E3: ECONOMY · ENERGY · ENVIRONMENT

SUPPORTING MANUFACTURING LEADERSHIP THROUGH SUSTAINABILITY

Tonawanda
E3 Sustainability Initiative
FINAL CHARTER

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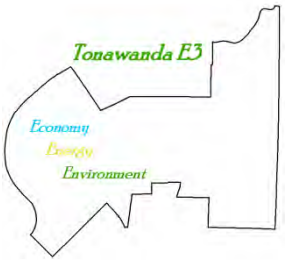

I. Introduction

E3—Economy, Energy, and Environment—is a coordinated federal, state and local voluntary technical assistance initiative that helps communities work in conjunction with their manufacturing base to adapt and thrive in a new business era focused on sustainability while using green technology.

Joining forces with the local community, E3 provides manufacturers with customized, hands-on assessments of production processes to reduce energy consumption, minimize their carbon footprint, prevent pollution, increase safety and productivity, and drive innovation. It includes but is not limited to assistance with the implementation of Lean-Clean-Green projects; employee training in green skills; and the identification of low interest loan opportunities. In summary, E3:

- Reduces environmental impacts while regaining a competitive advantage;
- Promotes sustainable manufacturing and growth through innovative technology;
- Improves the regional economy by retaining jobs in companies that are better positioned for global competition; and
- Helps foster a smarter, safer and more efficient green workforce with attention to worker safety.

All projects pursued under E3 are focused on achieving the following five goals:

1. Increased energy efficiency and sustainability;
2. The provision of valuable technical training, jobs and skills training, assessments and support;
3. Improved profitability of the local economy;
4. Enabling growth; and
5. Creating and retaining manufacturing jobs.

As a result, E3 reduces environmental impacts while maintaining and increasing competitive advantages; promotes sustainable manufacturing and growth through innovative technology; improves the regional economy by retaining jobs in companies that are better positioned for global competition; and helps foster a smarter, safer and more efficient green workforce with attention to worker safety.

II. Town of Tonawanda E3 Sustainability Initiative

Each E3 Initiative is unique. The Town of Tonawanda E3 Sustainability Initiative (Tonawanda E3 Initiative) will tailor the E3 projects to meet the environmental, energy and economic needs of the Tonawanda community. In particular, this initiative will develop and maintain a special focus on air quality issues in the initial phases of the projects.

This Tonawanda E3 Sustainability Initiative Charter defines and describes the details of the Tonawanda E3 Initiative, including the goals, background, participant capacities and list of potential E3 projects.

A. Goals

The Tonawanda community has a rich economic history and is one of the most heavily industrialized areas in western New York. Multiple industrial facilities, trucking depots and two major interstate highways support the local economy but also contribute to a variety of sources of pollution. An air quality study completed by the New York State Department of Environmental Conservation (NYSDEC) in 2009 showed elevated levels of five hazardous air pollutants and strongly supported actions to further reduce pollution in the community. The community is interested in driving innovation and using green technology to improve environmental quality, maintain and increase jobs, and foster economic growth. Based on this vision, the Tonawanda E3 Initiative is focused on achieving the following four mutually supportive goals:

1. Improve overall air and environmental quality for the Tonawanda community and workforce.

2. Create a permanent Tonawanda sustainability initiative, including an education and training program about sustainability and competitiveness practices, new technologies and innovation. The Town will solicit the business and industrial sector and local leaders in Tonawanda for assistance. The program would set up permanent data measurements and reporting mechanisms.

3. Harness existing federal, state and local expertise and resources to enhance sustainability and competitiveness in local and regional economies through a comprehensive package of technical resources.

4. Spur technology transfer, job growth, and innovation through sustainability and bring together new sources of technical assistance, knowledge, technology, expertise and labor from federal, state and local resources.

B. Tonawanda E3 Initiative Background

The following is a summary of the history of E3 and the Tonawanda community's concerns anticipated to be addressed by specific projects under the Tonawanda E3 Initiative.

