

THE BROWNFIELD-TRANSIT CONNECTION:
OPPORTUNITIES FOR SYNTHESIS OF BEST PRACTICES IN INDIANAPOLIS

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The Brownfield-Transit Connection: Opportunities for Synthesis of Best Practices in Indianapolis

Chapter 1 – Introduction

As more American cities seek to reduce sprawl, revitalize older historic neighborhoods, and protect public health and the environment, the reintroduction of high quality transit and the redevelopment of brownfields are both seen as possible solutions. Many brownfields are currently neglected and unwanted as fears of liability and industrial decline have reduced or eliminated market demand for these sites. Because most brownfields are located within existing areas of development, “revitalizing these “brownfields” can reduce trip lengths, make more efficient use of existing infrastructure, support transit systems, and make walking and biking viable mode choices” (US EPA & AMPO 2001, p. 1). Communities want brownfield redevelopment because a brownfield lowers nearby property values, stifles local investment, and often threatens public health. Local and state governments see the potential for a redevelopment to bring in jobs, increase the local tax base, and use existing infrastructure. Brownfields are also often located in lower or middle income neighborhoods, and redevelopment provides more accessible employment opportunities to the neighborhood (US EPA & AMPO 2001). Transit can rekindle demand for otherwise undesirable brownfield sites along rail corridors. Additionally, brownfields, when developed with transit in mind, can increase transit ridership and, therefore, increase the viability of transit.

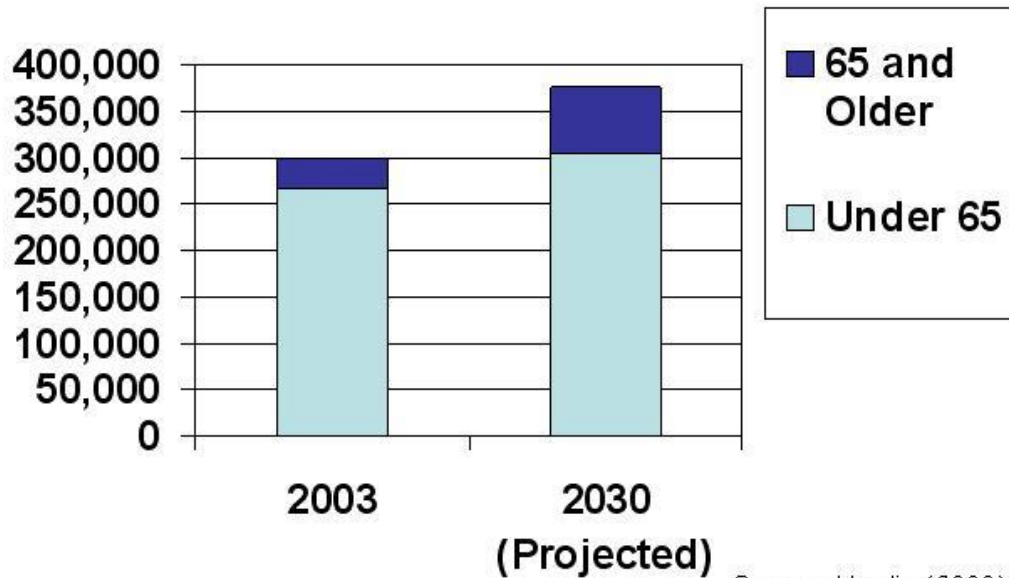
However, many barriers stand in the way of successful brownfield redevelopment and transit-oriented development. This thesis analyzes best practices of both brownfield redevelopment and transit-oriented development and identifies both conflicts and opportunities for synthesis. Although brownfields have been redeveloped into transit-oriented development, the best practices in doing so have not been examined. The best practices for both have many commonalities so that redeveloping a brownfield into a transit-oriented development increases the complexity of the development, but they are not usually in much conflict with one another. Both include the following: early and sustained public involvement, partnerships, local capacity, land assembly, public incentives, tax-increment financing and business improvement districts, public investments, and streamlining government operations for desired developments. Although having both makes a project more complex, the benefits of both are significant. Cities and states should focus more effort on redeveloping brownfields as transit-oriented development, especially since many are located in ideal locations for a reinvestment in transit.

Analysis of best practices and case studies forms the basis for recommendations that will encourage more transit supportive brownfield redevelopment in the City of Indianapolis. Case studies are focused on sites that combine brownfield redevelopment with transit-oriented development. Recommendations include a major rewrite of the zoning code and increasing local capacity to create this type of development and to make it successful in Indianapolis.

Demographic Changes

Major demographic shifts are one of the main reasons that urban redevelopment is increasing in cities across the United States. Woods & Poole Economics' 2005-2030 projections indicate that the population of the United States will reach 400 million by 2037, just 31 years after reaching 300 million (as cited by Nelson & Lang 2007, pp. 4). From about 1997-2007, the United States had about 0.4 housing units of any kind per person. If we continue at the same ratio, 40 million new housing units will need to be added and another 30 million units will likely be demolished and replaced to meet the demands of an additional 100 million people. However, the types of housing wanted by the next 100 million will likely differ from the single-family houses that make up about two-thirds of all housing built in the past ten years. There are three demographic changes that predict a change in overall housing needs: an aging population, increased diversity of household types, and changing housing preferences (Nelson & Lang, 2007).

United States Population 65 and Older

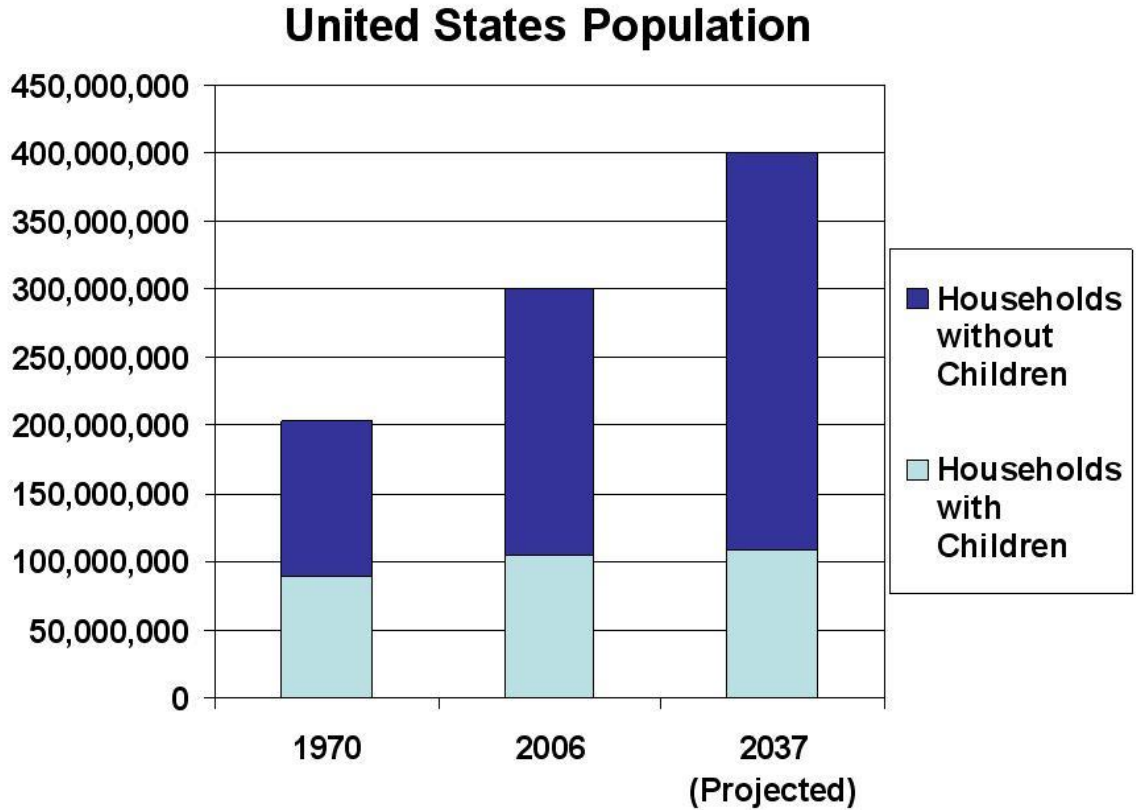


In October of 2006, 12 percent of Americans were 65 or older. Of the next 100 million Americans that are added to the U.S. population, 41 million are expected to be 65 or older. Younger people, those under 19 years old, will only account for 19 million of the next 100 million. In 2006, they accounted for 29 percent of the population. The housing preferences of older, childless households are likely to be different from other households (Nelson & Lang, 2007).

The United States Department of Transportation recognizes the difficulties that older people face when they are no longer able to drive an automobile: “many find themselves isolated from the activities that had filled their lives, especially if they live in suburban or rural areas where walking is difficult and non-driving transportation options scarce. Such isolation can seriously undermine the quality of life for older people and

accelerate declines in health.” (U.S. Department of Transportation, 2003). Therefore, it is important that communities provide alternative transportation options to increase access for older people and provide diverse housing types so that citizens can remain in their communities through all of their life stages: “Most people 65 and older have very similar transportation needs to the needs of the general population. Years of inadequate investment have created huge gaps in community and public transportation. Few communities now have adequate transportation services for their current older residents. In the coming years, communities will have to meet the transportation needs of a steadily increasing population of older persons” (Hardin, 2003).

Childless households of all types in the United States are likely to increase in the future as well. In 1970, about 44 percent of households had children. Only 17 percent of households were single-person. Not surprisingly, this was also the heyday of large lot single-family housing in residential neighborhoods, strictly segregated from other land uses. At the time, raising children was a dominant household concern and housing choices reflected this. By 2006, however, 35 percent of all households had children and 26 percent were single-person households. By 2037, only about 27 percent of households will have children, and single-person households will remain steady at about 26 percent. Only twelve percent of the next 100 million people will have children (Nelson & Lang, 2007).



Sources: Nelson & Lang (2007); U.S. Census Bureau (<http://www.census.gov/>)

Housing preferences already seem to be changing. Aging, empty-nester, and single-person households will dominate the future housing market. Their housing preferences are unlikely to conform to the existing stock of large single family houses. Only about a third of a typical adult's life will be spent raising children. Some families are already choosing to live in more urban settings. According to Nelson & Lang (2007), these demographic changes mean that "the demand for attached, small lot, cluster, and other high-density options appears likely to outpace the demand for detached houses on large lots" (p. 6). Childless households are already causing an increase in demand for in-town living, transit-oriented development, and central city and suburban infill (Nelson & Long, 2007). As Charles Darden, chief executive of Cherokee Investment Partners, a

venture capital fund specializing in brownfield, states, “There is a notion that developers and communities are only interested in sprawl... that has changed. People are interested in downtowns, they want to live downtown.” Since most older areas come with pollution problems from past industrial times, these properties must be treated before they can be reused.” (as quoted by Holusha, 2002). Gloria Ohland, vice president for communications at Reconnecting America, a national transit research group based in Oakland, Calif said, “The basic reason that transit-oriented development is working in Utah and other places is largely demographic. American households are older, smaller and more diverse. Singles are 41 percent of the population. People who are single and couples that have no children — those are the people who gravitate to cities.” (as quoted by Schneider, 2007)

Sprawl and Land Use

As the trend in American cities has been to sprawl outward, Portland, Oregon is the best example of an American city that been able to use an urban growth boundary and an investment in transit to revitalize and urbanize itself. According the Peter Calthope, once “you draw an urban growth boundary it means that the economic life of the region has to begin recycling its dollars back into existing communities. It can no longer afford to spend those dollars spreading outward over the natural environment. That creates a consciousness in which re-inhabiting older neighborhoods, rehabilitating strip commercial areas, and reinvesting in urban centers all become naturally viable” (as quoted by London, 2002). Planning and design for the Portland Streetcar line in the Pearl District began in 1997, opening in 2001. As a result, “by 2005, \$2.3 billion has been invested within two blocks of the line, resulting in 7,248 housing units and 4.6 million square feet of office, institutional, retail, and hotel space” and “developers built at 90 percent of the allowable density right on the alignment, twice as high as three blocks or more away.” The market’s need for parking also apparently decreased leaving more space for living, working, and playing: “developers were parking their buildings at lower parking ratios than elsewhere in the region – about 1-1.3 spaces per unit” (Ohland & Poticha, 2006). Portland’s redevelopment around transit has also included the remediation of many brownfields along the riverfront. Brownfield redevelopment and transit both have the potential to create more sustainable, less congested, and more

livable cities, conserving our resources, both financial and environmental. They can create a more compact development pattern that reverse a land use pattern of sprawl.

Chapter 2 – Brownfield Redevelopment: History, Barriers, and Best Practices

History of Brownfields in the United States

The U.S. Environmental Protection Agency (EPA) estimates that there are between 500,000 and one million brownfields in the United States (as cited in Solomon, 2003, p. 185). The definition of “brownfield” varies, but it is generally defined as an abandoned, idled, or underutilized property where redevelopment is in part inhibited by actual or perceived environmental contamination. The magnitude of the brownfield problem in the United States is a consequence of several things: decline of the manufacturing industry sector in the United States, enactment of policies to protect environmental and public health, and continuing tension between the need for environmental quality and safety and the need for economic development. The tension between the need for environmental quality and for economic development is especially difficult in the industrial cities hardest hit by the loss of their industrial job base (Brachman, 2004).

In the 1970s and 1980s the US Congress passed several statutes regarding brownfields. One of the initial steps that the U.S. Environmental Protection Agency (US EPA) took to protect the public from brownfield contamination was through its Superfund program. The Superfund program was created in response to the Love Canal disaster in upstate New York. From the 1940s through the 1950s, a chemical corporation used Love Canal as a landfill for toxic chemicals produced by its operations. Later, the

land was filled with dirt and sold to the local board of education, which subsequently built an elementary school and about 100 homes at the site (Brachman, 2004). In 1978, Love Canal exploded from record rainfall and chemical leaching began. The Administrator of EPA Region 2 from 1977 through 1979, Eckardt C. Beck (1979), describes the scene:

Corroding waste-disposal drums could be seen breaking up through the grounds of backyards. Trees and gardens were turning black and dying. One entire swimming pool had been popped up from its foundation, afloat now on a small sea of chemicals. Puddles of noxious substances were pointed out to me by the residents. Some of these puddles were in their yards, some were in their basements, others yet were on the school grounds. Everywhere the air had a faint, choking smell. Children returned from play with burns on their hands and faces.

