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STIMULATING COMMUNITY HEALTH AND WEALTH: THE OPPORTUNITIES PRESENTED BY PETROLEUM BROWNFIELD AND VACANT PROPERTY REDEVELOPMENT

November 2009

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INTRODUCTION

State governments are currently struggling to spur economic development. A solution may lie in redoubling efforts to meet a longstanding challenge: brownfields redevelopment. Redevelopment of vacant properties and brownfields, including petroleum brownfields, provides economic, fiscal, social, public health, and environmental benefits. Environmental agencies have been working to redevelop brownfields for decades. Substantial funding is available – particularly now¹ – for assessment, cleanup, and reuse. But the potential to revitalize communities through brownfields redevelopment is not being met. What’s more, petroleum brownfields have lagged behind their hazardous waste counterparts in terms of the attention received and the degree of revitalization that has taken place.

On the other hand, discouraging statistics belie the achievements that are also being made. Across the country, states have developed new tools and approaches to leverage resources and coordinate authorities to redevelop petroleum brownfields.² The purpose of this article is to educate state policymakers on these innovations. For example, some states have developed mechanisms to remediate and hold small petroleum brownfields until it is financially viable to redevelop them. Other states have designated corridors of development, marshalling resources from a host of federal, state, and local institutions, successfully coordinating efforts. Still others have aligned their brownfields and petroleum programs such that interacting with them is seamless.

* The authors would like to thank Linda Breggin, Emily Goldberg, Adhir Kackar, Steve McNeely, John Pendergrass, and Suzi Ruhl for their contributions to this paper.

¹ In addition to other EPA grant programs, over \$200 million ARRA dollars were provided for state LUST programs; OBLR secured and issued another \$100 million on top of their annual allocation.

² The Environmental Law Institute is cataloguing these innovations as part of *Overcoming Barriers to Redevelopment of Petroleum Brownfields and Other Vacant Properties*, a five-year cooperative agreement between ELI and the EPA. For more information on ELI’s brownfields work, see: http://www.eli.org/Program_Areas/brownfields_program.cfm.

This article highlights the opportunities associated with the revitalization of petroleum brownfields – providing a forum for states to showcase their role as a facilitator of community redevelopment, and positioning them to do a better job maximizing the returns on investments in petroleum brownfield redevelopment. While some of this information is not new, the failures to respond to the problem of petroleum brownfields persist. There is a particular concern that while resources may be broadly available, information about them and the structures needed to take advantage of them may not be evenly distributed, leaving disadvantaged groups plagued by perpetual implementation challenges. Unless there is a change in the awareness level – and motivation to act – of state policymakers, the tremendous potential that petroleum brownfield redevelopment offers for community revitalization and environmental health will not be fulfilled.

REPORT

OVERVIEW OF PETROLEUM BROWNFIELDS AND VACANT PROPERTIES – AND THE CORRIDOR APPROACH TO REDEVELOPMENT

A typical city contains numerous partially or entirely unused properties. A Brookings Institution study estimated that in 1998 roughly 14.8% of city land was abandoned.³ Such tracts of land often remain deserted indefinitely, as planners and developers rarely choose them for new development. Potential investors may avoid such sites out of concerns about contamination, and the perception that cleanup may require significant resources and time. Concern about the regulatory and technical complexities of handling petroleum may further increase apprehension about sites suspected of petroleum contamination, such as abandoned gas stations or auto body shops.

There are a number of assistance programs that specifically target petroleum brownfields. In 2001, Congress expanded the definition of the term brownfield to ensure the inclusion of sites contaminated by petroleum and mandated that 25% of federal funds appropriated to brownfields be slated for sites with petroleum contamination.⁴ If the brownfield contains an underground storage tank (UST), it may fall under the purview of EPA's Office of USTs (OUST). OUST also manages the Leaking UST (LUST) Trust Fund, which channels revenue obtained from a \$0.001 tax on motor fuel sales to fund cleanups of federally regulated UST sites that require emergency action or where the owner is unknown, or cannot or will not conduct the cleanup himself.⁵ The assessment, cleanup, and redevelopment of specific sites is then directly overseen and facilitated by state implementation programs, which may encompass a broader spectrum of petroleum sites than those outlined in the federally regulated universe. It is therefore incumbent on eligible grant entities to work with their respective state implementing agencies to assess the full range of support available for petroleum brownfields.

There are an estimated 200,000 petroleum brownfields in the U.S.⁶ The sites are often small parcels of land, geographically dispersed within urban areas. Thus it is more common for them to be near other types of abandoned properties – properties that remain vacant for reasons other than suspicions of contamination – than another petroleum site. Given the

³ Michael A. Pagano & Ann O. Bowman, *Vacant Land in Cities: An Urban Resource*, at 7 (Brookings Institution 2000), available at <http://www.brookings.edu/es/urban/pagano/paganofinal.pdf>.

⁴ 42 U.S.C. § 9604(k)(12).

⁵ For more information on LUST, see <http://www.epa.gov/oust/ltfacts.htm> (last visited June 24, 2009).

⁶ U.S. EPA, *Petroleum Brownfield Action Plan: Promoting Revitalization and Sustainability* (Oct. 2008), at 1, available at <http://www.epa.gov/oust/rags/ptrobactionplan.pdf>.

typical arrangement of the types of vacant properties, and the special opportunities presented by the presence of petroleum brownfields, in many cases it may be most effective to consider redevelopment projects on a larger scale. A promising method for achieving petroleum brownfield reuse is through the redevelopment of entire corridors: regional projects that coordinate the cleanup and redevelopment of multiple vacant properties, including petroleum brownfields, as part of a single enterprise. Economies of scale (e.g., resource leveraging and cross-program coordination) are often by-products derived from these larger collaborative efforts projects.

BENEFITS OF REDEVELOPMENT AND REUSE

There are significant advantages to redeveloping a previously used property, ranging from economic to environmental. These benefits suggest that the public investment dividends in a project are maximized when it involves redevelopment rather than development of a new site.