1. Background of E3

The Economy, Energy and Environment (E3) program is an interagency (U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Labor, U.S. Department of Commerce, U.S. Small Business Administration) effort to provide a model of collaboration among local, regional and Federal agencies, utilities, manufacturers and other interested organizations in the community to

- Invest in the local communities
- Address energy and sustainability challenges
- Provide valuable technical training and assessments, and
- Enable economic growth.

The E3 business model will provide a community-based approach to leveraging a wide range of technical resources, services, and knowledge from local, state and federal agencies to reduce energy consumption, conserve natural resources, minimize multi-media environmental impacts and strengthen economic savings. Specifically, E3's *Lean-Clean-Green offering* provides significant value to a manufacturer by assessing various aspects of its business in order to help it establish pathways to being competitive and sustainable in the new "green" world.

In the spring of 2011, EPA, NYSDEC, the Clean Air Coalition of Western New York (CACWNY) and the Town of Tonawanda hosted several meetings of federal, state, local and regional organizations to discuss implementation of an E3 Initiative in Tonawanda associated with air quality concerns. After these meetings, the group was expanded to include additional partners where strategies were discussed and outlines sketched to begin implementing an E3 Initiative in the Town of Tonawanda, New York.

2. Town of Tonawanda Community

The Town of Tonawanda is located in the County of Erie, State of New York. It has a population of 73,567 according to the 2010 US Census. It is located along the Niagara River and bounded by the City of Buffalo to the south and the City of Tonawanda to the north. The Town of Tonawanda has one of the highest densities of major sources of air pollution and is one of the most heavily industrialized areas in Western New York. The two-mile zone around the western section of Tonawanda is home to 53 facilities regulated under the Clean Air Act, including: a foundry coke plant, two petroleum distribution terminals, multiple chemical bulk storage terminals, multiple trucking depots, a coal-fired power plant, a tire manufacturer and a cellulose sponge manufacturing facility. Two major interstate highways bisect the community, I-190 (Niagara Section of the Thruway) and I-290 (Youngmann Memorial Highway). A toll booth is located on I-190 prior to crossing the Grand Island Bridge in the northern direction and traffic congestion is common at this location.

The year 2000 census tracts in and around the industrial corridor have a mean household income of $16,013, and nearly 40% of the community lives below the federal poverty line. This area has been designated as an environmental justice area by the U.S. Environmental

Protection Agency. Specific details regarding environmental issues in the Tonawanda community and NYSDEC's air quality study are contained in Appendices A and B.

C. Public and Private Sector Organizations Participating in the Tonawanda E3 Initiative

1. Town of Tonawanda (TOT) goals for this project are to maintain focus and provide balance among all partners; to promote the needs of the residents and workforce in the Town of Tonawanda; to assist in coordination, general project management, process transparency, promotion of the Tonawanda E3 Initiative and communication.

2. Town of Tonawanda Development Corporation (TTDC) goals for this project are to leverage existing relationships with Tonawanda businesses and industries and to introduce them to Tonawanda E3 Initiative and partners; to tie together existing sustainable development programs within industry and link them to the Tonawanda E3.

3. Town of Tonawanda Commission for the Conservation of the Environment (TTCCE) goals for this project are to bring advisory guidance to the Town of Tonawanda about pollution prevention and grant opportunities specific to air quality initiatives.

4. The Clean Air Coalition of Western New York (CACWNY) is partnered with the Center for Health, Environment and Justice (CHEJ). CACWNY is a grassroots, membership-based environmental health and justice organization. CACWNY protects the rights of Western New York residents to breathe clean air and live, work, and play in a healthy environment. To protect that right, the Coalition runs campaigns, develops community leaders and conducts community-based research. CACWNY's goals for this project are to ensure transparency, assist in the development of projects to reduce hazardous air pollutants, and to ensure the voices of residents most impacted by pollution are included.

5. The New York State Department of Environmental Conservation (NYSDEC) implements New York State's environmental laws and regulations and encourages pollution prevention initiatives across the state. Through the Environmental Protection Fund, it provides financial support for and oversight of the New York State Pollution Prevention Institute. It also works collaboratively with the New York State Pollution Prevention Coordinating Council, which includes NYSDEC, Empire State Development, the New York State Environmental Facilities Corporation (EFC) and the New York State Energy Research and Development Authority (NYSERDA), to identify potential sources of funding for the implementation of pollution prevention projects. As funds are available, NYSDEC will continue to operate two air quality monitoring stations and a continuous benzene monitor in the Tonawanda community. NYSDEC's goal for the Tonawanda E3 Initiative is to improve and protect Tonawanda's environment, prevent pollution, and enhance the health, safety and welfare of the people of Tonawanda and their overall economic and social well-being.

