



FY 2011 U.S. EPA BROWNFIELDS HAZARDOUS SUBSTANCES AND PETROLEUM ASSESSMENT GRANT APPLICATION

CITY OF GOSHEN, INDIANA

THRESHOLD CRITERIA

1. Applicant Eligibility: The City of Goshen is a General Purpose Unit of Local Government in the State of Indiana.
2. Letter from the State or Tribal Environmental Authority: A letter from the Indiana Department of Environmental Management (IDEM) is included in Attachment A.
3. Site Eligibility and Property Ownership Eligibility: This application is for a community-wide Brownfields Assessment Grant. Consequently, site eligibility and property ownership eligibility criteria are not applicable.

RANKING CRITERIA FOR ASSESSMENT GRANTS

1. Community Need:

The City of Goshen (the City), a small community located in northern Indiana in Elkhart County, has a long history of a successful manufacturing industry driven by a diverse workforce. Recently, the recreational vehicle (RV) industry that has supported the area nearly failed, bringing the Elkhart/Goshen area national attention as Goshen's unemployment rate reached 19.7% in 2009 (*Bureau of Labor Statistics, Local Area Unemployment Statistics, 2009*). As the City faces a bleak economic climate and an underutilized workforce, it has identified the redevelopment of the numerous brownfields within its boundaries as a key component to its economic recovery and growth in the future. The City is using its Comprehensive Plan to guide its brownfields redevelopment approach. The Comprehensive Plan objectives echo concerns identified by residents during numerous outreach sessions: maintain a diverse manufacturing sector; maintain Goshen's vibrant downtown as a center of commerce and culture; focus redevelopment on deteriorated, obsolete, or under-utilized residential, commercial, and industrial areas (e.g., brownfields); revitalize neighborhoods; maintain and develop infrastructure that accommodates all modes of transportation; and protect and link existing parks/greenspace and natural amenities. These goals coincide with guiding Livability Principles (principles adopted by the partnership between the U.S. EPA, United States Department of Transportation, and United States Department of Housing and Urban Development to promote smart growth) of valuing and supporting the community and its neighborhoods, and promoting equitable/affordable housing and transportation choices. The City has started a successful brownfields redevelopment program (Section 2.c) and will use its Comprehensive Plan as a roadmap for smart growth and creation of a truly livable community. The Assessment Grant will support a key step in reaching these goals, the assessment of brownfields in the downtown business district and surrounding neighborhoods that are negatively impacting the health and welfare of sensitive populations, the environment, and the economic state of the City.

a. Health, Welfare, and Environment: The City has identified a large number of brownfields in the downtown business district and surrounding low-income neighborhoods. These brownfields have impacted area soil and groundwater with numerous contaminants, many of which pose health threats to nearby sensitive human populations and are likely migrating to the Elkhart River and Rock Run Creek. Using the Assessment Grant, the City will be able to determine the extent of suspected contamination associated with brownfields, begin controlling migration of this contamination, and meet their Comprehensive Plan's goal of keeping the downtown area vibrant and focusing redevelopment activities on brownfields.

(i) The overriding health and welfare concern for the City is the concentration of brownfields located in the downtown business district and surrounding residential neighborhoods. Within the City limits, the Indiana Department of Environmental Management (IDEM) has identified over 50 sites with known environmental contamination (both hazardous substances and petroleum products) and approximately 90 sites (underground storage tank, industrial waste generators,



manufactured gas plants, etc.) that are likely contaminated. During reconnaissance of the major roads in the City, 60 more potential brownfields (gasoline stations, automotive repair/sales, dry cleaners, machine shops, auto body shops, and manufacturing plants) were identified. Of these sites, approximately 80% are located in the business district and surrounding neighborhoods. The City has developed a preliminary inventory of brownfields and has identified several priority sites that it hopes to evaluate for redevelopment. The following table lists the potential health effects associated with these priority brownfields, which are located in close proximity to sensitive populations. The table identifies the neighborhood and census tract in which each site is located. The City has identified Neighborhood Associations in many of these neighborhoods that will help integrate the project into the community (Section 3.c).

