

V.B. RANKING CRITERIA

1. Community Need

a. Health, Welfare, and Environment

- i. Brownfields have a large impact on the target community of Medford, Massachusetts. Medford has suffered from the presence of brownfields in the City. By preventing re-development and impacting human health they have placed a large financial burden on the municipal budget. The brownfields that exist in Medford include sites with petroleum and/or hazardous materials and some whose type of contamination is unknown, but is perceived that it exists. The City of Medford contains several sites that were former car dealerships that currently sit vacant and underutilized, one in a business district in South Medford and one along a busy thoroughfare near the Mystic River. Medford's main downtown, Medford Square, also suffers from a brownfield site that requires soil and groundwater remediation due to contamination. This storefront is vacant and has created an eyesore in the center of downtown.

The signs of a brownfield are obvious at most parcels in Medford. An abandoned building that has fallen into disrepair, occasionally surrounded by chain link fence, becomes an eyesore of the community, poses health risks, and has a negative impact on the local economy. Once a brownfield exists in an area it is more likely that adjacent development will decline over time resulting in a greater negative impact on the economy and the condition of the environment in that area. However, not all brownfields are visibly blighted. The site that is the subject of this cleanup grant application does not appear to be blighted, but the presence of contamination on the subject property has resulted in a loss of property value for adjacent commercial properties, led tenants to break leases and leave commercial spaces vacant (reducing income for property owners and taking jobs from the area), and burdened the property owners with the need to maintain vapor intrusion mitigation systems and conduct monitoring.

Also of great concern is the impact the brownfields have on the health of Medford residents. At locations where brownfields are known to exist, one of the impacts is poor air quality. Vapor intrusion is a huge concern and without proper mitigation or removal of the contamination the problem persists. Contamination also impacts groundwater and contaminants such as perchloroethylene (PCE or PERC) that do not breakdown overtime can impact properties far downgradient from the source of the contamination and ultimately make their way into natural features such as rivers and streams where they could pose an ecological risk. At the subject property, three adjacent commercial property owners have had to implement active measures to mitigate vapor intrusion problems stemming from soil vapors and contaminated groundwater.

A large percentage of Medford's population is made up of groups such as the elderly and minority and low-income residents, populations that are extremely sensitive to environmental conditions. According to Massachusetts Institute for Social and Economic Research (MISER) at the Massachusetts Executive Office of Energy and Environmental Affairs (EOEA), in 2010 there were 11,650 people 65 years old and older in Medford,

making up 20% of the total population. By 2020 there will be 13,350 people 65 years old and older making up 23% of the population, much higher than the state average of 13%. The elderly make up the greatest percentage of residents in Medford. Protecting the health of this sensitive population is critical and therefore cleaning up the brownfield parcels in Medford is a priority. The Medford Housing Authority has an elderly housing facility only one parcel away from the subject property, which could be expanded once the contamination has been addressed and risks of potential impacts to indoor air mitigated.

Children, including infants, toddlers, and school aged children, is another sensitive population that has exposure to this Site by walking by on their way to school each day. There is a daycare with an after school program located near the Site. Children under the age of 18 make up 18% of Medford's population.

As documented at several properties throughout the City, brownfields pose a potential threat to the City's and region's public health. Liver and Interhepatic Cancer rates in Medford are Standard Incidence Rates (SIR) are 15; 50% above expected. PCE, the dry cleaning chemical identified in soil, groundwater, and indoor air at the subject property, has been linked to lung and liver cancer and other health conditions. As previously stated, three commercial properties adjacent to the subject property have been forced to implement various active vapor intrusion mitigation measures in order to reduce concentrations of PCE in indoor air.

b. Financial Need

Medford has not been spared the severe fiscal challenges confronting many other cities because of the national economic downturn. Cuts in State Aid from Fiscal years 2008 to 2013 total \$5,089,162 placing an incredible financial burden upon the City's budget. Medford now receives less state aid per capita and a lower expenditure per resident than any time in its recent history.

	Census Tract 339300	City of Medford	Massachusetts	United States
Total Population:	2,890	56,738	6,587,536	308,745,538 ¹
Unemployment:	1.4%	5.6%	6.5%	7.8% ²
Poverty Rate:	5.12%	8.3%	10.5%	15.1% ³
Percent Minority:	44%	22%	16%	26.7% ⁴
Median household income	\$74,407	\$70,102	\$64,504	\$49,445 ⁴

Economic disruptions due to natural disasters have occurred in Medford in the last 2 years including flooding in March of 2010.

¹ Data is from the 2010 U.S. Census data and is available at <http://www.census.gov>

² Data is from the Bureau of Labor Statistics and is available at www.bls.gov

³ Data is from the 2010 American Community Survey and is available at http://www.census.gov/newsroom/releases/archives/income_wealth/cb11-157.html

The City of Medford faces challenges in generating tax revenue due to existing state legislation capping the annual property tax increases at 2.5%, limiting the amount of money that can be raised from existing property. Since Medford has very little new buildable land on which to encourage new growth it has been particularly affected. Brownfields are a critically important part of this effort. Without the cleanup and redevelopment of these sites the local economy remains stagnant or even worse fails.

In its struggle for economic stability, Medford's main economic policy now is to increase its tax base. The City's residential tax base is overburdened, accounting for 77% of the City's current property tax base. Zoning constraints and the abundance of state conservation land hinder development of new residential properties. The draconian cuts in state aid mentioned above, have already forced the City to raise its property tax to nearly the maximum allowed under Proposition 2 ½. As of 2011, Medford was barely 0.1% under the limit. The only remaining place for Medford to increase its tax base is among commercial properties, currently providing only about 23% of the City's resources. Additional tax revenues are restricted by the 2 ½ mandate and other locally generated funds have diminished due to the nationwide economic collapse.

Medford has experienced over 254 foreclosures since 2008 creating a large void where the City would typically collect taxes. The City attempts to maintain its level of service despite the decrease in income but is faced with difficult decisions, such as layoffs when fiscal challenges arise. As the state aid and City budget continue to decrease the likelihood for cleanup and redevelopment to occur in a timely manner diminishes. Federal funding from the EPA is critical to cleanup the Site and jumpstart redevelopment.

On top of the challenges listed above, the presence of contamination at the subject property is an added burden for the owners of nearby properties. The subject property does not appear to be visibly impacted, but the presence of contamination on the subject property has resulted in a loss of property value in the surrounding area, particularly after an article appeared in the Boston Globe on October 8, 2011⁴ which discussed the cost of cleanup. The owners of adjacent properties directly impacted by the contamination on the subject property lost rental income due to tenants breaking their leases (over concerns about health effects on their workers) and the owners being unable to fill those vacant spaces. In addition, the loss of tenants in these spaces has taken jobs from the area and impacted other local businesses (e.g., small restaurants and delis) whose customer base has been reduced. The affected commercial property owners have also been burdened by the cost of conducting response actions, installing and operating vapor intrusion mitigation systems, and conduct the required monitoring and reporting under the state regulations. Costs incurred to date are on the order of \$50,000 to \$250,000. The stigma of contamination is also inhibiting the ability of the commercial property owners and the businesses which have stayed to expand.

⁴http://www.boston.com/realestate/news/articles/2011/10/08/new_toxic_chemical_regulations_worry_property_owners

The City of Medford itself is also being burdened by the contamination on the subject property. Despite not being responsible for the presence of soil, groundwater, and indoor air contamination at the site, the City has taken the lead on the response actions conducted to date under the Massachusetts cleanup program (initial site assessment, comprehensive site assessment, and feasibility evaluation). In addition, the City has also stepped in to construct and monitor vapor mitigation measures for one commercial property which was deemed financially unable to contribute to the response actions.

2. Project Description and Feasibility of Success

a. Project Description

i. Existing Conditions: The property is currently used as a municipal parking lot with approximately 35 parking spaces and is abutted by three one-story commercial properties. The property is located approximately 400 feet (<0.1 mile) from the West Medford commuter rail station located at the intersection of High Street and Playstead Road.

The City became aware of the contamination on the subject property as the result of a Massachusetts Department of Environmental Protection (MassDEP) audit of a closed PCE site located on an adjacent property. MassDEP conducted the audit as part of a program to re-evaluate closed PCE sites in light of changes in understanding of the toxicology of PCE. MassDEP directed the adjacent property owner to conduct additional investigations which included the installation of soil borings and monitoring wells on the subject property. Based on these investigations, it was determined that PCE contaminated soil and groundwater were present on the subject property. Beginning in January 2009 the City worked with the MassDEP to complete necessary assessments on its property where contamination was found to be located. As the owner of the Site the City complied with MassDEP's requests, worked with the adjacent businesses and began the necessary monitoring and reporting.

Between January 2009 and July 2012, the City of Medford has completed an initial site investigation, comprehensive site assessment, and risk characterization under the Massachusetts Contingency Plan (MCP, 310 CMR 40000), the state's cleanup program. The objective of these activities was to evaluate: 1) the source, nature, extent, and potential impacts of releases of oil and/or hazardous material at the disposal site; 2) the risk of harm posed by the disposal site to health, safety, public welfare and the environment; and 3) the need to conduct remedial actions at the disposal site. In addition, the City has completed an MCP Phase III Remedial Action Plan (RAP) in order to establish remedial objectives, identify and evaluate remedial technologies, and formulate and evaluate remedial action alternatives for the site. Furthermore, the City has completed various Immediate Response Actions to mitigate an Imminent Hazard condition posed by the migration of PCE vapors from soil and groundwater into indoor air in one of the adjacent commercial properties.