Economic Benefits

Redevelopment of petroleum brownfields and other vacant properties has spurred economic growth and employment opportunities in communities across the country. In Ocala City, Florida, a vacant supermarket was redeveloped into a document center, creating 100 new jobs and qualifying the developer for the State Job Bonus Refund of \$2,500 per job created.⁷ In Burlington, Iowa, suburban shopping malls outcompeted downtown shopping in the 1980s, causing a storefront vacancy rate of 80%.⁸ The city undertook a downtown redevelopment project and 20 years later has 212 new, relocated, and expanded businesses, as well as 500 new jobs.⁹ Redevelopment of vacant lots and petroleum brownfields also increases the density of an area. Mounting evidence shows that density of development contributes to the productivity of the workforce.¹⁰

In addition to the permanent employment created by new businesses, community members can be employed in the short-term in cleanup and construction projects.¹¹ The U.S. Environmental Protection Agency's (EPA's) Brownfield Job Training Program enhances this opportunity by teaching community members to become environmental technicians, fostering the restoration and reuse of brownfields.¹²

Fiscal Benefits

Communities can also benefit fiscally by redeveloping vacant properties. The closer a property is to existing infrastructure, the lower the costs of extending and maintaining the infrastructure for a new enterprise. Thus, high-density neighborhoods have lower

⁷ Florida Brownfields Association, Success Stories: Supermarket to Document Center, <http://www.floridabrownfields.org/SuccessStories/SS-Supermarket.htm> (last visited June 3, 2009).

⁸ International Economic Development Council, Economic Development and Smart Growth: 8 Case Studies on the Connection of Smart Growth Development and Jobs, Wealth and Quality of Life in Communities, at 25 (Alex Iams & Pearl Kaplan eds., 2006), http://www.iedconline.org/Downloads/Smart_Growth.pdf.

⁹ *Id.*

¹⁰ Antonio Ciccone & Robert E. Hall, *Productivity and the Density of Economic Activity*, 86 AMERICAN ECONOMIC REVIEW 54-70 (1996). A 1996 study showed that by doubling employment density, worker productivity increased by 6%. In their study, Ciccone and Hall concluded that more than half of the variance of output per worker was attributable to the difference in density of economic activity. This is largely attributable to having fewer externalities associated with the proximity of production and a higher level of specialization available in areas of higher density.

¹¹ Improving Land and Lives: 10 years of Investment in EPA's Brownfield Job Training Program. Prepared by: SRA International, Inc. (Contract No. EP-W-07-023). March, 2008. Accessible at: <http://www.epa.gov/brownfields/pdf/jtreport0408.pdf>.

¹² *Id.*

infrastructure costs than sprawling areas.¹³ The reduced road building, water and sewer, and operation and maintenance costs that would result from nationwide infill redevelopment could exceed \$120 billion.¹⁴ This approach would also allow for the preservation of an estimated four million acres of land over the next 25 years.¹⁵

Beyond reducing the costs of new development, vacant property and petroleum brownfield redevelopment also offers an opportunity to increase tax revenue. Residential properties in densely developed zones generally have a higher value, which increases the tax base for local and state governments.¹⁶ Siting businesses on vacant properties or petroleum brownfields can also increase tax revenue by replacing unusable land with taxable business. By 2004, the Burlington, Iowa redevelopment project mentioned previously increased property tax revenue by 33.9% – largely due to tax revenue from formerly vacant lots.¹⁷

Social Benefits

A prevalence of vacant properties can affect the social well-being of a community. Neighborhoods with vacant lots often have higher crime rates.¹⁸ Redevelopment may reduce crime by eliminating the invitation presented by deteriorated buildings. It also offers an opportunity to reduce crime through environmental design techniques, such as enhancing natural surveillance through creative landscaping and by strategically placing lighting. Areas that already have begun implementing crime reduction techniques show promising results. For example, the Florida Urban Infill and Redevelopment Assistance Grant program offers financial assistance to local governments to redevelop distressed urban areas. Sarasota County took advantage of this program and incorporated principles of crime prevention into the redevelopment of the North Trail neighborhood. Within six years, the North Trail neighborhood saw a 40% reduction in crime, compared to a citywide reduction of only 9%.¹⁹

Cities also can use available vacant lots and petroleum brownfields to expand housing options by increasing and diversifying the supply and types of both affordable and market-rate units.²⁰ Vacant lots and petroleum brownfields offer an opportunity for cities to promote mixed-income communities by siting affordable housing in areas surrounded by other land uses.²¹ Mixed-income communities allow more citizens access to jobs, services, and transportation,

¹³ Mark Muro & Robert Puentes, Investing in a Better Future: A Review of the Fiscal and Competitive Advantages of Smarter Growth Development Patterns, at 6 (The Brookings Institution Center on Urban and Metropolitan Policy, 2004), available at http://www.brookings.edu/~media/Files/rc/reports/2004/03metropolitanpolicy_muro/200403_smartgrowth.pdf. The marginal cost for serving additional members of the population is therefore less in highly populated areas than in less populated, more sprawling regions. See *supra* note 10, at 6.

¹⁴ Muro & Puentes, *supra* note 13, Executive Summary; Smart Growth America, Economy, <http://www.smartgrowthamerica.org/economy.html> (last visited June 3, 2009) (citing a study conducted by Rutgers University and the Brookings Institution).

¹⁵ Smart Growth America, *supra* note 14.

¹⁶ See Muro & Puentes, *supra* note 13, at 8; see also Arthur C. Nelson, Effects of Urban Containment on Housing Prices and Landowner Behavior, at 2 (Lincoln Institute of Land Policy 2000), available at <http://www.lincolnst.edu/pubs/PubDetail.aspx?pubid=298>. (This may be due to a lack of housing supply, the boost to transportation efficiencies and lower service costs, or other causes.)

¹⁷ See Iams & Kaplan, *supra* note 8, at 26.

¹⁸ Ann Carroll, Presentation: *Achieving Community Revitalization through Brownfield Redevelopment*, Revitalization through Brownfield Redevelopment: How Paterson is succeeding and You Can Too! Brownfield Revitalization Toolkit (2007), at 49, available at <http://www.eli.org/pdf/research/BrownfieldsCenter/PatersonToolKit2007.pdf>; see James Q. Wilson & George L. Kelling, The Police and Neighborhood Safety: Broken Windows, THE ATLANTIC, Mar. 1982, at 3, available at <http://www.theatlantic.com/doc/198203/broken-windows> and National Vacant Properties Campaign, Vacant Properties: The True Cost to Communities, at 3 (2003), available at http://www.vacantproperties.org/latestreports/True%20Costs_Aug05.pdf.

¹⁹ *Id.*

²⁰ Danielle Arignoia, Smart Growth Network Subgroup of Affordable Housing, Affordable Housing and Smart Growth: Making the Connection (2001), at 20, http://www.smartgrowthamerica.org/affordable_housing.pdf.