Priority Site (Neighborhood)	Contaminants¹	Health Effects²
Johnson Controls (East Lincoln - Census Tract 3)	chlorinated solvents	headaches, poor coordination, respiratory problems, liver/kidney damage, nerve damage
Salvage Yard/Churn & Ladder Co. (Chamberlain-Census Tract 2)	metals, lead, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs)	respiratory problems, anemia/bone marrow problems, nerve damage, liver/kidney damage
Quality Drive-Away (Northside - Census Tract 2)	lead, arsenic, chromium, PAHs, polychlorinated biphenyls (PCBs)	acne/skin irritation, respiratory problems, blood vessel damage, nerve/liver damage
Former Township Dump (Shanklin Mill Race - Census Tract 1)	arsenic, lead, PAHs, and chlorinated solvents	respiratory problems, anemia/bone marrow problems, nerve damage, liver/kidney damage
Two Downtown Dry Cleaners (East Lincoln and Shanklin Mill Race - Census Tract 1)	chlorinated solvents	headaches, confusion, nausea, respiratory problems, liver/kidney damage, nerve damage
Downtown Gasoline Station (near East Lincoln - Census Tract 1)	lead, VOCs, and PAHs	respiratory problems, anemia/bone marrow problems, nerve damage, liver/kidney damage

¹ Indiana Department of Environmental Management (IDEM) and available environmental reports. ² Agency for Toxic Substances and Disease Registry (ATSDR), ToxFAQs.

The above listed sites, located in close proximity to residential neighborhoods, schools, and/or parks, are negatively impacting sensitive populations by potentially exposing them to numerous contaminants via direct contact, airborne particulates inhalation, and vapor intrusion pathways. The residents living in the City's oldest homes with on-site water wells, usually low-income, Hispanic residents, may also be exposed to contaminated groundwater associated with these brownfields. Health concerns for these impoverished residents are often intensified by poor nutrition and lack of access to adequate health care. Additionally, many of these sites are located near the Elkhart River and Rock Run Creek, posing a threat to the health of these sensitive ecosystems. The **Johnson Controls** site is located in a Hispanic residential neighborhood (19% - 27% Hispanic, *U.S. Census, 2000*) and is approximately 1,200 feet from Goshen High School and its athletic fields. Groundwater in the area of the **Johnson Controls** site is impacted with chlorinated solvents, and residential drinking water wells and a Goshen High School irrigation well lie down-gradient from the site. The **Salvage Yard** and **Churn & Ladder Co.** former manufacturing buildings and underground storage tanks are located along the northern and southern banks of Rock Run Creek, respectively, near a residential neighborhood with one of the highest pockets of Hispanic residents in the City (up to 40% in the nearest census group, *U.S. Census, 2000*). The **Quality Drive-Away** site is also located along Rock Run Creek, approximately 950 feet from Oakridge Park, within another residential area with a high number of Hispanic residents (28% Hispanic, *U.S. Census, 2000*). The **Former Township Dump** is located between the Elkhart River and the Mill Race near several wetlands areas (sensitive



ecosystems) and Shanklin Park. The two **Dry Cleaner Sites** and the **Downtown Gasoline Station** are located in and around the downtown business district near residential neighborhoods (13%-32% Hispanic, *U.S. Census, 2000*). Both dry cleaning operations have resulted in chlorinated solvent groundwater plumes that present a vapor intrusion hazard to nearby residences and commercial buildings. Active vapor extraction devices have been installed in three residences near one of the dry cleaners, and residential use of the second-story portions of commercial buildings near the second dry cleaners has been prohibited. Underground storage tanks are still present at the **Downtown Gasoline Station** and they have likely impacted the subsurface with gasoline and diesel constituents, further contributing to area vapor intrusion concerns. The Assessment Grant will give the City funds to evaluate these priority brownfields, determine the extent of the suspected contamination, and address exposure pathways, improving the health of both its residents and its natural resources.