6. New York State Research and Development Authority (NYSERDA), a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise and funding to help New Yorkers increase energy efficiency, save money, use

renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals will work to protect our environment and create clean-energy jobs by identifying available technical and financial resources for the implementation of energy efficiency projects**.**

7. New York State Pollution Prevention Institute (NYSP2I) at Rochester Institute of Technology is partnered with Insyte Consulting, the Golisano Institute for Sustainability and the Center for Integrated Manufacturing Studies (GIS-CIMS). NYSP2I fosters the transformation and development of sustainable businesses and organizations in New York State in a collaborative program committed to making the State a leader in environmental stewardship. The objectives of this collaboration include (a) **Scoping** - initial contact and discussion with a company, and the identification of improvement opportunities; (b) **Assessment** - assistance with the development of a baseline, and the development of product and process improvement recommendations, including cost and engineering feasibility analyses; and (c) **Implementation** - technical assistance in support of the implementation of recommended solutions, including annual follow-up to track critical environmental and cost metrics.

8. Western New York Council on Occupational Safety and Health (WNYCOSH) is interested in promoting and advocating for worker health and safety through training, education, and advocacy. WNYCOSH goals for this project include identifying and reducing worker exposure.

9. New York State Environmental Facilities Corporation (NYSEFC) goal is to complete emissions inventories for businesses and provide free, confidential technical assistance to small-business owners to assist compliance of air emission requirements.

10. Insyte Consulting, the Manufacturing Extension Partnership Center in western New York, in partnership with the NYSP2I, The Buffalo and Erie County Workforce Investment Board (WIB) and Buffalo State College Small Business Development Center (SBDC), will conduct outreach to the companies; lean, clean and energy efficiency assessments; technical assistance and training to Tonawanda's manufacturers as part of its goal to reduce costs, save energy, and improve productivity for its clients. Insyte's technical assistance includes, but is not limited to, lean planning and implementation, engineering process improvement projects, strategic planning and product/process innovation services. Insyte will also seek to expand partnerships and secure funding to ensure a successful E3 project in Tonawanda.

11. Buffalo and Erie County Workforce Investment Board, Inc. (WIB), established under the provisions of the Workforce Investment Act of 1998, is charged with developing, coordinating and overseeing publicly funded workforce development/training initiatives. A key goal of the Tonawanda E3 project is to foster a smarter and more efficient green workforce. In this regard the WIB can assist in the development of workforce training programs for the targeted manufacturing firms. Working through their One Stop Centers, they can provide recruitment, screening, and referral services to help employers hire skilled workers for E3 related job opportunities.

12. Buffalo State College Small Business Development Center (SBDC) will provide one to one confidential business counseling to businesses that need assistance in identifying sources of funding and preparing a loan application and/or a business plan that is required by a lender or an investor while involved in the E3 initiative.

13. The Industrial Assessment Center at Syracuse University has the mission to reduce energy intensity and carbon emissions among manufacturers in New York State. This is part of their larger mission to transform the way U.S. industry uses energy by supporting cost-shared research and development that provides solutions to the top energy challenges facing industry today. The IAC, in conjunction with the DOE's Industrial Technology Program also seeks to promote a sustained corporate culture of energy efficiency and carbon management within industry. To align with its mission, ITP has embraced a goal to drive a 25% reduction in industrial energy intensity by 2017, guided by the Energy Policy Act of 2005. The strategy also calls for an 18% reduction in U.S. carbon intensity by 2012, guided by the Administration's National Goal to Reduce Emissions Intensity.