The City is motivated to cleanup this Site and eliminate the hazard the contamination is posing to the businesses. The presence of the contamination also prohibits any redevelopment of the Site which further places a strain on the City's local economy.

There are a number of possible redevelopment scenarios for this parcel including, but not limited to the following:

- Multi-story parking structure to address need for additional parking in this part of West Medford, which will be exacerbated by planned safety improvements to nearby intersections that will eliminate some street parking.
- Multi-story mixed use development (commercial on the first floor and residential on the second) which would allow for expansion of existing commercial spaces and creation of additional residential properties near mass transit.
- Expansion of nearby Medford Housing Authority facility to create additional elderly/disabled development housing.

With any redevelopment plan green infrastructure improvements would be incorporated where possible. These include infiltration of stormwater, rain gardens, green development such as LEED certified buildings, and citing renewable energy such as solar PV to generate electricity.

ii. Proposed Cleanup Plan: The goal of the City's clean-up plan is to achieve a Permanent Solution under the MCP which would eliminate the risk associated with the following:

- Exposure to PCE in indoor air for adjacent commercial tenants and any future indoor site workers or residents.
- Direct contact with contaminated soil by construction workers, outdoor site workers or future residents.
- Direct contact with contaminated groundwater by construction workers.

In addition, the proposed remedial actions will eliminate or control the continuing sources of PCE vapors to indoor air (i.e. impacted soil and groundwater).

The proposed clean-up includes source removal (through excavation of contaminated soil from the parking lot) to address residual contamination. Excavated contaminated soil may be treated on-site, treated off-site at another City-owned property, or transported directly to an appropriate off-site reuse, recycling or disposal facility. The excavated area will be backfilled in such a way as to create an injection trench to facilitate subsequent groundwater treatment (i.e. a combination of crushed stone and/or perforated pipe). Groundwater treatment, conducted using in-situ chemical oxidation (ISCO), will be used to reduce PCE concentrations in groundwater outside the excavation area. Post-remediation monitoring of groundwater will be used to assess the effectiveness of the remediation and determine when the current remedial systems inside the adjacent commercial properties can be turned off. It is not anticipated that specific engineering or institutional controls will be required upon completion of the excavation and groundwater treatment program.

The first step is to complete a Detailed Engineering Design and Phase IV Remedy Implementation Plan by March 2013 which is on schedule. A Notice to Proceed has been given by the City to their Environmental Consultant on this critical phase of the project.

This cleanup plan addresses a multitude of issues that are currently present in the target area. The elimination of indoor air impacts will improve the health and environment of the Site. Sensitive populations that are currently within the target area, (a daycare, elderly and lower income populations) will no longer be exposed to these conditions. Property values of the immediately adjacent properties will increase once the contamination is removed and the monitoring will no longer be required. Removing the stigma of contamination from these properties will also raise property values in the surrounding area and facilitate business expansion and redevelopment of the subject property and adjacent properties. Following the cleanup, it is expected that tenant retention will increase and vacant commercial spaces will be filled. This will result in job retention and creation in the neighborhood, provide much needed rental income, and create a larger customer base for other local businesses. Finally, the City and the local businesses will not have the financial burden of having to pay for the indoor air treatment and vapor intrusion mitigation systems, and regular indoor air monitoring required to ensure that the indoor air quality meets state regulations.

b. Budget for EPA Funding

i. Budget Table and Task Descriptions

Budget Categories	TASK 1: Cooperative Agreement Oversight	TASK 2: Community Outreach and Engagement	TASK 3: Site-Specific Activities	TASK 4: Oversee Site Cleanup	Total Cost
Personnel	500	500	1,000	500	8,000
Fringe Benefits					
Travel	1,000				1,000
Equipment	0	0	0	0	0
Supplies					
Contractual	9,500	1,000	176,000	10,000	191,000
Other					
Total	\$11,000	\$1,500	\$177,000	\$10,500	\$200,000
Cost Share	\$10,000	\$20,000	\$5,000	\$5,000	\$40,000

Task 1: Cooperative Agreement Oversight

This task will entail managing the grant and coordinating efforts between the City of Medford, its consultant, and the EPA. This task includes outputs such as required reporting submitted to EPA via ACRES and other approved methods. It is anticipated that the Project Manager will spend 15 hours on this Task at \$33/hr for a total of \$500.

Travel costs will occur as part of Task 1, including funding to have the City’s Project Manager attend the EPA National Brownfield Conference. Travel costs are estimated at \$1,000 airfare/lodging/per diem. An additional \$50 has been set aside for local travel (estimate 90 miles at \$0.55/mile).

Task 2: Community Outreach and Engagement

This task includes public meetings conducted by the City regarding the Site and its cleanup as well as meetings with businesses directly affected by the cleanup to discuss timing and coordination during the cleanup. The meetings will take place in public buildings that are handicap accessible. Costs associated with this task are for staff to attend and run the meetings, the expense of placing legal advertisements in the newspaper, printing information for residents, and having the meeting notices translated and printed in languages other than English, if necessary, to ensure that non-English speaking residents have information about the meetings and the cleanup.

It is anticipated that the Project Manager will spend 15 hours on this Task at \$33/hr for a total of \$500. The Project Manager will coordinate all communication between the appropriate City officials including the Mayor, City Engineer, City Solicitor, Director of the Board of Health, etc., the City's environmental consultant, and the community. This will include posting information onto the City's website, distributing flyers and information.

Task 3: Site-Specific Activities

This task includes the cleanup work, specifically the excavation of the contaminated soils. Approximately 1,050 cubic yards (1,575 tons) of contaminated soil will need to be removed from the Site, backfilling and compacting of clean imported fill, health and safety monitoring and confirmatory sampling activities. These costs were prepared using estimates obtained from Brown and Caldwell, consultants who completed the assessment work on the site.

Excavation (assume 1,400 cubic yards total):	
Oversight Labor (12 days @ 10 hours/day + PM and LSP time)	\$ 12,000
Sheet-piling (1500 sq. ft. @ \$12/sq. ft.)	\$ 18,000
Excavation (12 days @ \$1,500/day + \$250 mob./demob.)	\$ 18,500
Post-ex sampling (10 samples; VOCs; \$105/ea.)	\$ 1,050
Backfilling/Compaction (1,400 cubic yards @ \$20/CY)	\$ 28,000
<u>Transportation and Disposal (1,575 tons @ \$62.50/ton)</u>	<u>\$98,450</u>
Total Excavation	\$176,000

It is anticipated that the Project Manager and City Engineer will work with the consultant and spend 30 hours on this Task at \$33/hr for a total of \$1,000.

Task 4: Oversee Site Cleanup includes continual monitoring of the project and ensuring that the cleanup is progressing. The City's environmental consultant will be completing the majority of this work with the City's Project Manager participating in weekly construction updates. The environmental consultant fees are expected to be \$10,000 and the number of hours for the City's Project Manager are 15 hours at \$33/hr equals \$500.

ii. Tracking and Measuring Progress

The City of Medford has established a two year timeline to track and measure the progress of the cleanup. The timeline began in November 2012 and includes the milestones to be achieved throughout the process. Medford's Project Manager will be responsible for tracking and measuring the project's progress and will do so by completing quarterly reports submitted to EPA. They will include information such as how the project is progressing, if any changes have been made to the

timeline or cleanup plan, and what is expected to occur in the next quarter. ACRES database will be updated regularly and will track the property data and outcomes generated from the cleanup project. The City also submits reports to MassDEP under the MCP so these reports will also be used to measure what has been accomplished. Below is a list of output and outcomes the City expects.

Outputs:

- Detailed Engineering Design and Phase IV Remedy Implementation Plan will be completed and submitted to MADEP by March 2013.
- Quarterly reports submitted to EPA
- Semi-annual Immediate Response Action Status Reports submitted to MassDEP (February and August 2013, February and August 2014)
- Phase IV Status Reports submitted to MassDEP every six months following start of remediation
- Excavation and off-site disposal of 1,575 tons of soil

Outcomes:

- Cleaner Site as a result of the contamination being removed
- Elimination of vapor intrusion and improvement in indoor air quality in three adjacent commercial properties
- Minimization of exposure to hazardous substances
- Improvement in the value of adjacent real estate
- Ability for the City and the adjacent businesses to retain and possibly increase the number of jobs.

iii. Leveraging

The entire cost of the cleanup of the Site is projected to be \$1.8 million. This amount includes the cleanup design and survey, soil excavation, transport and disposal, backfilling and restoration, groundwater treatment, , and post-remediation monitoring. A \$200,000 brownfield cleanup grant from the EPA for cleanup at each of the two impacted parcels, a total of \$400,000 will reduce the amount of funding needed and will expedite the project. The City will provide the 20% match for each of the EPA Cleanup Grants, totaling \$80,000. These funds will be provided in-kind by applying existing salaries budgeted for City personnel.

The City will be seeking approval from the City Council for the remaining \$1,320,000 funds and expects to appear before City Council to request a bond for the remaining amounts.

The City of Medford is extremely successful at leveraging funds. Below is a list of examples with federal, state, and local sources of funds.

Federal Funds

US Department of Housing and Urban Development (HUD)

Community Development Block Grant

The City is a Community Development Block Grant (CDBG) Entitlement Community and receives an annual grant from the Federal Government to implement community improvement and

economic development projects. For the current fiscal year beginning July 1, 2012, the City of Medford received \$1.4 million in CDBG funds. Medford is able to commit funding for activities that support the CDBG eligible activities such as low and moderate income job creation, elimination of slums and blighted conditions or the creation of housing.