A second health and welfare concern is the threat from hazardous substances associated with vacant industrial and commercial buildings in the business district and surrounding neighborhoods and dilapidated residential buildings located in impoverished neighborhoods. Many of these buildings likely contain asbestos materials and lead-based paints and, due to their deteriorated and/or unsecured condition, it is possible for residents (especially children) to access these structures. Once inside, residents may be exposed to asbestos fibers (known to cause cancer, mesothelioma, and asbestosis) and deteriorated lead-based paints and dust (known to cause neurological damage in children). Over 32 vacant industrial/commercial buildings (totaling over 1.2 million square-feet) have been identified in the City. Since many of these buildings were historically used for chemical-intensive operations, they pose increased health threats because residents entering them may be exposed to additional chemicals. Additionally, dilapidated residential buildings in the City have fallen into foreclosure and been abandoned. The City estimates that over 100 vacant and foreclosed residences are located in impoverished, Hispanic neighborhoods on the City's north and east sides (*City of Goshen, Indiana Neighborhood Stabilization Program Application, March 2009*). Because over 42% of the residential buildings in the City were constructed prior to 1970 (*U.S. Census, 2006-2008*), they too pose lead-based paint and asbestos exposure concerns. The Comprehensive Plan identifies the need to focus redevelopment on deteriorated residential, commercial, and industrial areas, and with an Assessment Grant, the City will be able to incentivize redevelopment of these sites.

The third health and welfare concern is migration of contaminants from brownfields to the Elkhart River and Rock Run Creek. These waterways have served as the waste conveyance system for industrial operations and urban run-off. Storm water discharge accumulated from brownfields located within the City, including run-off from four priority brownfields (Salvage Yard/Churn and Ladder Co., Quality Drive-Away, Former Township Dump, Downtown Dry Cleaners) located within one-quarter mile of these waterways, presents a threat to the water quality (dissolved oxygen, toxicity, etc.) and sediments of the Elkhart River and Rock Run Creek and the health of their inhabitants. The Elkhart River watershed is home of various species of turtles (e.g., spotted turtle, alligator snapping turtle), birds (e.g., sandhill crane, sedge wren), and plants (e.g., kitten tails, pipewort) that are listed in Indiana's Endangered, Threatened, and Rare Species program. These and many other sensitive species in the Elkhart River watershed require protection from contaminated run-off and groundwater. Additionally, residents who use the waterways for fishing and recreation may also be exposed to contaminated water and/or sediment. Using the Assessment Grant, the City can determine which brownfields are contributing impacted storm water and/or groundwater to these waterways and develop a plan to limit these releases, thereby protecting these sensitive ecosystems.

The concentration of brownfields in the low-income, minority neighborhoods in and around the downtown area and the health data (described below) indicating a link between race, income, and health effects demonstrate a disproportionate impact from brownfields to minority and low-income residents in Goshen. Impoverished minority populations often have poor nutrition and limited access to health care; therefore, they are more likely to experience, and not treat, health problems associated with contaminant exposures. The business district and the neighborhoods north and east of it have higher numbers of low-income, sensitive populations (minorities and



children) than the rest of the City and Indiana (see following table). As shown in the table, the priority sites are located within these neighborhoods. It is worth noting that the Goshen’s individual poverty rate has increased by nearly 6% since the 2000 census (*U.S. Census Bureau, 2006-2008*). It is likely that areas of impoverished populations in the City have expanded. However, 2010 census data for these neighborhoods is not available.

Area or Priority Site	Neighborhood and Census Tract	Hispanic	Individuals Below Poverty Level	< 5 years of Age
Indiana ¹	--	3.5%	9.5%	7.0
Goshen ¹	--	19.3%	9.3%	7.9
Former Township Dump, Downtown Dry Cleaners, and Gasoline Station^{1,2}	Shanklin Mill Race-Census Tract 1 (<i>downtown</i>)	13.4%-32.7%	8.7%-13.3%	7.1%-8.6%
Salvage Yard and Quality Drive-Away^{1,2}	Northside and Chamberlain-Census Tract 2 (<i>northeast</i>)	19.1%-40.2%	2.6%-17.7%	6.9%-10.6%
Johnson Controls¹	East Lincoln-Census Tract 3, Block Group 2 (<i>southeast</i>)	27.1%	15.8%	10.7%

¹ U.S. Census Bureau, 2000. ² Range of data for block groups included in Census Tract.

