to share with the community and with local policy makers. (see above) We partnered with EPA ORD scientists and NESCAUM scientists to help us create useful data and maps on local air quality, toxic substance, and environmental health concerns. This technical expertise was invaluable in providing us with a level of credibility that made local decision-makers take notice.

i. What were the significant *outputs* of your project (meetings held, materials developed, people trained, etc.)?
The Coalition has been successful at examining the range of environmental problems faced by the community and, with aid provided by EPA technical assistance, we have worked toward implementing strategies to move toward risk reduction. Focus has been on empowering the most disadvantaged community members to become educated about and to join with other stakeholders to take effective action to reduce risks and improve their environment and quality of life. Some of our successes include:

- Organized 2 Lean & Green Manufacturing and Design for the Environment/Safe Shops Workshops (co-sponsored by Mayor's Office, Board of Health, EPA, Holyoke Community College, MassCOSH) for 25 local industries and auto shops
- Organized 3 Healthy Homes Workshops and 2 World Asthma Day festivals raising awareness of indoor air quality & asthma (w/PVAC and Holyoke Health Center); Received Mayor's award for leadership in asthma awareness on World Asthma Day, 2007
- Developed and led 3 Recycling and Composting Workshops for community gardeners
- Facilitated broad community participation in HOPE's campaign to fight the waste transfer station/ resulted in Board of Health imposing 42 risk mitigation conditions onto permit
- Disseminated bilingual environmental education materials for over 1,000 residents on indoor/outdoor air quality, recycling, water quality, energy conservation, household toxins at two multicultural Harvest Festivals held at *La Finca* (Nuestras Raíces' 30-acre organic farm and community land,) and through a weekly Spanish radio program reaching 3,000 residents/week
- Built respectful partnership with Holyoke Planning Department/ allied to write and receive a brownfields grant to reduce toxic contamination by phytoremediation
- Built capacity of 30 adult community leaders with 2 6-week environmental leadership trainings
- Cultivated 15 new Latino youth environmental leaders who worked on: Soot Patrols/Diesel Education, Community Videography of local environmental problems and assets, and a Community Arts Workshop to create culturally meaningful sustainability banners

Through our hard work in CARE Level I, we have developed community leadership and awareness, a strong and diverse coalition, and a clear collaborative consensus on action initiatives.

j. What were your project's most significant *outcomes* (changes in knowledge, behavior, and practice, e.g., reached consensus on priority toxics, number and type of partners you were aiming to bring to the table and were successful at bringing to the table, "early win" environmental results from cleanups, collections, etc.)

The most significant outcomes were the increases in knowledge and understanding about the effects of exposure to hazardous substances such as diesel particulate matter, mercury, and toxic chemicals in everyday products. Our community, which has not been privileged to have access to environmental information, has begun to change some practices already – more interest in recycling, using non-toxic cleaning products, and some businesses who attended our "best practices in auto repair" workshop have shown greater interest in learning about safer alternatives. The "win" in getting 42 conditions placed on the permitting of a polluting facility has created a new and more open climate in city government to enact more sustainable industrial development policies.

k. What specific reductions in environmental risks, if any, did your project achieve?

At this stage, the most significant reduction in environmental risks is the women leaders in Raices Latina deciding not to use toxic cleaning products that contain chlorine, but choosing safer alternatives including vinegar and baking soda. We intend to significantly increase our risk reduction actions during our action phase.

l. Were there differences between your original plan and what actually occurred in your project? Did you achieve your objectives? Please explain. What objectives were not met and why?

There were no significant differences in our original plan and our outputs and outcomes. Some of the details were different – for example, we originally had planned to conduct community air quality monitoring through the use of the Bucket Brigades, but instead we worked with George Allen, a scientist with NESCAUM, to install an aetholometer to monitor black carbon. We also worked with the University of New Hampshire to collect air samples of VOC emissions, which was not in our original plan.

m. What other resources did your project mobilize, both financial and in kind?

Our partnership with Nueva Esperanza and Co-op power mobilized to start a new energy services company called Energía.

Energía

- Innovative business model founded on the "triple bottom line" philosophy w/ start-up support by an HHS/ ARRA grant
- Provide high quality energy audits & services including weatherization/insulation, solar hot water systems installation, and deep energy retrofits
- Hire local workers, low-income youth, & graduates of RootsUp green jobs training programs creating career pathways in the clean energy industry
- Increase awareness of landlords, homeowners, business owners, and residents of energy efficiency and energy conservation
- Increase economic benefits to community by lowering energy costs and creating sustainable, living wage employment
- Increase environmental benefits to community by improving air quality and environmental health
- Participate in transition to the clean energy future creating local solutions to address climate change and to build healthy communities

III. Reflection

a. How likely is it that the progress achieved could have been made without your CARE partnership?
This accomplishments and strides we have made in the city of Holyoke around environmental health issues would have not been possible without the CARE support. The focus, commitment, and technical assistance and expertise we have been able to mobilize have made all the difference.

b. What do you consider your project's greatest achievement?
Our project's greatest achievement during these past three years has been to bring a multi-racial, multi-class, and cross-sector coalition of partners together to work towards environmental justice and a healthier and more prosperous community. The launching of the green energy services company, Energía, is a testament to that progress.