MORE Jobs Infrastructure Grant

In 2010, the City successfully obtained \$800,000 as part of a Massachusetts Opportunity Relocation and Expansion (MORE) grant. This money leveraged the private funding of a new downtown restaurant. The grant funded the feasibility study for a new downtown parking garage and will also be used for the design of that facility. In addition to retaining jobs the new project is anticipated to create 40 new jobs. While construction funding for the garage has yet to be secured, the city is exploring the use of federal earmarks and bond financing.

American Recovery and Reinvestment Act (ARRA)

Medford received over \$1.1 million from the Federal Government in ARRA funds in Fiscal Year 2010 (FY10). Over half of this money was used towards homelessness prevention while the other portion was used for infrastructure improvements. The City also secured approximately \$1.9 million from both a federal earmark and ARRA money to complete the reconstruction of a roadway. This project included the addition of handicap accessible sidewalks, ramps and crosswalks, stormwater improvements, decorative lighting, parking, and landscaping. It is adjacent to this roadway where a small public park and docking system are proposed along the Mystic River.

SAFETEA-LU- Safe, Accountable, Flexible, Efficient Transportation Equity Act- A Legacy for Users

The City secured \$1.6 million towards the construction of a new parking garage/transit center in Medford Square. The City hopes to leverage these funds with the MORE grant to construct a facility in Medford Square.

Energy Efficiency Conservation Block Grant (EECBG)

The City of Medford secured \$504,000 from the federal government to implement Energy Efficiency improvements in the City's five middle and elementary schools, hire an Energy Efficiency Coordinator, and complete public outreach on energy efficiency and conservation. The City leveraged over \$314,056 in utility rebates and incentives from National Grid in order to complete necessary work at the middle and elementary schools. With the ability to leverage more than half of the original grant amount the City was able to complete an incredible number of energy projects that saved the City even more money in the long-term.

State Funds

PARC Grant

City of Medford successfully received \$500,000 PARC grant in 2012 from the Executive Office of Energy and Environment for installation of turf at a football field.

Section 108 Loan

The City of Medford successfully obtained a Section 108 loan of \$1 million for an important brownfield redevelopment project called River's Edge located on the banks of the Malden River. This goal of leveraging this funding is to create 42 jobs in Medford, with 51% (21.5 jobs) made available to low or moderate income individuals. As of June 2010 11 jobs were created, eight (72.7%) of which were taken by low or moderate income persons.

Green Communities Grant

Once designated a Green Community by the Massachusetts Department of Energy Resources (DOER) in the summer of 2010, the City of Medford received \$271,000. The grant money will be used to replace inefficient hot water heaters at the public high school with gas energy efficient hot water heaters. The City is leveraging National Grid rebate money in order to complete this project as well. The Green Communities Grant money will also be used to update the City's Climate Action Plan, which was first written in 2001. In 2012 the City received \$250,000 from DOER for oil to gas conversion and implementation of energy efficiency measures at the Chevalier Theater. The City is working closely with National Grid and will take advantage of as many incentives as possible in order to leverage its funds so more energy projects can be completed.

2. a. Programmatic Capability and Past Performance

i. Programmatic Capability

A highly experienced project team made up of City employees and consultants will oversee this assessment program. The City employee brownfield team members include: the Director of the Office of Energy and Environment, City Engineer, Director of the Health Department, and City's environmental consultant.

- Carey Duques—Director of Energy and Environment and Environmental Agent. Ms. Duques will be the Project Manager and will coordinate all project communication, community outreach, data collection, site analysis and work with the City's Engineer and Environmental Consultant towards sustainable reuse options for the sites. She has a Bachelors of Arts degree in Environmental Studies and Political Science from the University of Vermont and a Masters degree from Tufts University. Ms. Duques has ten years experience working on environmental and planning projects. She previously worked for the City of Salem, Massachusetts as a staff planner. While working for Salem, she managed two EPA Brownfield Cleanup Grants as well as writing and winning an EPA Brownfields Coalition Assessment Grant.
- Cassandra Koutalidis— City Engineer. Ms. Koutalidis will be responsible for project supervision and oversight. She has more than 25 years of experience in the fields of civil and environmental engineering, and has been involved in several brownfields development projects. Starting in 1988 with a petroleum contaminated site, her work experience includes conducting preliminary site assessments of petroleum and hazardous material contaminated sites in Boston and other New England communities; managing more detailed site assessments (fieldwork, technical analyses and reporting) and managing cleanup efforts in advance of development.

- Karen L. Rose— Director of Health. Ms. Rose will serve as an advisor to the project on health and human impact analysis relating to sites chosen for assessment. She has 32 years of experience in nursing and has been the Director of Public Health since 2000. She has a B.A in Nursing and an M.S. in Health Care Administration from Simmons College. Since 2009, Ms. Rose has also been Director of Elder Affairs, providing services, access and resources to the senior population.
- Matt Grove— Consultant and expert in site contamination from Brown and Caldwell, the City's on-call consultant. He has more than 17 years of diverse experience as a geologist including providing project management and technical expertise on a variety of site investigation, remediation, and monitoring projects under the MCP. He has a Bachelor's of Science in Geology from Bates College and Ph.D. in Geology from Duke University and is a Certified Hazardous Materials Manager. Dr. Grove has been Brown and Caldwell's project manager for each of the City's on-call projects for the past five years and has been directed the assessment activities on the subject property since January 2009.

The City of Medford has a dedicated Human Resources staff that would be committed to fulfilling any of these position should employee turnover occur. The City of Medford also has a very talented Chief Procurement Officer who knows the state regulations extensively.

Medford has complied with all applicable procurement procedures and hired Brown and Caldwell as the on-call Licensed Site Professional (LSP). They are an extremely qualified firm that employs several LSPs, environmental scientists, and geologists who clearly and effectively communicate with the public to help inform and educate them on the status of the project as well as solicit input. The City will work with Brown and Caldwell to follow the appropriate protocol and develop bid documents to hire a contractor to complete the cleanup. The ideal contractor for our project will have extensive experience with contaminated sites, a site this size, with similar contaminants, using a technique that the LSP has selected, and is at least familiar with EPA's grant program and its associated requirements.

ii. Adverse Audits

In the City of Medford's Independent Auditors' Reports Pursuant to Governmental Auditing Standards and the Single Audit Act Amendments of 1996 for the year ended June 30, 2009, no significant deficiencies were identified.

iii. Past Performance

The City of Medford has not received an EPA Brownfields Grant directly but has received other federal and/or non-federal assistance agreements. A description of the five most recent assistance agreements are provided below.

- Energy Efficiency Conservation Block Grant (EECBG)
In September 2009 the City received \$504,000 from the Federal Government for energy efficiency improvements in the middle and elementary schools. The City has successfully managed this project and has maintained project schedule. Due to bid prices coming in higher than estimated a portion of the scope of work was not able to be completed.

Detailed descriptions of all changes and completed work have been included in all quarterly reports to date. The City has complied with the reporting requirements and continues to make progress on the project.

- Community Development Block Grant (CDBG)
As an Entitlement Community, the City of Medford receives federal assistance money annually. The City is compliance with all required reporting. The amount is \$1,417,255.
- MORE Jobs Infrastructure Grant
The City is currently in receipt of an \$800,000.00 Massachusetts Opportunity Relocation and Expansion (MORE) grant for completion of a feasibility study and design of a parking garage in Medford Square. The feasibility study is nearing completion and the City is now in the process of hiring an architect and an owner's project manager to move ahead with the project.
- Economic Development Initiative (EDI)
The Economic Development Initiative (EDI) special projects funding the City received totaled \$693,000 in 2006. This is currently being drawn down by the City for the renovation of the Condon Shell Park, a riverside park adjacent to Medford Square. Accomplishment and Expenditure reports are submitted to HUD every six months, as required by the grant conditions.

The City is in receipt of an additional 2009 EDI special projects grant \$199,000 for the realignment of Clippership Drive in Medford Square. These funds will be drawn down shortly and the appropriate reports submitted to HUD.

- American Recovery and Reinvestment Act (ARRA)
The City of Medford was awarded federal funds through the American Recovery and Reinvestment Act of 2009 (ARRA). The City received \$716,681.00 for Homelessness Prevention and Rapid Re-housing Program (HPRP) to target those at risk of homelessness and those who are already experiencing homelessness and need temporary assistance to obtain and retain housing. Through June 30, 2010, forty-nine households received assistance through this program, with \$153,777.76 expended and an additional \$150,000.00 committed for the continued service to these households. The City also received \$468,454.00 in CDBG Recovery Act (CDBG-R) funds for a Neighborhood Infrastructure Improvement Program, expending \$316,024.59 for street reconstruction projects, which were completed in December 2009. The City is in full compliance of all program requirements and submits quarterly reports detailing expenditures, beneficiaries served and jobs created. The term of these awards is three years; the programs have been in place one year, and will continue for two more years.

3. Community Engagement and Partnerships

a. Plan for Involving the Affected Community

The City of Medford plans to include the community throughout the length of the grant. The City posted a public meeting notice in the *Medford Daily Mercury* on November 5, 2012. The notice informed residents of the meeting to be held on November 13, 2012 and provided a location at City Hall where a draft of the grant application could be viewed. Also included in the notice were details for how residents could submit comments on the draft grant application and that comments would be accepted until the close of business on November 14, 2012.

The meeting informed residents and businesses of the City's intent to apply for a clean up grant. In attendance at the meeting from the City's Brownfield Team was the City's Project Manger, the environmental consultant, and City Engineer. This meeting was held to collect feedback on the draft application and answer any questions. All questions asked at the meeting were answered in person and if the questions required follow-up the City's Project Manager will provide the necessary information within a week. The attendees were given the Project Managers contact information in case they had follow-up questions. Due to the extension of the grant's due date from November 19 to December 3, the City decided to extend the comment period until November 21, 2012. Comments were accepted on the grant application until close of business on November 21, 2012 and all appropriate comments were incorporated into the final grant application. The final application will be posted on the City's web page.