(para. 16)

The adverse health impacts, diseases, and birth defects caused by the contamination propelled federal lawmakers to enact Superfund regulation. Superfund held all past, present, and future property owners of brownfields liable for contamination. As a result, many property owners abandoned their brownfield sites and declared bankruptcy rather than risk lawsuits. Additionally, because future property owners were held liable, the sites remained undesirable to developers and investors (Brachman, 2004).

In 2002, the U.S. Congress passed the Small Business Liability Relief and Brownfields Revitalization Act, which improved the legal environment for brownfield redevelopment. The Act limits the liability for contiguous property owners and bona fide prospective purchasers, and expedites settlements with potentially responsible parties that

demonstrate that they cannot pay the full costs of remediation. The Act clarifies the circumstances when a property owner can be held liable and the enforcement actions that the EPA can take on lower risk sites that are already in the process of being cleaned up through a state brownfields program. It also provides additional EPA grants to pay for environmental cleanup. (Schefski, 2003). The Act provides some assurances to redevelopers while still holding past owners responsible for as many of the costs as feasible.

Barriers to Brownfield Redevelopment

Barriers that prevent successful redevelopment of brownfields can be broken into three different types: legal, institutional, and economic. Institutional and political barriers to redevelopment include reluctant stakeholders and bureaucratic delays and a lack of political will and leadership. A fear of liability created by environmental regulations has discouraged financial institutions, investors, and new property owners from getting involved with brownfields. The time, cost, and delays involved in corralling so many reluctant stakeholders make redevelopment less attractive. Additionally, because brownfield redevelopment involves both environmental protection and economic development, it requires multiple governmental agencies and departments to be involved, agencies and departments that are not used to working with one another and that have separate priorities, policies, and standard operating procedures. These conflicts contribute to delays in the process. In addition, there may be difficulty in getting local residents to support redevelopment. A state funding program that specifically targets brownfield redevelopment is one of the most effective things that the state can do to encourage redevelopment (Brachman 2004).

Uncertainty

The level, type, and location of contamination on most brownfields is unknown. In fact, there may be no environmental contamination; just the perception that there may be contamination is enough to discourage developers from acquiring brownfield sites. Developers avoid sites where they cannot quantify the risks and costs associated with a

particular property. Contamination may make some uses, like residential uses, financially unfeasible. Current property owners are hesitant to test for contaminants for fear of liability. They are reluctant to spend the money on an assessment that may scare away redevelopment. According to Gregory D. Trimache, the greatest regulatory or legal challenge that developers face in tackling a brownfield project is “defining and quantifying cleanup risks and costs... (1) What is the minimum cleanup necessary to allow the intended new use of the property? (2) What is the ‘worst-case’ cleanup that could be required to protect or restore natural resources (i.e., groundwater) and/or neighboring properties?” (as cited in Urban Land Institute 2006, p. 24).

Liability

Another major legal barrier to brownfield redevelopment is the specter of liability. The EPA imposes liability in an attempt to force responsible parties to internalize the costs associated with their activities when they endanger public health and the environment. However, liability is also a disincentive to redevelopment. There is therefore a tension between holding past parties responsible and limiting liability to promote redevelopment. As mentioned earlier, the threat of liability prevents property owners from investigating if contamination exists. However, without a site assessment, the cloud of uncertainty concerning contamination levels and off-site and groundwater impacts discourages potential new property owners. Although the level of contamination and remediation costs may be less than expected, the perception of contamination stigmatizes the property (Brachman, 2004, p. 79).

Community Opposition

Since brownfields are often urban infill sites, significant community involvement must be included in their redevelopment. The surrounding community is likely to have a variety of concerns about any type of new development in the neighborhood, such as traffic, gentrification, and open space. Developing public support for a project can take several years depending on the number and variety of players involved (Brachman, 2004).

Site Control and Property Transfer

Property transfer decisions may further prevent redevelopment. Typically, larger corporations “mothball” their brownfields, fencing off the property and letting it sit vacant, because there is the least financial risk is leaving the site as is. If they choose to redevelop the site or sell the site to be redeveloped, these corporations typically strictly ensure proper and effective cleanup and work to control future land uses. The cost of superficially maintaining the property and paying property taxes on a mothballed property is usually less than the cost of remediation and redevelopment of the site. Mothballing contributes to decline of the surrounding area, but, without incentives to bring the brownfield back into productive use, mothballing is the least financially risky option (Brachman, 2004).

In contrast, brownfields of less than 20 acres owned by smaller companies are usually abandoned if they are not used. Smaller companies lack the resources to maintain properties that are not producing revenue. The fear of liability contributes to the decision

to abandon these sites. Clearing the title on these sites for acquisition and redevelopment is often a long and burdensome enough process that the private sector has little interest in them. Clouds on a title from liens, back taxes owed, or mortgages prevent a developer from having access to conduct site investigations or apply for financing or grants without ownership. A cloud on a title is an apparent claim or encumbrance, such as a lien, that, if true, impairs the right of the owner to transfer his or her property free and clear of the interests of any other party. Reducing the required notice period for municipal acquisition of these sites can help accelerate the process and reduce this barrier (Brachman, 2004).

Balancing Economic Development and Public Health Needs

As described above, liability is the main enforcement tool that is used to force contaminators to pay for the costs associated with cleanup. In cases where public health is threatened, the EPA may move quickly to sample and remediate a property. The EPA then places a federal lien on the property to force all responsible parties to pay for the cleanup that was conducted. The cleanup is necessary to protect public health and the environment, and ideally the parties responsible for the hazard should pay for the remediation efforts. However, too often the property is abandoned or occupied by a bankrupt property owner. Often these property owners have not paid property taxes in years. Finding and suing responsible parties is time consuming and money may never been located. In the meantime, the property sits unused, a burden on the neighborhood. Potential new property owners are unwilling to acquire a property with a federal lien on it. Environmental enforcement and economic development agencies are generally not

used to working with one another. Increased cooperation between state and local authorities may help speed this process and determine when a federal lien is the best means to an end. If a suitable redevelopment partner can be found, site remediation may occur while meeting economic development needs.

Lengthened Development Timeline

Brownfield redevelopment projects typically take much longer than greenfield projects because remediation is time consuming, financing is often more difficult to find, securing brownfield grants prolongs the predevelopment process, and titles must also often be cleared of liens and tax delinquency fines.

Conducting environmental assessments requires site access, which an existing property owner may be reluctant to provide if he or she fears liability. Phase I and II environmental assessments are necessary to determine the likely contaminants, their levels, and their location. Phase I environmental assessments include an investigation of a site's history and past buildings using Sanborn maps, city directories, building permits, environmental permits, state and federal directories of spills, and a variety of other sources. This phase also examines the geography of the site and the surrounding area to determine where sampling should occur and the likelihood of off-site or groundwater contamination. Phase II environmental assessments usually involve sampling to determine the type, level, and location of contamination. The Phase II assessment helps craft the remediation plan. Appropriately cleaning the site to limit liability requires cooperation with state and local officials which creates "bureaucratic hassles" and "delays in approving site cleanups and issuing the covenants" (Brachman, 2004, p. 76).

Financing

According to the Ohio Department of Development, on average, remediation – including assessment and demolition – accounts for at least 50 percent of the total costs of brownfield redevelopment projects (as cited by Brachman, 2004, pp. 79). Financing brownfield redevelopment can be a major barrier for developers, especially if cleanup costs exceed a property's value. Most commercial lenders provide up to 75 percent of a redevelopment's cost, although this varies by lender, market, and project. The developer is then required to provide the balance, 25 percent, in equity. Remediation of the property will not necessarily create more value than the proposed development so these costs often require a loan amount that exceed bank policies on loan-to-value (LTV) ratios or that exceed the value of the development itself. Often additional gap financing options are necessary to make redevelopment possible (Northeast Midwest Institute & Congress for the New Urbanism, 2001).

Another obstacle related to remediation costs is that lenders typically collateralize loans with land and/or on-site equipment, which is a problem when the value of a property is compromised by environmental contamination. The value of the land can also be at risk even after remediation if the property later requires additional, unexpected cleanup. Lenders are also concerned with a borrower's ability to repay a loan if there are delays or unexpected costs, costs which are unfortunately common with infill projects and especially with brownfields. Since loans begin to accrue interest as soon as development starts, delays can jeopardize the payment schedule and increase costs considerably. Banks additionally avoid taking on assets, such as brownfields, that could

potentially be a major long-term liability. The additional risks inherent in brownfield redevelopment make lenders more cautious about providing loans (Northeast Midwest Institute & Congress for the New Urbanism, 2001).

Although there are many brownfield grants, loans, and assistance available through the EPA, as well as state and local governments, they often add a significant amount of time to the development process. Even with these incentives, the deal between the developer and the public may not be viable because the community benefits from a redevelopment plan may not translate into increased monetary value for the developer (Brachman, 2004).

Best Practices and Tools for Brownfield Redevelopment

Early and Sustained Public Involvement

Proposals for brownfield redevelopment may encounter strong public opposition if the public has not been involved in development proposals from the start. One of the most effective actions a local government can take to decrease the time required for brownfield redevelopment and increase the attractiveness of a site for developers is to develop a consensus plan that details what the community wants from redevelopment at a particular site or in a neighborhood or community. A good plan that involves all the diverse stakeholders in a community greatly decreases the level of uncertainty for a developer and reduces future headaches down the line. When a community states what they want rather than what they don't want, developers are encouraged to consider redevelopment in their communities.

Partnerships

Partnerships, especially public-private partnerships, can be the force that separates successful projects from unsuccessful projects. Community development corporations in particular are in a good position to broker brownfield redevelopment deals. CDCs can act in a variety of roles. They can conduct outreach and education to help the public better understand the opportunities available through brownfield redevelopment and how they can influence redevelopment plans. As a facilitator, a CDC can smooth discussions between the community and developers and/or the local government. A CDC can act as

an intermediary or pre-developer to reduce developer risks during the assessment and remediation process. They can create community plans that guide future brownfield redevelopment efforts. Sometimes CDCs even act as developers or co-developers of brownfield sites. Although this role can be more challenging and risky than traditional residential infill project, the benefits to the community can be significant enough to justify taking on this role (Dewar & Deitrick, 2004)

Redevelopment authorities may also assist in redevelopment. They are usually charged with creating redevelopment plans and the strategies to implement them. They may have a variety of mechanisms which can be used to revitalize and redevelop cities, including the ability to use eminent domain, issue bonds, borrow and invest money, and receive grants. They can be a key player in the acquisition and redevelopment of brownfield properties. Because they are quasi-governmental, they typically have more flexibility to focus on redevelopment efforts with less bureaucratic delays.

According to the EPA, there are three typical redevelopment scenarios based on the balance of public and private participation in the process. In a privately-led redevelopment, the developer takes responsibility for the entire process from remediation to development. The public sector sometimes provides some grants or capital to help with initial phases of assessment. In a typical approach to public-private partnership, “the public entity usually sponsors the project and provides some initial funding, often for assessments that remove contamination uncertainties and for infrastructure to support development; a private-sector developer then funds and manages the pre-development and construction process” (US EPA, 2006, pp. 5). However, each public-private partnership is unique. In a public-led brownfield redevelopment, a municipality typically

takes ownership of the site, assesses the level of contamination, cleans up the site, and then either hands the site off to a local economic development authority or keeps the property for a public use such as a park or school (US EPA, 2006). Partnerships with local or state governments to help fund remediation can help increase the attractiveness of sites in more difficult markets.

Local Capacity

Brachman states that “strong local leadership is an absolute prerequisite to the success of brownfield redevelopment” (2004, p. 76). Local capacity and leadership can come in the form of an elected official, a public official, or a community activist.

Gardner defines “local capacity” as “capital resources”, including “historical, structural, legal, socioeconomic, developmental, civic, corporate and political capital”, “for the initiation and implementation of public policy initiatives” (p. 136). Disinvested communities often suffer from a lack of organization, inexperience, and mistrust of outsiders that prevent them from successfully targeting redevelopment of brownfields.

In communities with a high percentage of brownfields, a site by site approach is not effective because the problem extends beyond brownfields. Instead, an entirely new economic development strategy is needed. Training, organization, and capacity building are needed to mobilize communities to engage in economic development planning and implementation (Brachman, 2006). A program like Groundwork USA can be used to build capacity and understanding about the various development choices by “considering community economic development and brownfield cleanup, urban blight, open-space preservation, and natural resource restoration efforts” (Northeast Midwest Institute & The

Congress for the New Urbanism. 2001). Groundwork USA is a network of “environmental CDCs” sharing “expertise, lessons learned, best practices, and access to national funding for local projects” (Northeast Midwest Institute & The Congress for the New Urbanism. 2001).

Gardner’s (2006) examination of the successes and failures of brownfield redevelopment in four New Jersey cities confirms the importance of local capacity for the success of brownfield redevelopment efforts. She determines that local capacity is a major determinant in the success of these cities’ efforts to redevelop brownfield sites. Although market conditions are an important factor, they are not enough to ensure success on their own. Additionally, strong local capacity can compensate for a weak local market. Gardner breaks local capacity into two categories, civic capacity and governing capacity. Civic capacity is the ability of communities and neighborhood leaders to initiate and implement public policy initiatives. Governing capacity is the ability of the local government and elected leaders to do the same. Gardner determines that civic capacity in Trenton, New Jersey has led to its successes with brownfield redevelopment, while governing capacity has helped Camden, New Jersey succeed. Gardner concludes that “[cities] with high level capacity can overcome market determinism to produce results. Market value cannot be discounted in the brownfield analysis, but in the case of sites with little, zero, or negative property value, civic capacity is the more salient variable” (2006).