c. What was your greatest challenge and how did you deal with it?
Our greatest challenge was dealing with an uncooperative city government. (please see above)

d. What would you do differently next time in terms of organizing and structuring your partnership to achieve your project objectives?
Our system of working in teams of partners around specific issues worked very well. We will continue that model in the future.

e. How might you have been more strategic in designing or implementing your project?
We might have been more strategic in targeting specific, sympathetic city government officials to create a more supportive base for our environmental health initiatives.

f. If you chose to create one, did you find using a logic model or other goal-driven model helpful? Please explain. Did the model change over time? If so, how?
We did create a logic model, although we tended to use a work plan organized in a flowchart as our guide.

g. To what extend did your CARE community communicate or engage with other CARE communities and how was that interaction helpful?
We did communicate with other CARE communities in the region and elsewhere – primarily at the annual CARE meetings and on occasion outside of those meetings. The conversations we had with other CARE leaders were extremely important and helpful in thinking through some of our strategies and actions. More opportunity for this kind of networking at the annual meetings would be very useful.

h. Did media coverage play a role in your project? If so, please explain.
Yes, we were supported by media coverage – in local newspapers and TV stations when we launched events such as World Asthma Day teach-ins, in the local Latino press when we presented our data at a community-wide forum or press releases, and through our weekly radio program. Media coverage brought more interest and participation in the events, and it also created some trepidation on the part of the local government.

i. In what ways did you rely on EPA for assistance (assessing risks in your community, conflict resolution, partnership support, voluntary programs, such as Tools for Schools or Pollution Prevention)?
We relied heavily on EPA resources, including EPA voluntary programs, Design for the Environment, Diesel Education, and Healthy Homes, and EPA technical assistance on air and water quality – Davyda Hammond, toxic exposure – Valerie Zartarian, brownfields assessment – Kathy Castagna, Jim Burke, compliance assistance – Mary Dever, Linda Darveau, and environmental justice policy – Amy Braz.

j. What role did your Project Officer and other EPA staff play in your work? What would you have liked more of or less of?
Marybeth Smuts played a central role as discussed earlier. She consistently brought ideas, suggestions, and resources to our partnership. She arranged for our partnership to organize several community-wide trainings, including Lean and Green Manufacturing with EPA and MEP, and Best Practices in Auto Repair with EPA and DEP. We believe that Dr. Smuts represents what we would consider "best practices" for a Federal Agency/Community partnership model. We look forward to continued collaboration with her and other EPA officials in our Level II projects.

k. To what extent do you think that this project increased the capacity of your organization? Your partnership? Your community? Please provide examples.
This has been addressed in earlier comments. Overall, we have gained invaluable knowledge, expertise, alliances, and commitment to connecting all of our organization's efforts to creating healthier communities and environments. The community is more aware of environmental issues in the city and the region and more empowered to insist upon improvement and policy at the local government level. The new mayor of Holyoke, Elaine Pluta, acknowledged that new awareness and has put "sustainable and healthy development" at the center of her administration's plans for the city's redevelopment and revitalization.

l. Did your project produce any new "community leaders?" Please describe.
The community did produce new leaders from different sectors (city councilors, youth leaders, and women activists) who are more likely to employ the language and commitments to environmental health, toxic reduction, and environmental justice in their community strategies.

m. What advice would you offer to other communities undertaking similar work?
There are numerous existing sources of environmental health and exposure risk information available through the EPA's databases and other government sources. You don't need to reinvent the wheel by conducting your own research studies. We did conduct local studies with a lot of technical assistance, but we couldn't have done it on our own. One of our strengths was our connection and engagement with the community – the disproportionately impacted, low-income Latino population of the downtown wards. Our long-standing relationships with our target community and our local leadership that is drawn from the community itself was a key to our success in generating interest in our projects.

IV. What Next?

a. Will members of your partnership continue to work on these issues?
Nuestras Raíces was selected as a CARE Level II grantee, and so we are fortunate to have this continued support to continue our work on these issues. Our Coalition is excited about the new initiatives we are looking forward to implementing.

b. How will this work be sustained?
Because we have built a stronger foundation with the local government agencies, we are already seeing new opportunities arising to sustain the work. We are looking to partner with city agencies (Development, Housing) to apply for community development funds and ARRA funds. Our new energy company, which is co-owned by three non-profits, will soon be creating a revenue stream for our organization to support and advance its programs.

c. Please describe a continuing or next source of funding you have for your work or other groups in your community that have continued the work and have found funding.
Nuestras Raíces has historically organized around food and agriculture issues and continues to do so but now with an enhanced environmental health focus (clean water, air, and soil are required for healthy food, healthy land, and healthy bodies). Our USDA grant (Community Food Projects) focusing on food security and healthy food infrastructure includes environmental health goals and objectives in its promotion of new gardens and green spaces, as does our WK Kellogg foundation grant (3 year implementation grant), which also includes a focus on healthy parks and city walkability, which necessitates a focus on reducing pollution and working together to promote a cleaner environment.