Once EPA notifies the City of the award of the assessment grants the City of Medford will hold a press conference announcing the news. The Mayor will also inform residents of these grants via "Medford Update" aired on the local public TV station. Medford will continue to use its multi-media approach to communicate with the community, including the local newspaper, City website, and special meetings as appropriate throughout the term of the grants. The City will provide interpretation of materials for non-English speaking residents as well as accommodate those who are hearing and visually impaired. Information will be presented in concise, non-technical language, understandable by a broad audience. The EPA will be identified as a funding source.

The City of Medford will hold community meetings throughout the duration of the project. The City's environmental consultants from Brown and Caldwell will lead the meetings and the City's Brownfield Team will participate in these meetings. It is anticipated that the meetings will be held in accessible convenient public spaces such as the West Medford Community Center, City Hall, the library, or schools. All meetings will be posted at City Hall and on the web page at least 10 days prior to the meeting date. Meeting minutes will be taken at each meeting and will be posted to the City's web page. It is anticipated that the public meetings will be held at milestones throughout the project as outlined below.

- **Kick-Off Meeting:** This meeting will be an overview of the awarded cleanup grant, projected timeline and discussion of the current project status.
- **Weekly Construction Meetings:** These meetings will be held on site or at City Hall and will review the work that is planned for the week, will review any issues or concerns regarding work that was completed during the previous week and how those problems will be avoided going forward, and if the project remains on track.

- **Redevelopment Planning:** The City will seek feedback regarding the reuse planning related to the site(s). Some areas of the City have been planned and proposed redevelopment is outlined in plans such as The Medford Square Master Plan. However, public comment will still be welcomed as the City proceeds with the cleanup and redevelopment of these areas. Copies of reports will be available to the public in the event that potential developers are interested in the assessed sites.

b. Efforts and plans to develop partnerships

i. Local and State environmental and health agencies

The City of Medford is in close contact with MassDEP and the City's LSP has a great working relationship with this state agency. Massachusetts has a privatized licensure program where individuals, known as LSPs, work separately from the state Department of Environmental Protection to ensure proper assessment and cleanup of contaminated disposal sites. Under this program, the LSP serves as an extension of the State's environmental regulatory authority and is required to hold paramount the protection of human health, safety, public welfare and the environment. The Massachusetts regulations contain several provisions for notifying the chief municipal officer and local health officials of site assessment and cleanup activities including providing written notification in advance of cleanup activities, and written notification of any imminent threats to human health that may exist at a disposal site. In addition, the Massachusetts regulations provide for notices to property owners with a Disposal Site boundary at certain times during a project and additional public involvement activities throughout the process.

Medford and its LSP will continue to work and communicate with the MassDEP to keep the state apprised of the status of the cleanup and ensure that the Site is in compliance with state environmental regulations. The next report is due to MassDEP in March of 2013 and the City expects to meet with the MassDEP throughout the clean-up.

The Director of Medford's Department of Public Health has been a part of this project since the beginning and is very supportive of the cleanup and redevelopment of this Site. She has worked with the businesses to remedy hazardous situations in the past and will continue to provide support where it's needed. Going forward Medford's Health Department will be able to provide information on known health risks in the community, information on sensitive populations, and situations of identified immediate risks to human health.

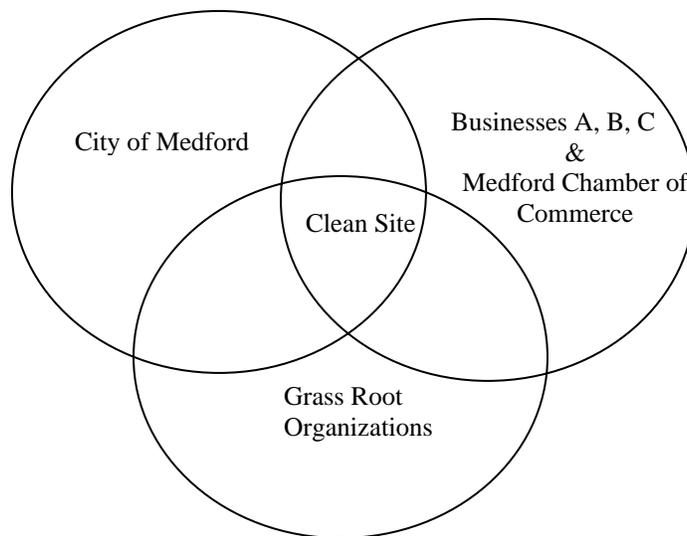
EPA is the main federal agency that the City of Medford will be coordinating with on this project. The City's Project Manager has a great working relationship with Region 1's staff since she worked with them to successfully complete two brownfield cleanup projects in Salem, Massachusetts. Medford will research and apply for any grant opportunities from other federal agencies to help spur redevelopment in this area. Funding from the US Department of Housing and Urban Development (HUD) and US Economic Development Administration (EDA) fit this project the best. There are opportunities for housing to be developed as well as the expansion of existing space for commercial businesses.

The most current US EPA Brownfield job training program closest to Medford is JFY Net Works located in Boston. In 2010 JFY Net Works received a \$200,000 EPA Job Training grant and has an 80% placement rate of graduates. Although this program has ended, Medford would prefer to work with local contractors who understand brownfields so when the City develops the bidding specifications they will include a requirement that the contractors be knowledgeable of brownfields and preferably have completed the brownfield job training program.

3.c Community based organizations

The community organizations that have been involved in this project include several businesses located adjacent to the Site. These businesses have worked with the City providing access to their properties so the necessary testing and monitoring could be completed, and have provided input on redevelopment ideas. Just like the City, they are committed to seeing the Site be cleaned up.

Going forward it is expected that the businesses will provide feedback on how the cleanup is going and what they would like to see as redevelopment possibilities. Because the Site is located in an active downtown, the businesses will play a key role in letting the City know how traffic and pedestrian flow is working once the cleanup process has begun.



The Medford Chamber of Commerce is a membership organization that provides information and support to businesses located in Medford. The mission of the Chamber is for Medford to have a thriving local economy made up of a variety of active successful businesses. As a participant in this project, the Chamber will provide information to businesses about the cleanup in addition to the materials the City provides, and can work through challenges that may exist during the cleanup phase. The Chamber can help develop signage saying that businesses will remain open during construction, include information in their newsletter or on their webpage about business hours and where patrons can park during the cleanup. The City will also work with the businesses to develop proper signage for parking and access during construction.

Some of the City departments that will be involved in this project and will work with the abutters such as the businesses are included below. The specific tasks of each of these people will vary depending on their department. Included in the table is a column that lists the services these departments will provide.

Other key partners include:

Partner Name	Contact	Phone Number	Services to be provided
Medford Building Department	Paul Mochi	781-393-2511	Building permits and assurance that the project is safe
Medford Department of Public Works	Paul Gere	781-393-2417	Coordination of closing parking lot and arranging for parking in a new location
Medford Engineering Department	Cassandra Koutalidis	781-393-2474	Review of documents and coordination with businesses
Medford Green Team	Syrah McGiven		Coordinate with project team to help identify redevelopment opportunities that would encourage walkability and a cleaner environment
Medford Health Department	Karen Rose	781-393-2560	Review of health data such as air quality impacts and assurance that project is meeting health standards
Medford Office of Energy and Environment	Carey Duques	781-393-2137	Coordination between the businesses, Chamber, City Departments, Environmental Consultant, and EPA
Medford Office of Planning & Community Development (OCD)	Lauren DiLorenzo	781-393-2480	Provide input regarding redevelopment options and economic development opportunities

4. Project benefits

a. Welfare and/or public health

The cleanup of this Site will result in a cleaner environment. The removal of the contamination will improve working conditions for the employees of the businesses adjacent to this Site. Once the PCE laden soil is excavated and removed from the Site the indoor air quality will drastically improve. The businesses will no longer need to operate indoor air treatment, ventilation or sub-slab depressurization systems to have clean air. Unsightly ventilation pipes will be able to be removed from the exterior of the buildings. Excavation of contaminated soil and treatment of groundwater will improve groundwater quality and eliminate potential impacts to surface water. Clean soil will be brought in to replace the contaminated soil resulting in a healthier environment for everyone and eliminating potential future risk to workers involved in construction or utility work on the site. By

cleaning up the Site the current risk that is present for sensitive populations- elderly, children at daycare is being removed.

b. Economic benefits and/or Greenspace

The cleanup of this Site will result in an increase in property value. Jobs at the adjacent businesses will be retained as tenants will stay in their leased spaces. New jobs will be created as vacant tenant spaces are filled. The larger customer base in the area will positively affect other local businesses. The City of Medford will also be able to retain jobs as a result of the grant providing some financial support for the cleanup. The cleanup also provides the property owners with the potential to sell or redevelop their property, which has been hindered by the presence of contamination.

Non-economic benefits of this cleanup include the installation of best management practices for stormwater where possible. Once the Site is cleaned the City will use porous pavement to allow stormwater to infiltrate and will develop landscaping in green spaces where possible along the edge of the property.

c. Environmental Benefits from Infrastructure Reuse/Sustainable Reuse

The cleanup of this Site enables potential redevelopment that will enhance the area. Without the cleanup, re-use of this Site as anything other than a parking lot is not possible. A redevelopment plan of this Site could include the construction of a parking facility that would serve the businesses in West Medford Square. The Site could also host mixed-use development in that existing building footprints could be expanded and residential units constructed above the existing retail space. Further, this potential development could be considered Transit Oriented Development (TOD) because of the Site's close proximity to the West Medford commuter rail station. This rail line carries both Boston-Lowell commuter trains as well Amtrak Downeaster trains (Boston-Brunswick, Maine). Affordable housing units could be part of this mix, which would provide additional options for Medford residents who require ready access to mass transit. In short, redevelopment would enhance this vital part of Medford.