14. National Grid supports New York State's goal to reduce electric use projected in 2015 by 15%. This is in direct correlation with the Energy Efficiency Portfolio Standard (EEPS) of New York. National Grid offers energy efficiency programs that provide long-term economic and environmental benefits for the Tonawanda area. The electric retrofit programs provide technical assistance and incentives to municipal, commercial and industrial facilities to encourage the installation of energy efficient measures. National Grid's objective is to present innovative energy efficient solutions, resulting in reduced energy use for the end-user, through the existing electric prescriptive and custom incentive programs.

15. U.S. EPA Pollution Prevention, Green Suppliers Network and Climate Leaders Programs. EPA's goals are to reduce quantifiable environmental impacts, to motivate manufacturers to implement sustainable practices, and to successfully weave together the activities of the five federal E3 partner agencies. As available, EPA will provide funds to support Tonawanda E3 Initiative activities in Tonawanda. In addition, EPA will provide administrative and technical support for the Tonawanda E3 Initiative program and will provide Train the Trainer services on the Carbon Footprint tool and other tools that support the Tonawanda E3 Initiative projects.

16. U.S. Department of Energy (DOE), Save Energy Now Leaders Program. Energy Efficiency and Renewable Energy. The goal of the DOE is to reduce energy intensity and carbon emissions among manufacturers in Tonawanda. This is part of their larger mission to transform the way U.S. industry uses energy by supporting cost-shared research and development that provides solutions to the top energy challenges facing industry today. IAC and ITP also seek to promote a sustained corporate culture of energy efficiency and carbon management within industry. To align with its mission, ITP has embraced a goal to drive a 25% reduction in industrial energy intensity by 2017, guided by the Energy Policy Act of 2005. The strategy also calls for an 18% reduction in

U.S. carbon intensity by 2012, guided by the Administration's National Goal to Reduce Emissions Intensity. As available, DOE will provide additional funds to support E3 activities in Tonawanda.

17. U.S. Department of Labor (DOL), Employment and Training Administration plans to help engage the state and/ or local workforce investment system in E3 Projects in order to assist E3-participating employers in meeting their workforce needs through activities such as connecting employers to local training programs and providing recruitment, screening, and referral services to help employers hire skilled workers; and to help engage the state and/or local workforce investment system to help dislocated workers anticipate and receive training for opportunities arising in areas with high E3 implementation, particularly through listing E3-related job opportunities in the appropriate state labor exchange system.

18. U.S. Department of Commerce (DOC), Manufacturing Extension Partnership (MEP) DOC's MEP program is administered by the National Institute of Standard and Technology (NIST). Through the on-the-ground efforts of its partners (Insyte Consulting in Western New York), the NIST MEP's mission is to improve the competitiveness of US based manufacturing through increased cost competitiveness and top line growth. As available, NIST MEP will provide administrative and technical support for the Tonawanda E3 Initiative program. Through programmatic investments in Insyte Consulting, NIST MEP provides direct technical assistance to manufacturers in this region.

19. Small Business Administration (SBA). SBA's goal is to provide assistance to Tonawanda small businesses to help them expand and improve. SBA will help design and implement through the local SBDCs a training and assistance program for E3 clients that will provide information about SBA services including SBA guaranteed loan program and and assistance in preparing applications to access appropriate loan funds.

D. Recommended Actions

It is recommended that the Tonawanda E3 Initiative participants:

- Use the E3 name, logo, and other branding materials in accordance with federal E3 guidelines.
- Coordinate activities with the federal E3 program on a regular basis.
- Continue communication throughout project development.
- Sustain communication between Tonawanda E3 Initiative participants and the community throughout E3 project development and implementation in order to ensure effective collaboration and maintain transparency.
- To the extent possible provide metrics and data consistent with federal E3 data metrics. Appropriate metrics should be included in the individual project metrics as defined by the companies and the relevant technical service providers. See list of federal E3 metrics in Appendix C.

APPENDIX A: Summary of Environmental Issues in the Town of Tonawanda

1. NYSDEC's Tonawanda Air Quality Study

In July 2007, NYSDEC's Division of Air Resources initiated a year-long "Tonawanda Air Quality Study" to measure the concentration of air pollutants in Tonawanda and to evaluate their potential risk to public health. The study was motivated by a number of factors including complaints received by NYSDEC from the community regarding odors and an overall compromised quality of life, elevated ambient benzene concentrations sampled by a local community group and NYSDEC, and the potential for the study to assess the effectiveness of current federal and state hazardous air pollution reduction strategies.