Inventory and Market Sites

Local governments can conduct and maintain brownfield inventories to better understand the extent and location of brownfield sites throughout their communities (Brachman, 2004). The EPA provides Brownfield Assessment Grants which can be used for inventories. Inventories can also be connected to economic development efforts to attract, grow, and retain businesses by providing information about various sites throughout the community that need redevelopment. Inventories can be a resource to businesses that are looking to relocate, especially if there are enticing incentives available for remediation of and relocation to a brownfield. Some municipalities have created informational sheets for targeted properties that provide details such as surrounding demographics, zoning, and information about planning goals in the area. Performing Phase I assessments on targeted sites can also attract brownfield redevelopment by removing some of the uncertainty about the level and type of contamination so that developers can better estimate the costs of redevelopment.

In Leigh's (2004) survey of state-level brownfield properties, she asserts that "no state or region will successfully address the problem of vacant land and abandoned structure unless it can quantify and monitor them" (p. 129). She recommends regular data input into a geographic information system, which would be publicly available. Although no states currently have this level of comprehensive information, more and more counties and municipalities are using EPA Environmental Assessment Grants to create inventories that states will be able to use.

The city of Emeryville, Ohio used a \$200,000 Brownfields Assessment grant to target ten brownfields that seemed ripe for redevelopment. Emeryville then further used

the grant funds to develop a database for potential investors and developers that provided assessment results, land use and zoning, and property ownership status. As a result, several brownfield sites were acquired for redevelopment. The city was able to leverage more than \$640 million in cleanup and redevelopment funding from the private sector, for projects expected to eventually add more than 10,000 new jobs and produce four million square feet of office, commercial, and residential space (EPA 2006).

Assist in Land Acquisition, Land Assembly, and Title Clearance

Local governments can create land banks to acquire and assemble brownfields, particularly tax delinquent properties, for redevelopment. Typically, land banks are nonprofit quasi-governmental organizations which can acquire and manage land, often later selling or giving land to community development corporations, nonprofits, or for-profit groups. Land banks are effective because they can act independently to implement government policy without as many bureaucratic hassles. Land banks can assemble smaller parcels into larger parcels which may be more marketable to private industry and developers. According to the Municipal Research and Service Center (1997), there are several potential issues with land banking: land banking can be expensive, especially when environmental cleanup is required; land banks may need considerable startup capital to maintain properties before they are resold; and land in the land bank is removed from the tax rolls (as cited in Brachman, 2004, pp. 119).

Clearing liens, tax delinquencies, and fees from titles can assist developers in redevelopment as well. Brownfields are often abandoned and have racked up many years of penalties and financial liabilities. Anything that local governments can do to clean a

title for a new property owner will make redevelopment of a site more attractive. Land assembly is perhaps the single biggest obstacle to central city redevelopment because the land is often divided into relatively small parcels with multiple owners. The backlash to the U.S. Supreme Court's 2005 Kelo decision will make land assembly for redevelopment more difficult. Suburbs can largely avoid this problem as they facilitate the redevelopment of existing commercial centers and strips" (Nelson & Lang 2007, p. 6).

Leigh (2004) recommends the following improvements to tax foreclosure proceedings to assist in returning properties to productive use: 1) a single proceeding that is as short as possible, 2) length of time from initial tax delinquency to the loss of single entity control rights be shifted from post-sale to pre-sale of the property, 3) entire process be under the control of a single entity, and 4) that the examination of title identify and notify the interests affected by certified mail and a posted public notice on the property (p. 116). A more efficient and less time consuming tax lien foreclosure system benefits communities by reducing the amount of time an abandoned properties cause blight in their neighborhoods. The longer a property is vacant, the greater stigma attached to a site and the more likely it will cause additional neighborhood disinvestment. Shorter and less complicated tax proceedings also reduce the amount of time and resources required of local governments.

Local governments can transition sites to new property owners after remediation through their own agencies or through a nonprofit organization. A former foundry in Indiana had a clouded title with three liens and back taxes owed. Release of the liens was negotiated, and the county took title of the property through the notice and public sale

process, handing the property to a nonprofit organization. The nonprofit later transferred the title to a limited liability corporation created for the purpose of redeveloping the site (Brachman, 2004).

Provide Incentives

Incentives that target brownfield redevelopment can be the final push that makes redevelopment possible (Brachman 2004). Incentives that decrease predevelopment costs are the most beneficial to brownfield developers because they close the financing gap caused by the large upfront costs of remediation. Other incentives include property tax abatements and density bonuses for development on targeted sites.

A redevelopment of the Baker building in Cleveland from a long empty printing company building to an office building for technology-related ventures and research labs required a complex financing strategy including a \$1 million brownfield cleanup grant from Cuyahoga Count, federal New Market Tax Credits, a federal historic tax credit, and the developer's equity (Bullard 2007).

Public Investment

Public investment indicates that a community has a financial commitment to the long-term economic health of the area. Investment shows that people are willing to invest in the future, which encourages developers to feel more confident about investing in the community as well. Unfortunately, in many of the Rust-Belt cities most adversely affected by brownfields not enough tax base remains to provide significant infrastructure investment through traditional means.

Historically, transportation facilities have sparked development and commerce. Many brownfield sites have difficulty getting redeveloped without transportation improvements because good accessibility is a main prerequisite for businesses and, therefore, for developers (US EPA & AMPO 2001). The William L. Gaiter Parkway improved the transportation links between historically-industrial brownfields in Buffalo, New York and the regional road network, making redevelopment of brownfields more attractive to the private market. In 1994, American Axle and Manufacturing purchased a former General Motors plant and pledged to invest \$100 million in the site if the City of Buffalo improved truck access to the site. The City converted 26 acres of abandoned rail bed into a highway with access ramps designed for truck traffic. Further phases connected the parkway to expressway interchanges. The new transportation investment has spurred the opening of a new business park and increased investment in small businesses along the parkway. The Buffalo Economic Renaissance Corporation (BERC) secured financing for the project, which included a \$3.5 million grant from the Industrial Access Program. The New York Department of Transportation Program grant funds economic development projects with transportation access difficulties. To qualify for the funding applicants must demonstrate that projects will create or retain jobs and leverage additional sources of funding. The William L. Gaiter Parkway project was estimated to create 2,000 new jobs and American Axle's agreement to invest \$100 million into the former General Motors plant site fulfilled the additional funding requirement. After the receipt of the grant, BERC obtain \$1 million in general obligation bonds, \$1 million in federal Enterprise Community funds, and \$1 million from HUD's Section 108 loan

program (US EPA & AMPO 2001). Public investment was a key factor in the success of the redevelopment.

Tax Increment Financing and Business Improvement Districts

Tax increment financing (TIF) is one of the most used economic development tools for redevelopment, and brownfield redevelopment is no exception. TIFs can be effective because they use taxes levied on increased property value to reinvest in the district. This money can be used to fund infrastructure improvements or be leveraged with bonds (Brachman 2004). Some criticize TIFs for being used in areas where redevelopment would have occurred without public subsidy (Brachman 2004).

Additionally, the use of TIF districts may decrease the property taxes available to fund other community services such as schools.

In Indiana, the dominant use of TIF is for infrastructure construction and repair. 90% of Indiana TIF districts reporting were created primarily for this purpose.

Infrastructure investment includes “sewer expansion/repair, storm drainage, street construction/expansion, water supply, park improvements, bridge construction/repair, curb and sidewalk improvements, traffic control, and street lighting” (Klacik, 2001).

Infrastructure investment is particularly important in many brownfield redevelopment areas. Howland finds that “outdated road configurations, which make truck access and egress difficult” and “antiquated infrastructure and inadequate telecommunication linkages” are often more significant barriers to brownfield redevelopment for industrial use than environmental contamination (2004, p. 107). Particularly in redevelopment project which will increase residential density, it is

important that infrastructure such as sewers be funded and upgraded to meet expanded needs. TIF may be the only politically feasible tool to build the required infrastructure for development in anti-tax environments. TIF “[provides] the public perception that the city is building infrastructure, attracting economic growth, and not raising taxes (whether true or not)” so it remains a frequently-used tool for development and redevelopment (Klacik, 2001, p. 188).

Business improvement districts (BIDs) are similar to TIF districts except that instead of using increases in property values to fund improvements, business improvement districts vote to subject themselves to an additional tax assessment which then fund district improvements and services. BIDs are usually used to fund supplemental services in older, established areas rather than funding infrastructure in newly built districts (Brachman, 2004).

Taxation Methods

Split-rate taxation divides taxation into two parts: the land and the improvements on the land, such as buildings. Higher tax rates on land than on buildings provides an incentive for property owners to invest in buildings and a disincentive for owners to hold onto undeveloped or underused land. Therefore, split-rate taxation can promote infill redevelopment and discourage suburban sprawl development patterns. Another benefit of split-rate taxation is that it is revenue neutral, and, unlike a tax on productive activity like buildings, it does not negatively distort behavior. A tax on buildings can reduce the number of buildings, but a tax on land cannot reduce the supply of land (Leigh, 2004).

Wetzel (2006) also advocates a land value tax. He believes that it would spur brownfield redevelopment, make residential and business rents more affordable, and help revitalize entire neighborhoods:

An empty site with planning permission in a town center for an office block would pay the tax at the same rate as an identical site next door that already has a similar size office block developed. Unlike taxes on buildings, there would be no reduction for dilapidation or for keeping a site empty. Similarly, there would be no increased tax liability for improving a building (p. 126)

Eliminating or reducing taxation on development can discourage mothballing and put more brownfield properties back into productive reuse. It can prevent long-term land banking that prevents nearby properties from being redeveloped.

Streamline Operations

Successful site reuse usually depends upon local leaders becoming “brownfields brokers” and helping interested parties find sites and facilitate deals. Sometimes all it takes is local government cleanup of a site to attract a developer. Ideally, officials will create a brownfield office of sorts, as a way to pool regulatory, real estate, business recruitment, and financial expertise. These actions will often reduce delays associated with bureaucracy and regulation and accelerate interest in delinquent properties (Northeast Midwest Institute & Congress for the New Urbanism 2001). Increased cooperation between federal, state, and local brownfield agencies reduces costly delays as well.

Environmental Insurance

Environmental insurance has become more sophisticated and popular method for managing third-party liability. Secured Creditor Insurance gives lenders more confidence in financing brownfield projects by “[protecting] [lenders] against the loss of collateral value, inability of a borrower to repay a loan because of cleanup costs incurred, and liability for environmental conditions at properties foreclosed on by the lender” (Brachman, 2004, p. 82). Cleanup Cost Cap Insurance covers remediation costs that dramatically exceed estimated costs. Environmental Impairment Insurance handles claim by third parties and “pays costs for cleanup of contamination unknown at the time the policy was issued” (Brachman, 2004, p. 82). Environmental insurance manages uncertainty for both banks and developers, encouraging brownfield redevelopment.

A 2002 New York Times article interviews several brownfield redevelopment companies to determine why brownfield redevelopment has become more popular and Jack Thomas, president of a Brownfields Recovery Corporation, “[asserts] that the availability of capital and insurance have been far more important in the development of the brownfield business than greater flexibility in state regulations” (Holusha). When brownfield projects were first proposed in the late 1980s and early 1990s, insurance was not available, but “with experience comes knowledge, and companies... now offer policies with considerable confidence in their pricing” (Holusha, 2002). Even experienced brownfield redevelopers often acquire insurance because as one redeveloper explains “when we do find a lot more pollution than we expected, the costs are usually 100% greater than the estimate” (as cited in Holusha, 2002). Insurance helps developers better manage their risk.

Plan Remediation with Redevelopment in Mind

Integrating the remediation strategy with redevelopment efforts can reduce the time and costs of redevelopment, making redevelopment more attractive to developers and financiers. Often a site's remediation involves a significant amount of earth work and other construction activities that could be used to help redevelopment needs.

Remediation and redevelopment are rarely integrated by the EPA or similar state agencies. They focus on their single issue, removing threats to public health and the environment (Murray, Randall, & Malone, 2005).

The Midvale Slag site in Midvale, Utah offers an example of how the two processes can be better integrated. The site was a prominent smelting facility during the first half of the 20th century. Although vitally important to Salt Lake City's economy at one time, it left behind a legacy of metal contamination in the soil and groundwater, particularly lead and arsenic. During the 1980s the EPA pursued cost recovery from potentially responsible parties (PRP), eventually collecting about \$62 million for the cleanup of the Midvale Slag site and an adjacent brownfield, the Sharon Steel site. The Sharon Steel site was cleaned up without consideration of future redevelopment, leading to unusually high redevelopment costs. Learning a lesson from the Sharon Steel redevelopment, the property owner of the Midvale Slag site, Littleton Corporation, employed a team of lawyers to create a strategy that would reduce redevelopment costs. The lawyers first developed legal claims against the federal government for its uses of the smelter during World War II to give the property owner more leverage (Murray, et al., 2005). Littleton's team also formed an alliance with Midvale City. When the EPA

struggled to find the funding for a full remediation of the site, Littleton assumed the obligation of implementing the EPA's remediation plan through a federal consent decree, using what was left of the PRP settlement money. Littleton was then able to negotiate a lower price for remediation by using its usual contractor, and it was able to design the remediation process to lower the costs of the overall redevelopment. An agreement with the EPA and the state of Utah provided liability protections for the property owner and bona-fide prospective purchasers. To prevent a future federal lien on the property to collect from PRPs, the federal consent decree include provisions to "waive the EPA's lien right against the property in return for the agency's receiving a small percentage of the property owner's ultimate profits" (Murray, et al., 2005, p 28). The property owner's commitment to negotiating terms ultimately resulted in a shorter redevelopment timeframe, and it reduced redevelopment costs, practices which could be followed by other brownfield redevelopers (Murray, et al., 2005, p. 28).