V. Feedback and Follow up

a. Please share any thoughts you have about what EPA could do to improve the CARE program.
Provide opportunities for the region's CARE communities to network and come together to share ideas and lessons learned. This would offer the kind of engagement that is so useful and it often in short supply at the annual meetings. Certainly, there is a need for more funding and support by the administration – we are more than willing to promote the program and to demonstrate its many benefits to environmental justice communities.

b. We want to keep in touch and learn about the work that you do after your grant with CARE. Would it be okay for someone from the headquarters CARE team to contact you in the future to talk about how your work is progressing?
We are more than happy to provide additional information and feedback.

c. Would you be willing to be interviewed for a more in depth case study?
Yes.

APPENDIX I

I-A

Air Quality Monitoring in Holyoke, Massachusetts
March-June, 2008
NESCAUM, EPA & the Community Environmental Health Coalition

Abstract: The first stage of air quality monitoring in Holyoke, MA concluded at the end of June. Air sampling of Black Carbon, a major component of diesel exhaust, was done at a location on Main St. to obtain the current background level of diesel exhaust. The study was requested by the EPA funded CARE grantee, Nuestras Raices. The study was designed by EPA staff with monitor placement and analysis conducted by Northeast States for Coordinated Air Use Management (NESCAUM). Results were compared to three other Black Carbon monitoring sites in Massachusetts operating during the same time period, although the data is still preliminary. Boston's North End demonstrated slightly higher levels of Black Carbon than both Springfield and Holyoke which were both similar and greater than Boston's Roxbury's levels. Using California's cancer health benchmark for comparison and acknowledging that black carbon monitoring is sampling just a fraction of diesel exhaust particulate matter, the levels of black carbon at all four sites were well over a 100 in a million risk, which is a prediction that if one million people were exposed to this inhalation level over their lifetimes, it may lead to an additional 100 cases of cancer.

Air Quality Monitoring in Holyoke, MA

Monitoring of Black Carbon (BC) was conducted from March to June on North Main St. using a direct read aetholometer as part of technical assistance to the EPA CARE grantee, Nuestras Raices. The study, designed by EPA staff, was to address the question of what impacts on diesel emissions will occur with the operations of the proposed waste transfer facility in Holyoke. The pre-operations portion of the monitoring was completed in late June. The monitor placement and analysis was conducted by NESCAUM with the equipment supplied by EPA. MA DEP was notified of the monitoring location and MA DEP provided BC monitoring data of the same time period from their Springfield location.

Relationship of Black Carbon (BC) Monitoring to Diesel Emissions

There are several methods to measure particulate matter (PM) emissions associated with motor vehicle traffic, primarily diesel truck traffic. Black carbon is just a fraction of traffic related particles. Measurement of particles is complicated by relating what portion of the sample is from diesel truck traffic. Black carbon is more strongly correlated with traffic related carbon rich pollutants, such as from diesel truck emissions.

Analysis of BC can distinguish between BC from wood smoke and industrial emissions, such as diesel traffic. Therefore, although there is no specific monitoring device for diesel emissions, Black Carbon is viewed as the most reliable measurement related to diesel traffic.

Relationship of BC to Diesel Emissions Health Benchmarks

Most of the toxicological information for diesel health effects is from studies using exposures to the full diesel emissions since it is technically difficult to impossible to sort exposures by just diesel black carbon particles. Therefore, there is no health benchmark established for pure black carbon. The health benchmarks set for diesel emissions is for a mixture of pollutants, much like

the cancer classification for environmental tobacco smoke which is a complex mixture. The black carbon particle does carry on it both the metallic and volatile organic chemicals (VOCs) although BC is a fraction of the diesel emissions that produces the toxic effect which is used to establish the health benchmark.

Diesel Emissions Health Benchmarks

Health benchmarks are generally established to be protective of sensitive populations for a lifetime of exposure for different health end points, such as cancer and noncancer health effects. EPA has established only one type of benchmark for diesel emissions; the noncancer health benchmark, call the Reference Concentration (RfC). The Reference Concentration for inhalation exposure to diesel emissions is 5 ug/m3, a concentration below which is not expected to have health impacts. Although EPA and MA DEP both have not established levels to be protective of the cancer health impacts of diesel emissions, both EPA's Office of Air and the MA DEP utilize the cancer health benchmark set by the state of California. The California Health Assessment of Diesel Exhaust is a comprehensive document that summarized the health effects of diesel and established a unit risk factor for lung cancer at 3 additional cancers per 10,000 people. It is generally accepted to keep people's risk below a 1 in a million risk, which for diesel exhaust is estimated to be at the 0.0033ug/m3 concentration for diesel exhaust. Since the majority of the US population is exposed to over this level of diesel exhaust, a range of risk levels and comparisons are provided. The risk level for 100 in a million risk, an estimated 100 additional cancer cases over a lifetime exposure of 1 million people, is 0.33 ug/m3 of diesel emissions.