²¹ *Id.* at 25.

and also reduce the likelihood of divestment and poverty in a given neighborhood.²² The development of affordable housing units in urban areas also offers a financial benefit to the project owner. In the Parramore area of Orlando, Florida, a petroleum brownfield was redeveloped into a mixed-use development known as City View.²³ Forty percent of City View's 266 apartments are slotted as affordable housing, and through state incentives the investor received \$900,000 in tax refunds for the construction materials used in building those units.²⁴

Environmental Benefits

Each of the steps in brownfield remediation and redevelopment provides environmental benefits. Removing contaminants protects groundwater and ensures a healthier ecosystem. Infill redevelopment results in more efficient energy consumption, because the amount of energy lost in transmission, or "line-loss," is directly correlated with the distance traveled.²⁵ Enhanced coordination between federal, state, and local officials helps optimize applicable assessment and cleanup practices and ensure that end use options remain protective of human health and the environment. Optimizing the use of available resources also helps ensure that funds remain to address other identified areas of need.

Redevelopment also reduces greenhouse gas emissions by decreasing the distance citizens must travel for daily activities. A study conducted by the U.S. Conference of Mayors found that brownfield redevelopment in Baltimore and Dallas reduced vehicle miles traveled (VMT) by 23-55%.²⁶ Similarly, an Urban Land Institute report concluded that infill could reduce VMT by an average of 30%, which would translate into a reduction of transportation-related greenhouse gas emissions of 7-12% nationwide by 2050.²⁷

Finally, redevelopment projects present a chance to use environmentally friendly construction methods and to install energy efficient systems, resulting in lower overall energy usage. Energy-efficient buildings are less taxing on existing infrastructure and emit less greenhouse gas emissions than conventional buildings.²⁸

Public Health Benefits

Redevelopment also offers an opportunity to improve public health. Cleanups reduce a community's exposure to toxic chemicals and can improve both indoor and outdoor air quality. For example, remediating brownfields can alleviate vapor intrusion, which occurs when contaminated groundwater or soil releases gases that then rise through porous soil and cement to contaminate the air in buildings on the site.²⁹

²² *Id.* at 26.

²³ Florida Brownfields Association, Success Story: City View Orlando, http://www.floridabrownfields.org/SuccessStories/SS-CityView_Orlando.htm (last visited June 3, 2009).

²⁴ *Id.*

²⁵ Evans Paull, Northeast-Midwest Institute, Energy Benefits of Urban Infill, Brownfields and Sustainable Urban Development: A Working Paper (2008), at 8, available at <http://www.nemw.org/SustainableInfillBrownfieldsApril08.pdf> (citing Urban Land Institute, Smart Growth America, the Center for Clean Air Policy, and the National Center for Smart Growth, Growing Cooler: Evidence on Urban Development and Climate Change, Washington, D.C., Jan. 2008, available at <http://www.smartgrowthamerica.org/gcindex.html>).

²⁶ *Id.* at 5.

²⁷ *Id.* at 4.

²⁸ *Id.* at 6.

²⁹ *Id.*

The reductions in vehicle emissions that result from urban redevelopment also help improve outdoor air quality and public health. For example, vehicle emissions are a major contributor to the formation of ozone,³⁰ which affects public health by exacerbating the effects of asthma, a disease suffered by nearly nine million children.³¹ Other tailpipe pollutants, such as benzene and particulate matter, are known carcinogens.³² A study of toxic emissions in the Los Angeles Basin concluded that 80% of the health risk due to toxic substances in the air stems from diesel exhaust.³³

Finally, formerly contaminated sites can be used for siting health facilities. Denser development may improve fitness by giving people the chance to walk more. In Clearwater, Florida, a petroleum brownfield was remediated and then redeveloped into the Willa Carson Community Health Resource Center. In its first year, the health center served 7,000 area residents.³⁴ Redevelopment of vacant lots also can enhance walkability by increasing pedestrian access to activities and businesses.³⁵

BARRIERS TO REDEVELOPMENT AND REUSE

Reusing vacant properties offers a host of economic, fiscal, social, and environmental benefits. However, a variety of obstacles – both real and perceived – make redevelopment projects less attractive and prevent developers from viewing them as good opportunities as often as they might. The following section summarizes some common legal, policy, and practical barriers.

Awareness and Understanding of Petroleum Brownfields and Other Vacant Properties

One of the first obstacles to the redevelopment and reuse of vacant properties, including petroleum brownfields, is the lack of information about the conditions of such properties. First, it may not be immediately apparent whether a vacant lot is actually contaminated or what the pollutant may be. Second, if the contaminant is petroleum, there are particular assessment and cleanup considerations. There are separate technical procedures associated with assessing and cleaning up petroleum as opposed to other hazardous substances because petroleum may be addressed by different implementing agencies with different sets of requirements. Third, the lack of knowledge about petroleum brownfields is compounded by the fact that a lot of brownfield research and information does not include petroleum brownfields in its analyses.

Site Marketability

The size and location of most petroleum brownfields presents another obstacle to redevelopment. Gas stations are generally situated on easily accessible but small parcels of land, close to roads and thoroughfares. This dispersed pattern makes it difficult to assemble

³⁰ Smart Growth America, Health, <http://www.smartgrowthamerica.org/health.html> (last visited June 3, 2009).

³¹ *Id.*

³² *Id.*

³³ South Coast Air Quality Management District, Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-III), at 6-1, Sept. 2008, available at <http://www.aqmd.gov/prdas/matesIII/MATESIIIFinalReportSept2008.html>.

³⁴ Success Story: Willa Carson Community Health Resource Center: City of Clearwater. Florida Brownfields Association. <http://www.floridabrownfields.org/SuccessStories/SS-WillaCarson.htm>

³⁵ See Health, *supra* note 30 (designing neighborhoods for walking is an important tool for protecting public health as walking can help prevent obesity, diabetes, and heart disease).

petroleum brownfields into larger redevelopment efforts.³⁶ In addition, their relatively small size may not conform to the requirements of new business entities.

Site Eligibility

Statutory and administrative requirements may pose additional barriers to the redevelopment of petroleum brownfields. First, to meet the definition of a petroleum brownfield and be eligible for the federal program, the proponent must demonstrate that the site is “of relatively low risk” and that there is “no viable responsible party.”³⁷ This necessitates both a comparison between the risk levels of a given site with other petroleum-contaminated sites, and an investigation into the site’s ownership history. Years after enactment, these general standards continue to trigger questions about precisely what information is necessary to meet them.³⁸ Second, to receive federal revitalization funding for a brownfield, both the applicant and EPA face substantial documentation requirements.³⁹ The application and associated decision-making is yet further complicated if petroleum and other hazardous substances are co-mingled at a site. In addition, there are separate eligibility and cost-share requirements for assessment and cleanup stage grants.⁴⁰ The applicability of other funds available at the state and local level may not be clearly defined or known by prospective purchasers interested in available sites.