Sufficient infrastructure already exists at this Site to serve a new mixed-use development. Wide, handicap-accessible sidewalks and ramps already exist on the abutting streets and in West Medford Square. Public transit, both bus and commuter rail, are less than 300 feet from the Site.

ATTACHMENT i

THRESHOLD DOCUMENTATION

1. Applicant Eligibility

- a. *Eligible Entity:* The City of Medford is an eligible entity for the EPA Brownfields Grant Program. The City is a general-purpose unit of local government.
- b. *Site Ownership:* The City of Medford is the sole owner of the site.

2. Letter from State or Tribal Environmental Authority

A letter from the Commonwealth of Massachusetts's Department of Environmental Protection (MassDEP) is attached acknowledging the City of Medford's intent to submit this EPA Cleanup Grant proposal and to conduct remedial activities at the Former 448 High Street Site.

3. Site Eligibility and Property Ownership Eligibility

a. Basic Site Information

- a. *Site Name:* Former 448 High Street
- b. *Site Address:* Former 448 High Street Medford, MA 02155
- c. *Current Owner:* City of Medford, Massachusetts
- d. *City is the current owner*

b. Status and History of Contamination at the Site

- a. *Site Contaminates:* This site is contaminated by hazardous substances including Tetrachloroethylene (PCE), trichloroethylene (TCE) and cis-1,2-dichloroethylene (cis-1,2-DCE)
- b. *Operational History and Current Use(s) of the Site:* The former 448 High Street property was occupied by a steam laundry building beginning between 1897 and 1903 and ending in 1942 when the City of Medford Building Department records indicate it was demolished. Steam laundry operations on the property are believed to have ended in 1939 based on records in the City Clerk's office. It is also believed that the property was unpaved for a period of time following the demolition of the steam laundry building. The City took the property by eminent domain in December 1961 and converted it to a municipal parking lot.

The site is currently used as a municipal parking lot consisting of a paved surface with vegetated borders along the perimeter. The property is bounded by commercial properties to the north and south and by a railroad line (MBTA/Amtrak) to the west.

- c. *Environmental Concerns:* Several chlorinated volatile organic compounds (VOC), primarily PCE have been detected in soil and groundwater at concentrations which exceed Massachusetts Reportable Concentrations. In addition, indoor air in three adjacent commercial properties has been impacted by PCE vapors migrating from soil and groundwater.

d. *How the site became contaminated and the nature and extent of the contamination:* Dry cleaning operations are known to have occurred on two of the adjacent commercial properties: 438-446 High Street (Nu-Way Cleaners, 1946-1977) and 452-460 High Street (1952-1971). It is unknown whether a steam laundry located at 448 High Street (ca. 1900-1942), used PCE in its operations (either as a spot cleaner or by converting to the dry cleaning process). Based on the multiple dry cleaners that have operated on the adjacent parcels, it is assumed that the PCE was likely released by one or more of these operations to unpaved soils on the former 448 High Street property. The Massachusetts Contingency Plan (MCP, 310 CMR 40.0000) Phase I Initial Site Investigation (ISI) and Phase II Comprehensive Site Assessment (CSA) for the Former 448 High Street Site delineated the extent of contamination in soil, groundwater, and indoor air.

c. Sites Ineligible for Funding

This is an eligible site and is:

- a. *Not* listed or proposed for listing on the National Priorities List;
- b. *Not* subject to unilateral administrative orders, court orders, administrative orders on consent, or judicial consent decrees issued to or entered into by parties under CERCLA;
- c. *Not* subject to the jurisdiction, custody, or control of the United States government

d. Sites Requiring a Property-Specific Determination

This is an eligible site and is:

- a. *Not* subject to a CERCLA planned or ongoing removal action;
- b. *Not* subject to a permit issued by the US or a State under the Resource Conservation and Recovery Act (RCRA), the federal Water Pollution Control Act, the Toxic Substance Control Act (TSCA), or Safe Drinking Water Act (DWA);
- c. *Not* a RCRA facility;
- d. *Not* a land disposal unit that has filed a closure notification under Subtitle C of RCRA and *not* subject to closure requirements specified in a closure plan or permit;
- e. *Not* contaminated with a release of polychlorinated biphenyls (PCBs) that are subject to remediation under TSCA There are no structures on site that could contain nor were any detected in site soil and groundwater during Phase II activities; and
- f. *Not* a portion of a facility for which assistance for response activities has been obtained under Subtitle I of RCRA from the Leaking Underground Storage Tank Trust Fund.

e. Environmental Assessment Required for Cleanup Proposals

The City contracted Brown and Caldwell (BC) an MCP Phase I ISI as well as a Phase II CSA at the site in order to obtain sufficient information to enable the development of conclusions and Licensed Site Professional (LSP) Opinions regarding: 1) the source, nature, extent, and potential impacts of releases of oil and/or hazardous material at the site; 2) the risk of harm posed by the site to health, safety, public welfare and the environment; and 3) the need to conduct remedial actions at the site. The Phase I ISI was completed in January 2010 and the Phase II CSA was completed in June 2012. The assessments conducted, and additional work required are as follows:

- A Phase I ISI Report was completed in January 2010 in accordance with the MCP. The Phase I ISI summarized previous soil and groundwater sampling as well as the results of a soil gas survey.
- A Phase II CSA Report was completed in June 2012 in accordance with the MCP. The Phase II CSA included a second soil gas survey and additional soil and groundwater sampling. The Phase II CSA identified the disposal site boundary and evaluated the risk to human health, public welfare, the environment, and safety posed by the site.
- A Phase III Remedial Action Plan (RAP), which included an evaluation of cleanup alternatives, was completed in July 2012 in accordance with the MCP.
- The Phase II Investigation identified petroleum-based constituents in soil above Massachusetts's regulatory reporting thresholds. Incidental lead and arsenic contamination was also detected in site soil.
- In addition, an Immediate Response Action (IRA) is underway to address impacts to indoor air which pose an Imminent Hazard as defined by the MCP. An IRA Plan and IRA Plan Modifications were submitted to MassDEP in November 2009, February 2010, and February 2011. IRA Status Reports have been submitted every six months since February 2009 in accordance with the MCP. Remedial actions taken under the IRA, which have involved the installation of a sub-slab depressurization system and indoor air treatment, have mitigated the Imminent Hazard condition, but regular status reports are required until such time as the active measures can be terminated.

f. CERCLA §107 Liability

As the current owner or operator at the Site the City of Medford is not potentially liable for contamination at the Site under CERCLA. The City of Medford acquired the property by eminent domain in December 1961 and is therefore afforded CERCLA liability protection or defense. The City purchased the Site after the contamination was present, although at the time of acquisition, the City was not aware of contamination. Medford was not the owner or operator at the time of disposal; nor was/is it a party that arranged for treatment or disposal of hazardous substances, nor was/is it a party that accepted hazardous substances for transport to disposal or treatment.

g. Enforcement Actions

On January 22, 2009, MassDEP issued a Notice of Responsibility (NOR) to the City of Medford as a Potentially Responsible Party (PRP) under the MCP as the current owner of the former 448 High Street property where contamination has come to be located. Since there were no Imminent Hazard conditions on the municipal lot (no indoor air receptors), the City was not required to conduct an IRA at the time, but was required to complete a Phase I ISI and submit either a Phase I ISI Report and Tier Classification or file a RAO within one year of notification of the release. In May 2009, MassDEP issued RTN 3-28477 to the City of Medford so its response actions could be tracked separately from those of the other four PRPs.

MassDEP subsequently concluded that PCE vapors were migrating into the 7 Canal Street building from an area of PCE-contaminated soil located on the City of Medford parking lot and that this migration pathway was contributing significantly to the observed concentrations. As a direct result of this conclusion, MassDEP issued an

NOR dated September 15, 2009 which required the City of Medford to conduct an IRA on the 7 Canal Street property. IRAs conducted at the 7 Canal Street property on behalf of the City of Medford have included the following: collection and laboratory analysis of multiple rounds of indoor air samples, sealing of a large portion of the concrete block wall of the 7 Canal Street building that abuts the City parking lot, replacement of carbon units on two filtration units in the office area, partial sealing of the poured concrete wall in the basement, installation of AirPura C600 carbon units in the office and the basement, and installation of a sub-slab depressurization system. Based on the most recent rounds of indoor air samples, collected in February and March 2012 as part of the Phase II CSA, the operation of the SSDS is mitigating the Imminent Hazard condition at the 7 Canal Street property.

h. Information on Liability and Defenses/Protections

- i. *Information on the Property Acquisition:* The City of Medford acquired ownership of the parcel by eminent domain in December 1961.
- ii. *Timing and/or Contribution Toward Hazardous Substances Disposal:* Chlorinated solvents were disposed of on the property prior to the City assuming ownership. Environmental contamination is attributed to one or more of the dry cleaners which operated on adjacent commercial properties. Chlorinated solvents were likely discharged to the ground surface during the time when the lot was vacant and unpaved. The City of Medford did not dispense or dispose of chlorinated solvents on the property, did not exacerbate the existing chlorinated solvent contamination at the site, and did not arrange for the disposal of hazardous substances at the site or transport hazardous substances to the site.
- iii. *Pre-Purchase Inquiry:* The City of Medford acquired the property by eminent domain in December 1961. This pre-dates the requirements for completion of an ASTM Phase I and/or Phase II ESA.
- iv. *Post-Acquisition Uses:* The City of Medford has used the property as a paved, municipal parking lot since acquiring the property in December 1961.
- v. *Continuing Obligations:* The source of the release is believed to have been historical disposal of chlorinated solvents to the ground surface when the property was vacant and unpaved. The City of Medford paved the property following its acquisition which stopped any continuing releases and prevented any future releases. The City of Medford has maintained the pavement on the parking lot which has prevented any exposure to contaminated soil and limited the infiltration of groundwater which could exacerbate the impacts to groundwater. In addition, the City of Medford has conducted an IRA under the MCP which has limited exposure to indoor air which has been impacted by the previously released hazardous substances on the property. The City of Medford is committed to complying with any and all land-use restrictions and institutional controls should any be applied in the future, performing the cleanup of the property, complying with all information requests and administrative subpoenas which may be issued in connection with the property, and providing all legally required notices.