Institute Land Use and/or Engineering Controls

The costs of remediation can be reduced significantly if a heavily contaminated site is cleaned to industrial or commercial standards rather than residential standards. Potential controls that can be used to control future uses include local zoning regulations, state statutes, deed restrictions, easements, restrictive covenants and deed notices. Engineering controls include on-site barriers or restrictions (Brachman, 2004). The EPA encourages a level of remediation that follows the project reuse as well (Solomon, 2003).

Chapter 3 – Transit-Oriented Development: History, Barriers, and Best Practices

History of Transit-Oriented Development in the United States

Although the term “transit-oriented development” is more recent, American cities have developed around transportation modes, walking, streetcars, and automobiles, for many years. Proximity to streetcars was so important that in many of the first streetcar suburbs, developers built both residential housing and the streetcar lines and could be called “development-oriented transit”. The streetcars lines often had clusters of retail development as well to serve streetcar commuters and nearby residents. As streetcars were replaced with automobiles as the primary mode of transit, developers built with the automobile and roads in mind. Buses replaced rail as the primary mode of transit in most regions of the United States. Standard bus systems are not competitive with automobiles because they share the same roads and congestion and not competitive in time or convenience. Development has rarely intentionally formed around bus routes. As congestion increased in some major cities, regional rail was created such as the BART system in the San Francisco region and the METRO in the Washington D.C. region. However, these systems were initially planned as park and ride systems, and they paid little attention to integrating the stations with the surrounding neighborhoods (Dittmer with Belzer & Autler, 2004).

Over time, transit agencies and the federal government recognized that passenger rail systems usually increased the value of adjacent land and began to look at way to

capture that value by promoting intense development around rail stations: “to achieve strong ridership, transit systems need central areas of commercial density connected to residential areas of varying density” (Northeast Midwest Institute & The Congress for the New Urbanism 2001). Over time, a broader idea of transit-oriented development has emerged. Transit-oriented development’s goal is now not only to support transit ridership but also to direct regional growth around transit nodes, create walkable communities, provide a diversity of housing types by size, density, and cost, preserve environmentally sensitive land, create public spaces, and to encourage redevelopment. The challenge has been balancing the highest and best use from a developer’s standpoint with the highest and best use from the community’s standpoint. As more and more transit-oriented developments are undertaken, this increased experience has created better developments (Dittmer with Belzer & Autler, 2004).

Barriers to Transit-Oriented Development

Large Number of Players/Participants

Many players must coordinate and participate in development to create a successful TOD including transit agencies, transit riders, neighbors, local government, the federal government, and developers and lenders. Each player has the tendency to focus only on the portion of the project that it views as its main function, rather than on larger goals that can benefit all players. Belzer, Autler, Espinosa, Feigon, & Ohland (2004) lay out the main goals that may be pursued by each actor:

Transit Agency:

- Maximize monetary return on land;
- Maximize ridership; and
- Capture value in the long term.

Transit Riders:

- Create/maintain high level of parking;
- Improve transit service and station access;
- Increase mobility choices;
- Develop convenient mix of uses near station; and
- Maximize pedestrian access

Neighbors:

- Maintain/increase property values;
- Minimize traffic impact;
- Increase mobility options;
- Improve access to transit, services, and jobs;
- Enhance neighborhood livability; and
- Foster redevelopment.

Local Government:

- Maximize tax revenues;
- Foster economic vitality;
- Please constituents; and
- Redevelop underutilized land.

Federal Government:

- Protect “public interest” and set limits on how federal investments can be used.

Developer/Lender:

- Maximize return on investment;
- Minimize risk, complexity; and
- Ensure value in the long-term.

(pp. 44)

Conflicting goals and the sheer number of players make consensus on the vision and overall goals for a transit-oriented development project extremely challenging.

Financing

TODs tend to have a value gap; the initial value of the project is less than the long-term value. TODs often test a new market either in their design or their location, and the creation or transformation of a neighborhood takes time. Lenders consider mixed-use developments especially risky because developing each use requires different skills. Smaller first-floor retail uses also often have to compete with successful big box stores and regional malls making lenders wary of empty storefronts. More experienced transit-oriented developers have better luck at financing, especially as banks, become more comfortable with these projects (Parzen & Sigal 2004).

Community Opposition

Different members of the community have different needs, many of which may clash with the needs of developers of TODs. Community opposition can effectively kill development project and/or cost the developer large sums of money. There is a danger in developers asking for public input; if their input is not included in the final proposals, the community may be even more resistant to a developer's plans. Developers will be unable to meet every person's concerns (Belzer, et al., 2004).

Tension between Node and Place

Transit-oriented development has two roles that may sometimes conflict with one another: a node in a regional transportation system and a particular place in its own right. Parking is a common conflict that exemplifies this tension. Providing many parking spaces can help get more riders to the station, increasing the effectiveness of the node. However, parking spaces can also damage a sense of place by reducing pedestrian friendliness and making mixed-use buildings less viable (Belzer, et al., 2004).

Complexity

Creating development which 1) complements the surrounding neighborhood fabric, 2) provides the right amount of variety within the district, and 3) creates a sense of place and a symbiotic relationship among buildings and uses within the district is a complex task. Transit-oriented development requires developers to tackle much more complex problems than a typical suburban-style single-use and single market development. Successful TODs mix multiple land uses, residential densities and products, income levels, and household sizes. Too often the uses that end up becoming part of a TOD respond to the general market and not to each other, failing to create a distinctive district and sense of place (Ditmer, H. with Belzer, D. & Autler, G., 2004).

TODs must function as both a place and a node with all components in interaction with each other, including trains, buses, cars, pedestrians, bicyclists, housing, offices, and stores. Without the consideration of all of these pieces, TODs lack the desired locational efficiency and fail to meet other expected goals (Belzer, Autler, Espinosa, Feigon, & Ohland, 2004).

Lengthened Development Timeline

The length of time required for transit-oriented developments is usually longer than for other projects due to a number of factors. Transit-oriented development requires the organization of many players and the community. The complexity of the development demands more developer sophistication. Financing may take longer to procure from cautious lenders inexperienced in lending for transit-oriented development projects. Additionally, communities unused to TODs often lack the plans and regulations that address the unique needs of TODs (Belzer, et al., 2004).

Zoning Codes, Parking Standards, and Traffic Modeling

Even when communities welcome and create plans advocating for transit-oriented development, zoning codes often remain unfriendly to the needs of transit-oriented development. Many cities' current zoning and parking ordinances are catered to automobile-dependent development. The city is then unable to regulate, manage, or support a TODs' needs. Development subsequently becomes "transit-adjacent" rather than "transit-oriented" (Dittmar, et al., 2004).

Transportation professionals often have a difficult time dealing with the needs of TODs. There is a lack of data on traffic and parking characteristics of TODs compared with the data available for standard suburban commercial strip malls. Uses are much more interrelated in TODs and therefore their traffic and parking requirements are interrelated. There is also "no systematic and widely accepted method for modeling and evaluating TOD" that can be used to conduct traffic and parking analyses. Street

standards built primarily around the efficient movement of automobiles are incompatible with the other modes of travel transit-oriented development depends on. The use of flexible street design or “context-sensitive design”, requiring different street designs for region-serving streets versus neighborhood-serving streets, better balances modes of travel and transit-oriented development objectives and improves street design. However, regardless of street type, pedestrian connectivity is absolutely essential to any TOD. Level of service (LOS) standards that focus entirely on the ease of automobile traffic movement are not appropriate for TODs. Multi-modal levels of service may be used, but there is, as of yet, no widely accepted standard for multi-modal LOS (Daisa, 2004, p. 126).

Best Practices and Tools for Transit-Oriented Development

Early and Sustained Public Involvement

Like brownfield redevelopment, transit-oriented development benefits from a plan which establishes what a community wants, making consensus on development proposals much easier. Effective planning reduces time and uncertainty, smoothing the way for locally-favored development. Communities that want to attract transit-oriented development should have clear and sustained public policies that favor TOD (Greenberg, 2004). Development regulations should describe what communities want, rather than regulating against what they don't want (U.S. Environmental Protection Agency & Association of Metropolitan Planning Organizations, 2001, p. 49). Projects with an inclusive planning process behind them also have an easier time securing financing (Parzen & Sigal, 2004).

Arlington, Virginia's planning for transit-oriented development began in the 1960s with extensive outreach to community stakeholders to reach consensus on major goals and expectations. The planning principles that emerged have been "maintained and respected" for over thirty years, through multiple plans and zoning changes (Leach, 2004, p. 144).

Tax Increment Financing and Business Improvement Districts

TIFs and BIDs are used similarly for transit-oriented developments as they are for brownfield redevelopment. Palatine, Illinois attracted one of the first suburban Chicago TOD projects by having “concrete redevelopment plans for the area and [being] willing to pay for structured parking lots, use tax increment financing, and float bonds” (Pazen & Sigal, 2004, p. 89).

Public Investment

Public investment, especially at the pre-development stage, can generate private investment. There are few sources for capital to fund pre-development work such as zoning work, architectural designs, and land acquisition. The complexity of TOD projects means that pre-development can last three years or longer so early public sector funding can make TODs more viable. At the Pleasant Hill BART station, the county paid for the charrette process. Once the project is underway, the county will be repaid. In New Jersey, “New Jersey Transit and the Geraldine R. Dodge Foundation split the costs of planning studies for a station renewal program targeting a number of stations” (Parzen & Sigal, 2004, p. 88).

The Village of Arlington Heights, a Chicago suburb, has seen significant tax returns for its investment in TOD:

...the village invested \$9.9 million dollars in a garage and another \$4 million in infrastructure and land acquisition in one early mixed-use project. Before development, the site produced approximately \$65,000 per year in property taxes, and it was projected that by 2003, when the development would be fully assessed,

it would produce \$1.5 million in property and sales taxes. Prior the recent wave of development, downtown restaurant gross sales receipts were \$7 million, and were projected to increase soon to \$16-17 million. (Parzen & Sigal, 2004, pp. 90)

Public investment can have significant positive fiscal impacts for developers and for municipalities.

Phase Development

Belzer, et al., (2004) suggests that phasing be used in uncertain markets, building portions of the project with known demand first. The first phase of the project can help introduce demand for less-tested products. Phasing development can additionally reduce risks for lenders by establishing a solid track record over time. Phasing allows developers to produce early returns which will finance further phases. Various developers can be involved with the project according to which phases need their particular type of expertise (Parzen & Sigal, 2004). As Fred Bruning, president of CenterCal Properties, a transit-oriented developer, said, “You have to take it in steps and develop density as the market becomes available. We design our projects in such a way that density can increase over time. If it’s designed well, it has a shelf life for decades.” (as quoted by Schneider, 2007).

Land Assembly

Governments and nonprofits can assist developers by acquiring land around transit stations, selling it for less than market value, or allowing delayed payment on land until the TOD is complete and stable. TriMet, the Portland regional transit authority, the

Contra Costa County Redevelopment Agency, and the Santa Clara Transit Agency have all engaged in land assembly to aid transit-oriented development (Parzen & Sigal, 2004). According to Belzer, et al. (2004), “true transit-oriented development cannot occur on a single parcel, yet property ownership is nearly always fragmented and assembly of multiple parcels can be difficult. If the local government does not play a leadership role, then the development program surrounding the transit station is unlikely to be of sufficient scope to be truly effective as TOD” (p. 48-49). Therefore, land acquisition is one of the crucial tasks a local government should undertake.

Partnerships

The Fruitvale Transit Village in Oakland, California is a good example of how effective partnerships can secure the funding and resources necessary to plan and implement a “costly and complex project” such as a transit-oriented development (U.S. Department of Transportation, pp. 2). In 1991, Bay Area Rapid Transit (BART) announced plans to build a parking garage next to its Fruitvale station, which sparked significant community opposition. Although there was some acknowledgement that additional parking was needed, the community felt that the parking would increase traffic and pollution while further separating the Fruitvale commercial district from the station. The Unity Council, a local community development corporation, made the case that development around the station should be decided by a community-based planning process. BART agreed to work with the community and the Unity Council to make a plan for the area (U.S. Department of Transportation). Community-based organizations are sometimes better positioned than government agencies to gauge community needs

and wants. They can help local governments understand how a project is likely to be perceived by the community (U.S. Department of Transportation).

In Murray, Utah, city officials took the lead in the redevelopment process by working with the EPA to clean up hazardous materials on the Murray Smelter site. The 2003 general plan considered the interaction of residential neighborhoods with transportation, parks, commercial and industrial redevelopment, and retail businesses. The general plan laid the groundwork for the principles of new urbanism and transit-oriented development, which would be incorporated in the Inverness Square redevelopment on the Murray smelter site. The developer of Inverness Square met with city planners throughout the making of the general plan to get a good understanding of the city's needs and vision for the future (Urban Land Institute, 2006)

Public Incentives

Local government should create incentives that encourage successful TODs. Municipalities can make the approval of development and award of grant money contingent upon meeting the goals of the plan. Local governments should also identify ways to support bond financing. The funding of key infrastructure can be dependent upon developers creating transit-supportive proposals (Belzer, et al., 2004).

Streamline Government Operations

Whenever possible, the local government should streamline operations for projects that it wants to encourage. The complexity of TOD, however, causes Greenberg (2004) to recommend that customized zoning be used for projects that incorporate transit

stations or that are large enough to dominate the area near a station. A Planned Unit Development could typically be used to create the customized plans that can address “operational, technical, and place-making challenges” (Greenberg, 2004, p. 64). For smaller, more standardized projects that do not include a transit station, customized planning and discretionary review should be minimized (Greenberg, 2004). Sites targeted for TODs should also be proactively rezoned to higher density and transit-supportive uses (U.S. Environmental Protection Agency & Association of Metropolitan Planning Organizations, 2001).