Coordinating Cleanup and Redevelopment

There are several programmatic hurdles to reusing brownfields. One is the difficulty in coordinating the assessment and cleanup of the site with the redevelopment planning. A brownfield owner who seeks to sell the property for redevelopment must decide whether to sell the property “as is,” to sell it after the assessment has been completed, or to sell it following assessment and cleanup. Part of the calculation depends on the end use of the property. There are significant advantages to coordinating the two stages, not the least of which is the reduction of cleanup costs. Once the source and nature of the contamination is determined, a developer can plan the redevelopment accordingly – for example, by placing a parking structure directly over the contaminated section, thus minimizing the remediation costs for that section.⁴¹ While such risk-based remediation may reduce the overall costs of remediation, it does necessitate the use of institutional controls to ensure that the conditions on the use of the site are respected. The cost of the institutional controls is another factor that must be calculated, which can be challenging.⁴² In addition, if the landowner sells the land at a discount because the buyer will assume cleanup costs, but the buyer does not sufficiently

³⁶ See Northeast-Midwest Institute & National Association of Local Government Environmental Professionals, *From Rags to Riches—Innovations in Petroleum Brownfields* (Dec. 2005), at 9-10, available at <http://www.nemw.org/rags%20to%20riches.pdf>; U.S. EPA’s *Petroleum Brownfields Action Plan: Promoting Revitalization and Stability*, at 2 (Oct. 2008), available at www.epa.gov/OUST/rags/petrobfactionplan.pdf; Northeast-Midwest Institute & National Association of Local Government Environmental Professionals, *A Primer for Petroleum Brownfields*, at 5 (2003).

³⁷ 42 U.S.C. § 9601(39)(D)(ii).

³⁸ See, e.g., U.S. EPA’s *Petroleum Brownfields Action Plan*, *supra* note 36, at 6-7. (“These requirements can be particularly complex and burdensome for both applicants and states.”).

³⁹ 42 U.S.C. § 9604(k).

⁴⁰ See, e.g., U.S. EPA, *Proposal Guidelines for Brownfields Assessment, Revolving Loan Fund, and Cleanup Grants*, EPA-OSWER-OBCR-07-09, available at <http://www.epa.gov/oswer/docs/grants/epa-oswer-obcr-07-09.pdf>.

⁴¹ See National Association of Local Government Environmental Professions & Northeast-Midwest Institute, *Unlocking Brownfields: Keys to Community Revitalization*, at 118 (Nov. 2004), available at <http://www.resourcesaver.com/file/toolmanager/CustomO93C337F65023.pdf> (citing the possibility of stalled projects, loss of community support, and remedial action to prevent redevelopment if the site is not cleaned up with a particular end use in mind).

⁴² See John Pendergrass and Katherine N. Probst, *Estimating the Costs of Institutional Controls* (The Environmental Law Institute and Resources for the Future; March 2005).

perform the cleanup, the government may chose to hold the seller liable.⁴³ This can result in the seller effectively paying twice for the cleanup.

Part of the problem with coordinating these processes is the timing and duration of each stage. The regulatory process is often too long to accommodate typical development time frames. This can result in escalation of project costs if regulatory delays occur at the remediation stage. Therefore it is essential that developers have an end-use option in mind and work with the appropriate implementing agencies to develop applicable expectations and complementary project schedules.

Planning Cleanup and Redevelopment

Another challenging barrier to planning the redevelopment of sites that still need remediation is the difficulty in determining the financial costs of such projects in advance – as with institutional controls, as noted above.⁴⁴ Remediation can quickly become very expensive, and it can be challenging to determine whether a project is eligible for funding resources, what funds are available at the various stages of project development, and how resources from one entity (e.g., the state) might complement the resources from another (e.g., EPA).⁴⁵ These challenges may be exacerbated by the release of American Recovery and Reinvestment Act of 2009 (ARRA) funds that often are not accompanied by a clear and concise description of how they complement or support ongoing community redevelopment efforts. The distribution of funds without clear guidance can create unrealistic expectations.

Meeting Cleanup Standards

Once the property owner has determined whether the property will be cleaned up voluntarily or under a regulatory program, he must determine which cleanup standard applies. This is a complex process, depending on which voluntary, state, or federal program(s) the owner selects, and in some cases different standards may apply to a single property. The process can be facilitated by the services of an attorney or technical consultants.⁴⁶ Even if an owner is voluntarily cleaning up the property, it may behoove him to remediate according to the standards of the other programs as a frame of reference. For sites that fall under state brownfields programs, many states have developed “risk levels” and either announce maximum allowable concentrations for specific contaminants or permit the property owner voluntarily proposing the cleanup to develop contamination-based concentrations based on specific criteria.⁴⁷ Most states consider the future use of the site in setting cleanup standards and include legal and administrative mechanisms to ensure that the use remains the same in the future and to protect public health if there is a change.⁴⁸ Interested parties therefore must verify that all relevant implementing agencies have consistent requirements regarding the cleanup associated with the proposed end use.

⁴³ Linda Breggin, John Pendergrass, & Keith Welks, *A Guidebook for Brownfield Property Owners*, at 13 (The Environmental Law Institute, 1999).

⁴⁴ Though, of course, developers could chose to site a project on site that has already been cleaned up.

⁴⁵ NEMW & NALGEP, *From Rags to Riches*, *supra* note 36, at 6.

⁴⁶ Breggin et al., *supra* 43, at 33.

⁴⁷ *Id* at 35.

⁴⁸ *Id* at 36.

Liability

Another common concern is the availability of liability protection during and following redevelopment. While both the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) apply to certain kinds of brownfields, the vast majority of brownfields fall under the jurisdiction of State Regulatory Cleanup Programs; most USTs are covered by the UST program that stems from RCRA but is administered by the states. While liability rules under the state programs vary from state to state, most make a wide range of actors liable. Similarly, owners and operators of USTs are jointly and severally liable for required corrective action.⁴⁹ A CERCLA enforcement action cannot be brought for brownfields that are being addressed under a state cleanup program.⁵⁰ Nonetheless, potential liability for cleanup costs can create a barrier to redevelopment. For example, property owners may refrain from selling brownfields due to concern that a future owner would find contamination on the property and sue for cleanup costs.⁵¹ In addition, the lack of clarity regarding future liability may create a stigma that limits investment in remediated sites.