4. Cleanup Authority and Oversight Structure

a. City Oversight of Site Cleanup

The City has retained BC, a qualified environmental consultant, to design, oversee, and document remediation activities at the site, as required by the MassDEP. This City has

an established Purchasing Policy that incorporates procedures consistent with 40 CFR 31.36. This policy and its procedures ensure a competitive, sealed bid process and that were followed in procuring an environmental consultant and will be followed in procuring a contractor to perform cleanup activities.

Massachusetts has a privatized licensure program where individuals, known as Licensed Site Professionals (LSPs), work separately from the MassDEP to ensure the proper assessment and cleanup of contaminated disposal sites. Under this program, the LSP serves as an extension of the State's environmental regulatory authority and is required to hold paramount the protection of human health, safety, public welfare and the environment. The Massachusetts regulations contain several provisions for notifying the chief municipal officer and local health officials of site assessment and cleanup activities including providing written notification in advance of cleanup activities, and written notification of any imminent threats to human health that may exist at a disposal site.

The site has already been enrolled in the Massachusetts cleanup program under the MCP and site assessment, risk characterization, and remedial actions have already taken place under the auspices of this program.

b. Adjacent Landowners

Access to three adjacent commercial properties will be required to conduct environmental sampling to assess the effectiveness of remedial actions taken on the City property. Limited access agreements were secured from the three property owners during the previous site assessments and the City does not anticipate any difficulty in obtaining similar access agreements for monitoring during and after remediation.

Analysis of Brownfield Cleanup Alternatives (ABCA) – Preliminary Evaluation
Former 448 High Street Site, Medford, Massachusetts
MassDEP Release Tracking Number (RTN) 3-28477

Prepared by the City of Medford

I. Introduction and Background

a. Site Location:

The subject property (“the Site”) is located in West Medford at the intersection of High Street and Canal Street. The site is a municipal parking lot which was formerly identified as 448 High Street. The “Disposal Site” as defined by the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000) includes the municipal parking lot as well as portions of three adjacent commercial properties (7 Canal Street, 438-446 High Street, and 452-460 High Street).

b. Previous Site Use(s) and Any Previous Cleanup/Remediation:

The subject property was occupied by a steam laundry building beginning between 1897 and 1903 and ending in 1942 when City of Medford Building Department records indicate it was demolished. Steam laundry operations on the property are believed to have ended in 1939 based on records in the City Clerk’s office. It is also believed that the property was unpaved for a period of time following the demolition of the steam laundry building. The City took ownership of the property by eminent domain in December 1961 and converted it to a municipal parking lot.

The Site has been impacted by chlorinated VOCs, primarily PCE. Dry cleaning operations are known to have occurred on the two adjacent properties: the 438-446 High Street property (Nu-Way Cleaners, 1946-1977) and the 452-460 High Street property (1952-1971). It is unknown whether a steam laundry located at 448 High Street (ca. 1900-1942), used PCE in its operations (either as a spot cleaner or by converting to the dry cleaning process). Although PCE was introduced to the dry cleaning industry in the late 1920s, it did not become the leading chlorinated solvent for dry cleaning until the 1940s (around the time the steam laundry building was demolished). Prior to about 1940, Stoddard solvent (a petroleum distillate) and carbon tetrachloride were the principal solvents used in dry cleaning operations. Neither Stoddard solvent constituents or carbon tetrachloride have been detected on the Site. Based on the multiple dry cleaners that have operated on the adjacent properties, it is assumed that the PCE was likely released by one or more of these operations.

In September 2008, as part of a program to re-evaluate closed PCE sites in light of changes in understanding of the toxicology of PCE, the MassDEP conducted an audit of the 7 Canal Street Site (RTN 3-16760), located immediately to the south of the subject property. As a result of the audit, MassDEP issued a Notice of Audit Findings (NOAF) directing Shelco Realty Trust, the owner of 7 Canal Street at the time of the audit, to conduct additional soil and groundwater investigations. Between October and December 2008, Environmental Reclamation, LLC (ER) of Natick Massachusetts, on behalf of Shelco Realty Trust, collected groundwater samples for laboratory analysis VOCs from three existing monitoring wells and a basement sump located on the property, installed seven borings with monitoring wells on the adjacent City of Medford

parking lot (the subject property), and collected soil and groundwater samples for laboratory analysis of VOCs from the seven new locations.

Due to the detection of concentrations of PCE in soil and groundwater above MCP GW-2 standards which represented a potential risk to indoor air, ER also collected two indoor air samples for laboratory analysis of VOCs from the 7 Canal Street property. The air sampling results indicated the potential for an Imminent Hazard condition and MassDEP authorized ER to conduct an Immediate Response Action (IRA) to address the potential Imminent Hazard condition at the 7 Canal Street property. In addition, between January 5 and 20, 2009, MassDEP's Emergency Response Section conducted screening level analyses of indoor air samples from the commercial properties adjacent to the City parking lot and determined that potential Imminent Hazard conditions existed in the building at 438-446 High Street and in the building at 452-460 High Street. Verbal approval was given to each of the property owners to conduct specific response actions (ventilation, sealing of sumps and basement cracks, and installation of carbon air filtration systems) to minimize PCE impacts to indoor air. On January 22, 2009 MassDEP issued Notices of Responsibility (NORs) to the following parties they had identified as Potentially Responsible Parties (PRPs) with liability for response action costs: the City of Medford (as current owner of the parking lot), the owners of the three affected commercial properties (Shelco Realty Trust, Unicorn Realty Trust, A&K Limited Partnership), and Nu-Way Cleaners, the dry cleaner formerly located in the 438-446 High Street building. In May 2009, MassDEP issued unique RTNs to the City of Medford (RTN 3-28477), A&K Limited Partnership (RTN 3-28479), and Unicorn Realty Trust (RTN 3-28478) so that response actions conducted on the other properties could be tracked separately.

On January 19, 2009, ER submitted a Downgradient Property Status (DPS) submittal for the 7 Canal Street property which concluded that the source of the PCE detected on the 7 Canal Street property was from an upgradient location. IRAs conducted in late 2008 and 2009 by ER on behalf of the property owner (which included the sealing of cracks and a basement sump and installation of carbon filtration units in the office area and basement) were not sufficient to address the Imminent Hazard. MassDEP concluded that PCE vapors were migrating into the building from an area of PCE-contaminated soil located on the City of Medford parking lot and that this migration pathway was contributing significantly to the observed concentrations. As a direct result of this conclusion, MassDEP issued an NOR dated September 15, 2009 which required the City of Medford to conduct an IRA on the 7 Canal Street property. IRAs conducted at the 7 Canal Street property on behalf of the City of Medford have included the following: collection and laboratory analysis of multiple rounds of indoor air samples, sealing of a large portion of the concrete block wall of the 7 Canal Street building that abuts the City parking lot, replacement of carbon units on two filtration units in the office area, partial sealing of the poured concrete wall in the basement, installation of AirPura C600 carbon units in the office and the basement, and installation of a sub-slab depressurization system (SSDS). Based on the most recent rounds of indoor air samples, collected in February and March 2012 as part of the Phase II Comprehensive Site Assessment (CSA), the operation of the SSDS is mitigating the Imminent Hazard condition at the 7 Canal Street property.

c. *Site Assessment Findings:*

In 2009, the City contracted Brown and Caldwell (BC) a qualified environmental consulting firm, to complete an MCP Phase I Initial Site Investigation (ISI) as well as a Phase II CSA at the site in order to obtain sufficient information to enable the development of conclusions and Licensed Site Professional (LSP) Opinions regarding: 1) the source, nature, extent, and potential impacts of releases of oil and/or hazardous material at the site; 2) the risk of harm posed by the site to health, safety, public welfare and the environment; and 3) the need to conduct remedial actions at the site. The Phase I ISI was completed in January 2010 and the Phase II CSA was completed in June 2012.

The highest concentrations of PCE in soil have been observed in the vadose zone down to the water table in a limited portion of the municipal parking lot where the highest concentrations of VOCs in soil gas were detected, and where field screening during drilling indicated elevated VOC concentrations from ground surface to the water table. Shallow soil outside of this area shows significantly lower concentrations of contaminants. PCE concentrations in soil in the suspected source area generally decrease below the water table (as does field screening results for VOCs) and PCE was detected in only very low concentrations in the samples collected from the upper part of the clay layer.