Design Guidelines and Parking Standards

Design can make or break transit-oriented development projects. Typical design standards for transit-oriented development require or encourage sidewalks, first floor windows, mixed-use buildings, small blocks, street calming, alleys, pedestrian connectivity, zero or small setbacks (especially for front setbacks), entrances along public streets, human scale design, high density development often with density minimums, and active streets (Jacobsen & Forsyth (2008) (Greenburg, 2004)

Most of these design guidelines aim to make transit-oriented development pedestrian-friendly because the most effective transit-oriented developments are surrounded by walkable streets. Once people get into a car, they are more likely to drive to their destination than to a transit station. People who can walk a short distance to a transit station are much more likely to use it (U.S. Department of Transportation). Therefore, pedestrian connectivity is one of the most important components of any transit-oriented development. According to Peter Calthorpe, walkability “is the

foundation, because if you want a transit system to function, you have to arrive at a place that's walkable — otherwise you are going to want to take your car there. So you need walkable neighborhoods. All of a sudden that brings you back to all those simple urban design principles that we seem to have forgotten about — tree-lined streets, local destinations, front porches, and a whole range of things. (as quoted by London, 2002).

Belzer et al. (2004) recommends that governments “set strict guidelines around parking design and vehicular circulation so that cars do not interfere with pedestrian and bicycle access”, “create comprehensive parking strategies that link parking requirements to actual parking utilization and vehicle ownership levels”, and encourage car-sharing and shuttle services (p. 48). Parking should also be unbundled from other land uses so that people pay for parking separately from other uses. In this way, people can see the true cost of car ownership and the savings incurred from using other transportation modes. Parking should also be shared to maximize its use and minimize lots that sit empty for half the day.

Chapter 4 –Synthesis of Best Practices in Transit-Oriented Development and Brownfield Redevelopment

The best practices for brownfield redevelopment and transit-oriented development are mostly very similar, and both include the following: early and sustained public involvement, partnerships, local capacity, land assembly, public incentives, tax-increment financing and business improvement districts, public investments, and streamlining government operations for desired developments. The most effective tools to attract developers to a particular site reduce developer time, cost, or uncertainty, and preferably all three.

Best Practice	Transit-Oriented Development	Brownfield Redevelopment
Provide Incentives		x
Taxation Methods		x
Inventory and Market Sites		x
Environmental Insurance		x
Plan Remediation with Redevelopment in Mind		x
Institute Land Use or Engineering Controls		x
Early and Sustained Public Involvement	x	x
Partnerships	x	x
Local Capacity	x	x
Assist in Land Assembly, Land Acquisition, and Title Clearance	x	x
Public Investment	x	x
Streamline Government Operations	x	x
TIFs and BIDs	x	x
Phase Development	x	
Design Guidelines and Parking Standards	x	

Most case studies of transit-oriented development on a brownfield site consider environmental contamination as just another aspect among many other aspects of the development process (De Sousa, 2006). According to Charles Kramer, the president of Brookhill Group, a company specializing in brownfield redevelopment, “The fact that a site is contaminated is an issue and a cost component to be added in. In the end it is another line item” (as quoted by Holusha, 2002). Experienced urban developers are becoming accustomed to dealing with brownfields since so many redevelopment sites are brownfields:

...the private sector has been finding ways to make money cleaning up the lightly contaminated properties called brownfields. A key part of the new attention to contaminated lands is the comfort level afforded by increased experience with the cleanup process. Another is the increasing availability of insurance to cover various risks in such projects. And underlying the activity is a characteristic shared by many of the polluted sites: they are convenient to both transportation and to urban areas that were once the source of workers for vanished factories and are now the source of prospective shoppers and home buyers.

(Holusha, 2002)

Brownfields are created by such common uses as dry cleaners, auto repair shops, and gas stations that there are many brownfields on major intersections or corridors. Their location, on arterial streets and rail lines, makes them desirable for redevelopment.

Former industrial sites are also some of the only large urban sites left in high-demand cities, and their size may make redevelopment more feasible than other smaller but uncontaminated sites. This also makes large scale transit-oriented development more

feasible. For example, the Meadowlands project on an old city landfill in New Jersey when completed will encompass around 1,200 acres. It will include hotels, office buildings, retail, housing (including housing reserved for people 55 years and older), golf courses, and athletic fields. The real estate market in the area and the site's connection to a new station on New Jersey Transit's Bergen rail line made the project feasible despite cleanup costs (Holusha, 2002). The Woodcrest Corporate Center in Cherry Hill, New Jersey was a vacant 335,000 square foot packing plant that has been redeveloped into an office building. The redevelopment occurred because the site has access to Philadelphia and New Jersey via I-295 and PATCO high-speed rail transit, highly adaptable existing structures, parking, and proximity to nearby amenities. (Buildings, 2004). Good transportation access, including transit, is one of the main factors that makes a brownfield site desirable for redevelopment.

Conflicts of Best Practices

Residential Development on Brownfields

Higher residential density is a key component to successful transit-oriented development. However, cleanup of a brownfield for future residential use requires much lower levels of contamination, than commercial or industrial use. This additional remediation is both more costly and more difficult to achieve. According to the U.S. Conference of Mayors and the U.S. Census Bureau, residential reuse makes up only 14% of brownfield projects while investment in residential construction accounts for 60% of all private investment and 50% of total investment in the U.S (as cited in De Sousa, 2006). De Sousa's examination of residential development on urban brownfields in Milwaukee and Chicago finds that redeveloping brownfields for residential use is not uncommon in these cities and that "while private dollars seem to be going mainly to projects that involve minimal contamination and maximum location-oriented amenities, public dollars still play a key role in attracting and situating new development in both cities" (2006). Of significant interest, in Chicago, when developers who conducted residential development on brownfield sites were asked to rank the factors that attracted them to a particular brownfield, "Proximity to Public Transit" and "Strong Property Market (feasibility)" were tied as the top factors (De Sousa, 2006). Transit investment can significantly increase the marketability of brownfield sites.

Some markets like Chicago have a strong real estate market that can overcome the costs of cleanup for a residential use, with the use of some public financial assistance for more contaminated sites. In other weaker markets, public assistance may be an absolute

necessity to attract any brownfield development. Sometimes, only waiting for an improvement in the market will make residential development feasible. In the early 1990s, the City of Baltimore decided to pursue residential brownfield redevelopment on a former industrial site in the Southwest Baltimore neighborhood of Pigtown. The city acquired the 11-acre site and intended to redevelop it as middle-income housing. The city set aside \$1.4 million for cleanup costs. After \$1.9 million in cleanup, the State of Maryland determined that the site was still too contaminated for residential use. In 1998, the redevelopment partner, Ryland Homes, backed out of the agreement. Not only had the increased cleanup needs lengthened the development timeline, but existing residential properties in the neighborhood were not selling. In 1998, the city put the project out for bid once more. Metroventures put out the single bid, which was accepted by the city (Howland, 2004). In 2003, Metroventures finally broke ground on what is now named Camden Crossing. Ten years after the initial plan, the area increased in value enough to make the project viable. The units are selling from the upper \$100,000s to almost \$300,000 (Fieser, 2003 and <http://www.camdencrossing.com/>). This project shows that even if a city pays for the cleanup costs to create residential development on a brownfield, it will not necessarily make it feasible. City investment can help on a project that is a close call, but it cannot radically change the market. Residential development on brownfields is more difficult to achieve, but not impossible.

Design

Close attention to design is absolutely vital to the success of any transit-oriented development while design for brownfield redevelopment is considered less important. Therefore, it is important that planners be involved in the early stages of planning for transit-oriented development on brownfields to ensure that the development will meet the needs of the community and of the transit system (Dittmer & Poticha, 2004). Brownfield redevelopment and transit-oriented development best practices are not necessarily in conflict over design, but it is crucial that the local government and community understand the importance of guiding design around their transit stations and be particular about brownfield redevelopment design. It is also important that the plan and designs be flexible enough to change as more about the level and location of contamination are discovered.

Case Studies of TOD with Brownfield Redevelopment

Fruitvale Transit Village – Oakland, California



(Project for Public Spaces)



(Metropolitan Transportation Commission, <http://www.mtc.ca.gov/>)



(<http://purrplexity.blogspot.com/>)



(<http://purrplexity.blogspot.com/>)

The Fruitvale Transit Village project in Oakland, California demonstrates many of the best practices of transit-oriented development on brownfields. The project was sparked by the Bay Area Rapid Transit's (BART) announcement that they planned to construct a parking garage next to the Fruitvale rail station. The Unity Council, a community development corporation, organized neighborhood opposition to the parking structure, "arguing that any development around the BART station should be guided by a broad-base community planning process" (The Unity Council, Bay Area Rapid Transit District, and the City of Oakland, 1999). The Unity Council engaged stakeholders in a vision and planning process for the Fruitvale Transit Village. Effective partnerships helped generate the necessary funding to plan and implement such a costly and complex project. The Unity Council was able to develop working relationships with a variety of players while representing the community's vision for the station area. The success of their efforts demonstrate that mass transit can be used a lever to revitalize an urban neighborhood (The Unity Council, Bay Area Rapid Transit District, and the City of Oakland, 1999).

The Fruitvale area suffered from decline as the construction of freeways moved manufacturers out to land in suburban area. White flight accompanied the loss of jobs. By the 1960s, Fruitvale was struggling with unemployment and poor quality housing. The Unity Council and community members saw that the Fruitvale Transit Village around the BART station could be a good opportunity to turn the neighborhood around.

The Unity Council engaged residents in a comprehensive, inclusive community planning process funded by several grants, including Community Development Block

Grants and a U.S. Department of Transportation Federal Transit Agency planning grant. The money was used to hold a series of workshops and to carry out economic, traffic, and engineering studies for the station area. A partnership with the University of California at Berkeley's National Transit Access Center resulted in a community design symposium. Workshops were held to identify positive and negative elements of the community, indicate development preferences, develop goals, and finally to establish a preferred alternative land-use plan (The Unity Council, Bay Area Rapid Transit District, and the City of Oakland, 1999).

In 1994, the Unity Council, BART, and the City of Oakland signed a Memorandum of Understanding established a policy committee to guide future development. In 1996, the Unity Council established a nonprofit subsidiary corporation, the Fruitvale Development Corporation, to act as the developer and to manage contracts. The Unity Council also petitioned the city for a zoning ordinance that would ban the construction of additional parking spaces within the transit village. It was passed in 1996. BART's ownership of most of the land around the station required a complicated "land swap" to maintain the value of BART's land assets while allowing for development of the most crucial parcels. Another obstacle to the development was BART's policy that every parking spot removed must be replaced elsewhere. In the end, effective partnerships, flexibility and innovation of project partners, creative financing, public involvement, and the use of transportation assets together made this project successful in revitalizing the community and creating a transit-supportive neighborhood (The Unity Council, Bay Area Rapid Transit District, and the City of Oakland, 1999).

Kenosha, Wisconsin



(Project for Public Spaces)



(<http://www.city-data.com>)



(Kenosha Harbor Market)



(<http://www.qcarcompany.com>)

Kenosha, Wisconsin has a similar story of decline and used community planning and existing community assets to revitalize its once industrial lakefront along Lake Michigan. With the loss of a major AMC/Chrysler plant in 1987, Kenosha officials decided that they needed to move on and develop a new and more diverse local economy. The city identified its strategic location between Chicago and Milwaukee, its educated and skilled workforce, and the appeal of Lake Michigan as strengths to build on (Miara, 2006).

By 1991, a new plan was created for downtown that included residential units replacing industrial and warehouse structures near the Chicago Metra commuter rail station and a new neighborhood on the waterfront, featuring housing, parks, and a marina. The city established a TIF district for the redevelopment area. Then, it acquired and demolished blighted and abandoned buildings through eminent domain. The 42-acre former AMC/Chrysler plant remained a barrier between Kenosha's downtown and the harbor redevelopment area. The city would have preferred a private developer clean and redevelop the site. However, one company's efforts to do so, spending over \$11 million on remediation, faltered as the state could not assure the developer that its environmental liability was removed. In 1994, Wisconsin's Land Recycling Law, Act 453, finally provided enough liability protection for the city to acquire the land and remediate it to an appropriate level (Miara, 2003).

Like the Fruitvale case study, Kenosha brought in outside practitioners to conduct some of its public planning efforts. The Urban Land Institute convened an advisory services panel to engage the public and make recommendations. Nick Arnold, Kenosha city administrator, explains, "ULI brought in real-life practitioners with no ties to the

community, so their recommendations were good and they were not suspect.” (as cited by Miara, 2003). The plan that was created included a “balanced program of public investment in infrastructure and private investment in commercial, office, and residential development” (Miara, 2003).

In addition to the existing Metra commuter rail station, the city added an electric trolley which links the Metra station, downtown, and the new district development along the lakefront on former brownfields. The city is continuing to work on redeveloping other brownfields, and Kenosha has gained a reputation as an appealing place to live. Kenosha Mayor John Antaramian advises other cities to “take firm action” and deal with old factories “quickly and decisively” before they destroy the neighborhood (Miara, 2003).

Former Murray Smelter Site - Murray, Utah

Inverness Square



(www.anilkdevelopmentportfolio.com/)

In Murray, Utah, city officials took the lead in the redevelopment process by working with the EPA to clean up hazardous materials on the Murray Smelter superfund site. The 2003 general plan considered the interaction between residential neighborhoods and transportation, parks, commercial and industrial redevelopment, and retail businesses. The general plan laid the groundwork for the principles of new urbanism and transit-oriented development, which would be incorporated in the Inverness Square redevelopment on the Murray smelter site. Design was very important to the community. The developer of Inverness Square met with city planners throughout the creation of the general plan to get a good understanding of the city's needs and vision for the future,

which included higher quality buildings, attractive design and streetscapes, walkable neighborhoods, vibrant mixed-use development, and environmental conservation of local creeks and wooded areas. The area is now the home of a regional hospital campus and an urban townhome community, Inverness Square, around a TRAX light rail station (Urban Land Institute, 2006)

Housing, transit expansion planned

An expanded TRAX transit center and high-density housing are planned as part of the Birkhill at Fireclay development north of 4500 South in Murray.