Based on elevated children’s blood lead levels, asthma hospitalizations numbers, and infant mortality rates in the County (data are not available for Goshen), it is apparent that minority and sensitive populations are disproportionately impacted by their proximity and exposure to contaminants from brownfields. Hispanics only represent 5% of Indiana’s population; therefore, data regarding their health trends on a city level is woefully lacking. Because Elkhart County has the second highest percentage of Hispanics in Indiana, the Elkhart County Health Department (ECHD) has made an effort to reach out to this minority population and health trends are emerging. The ECHD had 79 lead poisoning cases in 2007 with 45% of the cases involving Hispanic children (*Elkhart County Health Department, 2008 Annual Report*). In 2008, the ECHD reported that Elkhart County had the second highest number of lead-poisoned children in Indiana (*Elkhart County Health Department, 2008 Annual Report*), and currently, the ECHD reports that there are 110 children in Elkhart County with lead poisoning. Infant mortality rates for 2005 in Elkhart County (8.4 per 1,000) were also substantially higher than those for the U.S. in 2005 (6.9 per 1,000) (*U.S. Department of Health and Human Services, Community Health Status Report, Elkhart County*). The infant mortality rate for Hispanics in Elkhart County (7.3 per 1,000) was also higher than the correlated rate for Hispanics in the U.S. (5.6 per 1,000) (*U.S. Department of Health and Human Services, Community Health Status Report, Elkhart County*). While current asthma data is not available for Goshen, Elkhart County had the 4th highest number of asthma emergency department visits and the 8th highest number of asthma hospitalizations in the state in 2005 (*Indiana State Department of Health, The Burden of Asthma in Indiana, Second Edition, March 2008*). Due to the proximity of brownfields to Goshen’s low-income Hispanic neighborhoods, parks, and schools, it is likely that brownfields contaminants have played a pivotal role in children’s elevated blood lead levels, asthma hospitalizations, and the health of expectant mothers.

Brownfields located in neighborhoods, near schools, and public parks, present a threat to human health through direct contact and ingestion of contaminants and/or exposure to airborne particulates and volatiles. As discussed above, minority populations have been impacted by these contaminants. The migration of contaminants from brownfields, via storm water and/or groundwater, also poses a threat to the Elkhart River and Rock Run Creek ecosystems. The Assessment Grant will give the City the funds necessary to delineate the extent of brownfields contamination and determine ways to control contaminant migration. This will begin improving the health of Goshen residents and its waterways, which is directly in line with the City’s Comprehensive Plan goal of devoting funds and energy to revitalization of neighborhoods.

neighborhoods impacted by the priority brownfields (see previous tables) also face a shortage of affordable low/moderate income housing, and the housing supply in the older, minority neighborhoods is deteriorating due to the lack of sufficient maintenance resources (*City of Goshen, Five-Year Strategic Plan: 2010-2014, May 2010*). Because Goshen has no public housing units, the City plans to provide resources for the construction of new low/moderate income housing and support existing housing rehabilitation. As discussed in Section 4, by assessing the priority brownfields sites identified in Section 1.a.i, the City will be able to begin cleaning up these sites and redeveloping them with much needed low/moderate income housing.

The second component of the City's financial need is the decrease in available revenue with which to operate the City. Indiana recently revised its property tax codes to provide phased property tax cuts for both residents and businesses. The mayor of Goshen projects a loss in property tax revenue of \$1.7 million in 2010 and \$2.75 million in 2011, which represents a loss of between 13% and 20% of the City's property tax revenue per year in the next two years. As both large and small industrial operations close and residences fall into foreclosure and are abandoned, the number of brownfields in the City limits increase and property values are suppressed, further decreasing the City's property tax revenue. Similarly, as unemployment increases and/or higher paying manufacturing jobs are replaced by lower paying service jobs, local income tax revenues continue to decrease. Because a fraction (approximately 1.5%) of local income taxes support the local redevelopment fund, funding to support brownfields redevelopment is extremely limited and is projected to decrease by approximately 25% in 2011. The assessment and cleanup planning costs associated with the City's priority brownfields are estimated to be at least \$300,000 (see table below), based on the scopes of assessment developed by the City's current qualified environmental consultant. The City will likely need to leverage additional resources to complete the assessment of hazardous substances priority sites (estimated costs are \$235,000). In addition, although only two petroleum contaminated sites are included in the list of priority sites (estimated costs are \$65,000), there are over 25 known Leaking Underground Storage Tank (LUST) brownfields in the City. The City plans to use the remaining petroleum grant funds to assess up to four of these sites during the project (Section 2.b.i). Unless it acquires an Assessment Grant, the City will not be able to support either the assessment of priority brownfields or the assessment of additional brownfields located throughout the City.