The highest concentrations of PCE in groundwater are located in wells downgradient of the suspected vadose zone source area. DNAPL has not been detected in Site monitoring wells; however, there are multiple lines of evidence which suggest a potential localized and non-mobile DNAPL source area in the vicinity of the suspected source area, which is upgradient of the highest concentrations in groundwater. Significant groundwater impacts appear to be limited to the immediate vicinity of the parking lot and adjacent commercial properties as concentrations of PCE in groundwater decrease significantly from one side of Canal Street and High Street to the other. Impacted groundwater is a source of impacts to indoor air as concentrations of PCE above the GW-2 standard ($>50 \mu\text{g}/\text{l}$) have been detected beneath two of the adjacent commercial buildings (438-446 High Street and 7 Canal Street), and PCE has been detected at elevated levels in indoor air in these buildings. Groundwater migrates in a northeasterly direction across the Site due to local influences but ultimately discharges to the Mystic River. As the concentrations of PCE in groundwater on the downgradient edge of the Site are below MCP Method 1 GW-3 standards, it is unlikely that off-site migration of shallow groundwater poses a risk to surface water.

A MCP Method 3 (site-specific) Risk Characterization (RC) was conducted to characterize the risk of Site contamination to human health, safety, public welfare, and the environment. The RC identified Hot Spots for soil and groundwater. The RC concluded the following:

- A Condition of No Significant Risk to human health exists for current or future utility workers (site-wide and in the soil hot spot);
- A Condition of No Significant Risk to human health does not exist for future residents (site-wide, soil hot spot, and indoor air), current or future construction workers (site-wide, soil hot spot, and groundwater hot spot), current or future outdoor site worker (site-wide and soil hot spot), and current or future indoor site workers (each commercial property and future buildings constructed without engineering controls); and

- A Condition of No Significant Risk of harm to public welfare, safety and the environment exists for the Site.

The outcome of the MCP Phase II CSA is that further action is necessary at the Site to achieve a Permanent Solution. An MCP Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives is necessary to select a remedial action alternative for the Site.

d. *Project Goal and Site Reuse Plan:*

The project goal is to conduct an appropriate level of cleanup at that the site that effectively mitigates the risks to human health, reduces the economic impacts on the adjacent commercial properties, and supports future redevelopment of the Site. The subject property is zoned as Commercial-1 by the City of Medford for a variety of potential future uses. There are a number of possible redevelopment scenarios currently being considered for this parcel including, but not limited to the following:

- Multi-story parking structure to address need for additional parking in this part of West Medford which will be exacerbated by planned safety improvements to nearby intersections which will eliminate some street parking.
- Multi-story mixed use development (commercial on the first floor and residential on the second) which would allow for expansion of existing commercial spaces and creation of additional residential properties near mass transit.
- Expansion of nearby Medford Housing Authority facility to create additional low-income or elderly/disabled development housing.

II. **Applicable Regulations and Cleanup Standards**

a. *Cleanup Oversight Responsibility:*

Massachusetts has a privatized licensure program where individuals, known as Licensed Site Professionals (LSPs), work separately from the MassDEP to ensure the proper assessment and cleanup of contaminated disposal sites. Under this program, the LSP serves as an extension of the State's environmental regulatory authority and is required to hold paramount the protection of human health, safety, public welfare and the environment. The Massachusetts regulations contain several provisions for notifying the chief municipal officer and local health officials of site assessment and cleanup activities including providing written notification in advance of cleanup activities, and written notification of any imminent threats to human health that may exist at a disposal site.

The cleanup will be overseen by the City Engineer and the Environmental Agent for the City of Medford. The City has retained BC, a qualified environmental consultant with experienced LSPs, to design, oversee, and document remediation activities at the site, as required by the MassDEP. The site has already been enrolled in the Massachusetts cleanup program under the MCP and site assessment, risk characterization, and remedial actions have already taken place under the auspices of this program. All documents prepared on behalf of the City for this site are submitted to MassDEP under Release Tracking Number (RTN) 3-28477 and are available to the public through MassDEP's website.

b. *Cleanup Standards for Major Contaminants:*

The goal of the City's cleanup plan is to achieve a Permanent Solution under the MCP which would eliminate the risk associated with the following:

- Exposure to PCE in indoor air for adjacent commercial tenants and any future indoor site workers or residents.
- Direct contact with contaminated soil by construction workers, outdoor site workers or future residents.
- Direct contact with contaminated groundwater by construction workers.

In addition, the proposed remedial actions will eliminate or control the continuing sources of PCE vapors to indoor air (i.e., impacted soil and groundwater).

The City currently anticipates that the Massachusetts state standards for unrestricted use will be used as the soil and groundwater cleanup standards. These standards include MCP Method 1 S-1 soil standards, which are protective of residential use, MCP Method 1 GW-2 groundwater standards, which are protective of groundwater as a source of vapors to indoor air, and MCP Method 1 GW-3 groundwater standards, which are protective of groundwater as it discharges to surface water. In addition, a risk-based approach (MCP Method 3) will be used to evaluate risks associated with exposure to indoor air (both Imminent Hazard and Significant Risk). It is also possible that site-specific risk-based cleanup standards (MCP Method 3) will be generated for compounds of concern in accordance with the state regulations.

c. *Laws and Regulations Applicable to the Cleanup:*

Laws and regulations that are applicable to the cleanup include the federal Small Business Liability Relief and Brownfields Revitalization Act, the federal Davis-Bacon Act, the federal Occupational Safety and Health Act, the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000), federal and state hazardous waste regulations and City of Medford by-laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed.

In addition, all appropriate permits (e.g. DigSafe clearance, City of Medford trenching permit, Bill of Lading or Hazardous Waste Manifest) will be obtained prior to or during the work.

III. Evaluation of Cleanup Alternatives

a. *Cleanup Alternatives Considered:*

An initial technology screening was conducted to identify those technologies which are reasonably likely to be feasible and achieve the site-specific remedial goals. The retained technologies (institutional controls, excavation, in-situ soil treatment, in-situ groundwater treatment and vapor mitigation) were assembled into a series of cleanup alternatives to be evaluated for effectiveness, implementability, and cost.

The following are the alternatives which were considered:

- Alternative 1: No Further Action (Maintain Existing Systems),
- Alternative 2: Enhanced Vapor Mitigation and Long-Term Operation, Maintenance, and Monitoring (OM&M),
- Alternative 3: Hot Spot Excavation and Monitored Natural Attenuation (MNA),

- Alternative 4: Hot Spot Excavation and In-Situ Chemical Oxidation (ISCO) Groundwater Treatment,
- Alternative 5: Soil Vapor Extraction (SVE) and ISCO Groundwater Treatment, and
- Alternative 6: Soil and Groundwater Thermal Treatment.

b. *Cost Estimate for Cleanup Alternatives:*

The effectiveness, implementability and preliminary cost estimates for each alternative are outlined below.

1. *Effectiveness*

No Further Action (Alternative 1) is not an effective alternative as this alternative will not control or prevent the exposure of receptors to contamination at the site or achieve regulatory closure. Concentrations of PCE in indoor air in the adjacent commercial buildings pose a Significant Risk and Substantial Hazard to commercial workers. In addition, there would be a potential risk from exposure to indoor air for any future commercial workers or residents on the subject property following redevelopment.

Enhanced vapor mitigation and long-term OMM (Alternative 2) is slightly more effective than No Further Action as it addresses risks to workers on the adjacent commercial properties through the installation of additional vapor mitigation systems and continued monitoring. However, there would be a potential risk from exposure to indoor air for any future commercial workers or residents on the subject property following redevelopment. In addition, the site is unlikely to achieve a complete regulatory closure (a Permanent Solution under the MCP) even in a lengthy timeframe.

Hot spot excavation (Alternatives 3 and 4) is an effective way to mitigate exposure by physically removing soil and DNAPL from the Site (with subsequent on-site treatment, off-site treatment and reuse, recycling or disposal at an appropriate off-site facility). Excavation of the soil hot spot and potential DNAPL source zone will also likely mitigate potential migration of VOCs into groundwater and indoor air (either the existing buildings or any hypothetical future building constructed on site). Alternative 3 relies on MNA to address contamination in groundwater which is likely to require a lengthy timeframe to reduce groundwater concentrations to below cleanup standards. Therefore, Alternative 3 is considered to be less effective than Alternative 4 which includes groundwater treatment with ISCO which is expected to be more effective at reducing PCE concentrations than MNA.

SVE and ISCO (Alternative 5) and soil and groundwater thermal treatment (Alternative 6) are likely to have limited effectiveness. SVE will only address contamination in the unsaturated zone and as DNAPL is likely present in the saturated zone this will create a large oxidant demand for ISCO and represent an ongoing source of rebound. Soil and groundwater thermal treatment does not directly address contamination present beneath the adjacent buildings and in essence relies on MNA to reduce groundwater concentrations of PCE beneath the buildings.

2. Implementability

No Further Action (Alternative 1) and enhanced vapor mitigation and long-term OMM (Alternative 2) are both easy to implement and require minimal integration with facility operations.

Hot spot excavation with either MNA (Alternatives 3) or ISCO groundwater treatment (Alternative 4) involve a moderate level of technical complexity to excavate soil in an active parking lot and immediately adjacent to the buildings. These alternatives would require extensive planning and preparation for the installation of sheeting, dewatering the excavation, and drying/amendment of soils, and stockpiling or live-loading of excavated soils for treatment or shipment off-site. Integration with existing Site operations would be difficult as significant portions of the parking area would need to be temporarily closed until excavation and restoration activities were complete. Fugitive dust and emissions monitoring as well as erosion and sedimentation control inspections would be required during the excavation. Alternative 4 is somewhat more difficult to implement than Alternative 3 due to the design, testing, and operation of the ISCO system and additional temporary disruptions during ISCO.