Source: City of Murray

STAFF GRAPHIC /The Salt Lake Tribune

Rendering of Mixed-Use Building in Birkhill at Fireclay



(Hamlet Homes)

Rendering of Residential Building in Birkhill at Fireclay



(Hamlet Homes)

Birkhill at Fireclay



(<http://forum.skyscraperpage.com/>)

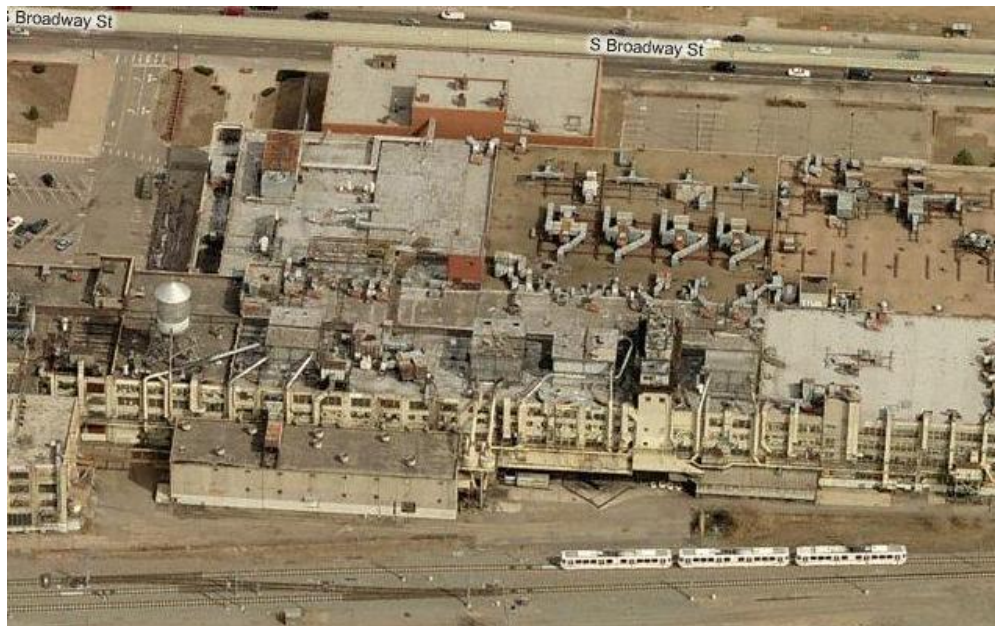
Development is also in progress on a mixed-use transit-oriented development on another part of the former smelter site, Birkhill at Fireclay, around another TRAX station in Murray, the Murray North station. This development will include 330 condos and town homes and 200,000 square feet of office and retail space on 30 acres. There were some obstacles with this development, most notably, assembling large enough parcels. It took Hamlet Homes more than two years to amass the land for Birkhill at Fireclay. The zoning regulations also had to be rewritten. In 2005, Murray passed a transit development ordinance “that allows narrower streets, encourages trees and pocket parks, and is designed to produce a new district that is not too densely built up, but also won’t look or feel anything like a typical single-use suburban subdivision” (Schneider, 2007). Michael Brodsky, the chairman of Hamlet Homes, said “the difficulties involved in developing around the Salt Lake region’s transit stops are compensated for by the market response”. In addition to Birkhill at Fireclay, the company is constructing two more housing and business developments near the TRAX stations immediately north and south

of the Murray North stop. Brodsky said, “The fact that we are building close to the light rail station is an important amenity. It is part of the package that also includes a combination of affordability and accessibility to a more urban setting.” (as quoted by Schneider, 2007).

Former Gates Factory – Denver, Colorado



(Cherokee Denver, LLC)



(Microsoft Bing Maps)

The Gates Factory redevelopment in Denver, Colorado provides an example of a brownfield in the urban core made attractive for redevelopment by its location at the intersection of three light-rail lines and a major RTD bus station and by its large size, 85 acres (Maher, 2007). The site is located three miles south of downtown (Carder, 2008). The Gates Factory was created in 1911 with Charles Gates Sr.'s purchase of the Colorado Tire and Leather Company. The Gates Rubber Company built many products over the years including horse halters, tires, tire parts, cassettes, plastic bottles, battery casings, rubber belts, and synthetic rubber. In the 1920s, its business and plant had expanded to the point that it was dubbed the "West's biggest factory". By the 1930s, the complex included over "thirty interconnected buildings over a 25-square-block area that manufactured some 120 products" employing at its peak over 5,500 people (Maher, 2007). In the 1950s, Gates become a multinational corporation with plants across the globe. Then, in 1985, the company closed most of its Denver manufacturing operations. In 1996, the Gates Corporation was bought by a British conglomerate and the Gates Factory facility was completely shut down (Maher, 2007).



(Cherokee Denver, LLC)

Since then, the buildings have been the source of many public safety issues. Vandals, squatters, and burglars have been difficult to keep out of the property. In 2007, a college student trespassing on the property with friends fell in an elevator shaft and later died from the injuries he sustained. In 2001, the Gates Corporation sold 50 acres of the property to Cherokee Denver, “the world’s largest equity firm specializing in cleaning up and developing so-called brownfields” (Maher, 2007). Cherokee Denver plans to create a transit-oriented development on the property. The large amount of “open, if pre-used space” and proximity to light-rail make it an ideal location for this type of development (Maher, 2007). Ferd Belz, Cherokee Denver LLC managing partner said that “while others saw an abandoned industrial site, we saw an opportunity to remediate and develop the property, creating a world-class urban village as we integrate existing

neighborhoods and capture the benefits of light rail transit” (as quoted by Carder, 2008). Cherokee Denver estimated environmental cleanup would cost \$24.5 million, with demolition about \$10.5, but the development created is expected to be worth \$1 billion (Maher, 2007).

T-MU-30 Mixed-Use Zoning		
USE	I-1 / I-2	T-MU-30
Heavy Industrial	YES	NO
Light Industrial	YES	YES
Office	YES	YES
Retail	NO	YES
Hotel	YES	YES
Residential (MF)	NO	YES
Floor Area Ratio	2.0	5.0
Parking Reduction	NO	YES
Design Guidelines	NO	YES
GDP	NO	YES

(Cherokee Denver, LLC)

Cherokee reached out to the community early to involve them in the redevelopment process. As a result, the Denver City Council unanimously approved a new zoning for the area, “Transit Mixed-Use”, in 2003 (Maher, 2007 & Carder, 2008). Design guidelines govern the future development. The city further supported the development by granting Cherokee \$126 million in tax-increment financing subsidies. The Denver Urban Renewal Authority issued bonds that it will repay from sales and property taxes generated by the development in the future. State support has also been key to this project; the Colorado Housing and Finance Authority provided \$2 million in loans to the developer. Today, the developer continues to work on remediation and

demolition. The groundwater in the area had been contaminated with trichloroethylene (TCE), which has since been mitigated. The variety of industrial activities that took place on the property have left a variety of hazardous and non-hazardous materials behind including latex, paraffinic process oils, plasticizing compounds, chlorinated and non-chlorinated solvent cleaning solution, formaldehyde, toluene, lead, and chromium. In some areas, much of the dirt underneath foundations will need to be removed and replaced with clean fill (Maher, 2007). The build out of the entire project is expected to take 10 to 15 years and include more than 1,000 residential units and 1 million square feet of office, retail, and entertainment space (Carder, 2008).

Redevelopment Master Plan



(Cherokee Denver, LLC)

Conceptual Rendering



(Cherokee Denver, LLC)

Gateway District – Salt Lake City, Utah

Gateway District before (1998) and after (2002)



(<http://people.ce.gatech.edu/~amekudzi/Brownfields.htm>)



(<http://www.shopthegateway.com>)



(<http://www.shopthegateway.com>)

The Gateway district was once the home of railroad manufacturing and maintenance facilities, heavy industry, salvage yard, and warehouses surrounding a web of rail yards and rail lines. Later, the area was plagued with abandoned buildings, environmental contamination, and crime. Although the 650-acre area was just three blocks west of downtown Salt Lake City, concerns over contamination, a lack of basic infrastructure, and Interstate 15 ramps restricting access prevented any investment in the area. In preparation for the 2002 Olympic Winter Games, the State of Utah decided to rebuild and widen Interstate 15, and Salt Lake City saw an opportunity to redevelop the area. It negotiated with Union Pacific to remove its rails from the street and sell its rail yards in the area. It also worked with the state to shorten on and off ramps and to feed traffic into the Gateway District. An EPA Brownfields Assessment Demonstration Pilot grant was used to fund environmental assessments. Although some contamination was

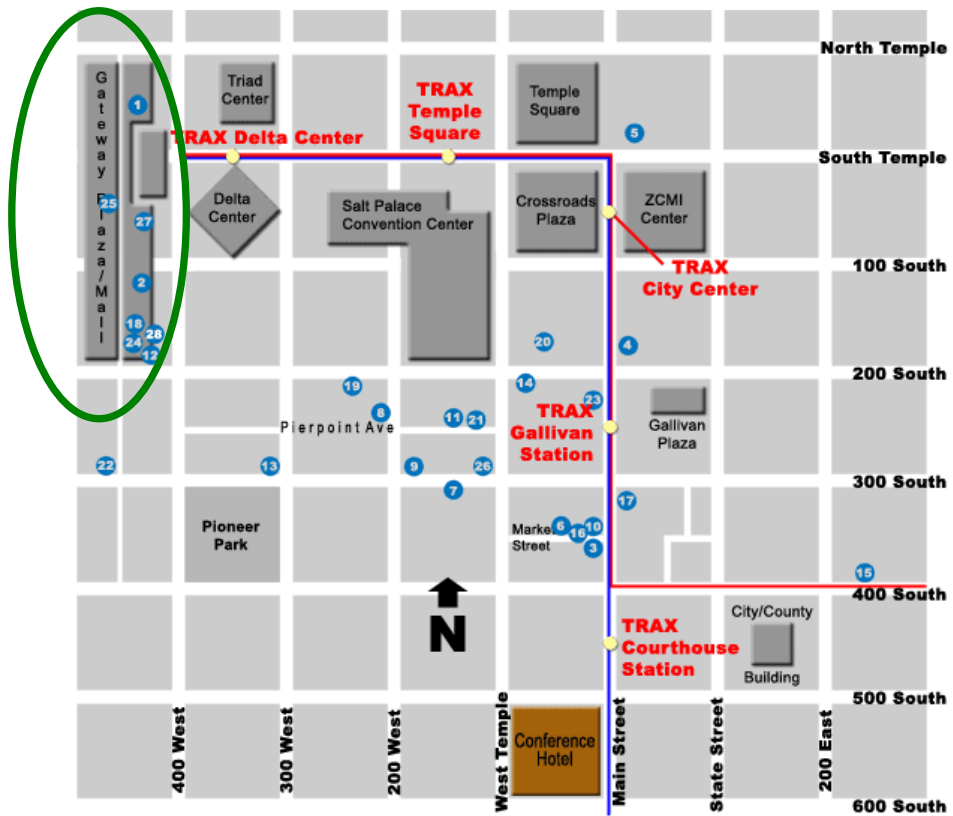
found, the perception of contamination was worse than the reality. A private development group, Gateway Associates, purchased the largest rail yard in 2001 and created a mixed-used, mixed-income development that includes retail, entertainment, offices, cultural institutions, a public plaza, hotels, and residences (U.S. Environmental Protection Agency, 2003).

The city purchased land to reconstruct the main street, build a liner park, and conduct additional environmental assessments. The federal Economic Development Administration provided \$1.27 million in assistance. The U.S. Department of Housing and Urban Development provided \$500,000 to purchase land. The city also created a new transit hub that links bus, light rail, and commuter rail systems. These partnerships have resulted in a successful redevelopment and revitalization of the Gateway District in Salt Lake City (U.S. Environmental Protection Agency, 2003). Again, transit was important to making the redevelopment feasible.