Priority Brownfields	Type of Assessment	Estimated Cost
Johnson Controls	Phase II ESA (chlorinated solvent plume)	\$60,000 (haz.)
Salvage Yard/Churn & Ladder Co.	Phase I ESA/ Phase II ESA (extent delineation)	\$45,000 (haz.) \$30,000 (petrol.)
Quality Drive-Away	Phase II ESA (extent delineation)	\$30,000 (haz.)
Former Township Dump	Phase I ESA/ Phase II ESA (extent delineation)	\$45,000 (haz.)
Two Downtown Dry Cleaners	Phase II ESA (chlorinated solvent plume)	\$55,000 (haz.)
Downtown Gasoline Station	Phase I ESA/ Phase II ESA (extent delineation)	\$35,000 (petrol.)

2. Project Description and Feasibility of Success

a. Project Description

(i) The City has created a successful brownfields program; however, its previous Assessment Grant has been expended (Section 2.c.ii) and it does not have local funds to complete the assessment of additional brownfields. The City's Comprehensive Plan identifies redevelopment of deteriorated areas and revitalization of neighborhoods as key objectives, yet, as the City makes plans to redevelop priority brownfields to support these objectives, it is faced with the reality of a diminishing budget that cannot support these plans. These brownfields, while challenging to redevelop, also provide an opportunity for the City to promote redevelopment in areas with existing infrastructure and encourage the use of green/sustainable redevelopment practices (Section 4.c). The City has identified the following three primary goals for its brownfields program: 1) assessment of priority brownfields identified in Section 1.a.i; 2)



the Elkhart River that may be impacting the ecosystem and support the City in providing public education regarding watershed management.

Goshen College: Goshen College is a private college that seeks to enhance student awareness and understanding of community service and the importance of environmental stewardship. The College will provide students and staff to conduct ground surveys of Goshen to identify and prioritize brownfields and other support as needed (community and health surveys, etc.). Students may develop conceptual redevelopment designs and participate in brownfields design charrettes. Students will gather useful environmental information and gain work experience while learning more about their temporary community and contributing to its improvement.

Goshen Chamber of Commerce: The Goshen Chamber of Commerce works with the City to represent and promote Goshen's businesses and encourage business/industrial investment in the community. The Chamber will assist in identifying additional brownfields, support redevelopment planning in Goshen, help market assessed brownfields, and inform business and potential developers of the availability of grant funds.

Elkhart County Economic Development Corporation (ECEDC): The ECEDC was formed in 2000 to coordinate economic development resources that are available to support development within the Elkhart County. The ECEDC will use its redevelopment experience to provide brownfields redevelopment planning, guidance, and marketing support (Section 2.c.i).

4. Project Benefits: As part of their Comprehensive Plan, the City developed a community-approved vision for Goshen. The plan identifies the following key goals: maintaining a diverse manufacturing sector; maintaining Goshen's vibrant downtown; redeveloping deteriorated, obsolete, or under-utilized areas; revitalizing neighborhoods; maintaining and developing infrastructure that accommodates all modes of transportation; and protecting and linking existing parks/greenspace and natural amenities. The presence of numerous brownfields in close proximity to sensitive populations and sensitive ecosystems and vacant/underutilized commercial properties in the City's downtown area, while currently impeding progress towards these goals, provides an opportunity for the City to promote redevelopment in areas with existing infrastructure and encourage sustainable redevelopment. With an Assessment Grant, the City will be able to incentivize the redevelopment of brownfields, supporting their Comprehensive Plan's objectives and embracing the U.S. EPA's guiding Livability Principles.