SVE and ISCO (Alternative 5) is also moderately difficult to implement as it requires the installation of a series of extraction wells, header piping, and blowers in and near the target area. This would require coordination with on-site operations and temporary disruption to facility operations. Once the system is installed, extraction system operations and maintenance activities would be conducted on a frequent basis during initial startup. These activities would likely disrupt normal parking lot usage. Therefore, this alternative has a fair rating.

Soil and groundwater thermal treatment (Alternative 6) would be the most difficult to implement due to the significant technical complexities associated with the design, testing, and operation of the thermal treatment system and associated soil vapor extraction system. In addition, the majority of the municipal parking lot would need to be closed during the installation and operation of the system (between four and six months) which would be an additional negative impact to the commercial properties adjacent to the site.

3. Cost

Estimated capital, annual OM&M, and net present value costs (rounded to the nearest \$10,000) for each of the remedial action alternatives are summarized in the table below:

	Remedial Alternative	Estimated Capital Cost	Annual OM&M Cost	Estimated Total Present Worth
Alt. 1	No Further Action (Maintain Existing Systems)	\$0	\$20,000 (Years 1-30)	\$460,000
Alt. 2	Enhanced Vapor Mitigation and Long-Term OM&M	\$50,000	\$30,000 (Years 1-30)	\$700,000
Alt. 3	Hot Spot Excavation and MNA	\$1,050,000	\$40,000 (Years 1-30)	\$1,750,000
Alt. 4	Hot Spot Excavation and ISCO Groundwater Treatment	\$1,640,000	\$50,000 (Years 1-5)	\$1,810,000
Alt. 5	Soil Vapor Extraction and ISCO Groundwater Treatment	\$850,000	\$100,000 (Years 1-5)	\$1,200,000

Alt. 6	Soil and Groundwater Thermal Treatment	\$3,800,000	\$60,000 (Years 1-15)	\$4,240,000
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The preliminary estimates above include capital costs related to materials, labor, laboratory analysis, oversight, and reporting as appropriate. These costs are at a +50/-30 percent order of magnitude, consistent with USEPA guidance for feasibility level cost estimates (USEPA, 2000). Annual operation, maintenance, and monitoring costs for each alternative have been considered in the present worth of each alternative assuming a discount rate of three (3) percent.

c. Recommended Cleanup Alternative

The recommend cleanup alternative is Hot Spot Excavation and ISCO Groundwater Treatment (Alternative 4). No Further Action is not an acceptable as it does not address risk to current adjacent commercial properties or future commercial/residential uses of the subject property. Enhanced Vapor Mitigation and Long Term OM&M, while it is significantly less costly than all of the alternatives except for No Further Action, is not acceptable as it does not directly address contamination in soil or groundwater thereby perpetuating the negative impacts of the site (both human health and financial) and limiting (or increasing the cost of) any future redevelopment of the subject property.

[Below is a table summarizing the relative ranking of each cleanup alternative for the criteria considered:](#)

<u>Remedial Alternative</u>	<u>Overall Effectiveness And Certainty of Success</u>	<u>Implementability</u>	<u>Cost Effectiveness (Not Present Worth)</u>
<u>Alt. 1 No Further Action (Maintain Existing Systems)</u>	<u>Poor</u>	<u>Very Good</u>	<u>Very Good (\$460,000)</u>
<u>Alt. 2 Enhanced Vapor Mitigation and Long-Term OM&M</u>	<u>Fair</u>	<u>Very Good</u>	<u>Very Good (\$700,000)</u>
<u>Alt. 3 Hot Spot Excavation and MNA</u>	<u>Good</u>	<u>Good</u>	<u>Fair (\$1,750,000)</u>
<u>Alt. 4 Hot Spot Excavation and ISCO Groundwater Treatment</u>	<u>Very Good</u>	<u>Fair</u>	<u>Fair (\$1,810,000)</u>
<u>Alt. 5 Soil Vapor Extraction and ISCO Groundwater Treatment</u>	<u>Fair</u>	<u>Fair</u>	<u>Good (\$1,200,000)</u>
<u>Alt. 6 Soil and Groundwater Thermal Treatment</u>	<u>Fair</u>	<u>Fair</u>	<u>Poor (\$4,240,000)</u>

The selection of Hot Spot Excavation and ISCO over Hot Spot Excavation and MNA (Alternative 3), SVE and ISCO (Alternative 5), and Soil and Groundwater Treatment (Alternative 6) is based on two principal factors: 1) uncertainty that Alternatives 5, or 6 could achieve remedial goals by mitigating each of the site risks due to the likelihood of DNAPL in the saturated zone, and 2) shorter timeframe for achieving remedial goals and addressing site risks compared to Alternative 3. Each of these issues is summarized below:

- As previously stated, in order for Alternatives 5 and 6 to achieve regulatory closure by addressing each of the site risks, the likely DNAPL sources areas that are saturated would need to be remediated via natural degradation (Alternative 6) or by ISCO groundwater treatment (Alternative 5). PCE DNAPL is unlikely to degrade naturally in a reasonable timeframe and would have a large oxidant demand using ISCO and therefore be a continual source of rebound.
- Alternatives 3 and 4 both include removal of the bulk of the contamination in soil through excavation of both the unsaturated and saturated zone. However, Alternative 3 relies on natural degradation processes to address residual contamination that would remain in saturated soil and contaminated groundwater located outside the excavation area (including beneath the buildings). While this approach may eventually achieve the remedial goals of the project, the timeframe to do so is likely to be extended. In contrast, Alternative 4 utilizes ISCO to address residual soil contamination in the saturated zone and contaminated groundwater across the site (including beneath the adjacent buildings). This approach is likely to achieve site remedial goals by addressing each of the site risks in a relatively short period of time provided effective oxidant delivery can be achieved (oxidant delivery would be assessed during a pilot test prior to full-scale implementation).

Therefore, based on the current understanding of the Disposal Site, Alternative 4 has the highest degree of certainty of success and is likely to be the alternative which addresses each of the site risks and achieves regulatory closure in the shortest period of time.

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November 9, 2012

By First Class Mail

Mr. Don West
Environmental Management Support, Inc.
8601 Georgia Avenue, Suite 500
Silver Springs, MD 20910

RE: Support for the City of Medford, Massachusetts Remediation Grant Application
to USEPA

Dear Mr. West:

On behalf of my client Ms. Marcella Eng, General Partner of A&K Limited Partnership, (“A&K”), the current owner of 438-446 High Street in Medford, Massachusetts, I write to enthusiastically support the City of Medford, Massachusetts’ Remediation Grant Application to USEPA to assist with assessment and remediation at the disposal site address owned by the City of Medford at 448 High Street, Medford (tracked by the Massachusetts Department of Environmental Protection under release tracking number (RTN) 3-0028477).

The A&K property, MassDEP RTN 3-28479, abuts and has been established as downgradient from the City’s property, which is currently used as a municipal parking lot supporting nearby businesses, including the A&K’s tenants: Bargain Spot Liquors, a retail wine and liquor store, and a hairdressing shop. Conditions requiring immediate and continuing response measures, as defined in Section 310 CMR 40.0950 of the Massachusetts Contingency Plan were discovered at A&K’s property, (as well as at other abutters at 452-460 High Street and 7 Canal Street). The source of these conditions is the soil and groundwater contamination emanating from the City of Medford parking lot property.¹

Response measures at the A&K Property have included soil and indoor air sampling and carbon filtration of indoor air. These measures have come at considerable expense to my client at the height of the economic downturn. The carbon filtration and related equipment in the basement of the A&K property has also dramatically reduced available storage space for Bargain

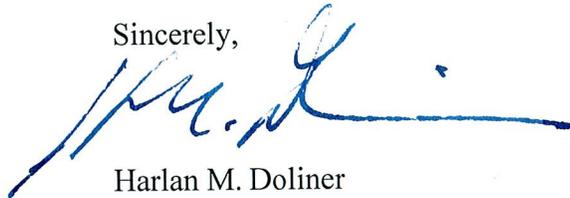
¹ The highest PCE concentration in soil was discovered within the City of Medford parking lot, in the vadose zone down to the groundwater. This was also the area of the highest soil gas readings for PCE. The highest PCE concentration in groundwater was discovered in groundwater monitoring wells immediately downgradient of the highest soil PCE concentrations. The high groundwater concentrations are on both the City of Medford parking lot property and the A&K property.

Mr. Don West
Environmental Management Support, Inc.
November 9, 2012
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Spot's inventory, which in turn complicates inventory planning and ordering, and truncates the product selection available to customers. It is critical to the two businesses located at the A&K property that the remediation of the overall site, especially the excavation of the contaminated soils in the City's parking lot, be accomplished swiftly and completely. For example, should a shortage of funds result in a prolonged unavailability of the parking lot, customers of both Bargain Spot Liquors and the hairdressing shop would be forced to hunt for metered parking on one of the City's busiest streets. This would likely result in lost business which in turn would jeopardize the jobs of Bargain Spot Liquors' 6 employees in addition to the jobs of the 6 people employed at the hairdressing shop. Moreover, the presence of the currently unremediated contamination next door devalues the A&K property, and renders it unavailable as loan collateral for any business expansion, modernization, etc.

The award of the USEPA grant to Medford will expedite the City's ability to move forward with and to timely complete this critically-needed remediation project. Please do not hesitate to let me know if we may provide any further information or do anything else in support of the City's worthy application.

Sincerely,



Harlan M. Doliner

cc: Mayor Michael McGlynn
Mark Rumley, City Solicitor
Carey R. Duques, AICP Environmental Agent
Ms. Marcella Eng
(All via electronic mail)