Trax Station at the Gateway



(<http://www.flickr.com/photos/richlegg/421347012/>)



(<http://library.weber.edu/>)

Chapter 5 – Opportunities for Transit-Oriented Development on Brownfields in Indianapolis

The City of Indianapolis has the opportunity to create transit-oriented development on brownfields along the proposed Northeast commuter rail corridor, the first leg of a system of rail lines. The proposed Northeast corridor alignment is along existing rail right-of-way from the Nickel Plate rail line. With its industrial history and development along the railroad system, many Indianapolis factories and industries located along the rail lines, which left a legacy of contamination. An investment in transit would provide an opportunity to both remove the environmental problems along the rail line as well as make development in these areas more desirable. Both transit-oriented development and brownfield redevelopment are complex and require a great deal of capacity – both financial resources and knowledge. The City, its leadership and citizenry, have a great deal left to do to prepare for the development and investment that will occur if the commuter rail is created. A history of underinvestment in infrastructure has left many urban neighborhoods along the rail line unprepared for the transit-oriented development that should occur around stations. A bold plan for the future and bold actions are both needed to curb the excessive sprawl that is occurring in the Indianapolis metropolitan area and to provide the incentives to encourage redevelopment of struggling inner-city neighborhoods. Reversal of the metro area's unsustainable throw-away culture will take time and continuous community involvement, but the impact of the investment in the community will be great. The City of Indianapolis needs only to look at the positive impact that passenger rail has had on the many other American cities that have

recently invested in it. Once the first line is put in, other neighborhoods clamor for a line in their area. Former U.S. Secretary of Transportation Rodney E. Slater stated on April 22, 1998:

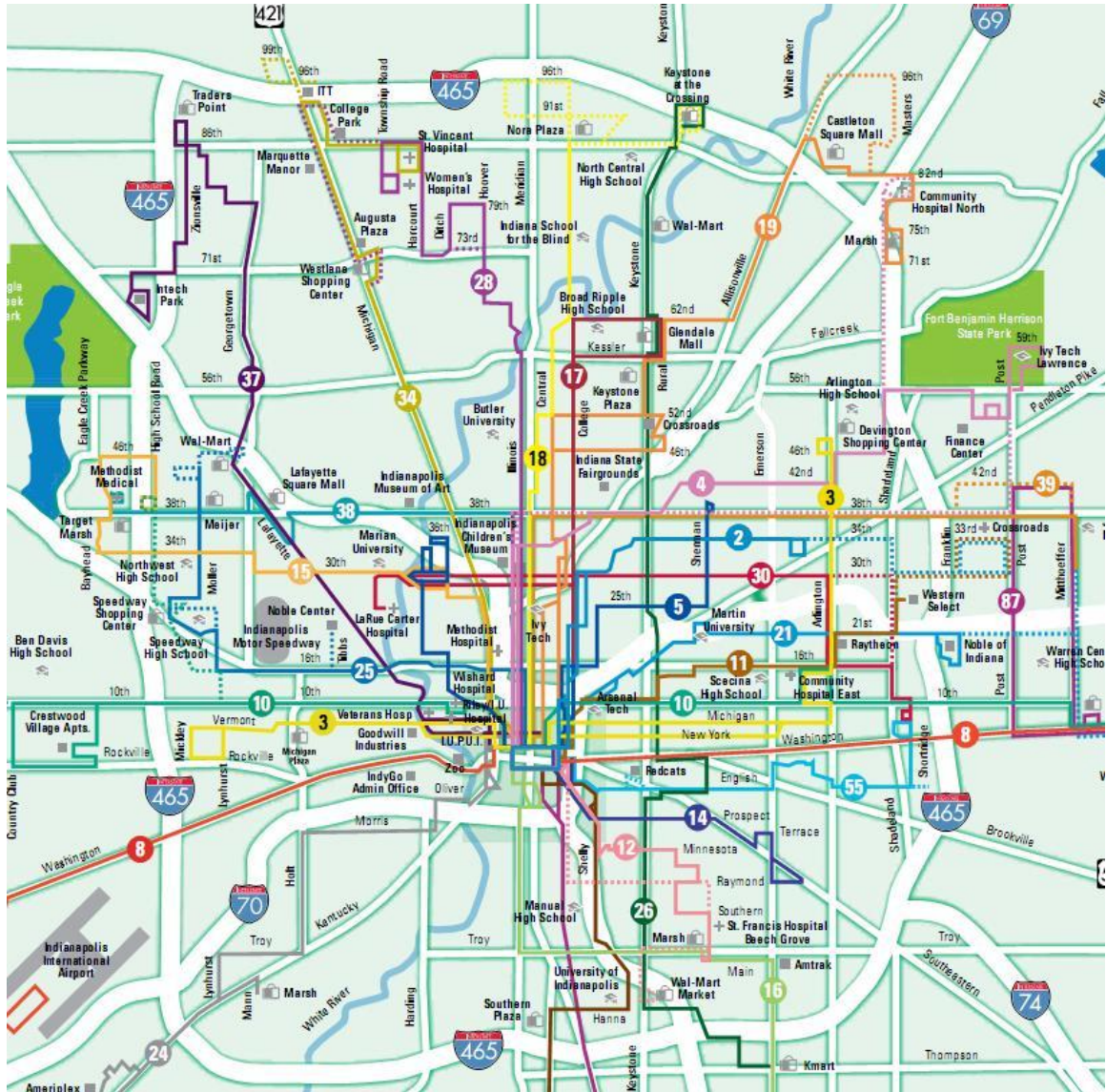
Returning brownfields to productive use creates a foundation for new economic opportunities and revitalized communities. I want transportation to play an active role where it makes sense... -- in working with communities to address brownfields. Transportation is a key to brownfields redevelopment. Why? It gives access so people and goods can easily move in and out. This means fixing up existing infrastructure such as highways, waterways, and public transportation. And it means new transportation-related land use such as intermodal transportation terminals and bus barns.

(as cited by U.S. EPA & AMPO 2001, p. 2)

Proposed Northeast Rail Corridor

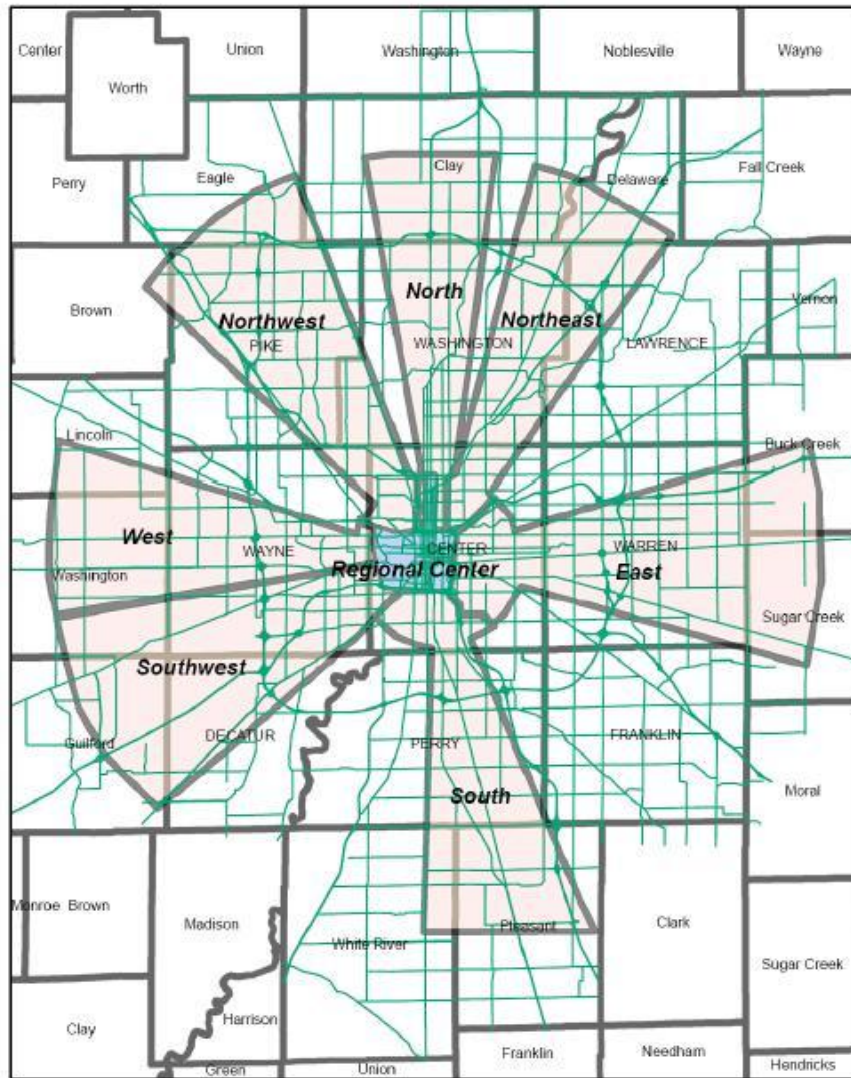
The Indianapolis Metropolitan Planning Organization (MPO) has been studying where to locate the region's first rail corridor. There is an existing bus system, but it is poorly funded in comparison to similarly sized American cities, and it operates at low frequency. The Northeast side of Indianapolis is the most congested area of the metropolitan area and has the most potential for ridership in the near term. In 2007, the MPO identified its preferred alignment, mostly along existing rail right of way from the Nickel Plate line. The line is currently only used a few times a year for tourist events. . . Because the preferred alignment is an existing rail right of way, there are many historical industrial uses along the rail corridor that are brownfields.

IndyGo Bus Routes



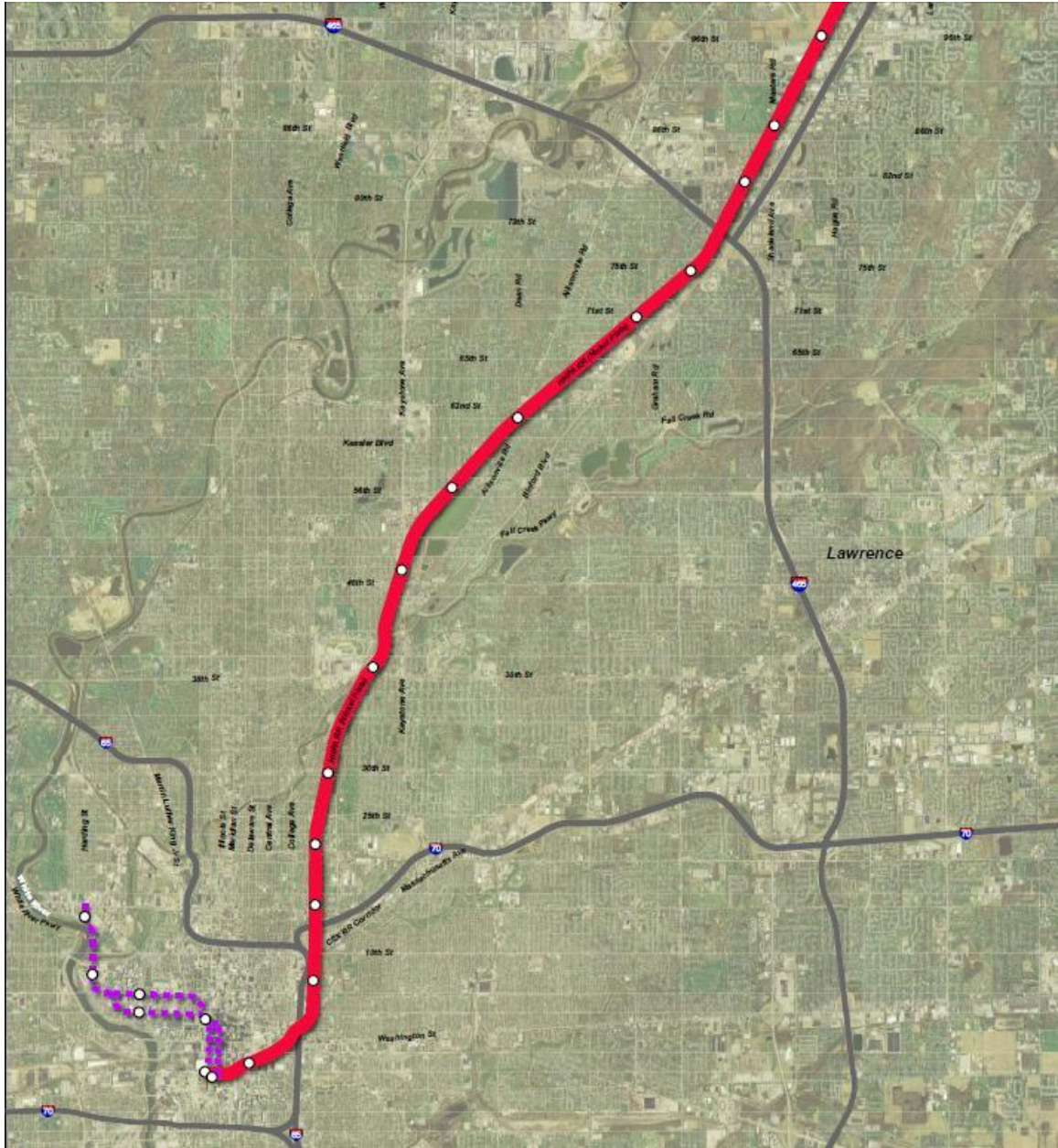
(IndyGo)

Proposed Rapid Transit Corridors

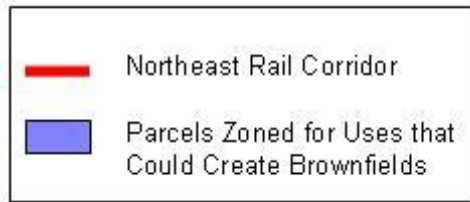


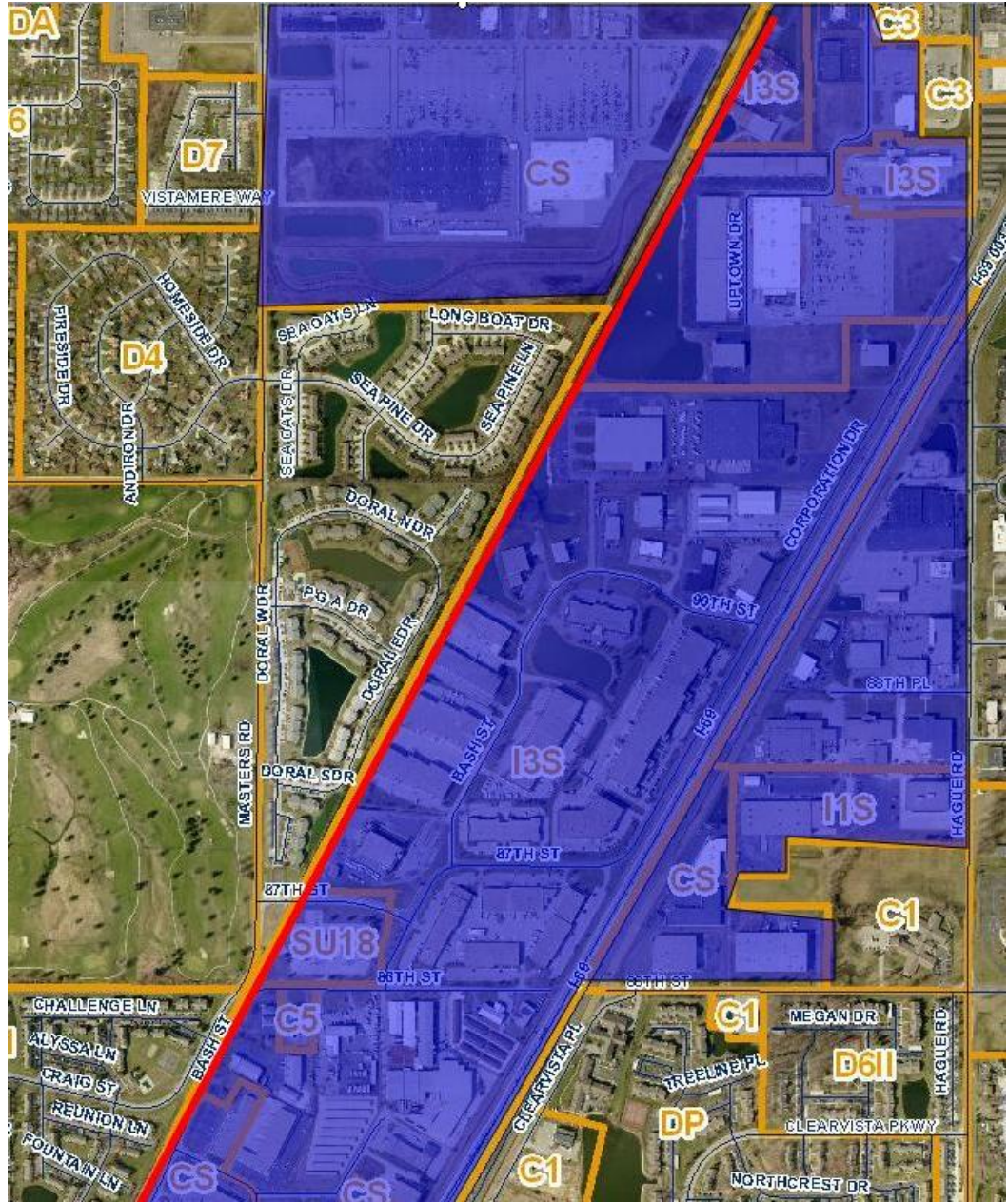
Source: Indianapolis MPO.