Health Effects Related to Diesel and Black Carbon Emissions

It is well documented that pollution associated with traffic emissions is highly correlated with both respiratory and cardiovascular health effects with diesel exhaust making a major contribution to these health problems. Diesel engines are the third largest man-made source of fine particles in New England. Many of these fine particles are composed of a core of carbon coated with metals and volatile organic chemicals. Fine particles pose a significant health risk because they pass through the body's defenses in the nose and throat to enter the lung. These particles damage the lungs and case premature deaths, it is estimated that fine particles are responsible for 15,000 premature deaths each year nationwide. Fine particles can aggravate asthma and bronchitis and people with preexisting heart or lung disease or asthma are most sensitive to the health impacts. The elderly and children are also at greater risk. In addition, diesel exhaust is likely to cause cancer in humans and is also associated with other acute and chronic health effects.

A recent study (Suglia et al.2008, Envir. Health Perspect.) on urban women, with an emphasis on Hispanic women in Boston, concluded that exposure to traffic related black carbon decreased lung function. Other studies demonstrate association of decreased growth and lung function in children and increased risk of asthma and bronchitis among children with exposure to black carbon from traffic sources.

Black Carbon Monitoring Results in Holyoke

The 1 hr real time measurements for black carbon from March 24 to June 5 on Main St in Holyoke, MA are:

Mean- 0.82 ug/m3
Median- 0.61 ug/m3
Standard deviation- 0.71

95% Confidence interval- 0.039
Minimum- 0.04
Maximum- 6.84

Since black carbon is just a fraction of the total diesel emissions related particles, one then should multiple the BC portion by the estimated ratio to get an estimation of the total diesel emission particles. If one compares just the BC amount to the diesel health benchmark, one would get a lower estimate of the health impacts. Therefore to obtain a better estimate of the health impacts, one uses the range of ratios found for the relationship of black carbon to diesel exhaust emissions particulate mater, the BC average would be multiplied by either the 1.3 to 4 ratios. The average estimated diesel exhaust emission range for Holyoke is estimated to be in the range of

BC 0.82 ug/m3 times 1.3 ~ 1.07 ug/m3 to
BC 0.82 ug/m3 times 4 ~ 3.28ug/m3.

The Health Benchmark from California Off ice of Environmental Health Hazard Assessment estimated at 300 in a million, which is an estimation of 300 excess cases of cancer in over 1 million exposed over a lifetime to the inhalation route, is 1 ug/m3. This 300 in a million benchmark cancer risk level is at the lower end of the range (1.07 to 3.28 ug/m3) estimated for diesel pm in Holyoke.

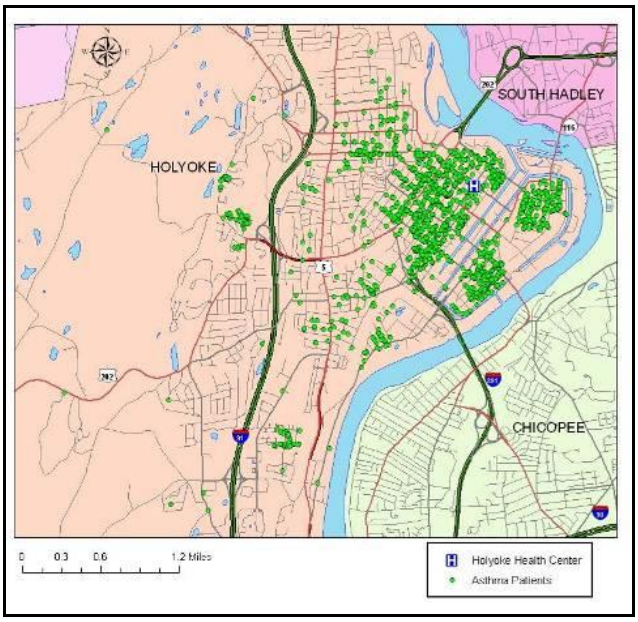
Results Related to Other Areas

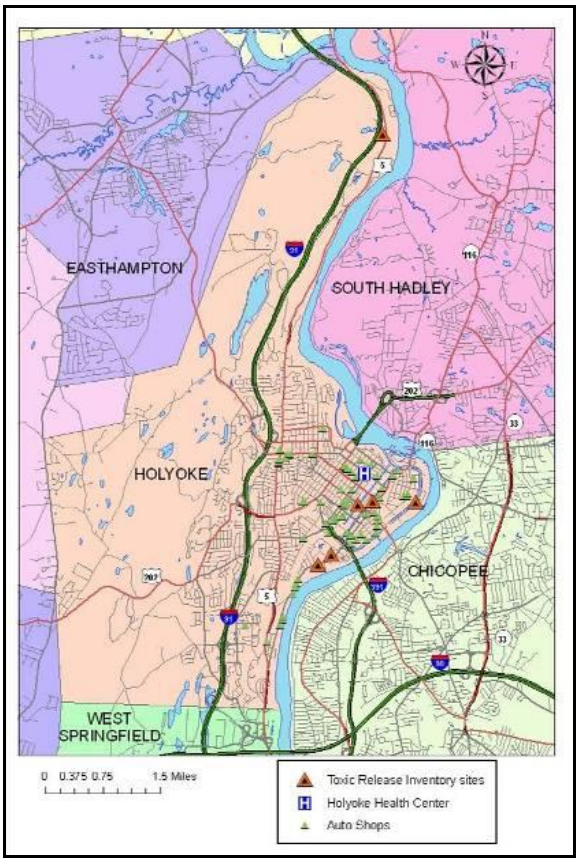
In 2000 in California, prior to national and state reduction activities related to diesel emissions such as diesel retrofits and use of ultralow sulfur fuel, the 1.8 ug/m3 diesel pm level in California was estimated to produce an additional 540 excess cancer cases due to the level of diesel exhaust particle matter which is currently less than the estimated diesel pm level in Holyoke based on the Black Carbon monitoring data.