The study evaluated levels of 15 priority urban hazardous air pollutants (HAPs) identified in the Clean Air Act, as well as 41 additional HAPs and several criteria air pollutants, including fine particulate matter ($PM_{2.5}$). Due to limitations of sampling and analysis, however, a number of chemicals known to be released by facilities in the area were not measured in the study. Such chemicals include hydrogen fluoride, hydrogen chloride, ammonia and sulfuric acid.

The air monitoring allowed NYSDEC to calculate annual average ambient air concentrations, characterize the risk from specific air pollutants in the community, and evaluate the sources of air pollution with wind directional information. The results showed that during the study period five hazardous air pollutants in Tonawanda (carbon tetrachloride, benzene, formaldehyde, 1,3 butadiene, and acetaldehyde) exceeded the cancer risk screening level of one-in-one million, one (acrolein) exceeded the non-cancer health based value, and certain neighborhoods exceeded a 100-in-one million cancer risk level.

NYSDEC prepared a comprehensive inventory to identify the sources of these elevated risk levels. All of the HAPs listed above, with the exception of carbon tetrachloride, are fossil fuel combustion by-products. Emissions of 1,3-butadiene, acetaldehyde, acrolein, benzene, and formaldehyde are associated with the combustion of fuel by motor vehicles and the combustion of fuels for electricity, industrial processes, and residential space heating. Those HAPs are also used as chemical intermediates in the production of plastics, organic chemicals, solvents, and other consumer products. Three of the HAPs (acetaldehyde, acrolein, and formaldehyde) are also formed during the breakdown of other organic chemicals within the atmosphere by a process known as photochemical oxidation (which is the breakdown by sunlight and reactions with ozone, hydroxyl, and nitrate radicals). For example, the formation of acrolein and formaldehyde is associated with the photochemical oxidation of 1, 3-butadiene.

NYSDEC held a series of public meetings in the Tonawanda community to present the study and its findings. The 2009 final report for the study strongly supported actions to further reduce the risk of exposure to toxic air pollutants in the community. The Executive Summary of this report can be found in Appendix B, and on the NYSDEC website http://www.dec.ny.gov/.

2. Actions Following the Tonawanda Air Quality Study

Studies published by the NYS Department of Health (DOH) in 2001 and 2004 found elevated levels of cancers in Tonawanda. The results of the DEC Tonawanda Air Quality Study and community concerns related to airborne contamination and health outcomes in the Tonawanda area prompted DOH to conduct a health outcomes review in the Tonawanda community in 2010. DOH anticipates the health outcomes review will take two years to complete. Residents have submitted complaint forms to DOH documenting a variety of acute health symptoms.

U.S. EPA and NYSDEC have increased compliance inspections of air pollution sources within the study community as well as sources outside of the study area that may impact the Tonawanda community. Due to a series of federal and state regulatory actions in Tonawanda, as well as a reduction in production at one regulated facility, benzene levels have dropped significantly - up to 82% at one of the air monitoring stations. While levels of all six chemicals detected at elevated levels in the study remain above the cancer and non-cancer risk screening levels, only the levels of benzene and 1-3 butadiene remain above statewide average ambient air levels.

Overall, air quality monitoring in the community indicates that while individual point and mobile sources may be operating within limits established by U.S.EPA and NYSDEC, cumulative emissions from industrial and commercial facilities, combined with emissions from vehicles and the transport of pollutants from nearby Buffalo, have resulted in regional concentrations of pollutants that pose elevated levels of risk to the public. Therefore, a coordinated and collaborative effort of industry, community and government agencies is essential to improve environmental quality and ensure the ongoing economic vitality of the community.