Capturing Benefits

Finally, some of the significant benefits from brownfields and vacant property redevelopment cannot be expressed in financial terms. Important benefits, such as improvements to the quality of life in the area, cannot easily be quantified and do not accrue to the developer alone. Although this is not necessarily a barrier to public redevelopment efforts, it can reduce the incentive for private developers to reuse vacant properties and petroleum brownfields.

OPPORTUNITIES FOR REDEVELOPMENT AND MAXIMIZING THE VALUE OF INVESTMENT DOLLARS

The previous section outlined some of the legal, physical, programmatic, and financial barriers to redeveloping and reusing petroleum brownfields and other vacant properties. Some of these barriers may be difficult to address – such as choosing the most efficient corrective action standards or statutory eligibility and cost-share requirements for assessment and cleanup grants – but many of them can be overcome relatively easily. In some cases, policies and incentive programs turn brownfields and vacant properties into opportunities to obtain funding or other support for a project. With the appropriate tools to overcome the barriers to redevelopment, market-ready petroleum brownfields and other well-positioned vacant properties present a way to invest stimulus dollars to produce the maximum public value per dollar. ARRA also funded state and federal vacant property, brownfield, and petroleum programs with hundreds of millions of dollars to contribute to cleanup and redevelopment projects.

Awareness and Understanding of Vacant Properties: Site Inventories and Assessments

To facilitate redevelopment, it is first important to improve public information about petroleum brownfields and the nature and extent of contamination. A tool for doing so is an

⁴⁹ *Id.* at 59-60.

⁵⁰ 42 U.S.C. § 9628; see also National Association of Local Government Environment Professionals, Superfund Liability: A Continuing Obstacle to Brownfields Redevelopment (2006), available at <http://www.nalgep.org/publications/PublicationsDetail.cfm?LinkAdvID=72956>.

⁵¹ *Id.*

inventory of vacant properties and brownfields. State response programs already are required to demonstrate that they have or are implementing a process for cataloguing brownfields to receive federal funding under CERCLA section 128(a).⁵² Effective inventories specify the size and location of each parcel, its prior uses, its access to water, sewer, and transportation infrastructure, applicable zoning and development regulations, and its cleanup or redevelopment status.⁵³ Inventories that are readily available to the public can be used to heighten awareness of and interest in redevelopment opportunities. For example, Connecticut posts its brownfield inventory online in searchable PDF format.⁵⁴ EPA recognizes the importance of voluntary state, local, and tribal petroleum brownfields inventories, and in addition to providing funding through Technical Assistance to Brownfields grants,⁵⁵ has issued guidance on how to develop them.⁵⁶

While statutory requirements and funding support the maintenance of an inventory of brownfields, correlating the data with information about *all* vacant properties in the same database will facilitate broader development efforts. Although a single small parcel may not be desirable on its own, in conjunction with other nearby vacant properties it may be an enticing investment opportunity. Such coordinated development efforts are facilitated greatly by comprehensive databases that include all vacant properties, regardless of whether there is perceived or actual contamination. For example, several Pennsylvania state agencies joined with a public/private economic development partnership to develop an online resource for finding and posting vacant properties, including brownfields.⁵⁷

Site Marketability: Corridor Redevelopment

Although a single petroleum brownfield may be unappealing to investors due to its limited size or location, redeveloping it alongside multiple other vacant properties in the area may create opportunities for positive rates of return. Targeted collaborations along a defined geographical area provide an excellent forum for addressing barriers, gaining administrative support, and leveraging the resources of funding, time, information, and overall project momentum. EPA is spearheading this “corridor” approach in several locations across the country.⁵⁸ These corridors of redevelopment are quickly proving to offer several advantages. First, petroleum brownfields or vacant properties that are undesirable individually can be more attractive when viewed with other vacant properties. Second, society receives the economic, environmental, and public health benefits of infill redevelopment. Third, projects that previously only involved vacant properties gain the advantage of the separate funding only available to petroleum brownfields. As mentioned previously, EPA is mandated to allocate 25% of its total annual brownfields funding for petroleum brownfields specifically.⁵⁹ Brownfields generally are also eligible for a number of remediation and redevelopment grants,

⁵² 42 U.S.C. § 9628(a).

⁵³ See, e.g., Pioneer Valley Planning Commission, Valley Vision Toolbox, *Brownfield Inventories*, available at http://www.pvpc.org/val_vision/html/toolbox/PDFs/building%20blocks/Brownfield%20Inventory.pdf (last visited June 2, 2009).

⁵⁴ Information on and access to Connecticut's brownfields inventory is available at http://www.ct.gov/dep/cwp/view.asp?a=2715&q=324930&depNav_GID=1626 (last visited June 2, 2009). Information on other state and local petroleum brownfield inventories is available at EPA, Office of Underground Storage Tanks, Petroleum Brownfields—Identifying Petroleum Sites, <http://www.epa.gov/oust/petroleumbrownfields/pbident.htm> (last visited June 4, 2009).

⁵⁵ U.S. EPA Petroleum Brownfields Action Plan, *supra* note 6, at 5-6.

⁵⁶ U.S. EPA, Petroleum Brownfields: Developing Inventories, EPA 510-R-09-002 (May 2009), available at <http://www.epa.gov/oust/pubs/pbfdevelopinventories.pdf>.

⁵⁷ PASiteSearch, developed by the Pennsylvania Department of Community and Economic Development, Pennsylvania Economic Development Association, Pennsylvania Department of Environmental Protection, and Team PA Foundation, available at <http://www.pasitesearch.com/selectsites> (last visited June 2, 2009).

⁵⁸ U.S. EPA Petroleum Brownfields Action Plan, *supra* note 6, at 6.

⁵⁹ 42 U.S.C. § 9604(k)(12).

loans, loan guarantees, technical assistance and job training programs, and tax credits and incentives. For example, a redeveloper who has applied for Community Development Block Grants and Section 108 loan guarantees from the U.S. Department of Housing and Urban Development (HUD) may also apply for Brownfields Economic Development Initiative grants if a brownfield is included in the redevelopment plan. These three HUD programs are intended to facilitate development efforts for low- and moderate-income communities.⁶⁰

States also provide additional benefits for petroleum site cleanup and for brownfields cleanup and redevelopment. For example, Florida's Enterprise Zone program provides various tax incentives, ranging from job creation tax credits to electrical energy sales tax exemptions, to stimulate economic revitalization of a targeted area.⁶¹ And for sites where the project proponent has not caused or contributed to site contamination since the date of enactment of the Brownfields Redevelopment Act, the state provides liability protection from certain claims.⁶² An example of a public-private partnership in corridor redevelopment is the Tamiami Trail Petroleum Brownfields Revitalization Initiative, which seeks to facilitate redevelopment and economic growth by assisting with the remediation of petroleum brownfields along the Tamiami Trail in western Florida.