There are four sites in Massachusetts where Black Carbon was being monitored during the same time period and a comparison has been done although the BC data from the MADEP sites is preliminary. Boston's North End has the highest level with Boston's Roxbury the lowest. Both Springfield and Holyoke's levels are very similar although all four sites are not very different from one another. All four sites in the state have estimated average diesel emissions pm levels that are over the level that is estimated to produce 550 excess cancer cases if a million people were exposed to the inhalation level over a lifetime.

I-B

Holyoke's Downtown Districts Asthma Patients by Household, 2006

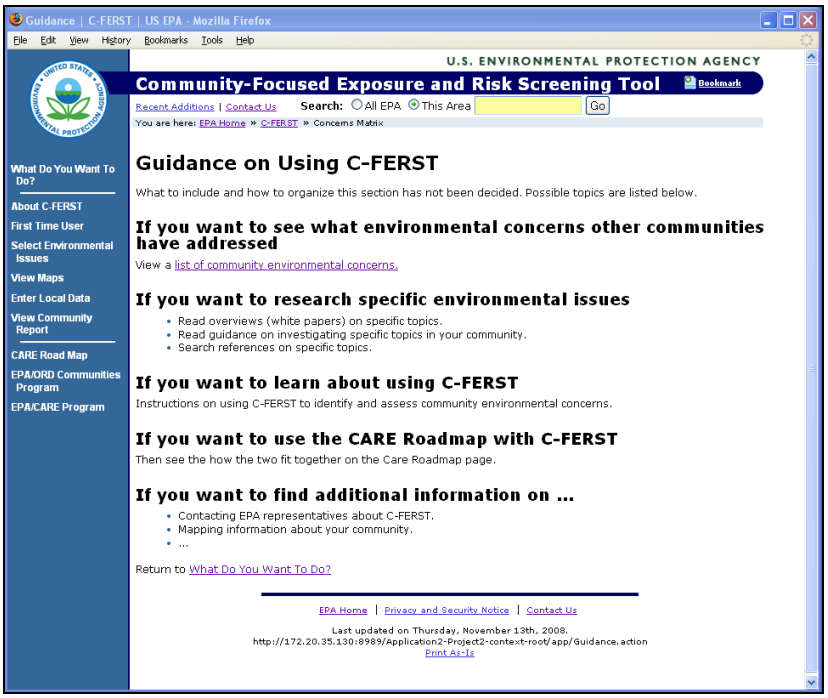


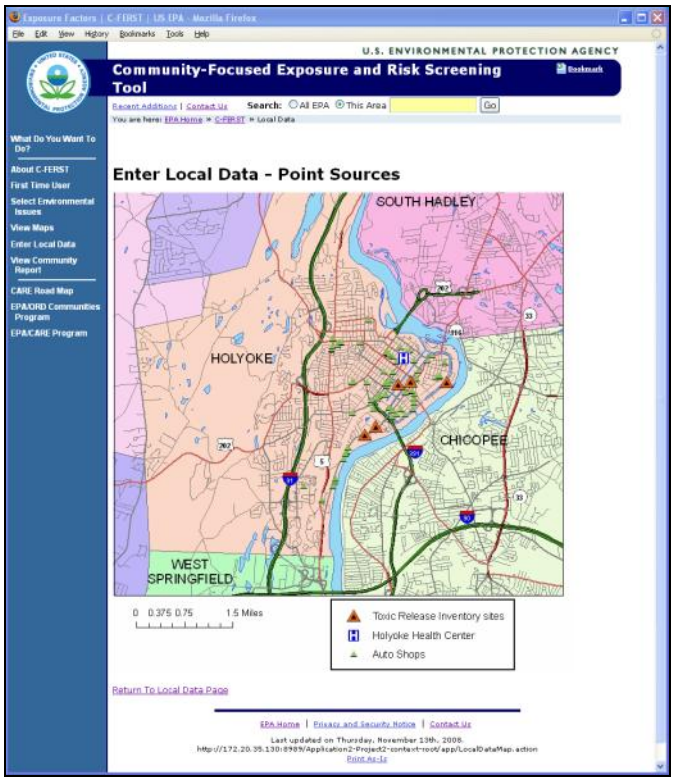


EPA TRI Sites and Auto Repair Shops

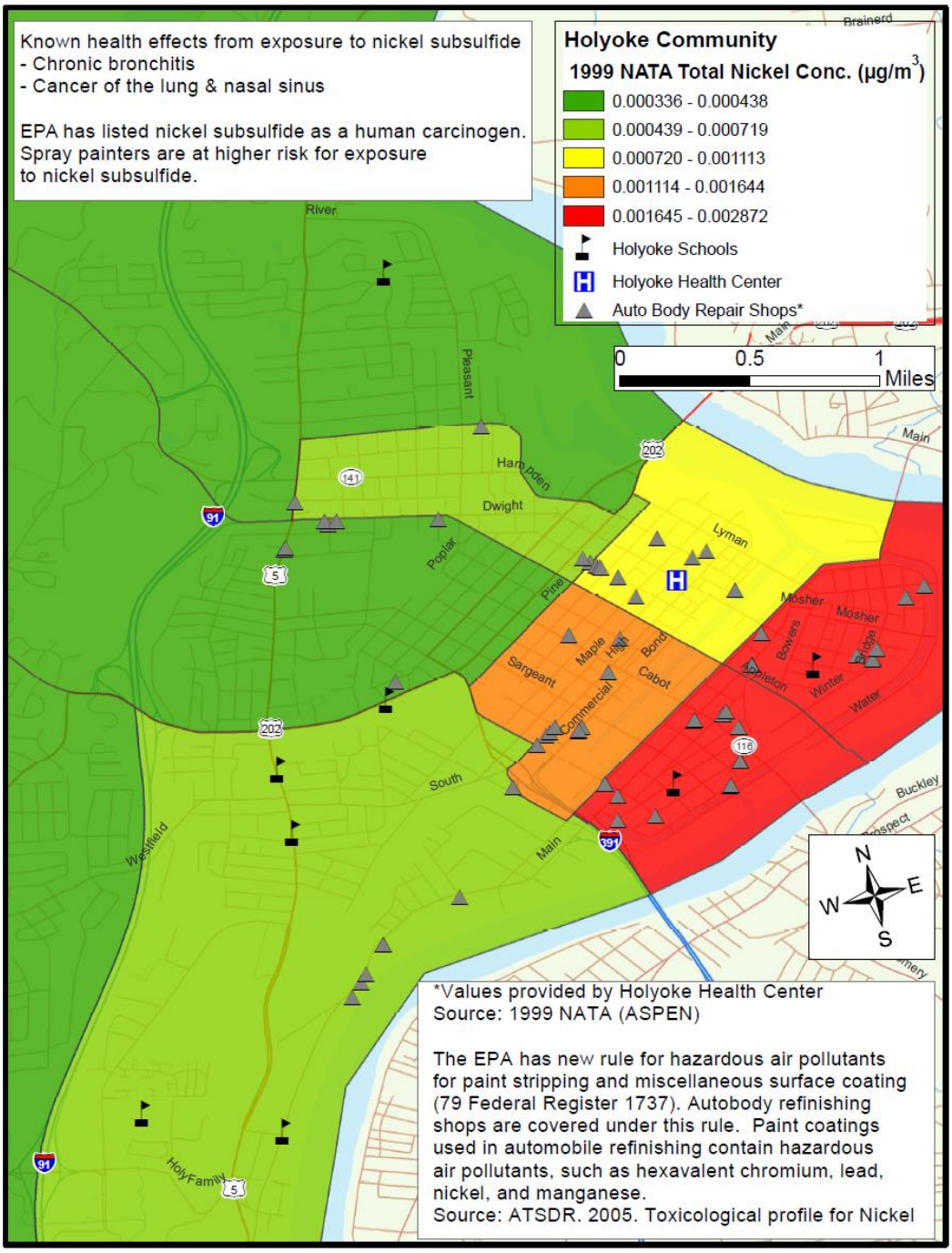
I-C

ORD's C-FERST Initiative selects Holyoke EPA CARE Project as model for community-based environmental health collaboration