3. Toxics Release Inventory

The Toxics Release Inventorty (“TRI”) program is a database that lists information regarding the release, management and disposal of certain chemicals by industries and other facilities. The 2008 TRI index reported 1.2 million pounds of toxic chemicals were emitted from 13 facilities in Tonawanda. For instance, highlighted point source releases are as follows:

- 13,000 pounds of sulfuric acid
- 44,000 pounds of hydrochloric acid
- 57,000 pounds of hydrogen fluoride
- 347,000 pounds of carbon disulfide
- 202,621 pounds of methyl methacrylate
- 11,304 pounds of benzene
- 3,032 pounds of toluene

4. **Other Environmental Factors**
   Tonawanda is home to a number of former industrial sites with potential levels of contamination – otherwise known as “Brownfields”. A landfill that contains radioactive waste from the Manhattan Project is also located in the Town of Tonawanda

APPENDIX B:

Tonawanda Air Quality Study - NYSDEC 2009 Executive Summary

Final Report October 2009 - Executive Summary

In July 2007, the New York State Department of Environmental Conservation (NYSDEC) initiated a year-long community air quality monitoring study in the town of Tonawanda (Erie County) to measure the concentration of air contaminants within the community and to evaluate the potential risk to public health. The Tonawanda Community Air Quality Study (hereinafter referred to as Study) was motivated by a number of critical factors: first and foremost, complaints received by NYSDEC from the community regarding odors and an overall compromised quality of life; second, the elevated ambient benzene concentrations sampled by a local community group and the NYSDEC; and third, the Tonawanda industrial area represents an excellent opportunity to assess the effectiveness of the current federal and state hazardous air pollution reduction strategies.

To address these issues, NYSDEC conducted monitoring, modeling and an inhalation risk assessment to estimate the risk posed by ambient concentrations of hazardous air pollutants (HAPs). The Study design allowed for the identification of results which could be used for risk management decisions and selection of options to reduce exposure to HAPs in the Tonawanda community. The Study design and findings were presented through a series of public meetings within the community to seek input, hear concerns and answer questions from the public and all interested parties in attendance. The findings from the Study have already resulted in a number of actions by NYSDEC and USEPA to evaluate and address potential sources of benzene emissions in the Study area.

Four air quality monitors were installed in and around the community in reference to the prevailing wind direction from the southwest. One monitor at Beaver Island State Park (BISP) was sited to establish background measurements of air toxics upwind of the industrial sources. Three monitors were placed downwind of the industrial sources in the Study area: Grand Island Boulevard Industrial (GIBI), Brookside Terrace Residential Site (BTRS) and Sheridan Park Water Tower (SPWT). The monitors collected 24-hour average ambient air concentrations of 56 air toxic pollutants on a one-in-six day schedule. All four monitors collected hourly average concentrations of fine particulate matter ($PM_{2.5}$). Monitors placed at the BTRS site collected hourly average concentrations of sulfur dioxide (SO_2) and carbon monoxide (CO). A meteorological station was placed at the BISP site to assess the local meteorology for the Study area and for use in assessing the sources influencing the air monitoring concentrations.

The GIBI monitoring site found significantly elevated concentrations of benzene and formaldehyde when compared to other areas of New York. The evaluation for benzene indicated higher daily concentrations of benzene when the wind originated from the direction of the largest known point source, Tonawanda Coke Corporation. The BTRS monitor, downwind from the industrial sources, also indicated more of an influence from the industrial sources than contributions from mobile sources in the area. The results for

benzene at the other two ambient air quality monitors were similar to ambient air levels found in large urban areas such as New York City. The formaldehyde evaluation indicated that the measured concentrations were influenced by local area sources and mobile sources. The GIBI monitor reported the highest concentrations, much higher than the other study monitors and other monitors in the statewide network. The formaldehyde concentrations also appear to be influenced both by temperature and wind speed fluctuations with direct temperature correlations and an inverse wind speeds correlation.

A public health evaluation was conducted using NYSDEC derived health-based guideline concentrations and the results from the ambient air quality monitoring. The annual average concentration for five air toxics (1,3-butadiene, acetaldehyde, benzene, carbon tetrachloride, formaldehyde) exceeded the cancer risk screening level of one-in-one-million and one air toxic (acrolein) exceeded the non-cancer health-based comparison value.