Several other ongoing initiatives provide insight into the potential of the community revitalization corridor approach for zones that are plagued by petroleum brownfields. One example is the Selma to Montgomery National Historic Trail in Western Alabama. This public-private partnership between federal, state, and local entities capitalizes on the respective role that these stakeholders bring to the revitalization arena and highlights how cross-program collaboration facilitates implementation of projects that address petroleum brownfields.⁶³ Other examples include the Troost and Prospect Corridors, which are area-wide petroleum revitalization projects in conjunction with Kansas City's community revitalization Green Zone project – providing an example of the value of leveraging resources from multiple programs. EPA UST field pilot projects and petroleum brownfields assessment and cleanup grants are addressing multiple service stations along Historic Route 66 in Arizona, Kansas, and Missouri. The Green Impact Zone is a comprehensive place-based plan to invest public and private funding to transform a neighborhood plagued by high rates of poverty and violence, unemployment, and abandoned property. It is celebrated as an example of what can be accomplished with coordinated, cross-sector investments in housing, transportation, energy efficiency, and workforce training.⁶⁴ Additional corridor examples include California Highway 99, the Colorado Historic Byways Initiative, the Lincoln Highway along Iowa and Nebraska, and the Tacoma Way Revitalization Corridor in Washington State.⁶⁵

Federal agencies have recognized the critical importance of coordination of resources and projects to provide more effective redevelopment efforts. EPA, the U.S. Department of Housing and Urban Development, and the U. S. Department of Transportation recently

⁶⁰ For more information, see Community Development Block Grant Program, 24 C.F.R. Part 570, and U.S. Department of Housing and Urban Development, Brownfield Economic Development Initiative grants, www.hud.gov/offices/cpd/economicdevelopment/programs/bedi/index.cfm (last visited June 9, 2009).

⁶¹ U.S. EPA, State Brownfields and Voluntary Response Programs: An Update from the States, No. EPA-560-R-08-004 (Sept. 2008), at 57.

⁶² *Id.* at 56.

⁶³ McNeely, Steven, *Revitalizing Old Abandoned Gas Station Sites*, PBCD News Fall '09, at: <http://www.planningandtheblackcommunity.org/>.

⁶⁴ See, Green Impact Zone, at <http://www.marc.org/greenimpactzone/About/index.aspx> (last visited September 14, 2009).

⁶⁵ See, e.g., Colorado Embarks on a Brownfields Historic Byways Revitalization Initiative, LUSTLine (September, 2006). available at: http://www.neiwpcc.org/lustline/lustline_pdf/lustline_53.pdf (last visited September 11, 2009).

formed an initiative called the Partnership for Sustainable Communities to improve access to affordable housing, create more transportation options, and lower transportation costs while protecting the environment in communities nationwide. This program promises to provide meaningful opportunities for the redevelopment of corridors containing petroleum brownfields.⁶⁶

Site Eligibility: Statutory Clarification and Flexibility

Clear statutory eligibility criteria requirements reduce the burden and uncertainty associated with demonstrating that a site is a petroleum brownfield. Developers are less hesitant to undertake initial assessments if it is easy to determine whether a site qualifies as a petroleum brownfield and thus whether it is eligible for public funding. To facilitate this, some states have issued guidelines for determining whether a site is “relatively low risk” compared with other petroleum brownfields in the state, and whether there is a “viable responsible party.” For example, it can be as simple as adopting and disseminating EPA’s proposed guidelines for meeting eligibility requirements, as Massachusetts’s Department of Environmental Protection has done.⁶⁷ Another approach is to customize the federal guidelines to reference applicable state-specific requirements, as Virginia did.⁶⁸ Such guidelines are most effective if they have some flexibility – it is important to try to identify liable parties, but this need must be balanced against the desire not to hold up redevelopment efforts due to extensive title and property history searches.⁶⁹ Virginia has streamlined the process for determining the eligibility of a site by clearly defining efficient steps to determine the existence and ability to pay of a liable party.⁷⁰

Coordinating Cleanup and Redevelopment: Risk-Based Corrective Action

Identifying the purpose for the redevelopment project prior to undertaking remediation provides the opportunity to maximize the benefits derived from brownfield remediation. This information allows the use of risk-based decision-making, also referred to as risk-based corrective action, wherein a property is remediated to the standard appropriate for the planned end-use. For example, the environmental health standard necessary for a parking lot is substantially different from what would be required for a housing development.⁷¹ Risk-based decision-making is particularly apt for petroleum brownfield remediation actions.⁷² Identifying the future uses of the property also makes it possible to use institutional and engineering controls to protect human health and environment by limiting property use and activity and creating barriers to human exposure. Institutional controls are legal, administrative, or institutional tools that seek to modify human behavior to prevent exposure

⁶⁶ See Partnership for Sustainable Communities, at: <http://www.epa.gov/dced/2009-0616-epahuddot.htm> (last visited September 2, 2009).

⁶⁷ See Massachusetts Department of Environmental Protection, Cleanup of Sites & Spills, 2008 Brownfields Petroleum-only Eligibility Determination Letters, <http://www.mass.gov/dep/cleanup/petbrlt.htm> (last visited June 18, 2009).

⁶⁸ Virginia Department of Environmental Quality, EPA Brownfields Grant Eligibility Review for Petroleum Contaminated Sites, available at <http://www.deq.virginia.gov/waterguidance/pdf/052015.pdf> (last visited August 24, 2009).

⁶⁹ See Rags to Riches, *supra* note 45, at 4.

⁷⁰ Virginia DEQ, *supra* note 68.

⁷¹ See Northeast-Midwest Institute & National Association of Local Government Environmental Professionals, A Primer for Petroleum Brownfields—What Can Your Community do to Revitalize UST Sites? (2003), at 2, available at http://www.epa.gov/brownfields/pdf/bftoolbox_disadvantage_communities.pdf.