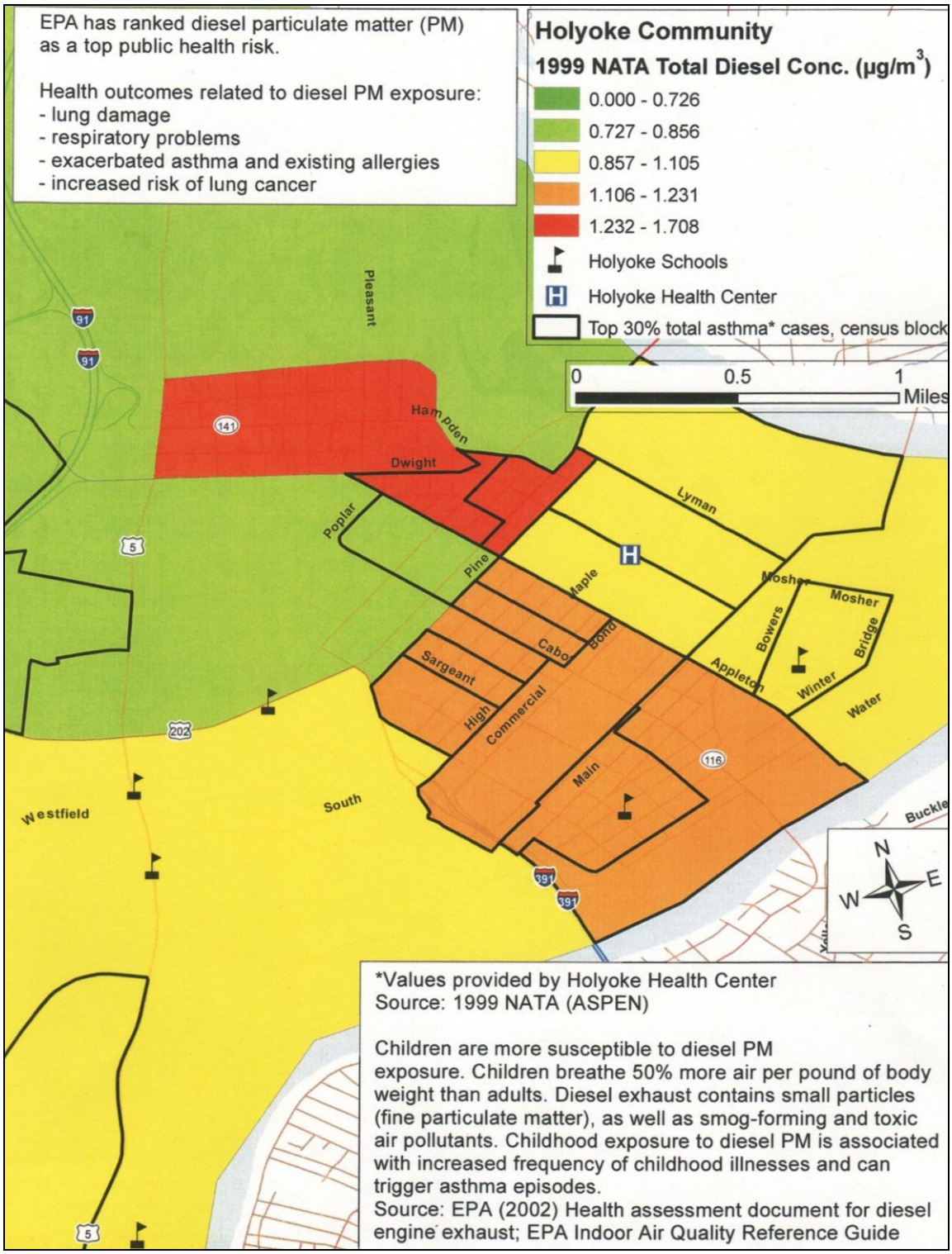




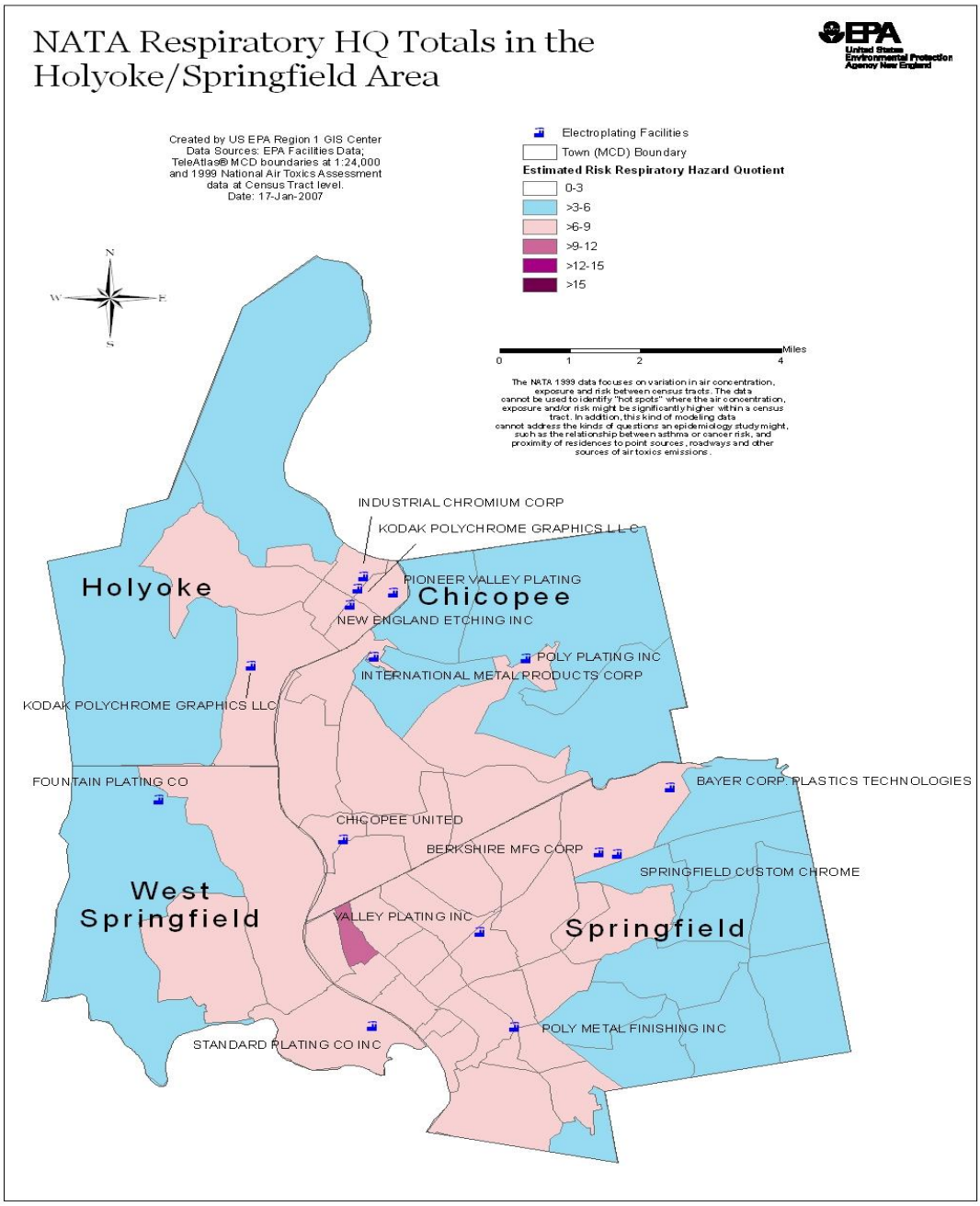
I-D


Known health effects from exposure to nickel subsulfide
- Chronic bronchitis
- Cancer of the lung & nasal sinus
EPA has listed nickel subsulfide as a human carcinogen.
Spray painters are at higher risk for exposure
to nickel subsulfide.
Holyoke Community
1999 NATA Total Nickel Conc. (µg/m3)
0.000336 - 0.000438
0.000439 - 0.000719
0.000720 - 0.001113
0.001114 - 0.001644
0.001645 - 0.002872
Holyoke Schools
Holyoke Health Center
Auto Body Repair Shops*
0 0.5 1 Miles
N
E
S
W
*Values provided by Holyoke Health Center
Source: 1999 NATA (ASPEN)
The EPA has new rule for hazardous air pollutants for paint stripping and miscellaneous surface coating (79 Federal Register 1737). Autobody refinishing shops are covered under this rule. Paint coatings used in automobile refinishing contain hazardous air pollutants, such as hexavalent chromium, lead, nickel, and manganese.
Source: ATSDR. 2005. Toxicological profile for Nickel
River
Pleasant
Hampden
Dwight
Poplar
Pine
Lyman
Mosher
Bowers
Appleton
Winter
Water
Sargeant
Maple
High
Bond
Cabot
Commercial
South
Main
Westfield
Holy Family
Buckley
Brainerd

I-E


EPA has ranked diesel particulate matter (PM) as a top public health risk.
Health outcomes related to diesel PM exposure:
- lung damage
- respiratory problems
- exacerbated asthma and existing allergies
- increased risk of lung cancer
Holyoke Community
1999 NATA Total Diesel Conc. (µg/m3)
0.000 - 0.726
0.727 - 0.856
0.857 - 1.105
1.106 - 1.231
1.232 - 1.708
Holyoke Schools
Holyoke Health Center
Top 30% total asthma* cases, census block
0
0.5
1
Miles
Pleasant
Hampden
Dwight
Poplar
Pine
Maple
Lyman
Mosher
Bowers
Bridge
Appleton
Winter
Water
Cabot
Bond
Sargeant
High
Commercial
Main
Westfield
South
N
E
S
W
*Values provided by Holyoke Health Center
Source: 1999 NATA (ASPEN)