a. Welfare and/or Public Health: The City has begun the process of characterizing brownfields that may pose a threat to human health and the environment, then mitigating those threats through remediation and redevelopment. However, due to the sheer number of sites, the City has determined that additional funding is needed. Identifying and redeveloping brownfields is especially important in the impoverished neighborhoods in the downtown and surrounding neighborhoods where low-income minority populations have long had to live with brownfields, and deteriorating economic conditions have led them to believe that these sites will never be addressed. As illustrated in the following table, redevelopment of the priority brownfields discussed in Section 1.a will improve residents' health and welfare by removing sources of contamination, thereby limiting inhalation, ingestion, and contact exposures and decreasing blood lead levels in children, asthma hospitalization, and infant mortality rates. Redevelopment of the priority brownfields will also add desperately needed affordable housing units and a community center, and create additional recreational and athletic space. These outcomes coincide with the guiding Livability Principles of valuing and supporting the community and its neighborhoods and promoting equitable/affordable housing. The redevelopment of priority brownfields will also limit uncontrolled, potentially contaminated run-off into area waterways. This, in combination with area storm water management practices (Section 4.c) will limit uncontrolled, contaminated run-off into the Elkhart River and improve water and sediment quality, benefiting both threatened/endangered species and residents seeking to enjoy the river's recreational opportunities. Similar types of benefits, in total or in part, can be expected from the redevelopment of other brownfields in the City.



Priority Site	Redevelopment Benefits
Johnson Controls	The extent of chlorinated solvent impacted groundwater will be identified and cleaned up to address vapor intrusion and inhalation concerns for residents and students. The site will be transferred to Goshen High School for redevelopment into athletic fields. If needed, vapor extraction or barrier systems will be installed in area residences to further limit solvent vapor exposure concerns.
Salvage Yard/ Churn & Ladder Co.	Waste/junk materials will be removed and recycled as applicable. Hazardous building materials (e.g., asbestos and lead-based paint) will be identified and abated, and buildings will be demolished. Underground storage tanks will be removed. Soil and groundwater contamination will be identified and cleanup begun to address potential vapor intrusion, inhalation, and direct contact concerns for area Hispanic residents. The sites will be redeveloped with low-income housing and trails that connect to the Pumpkinvine Trail. Potentially contaminated storm water will be eliminated, protecting Rock Run Creek.
Quality-Drive Away	The extent of metals and PAH-impacted soil will be identified. Impacted soil will be removed and disposed to prevent future particulate inhalation and direct contact concerns for area Hispanic residents, and the site will be redeveloped with a community park. Potentially contaminated storm water will be eliminated, protecting Rock Run Creek.
Former Township Dump	Waste materials will be removed and impacted soil will be identified and removed or capped to prevent future direct contact or particulate inhalation exposures. The site will be redeveloped with a community center and trails that connect to the Shanklin Park/Mill Race trail. Potentially contaminated storm water will be eliminated, protecting the Elkhart River.
Downtown Dry Cleaners	The full extent of the chlorinated solvent contaminated groundwater will be determined. If needed, groundwater cleanup will begin, and additional vapor extraction or barrier systems will be installed in area buildings, protecting residents and visitors from inhalation exposures. Downtown buildings then can safely be converted to mixed-use commercial/residential use.
Downtown Gas Station	Underground storage tanks will be removed. Impacted soil will be identified and removed, and potentially impacted groundwater will be remediated to prevent future inhalation and vapor intrusion concerns. The site will be redeveloped with a mixed use development.

Assessment Grant operating procedures will ensure that the community is protected from contaminants during assessment work. Access to the site will be prohibited during operations. A Health and Safety Plan (HASP) will be completed for each site where intrusive sampling will occur. As specified in the HASP, when subsurface samples are collected (i.e., sampling using hollow-stem augers, direct-push soil probes) or hazardous building materials are disturbed, the release of particulates and vapors will be monitored and controlled. Decontamination water and purge water generated during groundwater sampling activities will be containerized on-site and appropriately disposed. The assessment data generated will be used to help the City and/or a developer determine how to protect the community during redevelopment activities. Pre-development environmental response actions, construction activities, and future site use must be designed to satisfy imminent and continuing obligations to protect the health of site users prevent exacerbation of contamination. The site development planning process relies on assessment results to identify and design an appropriate combination of environmental response actions, construction procedures, and engineering and institutional controls to satisfy the Indiana VRP and/or Indiana Brownfields Program (IBP). By using the Assessment Grant funds to determine the extent of contamination and following through with remediation and engineering/institutional controls, threats to human health will be identified and controlled throughout the process.

b. Economic Benefits and/or Greenspace: Brownfields redevelopment is imperative first for Goshen's economic survival, then revitalization and growth in the future. Brownfields redevelopment will result in benefits for residents in impoverished neighborhoods, creation of