⁷² See generally EPA, Use of Risk-Based Decision-Making in UST Corrective Action Programs, OSWER Directive 9610.17, March 1, 1995, available at <http://www.epa.gov/OUST/directiv/od961017.htm>. The American Society for Testing Materials (ASTM) has developed and revised a guide for incorporating risk-based corrective action into petroleum contamination remediation efforts. See ASTM, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites, ASTM E1739-95 (2002), available for purchase at <http://www.astm.org/Standards/E1739.htm>.

risks, such as state and local government land use controls; proprietary or property-law based controls, including restrictive covenants and easements; governmental controls; and informal devices, such as notifications or warnings.⁷³ Engineering controls use physical mechanisms, such as fences and caps, to minimize the risk of exposure to residual contamination. Institutional and engineering controls are generally used on sites where there is low-level but widespread contamination.⁷⁴ Risk-based decision-making makes the corrective action process more efficient for the government and reduces the cost to the developer, although it adds costs to the state and local governments for institutional controls and long-term stewardship.

One method for encouraging coordination between remediation and redevelopment, and among multiple redevelopment sites, is to facilitate public forums for interested public, private, and nongovernmental parties.⁷⁵ If vacant property owners are able to publicize properties that can be made market-ready, giving developers the chance to select from multiple sites, redevelopment projects may ultimately be located on the most advantageous sites for that particular use. For example, housing developments may be placed on properties already near water and sewage infrastructure, while community services buildings may be located on easily accessible parcels. Such forums may encourage and cultivate long-term partnerships between the parties that make properties market ready and those looking to redevelop them.

Planning Cleanup and Redevelopment: Financial and Technical Assistancess

Remediation and redevelopment can be expensive and complex, but there are federal, state, tribal, and local sources of financial, technical, and training assistance for vacant property and petroleum brownfield revitalization. Interested entities can work with states or EPA to secure petroleum brownfields eligibility determinations, but the responsible agencies should also focus on disseminating information about such resources to increase the understanding of opportunities. Funds and other resources that provide clear information about how they can be used (e.g., complemented with end use oriented case studies) are more effective at promoting revitalization opportunities. Some states have already generated reference materials with summaries of the primary support programs.⁷⁶ In addition to such written materials, public and private entities should consider using other media to convey the information, such as workshops and public meetings.

To begin the process, EPA offers Brownfields Assessment Grants to state, local, and tribal entities and organizations. The site-specific or community-wide assessment grants provide up to \$200,000 (or \$350,000, with a waiver) to inventory, characterize, assess, and plan the cleanup and redevelopment of a brownfield or petroleum brownfield. A single entity can request up to \$400,000 (or \$700,000, with a waiver), although it is limited to applying for one

⁷³ Pendergrass, Institutional Controls, *supra* note 42, at 14; *see also* John Pendergrass, Sustainable Redevelopment of Brownfields: Using Institutional Controls to Protect Public Health, 29 ELR 10243 (2000).

⁷⁴ For information on institutional and engineering controls, *see* EPA, Institutional Controls: A Citizen's Guide to Understanding Institutional Controls at Superfund, Brownfields, Federal Facilities, Underground Storage Tank, and Resource Conservation and Recovery Act Cleanups, EPA-540-R-04-003 (Feb. 2005), available at <http://www.epa.gov/superfund/policy/ic/guide/citguide.pdf>; LAND DEVELOPMENT HANDBOOK—PLANNING, ENGINEERING, AND SURVEYING 341–42 (Sidney O. Dewberry & Lisa N. Rauen Zahn eds., 3d ed. 2008); New Jersey's Science & Technology University, Brownfield Post-Development Site Maintenance, <http://www.njit.edu/tab/managing/post-development/index.php> (last visited June 2, 2009).

⁷⁵ *See* U.S. EPA Petroleum Brownfields Action Plan, *supra* note 6, at 9; Charles Bartsch, Northeast-Midwest Institute, Petroleum Brownfields: How Can Communities Promote Their Reuse?, at 5, available at http://www.nemw.org/Petroleum_UST_brownfields.pdf.

⁷⁶ *See, e.g.,* Wisconsin Department of Natural Resources & Wisconsin Department of Commerce, The Financial Resource Guide for Cleanup and Redevelopment, PUB-RR-539 (2006), available at <http://dnr.wi.gov/org/aw/rr/archives/pubs/RR539.pdf>.

hazardous substance assessment grant and one petroleum assessment grant at a time.⁷⁷ EPA nearly doubled the number of assessment grants disbursed in FY 2009 with the addition of \$25.8 million to the program. This year, in addition to the 149 assessment grants provided using general program funds, EPA disbursed an additional 104 assessment program grants using ARRA funds.⁷⁸

More generally, ARRA increased funding for EPA's brownfields activities by \$100 million, and for LUST corrective actions by \$200 million.⁷⁹ Additionally, the Act allocated \$6 billion to Clean Water Revolving Loan Funds, which can be used to remediate brownfields with water quality impairment;⁸⁰ and \$1 billion to the Community Development Block Grant program, which can be used to redevelop brownfields as long as the end-use benefits low- to moderate-income populations, prevents or eliminates slums or blight, and meets an urgent need.⁸¹ These are but a few of the programs that can facilitate vacant property and petroleum brownfield redevelopment efforts and that have been recently buffeted by ARRA funds.

Information about green building and energy efficiency should be included in outreach efforts, as such construction will enable substantial cost-savings, in addition to environmental benefits, in the long-term. Using green building techniques may also make a project eligible for additional funding. For example, ARRA provided the Energy Efficiency and Conservation Block Grants program with \$3.2 billion. The program funds state and local government projects aimed at reducing energy use and carbon emissions, and improving energy efficiency.⁸²

From a policy perspective, institutional coordination among federal, state, tribal, and local parties will avoid duplicative mechanisms and eliminate support gaps. It can also encourage planning above the single site level by clarifying the linkages between municipal and state resources, and by emphasizing the economies of scale gained by area redevelopment. The Neighborhood Stabilization Program, established in 2008 and re-funded with \$2 billion by ARRA, is one program that can be used to support area-wide redevelopment efforts. The program aims to stabilize communities affected by subprime mortgage lending and property foreclosures. In addition to creating funding mechanisms for foreclosure purchase and redevelopment, the program also supports blight demolition, redevelopment of vacant property for housing, and land banks for foreclosed and residential properties. The stabilization programs are supposed to be integrated with other area-wide planning and coordination efforts.⁸³

⁷⁷ 42 U.S.C. § 9604(k)(2),(4); see also U.S. EPA, EPA Brownfields Assessment Grants: Interested in Applying for Funding?, EPA-560-F-05-236 (April 2009), http://www.epa.gov/brownfields/facts/assessment_factsheet.pdf; U.S. EPA, Brownfield Assessment Pilots/Grants, http://www.epa.gov/brownfields/assessment_grants.htm (last visited June 2, 2009).