Children are more susceptible to diesel PM exposure. Children breathe 50% more air per pound of body weight than adults. Diesel exhaust contains small particles (fine particulate matter), as well as smog-forming and toxic air pollutants. Childhood exposure to diesel PM is associated with increased frequency of childhood illnesses and can trigger asthma episodes.
Source: EPA (2002) Health assessment document for diesel engine exhaust; EPA Indoor Air Quality Reference Guide

I-F


NATA Respiratory HQ Totals in the Holyoke/Springfield Area
EPA
United States Environmental Protection Agency New England
Created by US EPA Region 1 GIS Center
Data Sources: EPA Facilities Data;
TeleAtlas® MCD boundaries at 1:24,000
and 1999 National Air Toxics Assessment
data at Census Tract level.
Date: 17-Jan-2007
Electroplating Facilities
Town (MCD) Boundary
Estimated Risk Respiratory Hazard Quotient
0-3
>3-6
>6-9
>9-12
>12-15
>15
Miles
0
1
2
4
The NATA 1999 data focuses on variation in air concentration, exposure and risk between census tracts. The data cannot be used to identify "hot spots" where the air concentration, exposure and/or risk might be significantly higher within a census tract. In addition, this kind of modeling data cannot address the kinds of questions an epidemiology study might, such as the relationship between asthma or cancer risk, and proximity of residences to point sources, roadways and other sources of air toxics emissions.
N
W
E
S
INDUSTRIAL CHROMIUM CORP
KODAK POLYCHROME GRAPHICS LLC
PIONEER VALLEY PLATING
Holyoke
Chicopee
NEW ENGLAND ETCHING INC
POLY PLATING INC
INTERNATIONAL METAL PRODUCTS CORP
KODAK POLYCHROME GRAPHICS LLC
FOUNTAIN PLATING CO
BAYER CORP. PLASTICS TECHNOLOGIES
CHICOPEE UNITED
BERKSHIRE MFG CORP
SPRINGFIELD CUSTOM CHROME
West Springfield
VALLEY PLATING INC
Springfield
POLY METAL FINISHING INC
STANDARD PLATING CO INC