A comprehensive inventory of sources for the Study area was prepared for use with two air dispersion models (Regional Air Impact Modeling Initiative (RAIMI) and AerMod) that are used by NYSDEC to evaluate the inhalation risk of exposure to HAPs from stationary and mobile sources. The predicted concentrations of the HAPs were modeled for the entire Study area and the results were compared to the monitored data and predictions from the 2002 National-scale Air Toxics Assessment (NATA).

The average ratios for ten air pollutants selected for the comparison of the RAIMI modeled predictions to the monitored concentrations were in close agreement (ranged from 0.58 to 1.25) across all four monitoring sites. However, an analysis of the site by site comparisons for benzene and formaldehyde revealed very poor agreement between the modeled and measured concentrations at the GIBI site.

The comparisons of the monitoring data to the 2002 NATA predictions indicated that the 2002 National Emission Inventory (NEI) used in the NATA model was fairly accurate for a number of HAPs. However, the NEI emissions inventory under reported acrolein emissions for the entire Tonawanda area and under reported 1,3-butadiene, benzene, ethylbenzene, formaldehyde, and propionaldehyde emissions for sources near the GIBI monitor. As a risk assessment screening tool designed to identify areas for further air pollution investigations, it would be preferable for the NATA modeled ambient concentrations to be similar to measured ambient concentrations for those air toxics that are identified as risk drivers.

The Study measured air quality in close proximity to the Tonawanda Coke Corporation in order to fill a data gap identified in the USEPA's Residual Risk Assessment for Coke Ovens which identified the lack of ambient monitoring information. Some HAPs known to be released from the facility were measured and an elevated concentration of benzene was observed at the Study area monitors. When compared to the USEPA's residual risk assessment, NYSDEC's modeling assessment, using a revised facility emissions inventory, resulted in larger predicted impacts within the community. Based on the assessment of the monitored and modeled data, the maximum individual cancer risk and population cancer risk associated with facility-wide emissions from the Tonawanda Coke Corporation exceeds an excess lifetime cancer risk of 10 in-one-million for the nine census tract Study area. Specific neighborhoods exceed a 100 in-one-million cancer risk level. Further work will be conducted on this issue by NYSDEC prior to USEPA's 2011 scheduled completion of a final residual risk assessment for the Coke Oven source category.

The Study design had several noteworthy strengths. The source attribution conclusions were derived from a weight-of-evidence approach rather than relying on a single result to achieve a conclusion. The source attribution assessment included evaluating meteorological information, emission releases through dispersion modeling and an in depth evaluation of the USEPA's residual risk assessment that included a site specific risk assessment for the Tonawanda Coke Corporation. A comprehensive emissions inventory was developed to further elucidate source contributions and emission reduction strategies for sources

identified as contributing to elevated risk levels in the community. This information, coupled with the results between the upwind and downwind inhalation cancer risk values, provides a strong basis for further compliance monitoring and regulatory actions to reduce the inhalation cancer risk in the Tonawanda community.

In conclusion, the results of the Tonawanda Community Air Quality Study indicate that further work can be done to improve air quality in the community. Follow-up activities (e.g. increased compliance inspections and community observations) already have been implemented by the NYSDEC and the USEPA in an effort to improve air quality in the community. NYSDEC is continuing to monitor hourly benzene concentrations at the GIBI site to further evaluate the high levels of benzene measured at this monitoring site with a higher degree of temporal resolution.

Appendix C: Federal E3 Metrics

Economic Metrics:

- Environmental savings identified
- Lean savings identified
- Other cost savings
- One time potential cost savings identified
- Individuals trained
- Jobs created
- Jobs retained
- Total annual potential impact identified
- Number of small businesses engaged
- Percentage of small businesses engaged
- Number and value of SBA loans granted
- Capital infusion dollars invested
- Hours of consulting provided

Energy Metrics:

- Energy conserved (MM BTU/kWh)
- Energy intensity per unit of production
- Carbon reductions (tons)
- Carbon intensity per unit of production

Environment Metrics:

- Air emissions reduced (lbs)
- Solid waste reduced (lbs)
- Material intensity per unit of production
- Hazardous waste reduced (lbs)
- Hazardous materials reduced (lbs)
- Water pollution reduced (lbs)
- Water used/conserved (gal)
- Water intensity per unit of production