⁷⁸ See EPA, News Release: \$111.9 Million in Grants for Contaminated Land Cleanup, Economic Development, May 8, 2009, <http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/92c7b758dc0abc1f852575b000581cb0!OpenDocument> (last visited June 18, 2009).

⁷⁹ EPA, Guidance to Regions for Implementing the LUST Provision of the American Recovery and Reinvestment Act of 2009 (June 2009), available at www.epa.gov/oust/eparecovery/lustproguide.pdf.

⁸⁰ Charles Bartsch, Stimulus Watch- American Recovery and Reinvestment Act Signed into Law: Why Potential for Brownfields? ICF International, at 2, available at: http://www.mnbrownfields.org/assets/Bartsch_Stimulus.pdf. Information on how to use funding available via U.S. EPA's website, at www.epa.gov/swerosps/bf/html-doc/cwsrf.htm.

⁸¹ See Bartsch, *supra* note 80, at 3. See also U.S. Department of Housing and Urban Development, Redeveloping Brownfields: How States and Localities Use CDBG Funds (1998), available at www.huduser.org/Publications/pdf/cdbgreport.pdf.

⁸² U.S. Department of Energy, Energy Efficiency and Conservation Block Grant Program: About the Program, available at www.eecbg.energy.gov/about/FAQ.html#lc1 (last visited June 22, 2009).

⁸³ See U.S. Department of Housing and Urban Development, Neighborhood Stabilization Program Grants, <http://www.hud.gov/offices/cpd/communitydevelopment/programs/neighborhoodspg/> (last visited June 3, 2009); Mark Muro *et al.*, Metro Potential in ARRA: An Early Assessment of the American Recovery and Reinvestment Act (The Brookings Institution,

Liability: Liability Protection

To assuage investor fear of continuing liability, several states have enacted liability protection measures with regard both to petroleum brownfields and others. Liability protection programs will often issue a covenant not to sue, or a letter or certificate stating that no further action is required, after the appropriate cleanup standard has been attained or when an innocent party purchases contaminated property. Florida law, for example, states that a landowner who successfully completes a brownfield site rehabilitation agreement is relieved of any further liability for site rehabilitation.⁸⁴ Wisconsin, as do several other states, offers property owners, potential purchasers, neighbors, tenants, or others general liability clarification letters that provide property-specific responses to liability questions.⁸⁵

Sometimes the measures for petroleum brownfields are consistent with those for brownfields generally, and sometimes they differ. For example, in Missouri, UST site liability relief is provided by the state petroleum storage tank indemnity fund, while liability protection for general brownfields cleanup actions is available through Certificates of Completion.⁸⁶ State and local governments that do not have such measures in place may consider implementing similar assurances that a party that engages in redevelopment will not be held responsible for costly additional remediation in the future.

Capturing Benefits: Incentives

The redevelopment of petroleum brownfields and other vacant properties will lead to positive societal externalities that cannot be captured wholly by the project developer. Numerous states and localities have developed incentives for engaging in cleanup and redevelopment. To name a few simple examples, incentives take the form of tax credits, such as the Rehabilitated Vacant Commercial Structures Property Tax Credit established in Frederick County, Maryland, which motivates vacant structure rehabilitation by reducing the developer's taxable income;⁸⁷ tax rebates, such as the three years of rebates one can receive in Beaufort, South Carolina for redevelopment activities;⁸⁸ and direct grants, such as the Redevelopment Incentive Grants in Dakota County, Minnesota, that provide up to \$250,000 for redevelopment projects that serve a public purpose and improve the property's economic use and value.⁸⁹ It is possible that the need for incentives may decrease over time, as private investors gain familiarity with the redevelopment process and are more likely to continuing engaging in such projects.

From the public perspective, the incentives to private investors catalyze projects that provide societal benefits, ranging from job creation to public health improvements. The more state and local governments and communities are aware of the benefits of and opportunities for vacant

2009), available at

http://www.brookings.edu/~media/Files/rc/reports/2009/0330_american_recovery_reinvestment_act/0330_arra_report.pdf.

⁸⁴ FLA. STAT. § 376.82(2)(a) (2008).

⁸⁵ Wisconsin Department of Natural Resources, Environmental Liability, at <http://www.dnr.state.wi.us/org/aw/rr/liability/index.htm#glc> (last visited August 24, 2009).

⁸⁶ See Northeast-Midwest Institute & National Association of Local Government Environmental Professionals, Recycling America's Gas Stations (2002), at 53; U.S. EPA, State Brownfields and Voluntary Response Programs, *supra* note 61, at 110.

⁸⁷ See Frederick County, Maryland, Office of Economic Development, Redevelopment Incentives, http://www.discoverfrederickmd.com/business/incentives/redevelopment_incentives.htm (last visited June 3, 2009).

⁸⁸ See Beaufort, South Carolina, Department of Planning and Development Services, The Beaufort Redevelopment Incentive Program, http://www.cityofbeaufort.org/client_resources/pdf/planning/Redevelopment/BRIP-summary.pdf.

⁸⁹ See Dakota County, Minnesota, Community Development Agency, Redevelopment Incentive Grant Program, <http://www.dakotacda.org/pdf/RedevGrantPolicy.pdf>.

property redevelopment, the more they can seek ways to encourage investors to consider such projects.

CONCLUSION

There are significant economic, fiscal, environmental, and public health benefits of redeveloping vacant properties instead of developing greenfields. With the recent passage of the historic ARRA, state and local officials face numerous decisions about how, when, and where to invest funds to stimulate the economy. Investing in the redevelopment of vacant properties, including petroleum brownfields, and using the tools described above, will maximize the public investment value of those dollars.

One of the most important steps to reducing the barriers to such redevelopment is for state, local, and tribal decision-makers to engage in immediate outreach efforts to disseminate information about redevelopment opportunities and processes, as well as the significant financial and technical assistance mechanisms available to help with such efforts. One of the most promising strategies is corridor redevelopment – encouraging projects that simultaneously redevelop multiple vacant properties, including petroleum brownfields. This approach represents a tremendous opportunity for investors, with two significant advantages: the properties themselves are inexpensive, for their size often renders them unmarketable individually, while the inclusion of petroleum brownfields and the area-wide redevelopment approach makes the project eligible for myriad additional federal and state funding programs. In addition to outreach efforts and encouraging corridor redevelopment, state, local, and tribal decision-makers can also facilitate redevelopment by making policy changes that mitigate some of the historical obstacles to petroleum brownfield and vacant property redevelopment.