The Proposed Northeast Rail Alignment

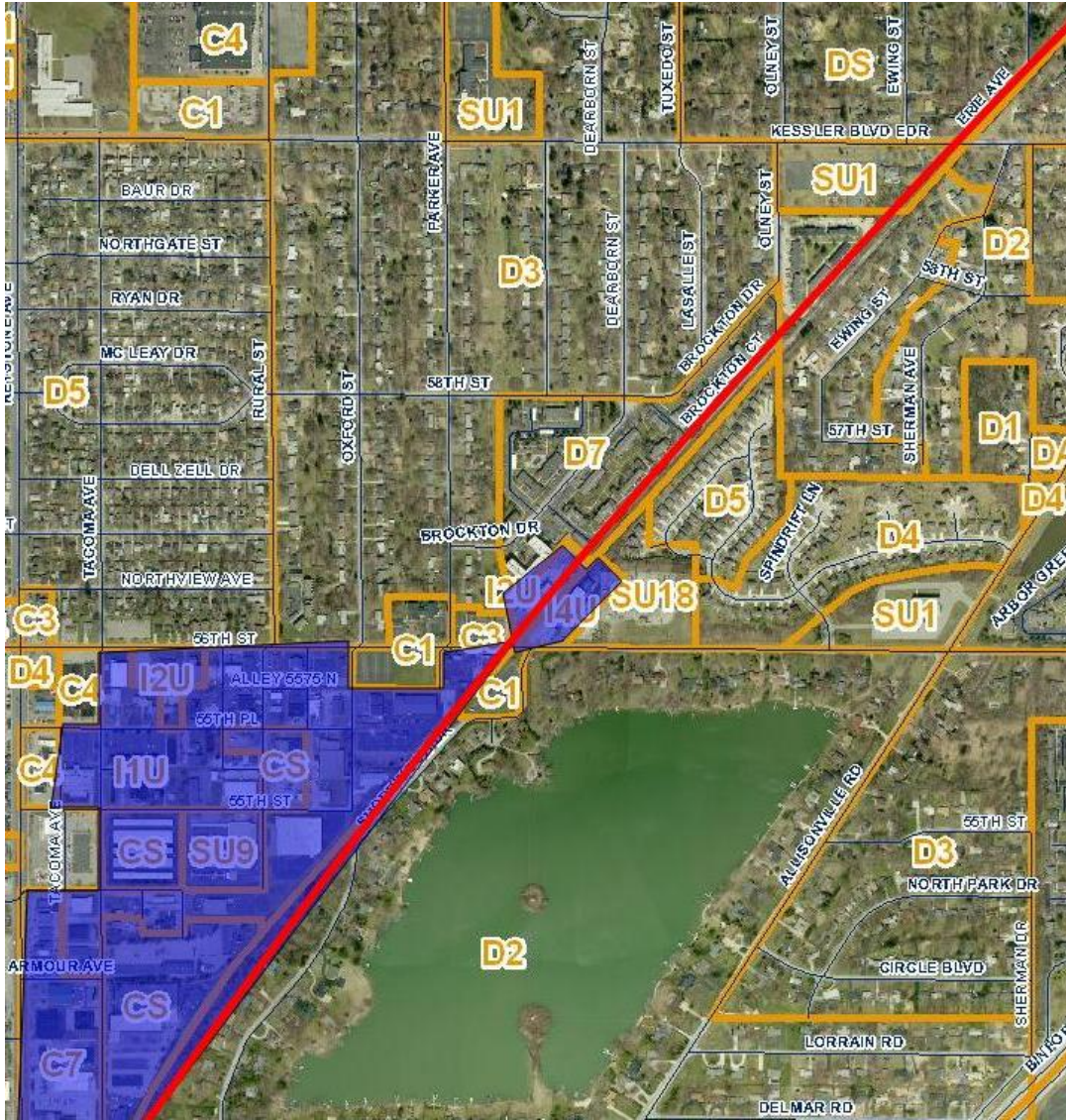


Below are maps showing parcels along the proposed alignment that are zoned for uses that can create brownfields. The maps begin where the preferred alignment meets the northern edge of Marion County and move from north to south to the edge of downtown Indianapolis. There are many opportunities for brownfield redevelopment along a transit line. Although some of these sites are currently in operation, many of the inner city sites are low demand and contribute to neighborhood decline. An investment in transit would leverage additional dollars to make brownfield redevelopment viable.





(City of Indianapolis GIS)



(City of Indianapolis GIS)



(City of Indianapolis GIS)

Positive Initiatives in Indianapolis

American Institute of Architects Sustainable Design Assessment Team

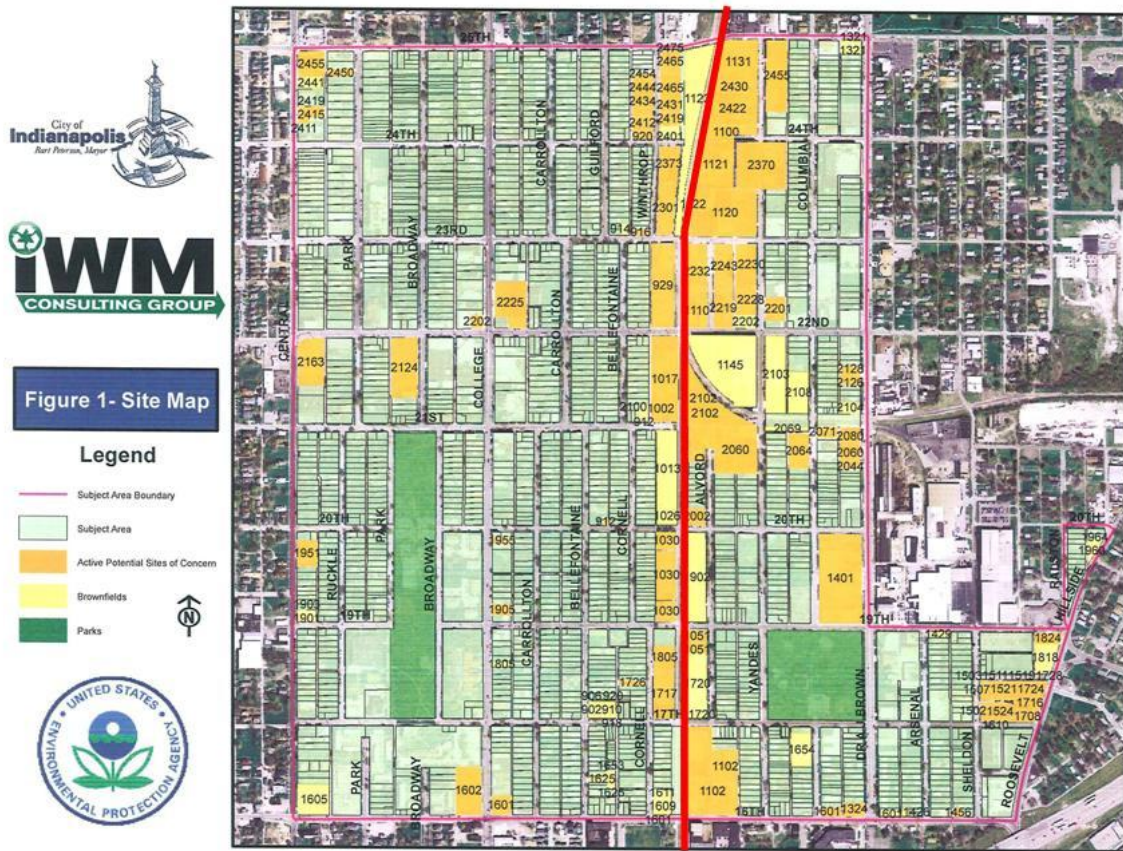
In the fall of 2008, the City of Indianapolis and Ball State University, College of Architecture and Planning Indianapolis Center applied for and received the American Institute of Architects (AIA) Sustainable Design Assessment Team (SDAT) to explore creating a model redevelopment district on the near-north side of Indianapolis in the Martindale-Brightwood and King Park neighborhoods, the Smart Growth Redevelopment District. The purpose of the program will be to show how an investment in transit to create a more sustainable community - economically, environmentally, and socially (Beaubien, 2008).

There are many assets in this area that provide an opportunity for reinvestment and revitalization. The first leg of a proposed light rail system connecting downtown with rapidly growing and congested northeastern suburbs includes proposed station locations at sites within the district boundaries. The Smart Growth Redevelopment District is located in the heart of a collection of abandoned industrial properties, including over 30 different brownfields, several of which are currently undergoing remediation. The proposed rail line will share right-of-way with the Monon Greenway, a popular rails-to-trails greenway. An abandoned railway spur in the neighborhood could also become a greenway, linking the rail line and the Monon Greenway to nearby parks and a city-sponsored industrial park redevelopment, the Keystone Enterprise Park (Beaubien, 2008).

The AIA SDAT team will be visiting in Indianapolis in the fall of 2009 to provide recommendations and plans for the future redevelopment of the district. The local team

for the project is a diverse partnership that will work to implement the plans that the SDAT team creates with the community. The partnership includes: Ball State University, City of Indianapolis Office of Sustainability, City of Indianapolis Division of Planning, City of Indianapolis Brownfield Redevelopment Program, The Project School charter school, Development Concepts, Inc., Local Initiatives Support Corporation, United Water, Indiana Council of the Urban Land Institute, King Park Development Corporation, Martindale-Brightwood Community Development Corporation, Indianapolis Chapter of the American Institute of Architects, Indiana Chapter of the US Green Building Council, Indiana Chapter of the American Planning Association, Indiana Chapter of the American Society of Landscape Architects, Citizens Energy Group, Central Indiana Regional Transportation Authority, Indy Greenways, and the District's City-County Councilor. The SDAT process could be opportunity to develop a vision for Indianapolis' future, a future that includes an investment in and commitment to transit.

Martindale-Brightwood and King Park Brownfields and Sites of Concern



Indy Land Bank

The City of Indianapolis’ Department of Metropolitan Development Indy Land Bank was created in 2007 “as a redevelopment tool” to “return troubled properties to productive and economically viable use, eliminate public safety hot spots, and improve the quality of life in our neighborhoods” (Indy Land Bank). The Indy Land Bank acquires, manages and sells vacant, tax delinquent properties for redevelopment. Properties verified as vacant, which have at least one code-related violation, and are tax delinquent one cycle can become part of the Certified Vacant/Abandoned Property List. Any property on the certified list of eligible properties can be acquired by the Indy Land

Bank if there is no successful bid on the property at the Treasurer's Tax Sale. If not redeemed within the 120 day redemption period, the property is transferred to the Indy Land Bank for disposition (Indy Land Bank).

The Indy Land Bank can acquire properties through donation, but its usual method of acquisition is through the Treasurer's Tax Sale. However, only two tax sales have been conducted since its creation. Property tax disputes arising from a federal judgment that required a new method of property tax assessment have delayed property tax bills and greatly lengthened the timeline for the Indy Land Bank to acquire property. It looks unlikely that a tax sale will be held in 2009 either.

Additionally, although the Indy Land Bank does not specifically state that it will only acquire residential property, it has not acquired any commercial or industrial properties since its creation. As of July 1, 2009, 26 properties were listed through the Indy Land Bank, 17 of which were vacant and all of which were residential. Therefore, the Indy Land Bank has not been an effective brownfield redevelopment agent thus far. However, there is potential for the Indy Land Bank model to be used for brownfields:

All properties purchased from the City of Indianapolis, through its Indy Land Bank are free and clear of all liens, delinquent taxes, housing code violations, and any other encumbrances that would prohibit the sale, disposition, mortgaging, or rehabilitation of the properties. All properties eligible for sale through the Indy Land Bank have been insured by a certified title company, as such, the title company may be contacted to address and clear any issues involving discovered encumbrances on any properties purchased from the Indianapolis Land Bank.
(Indy Land Bank)

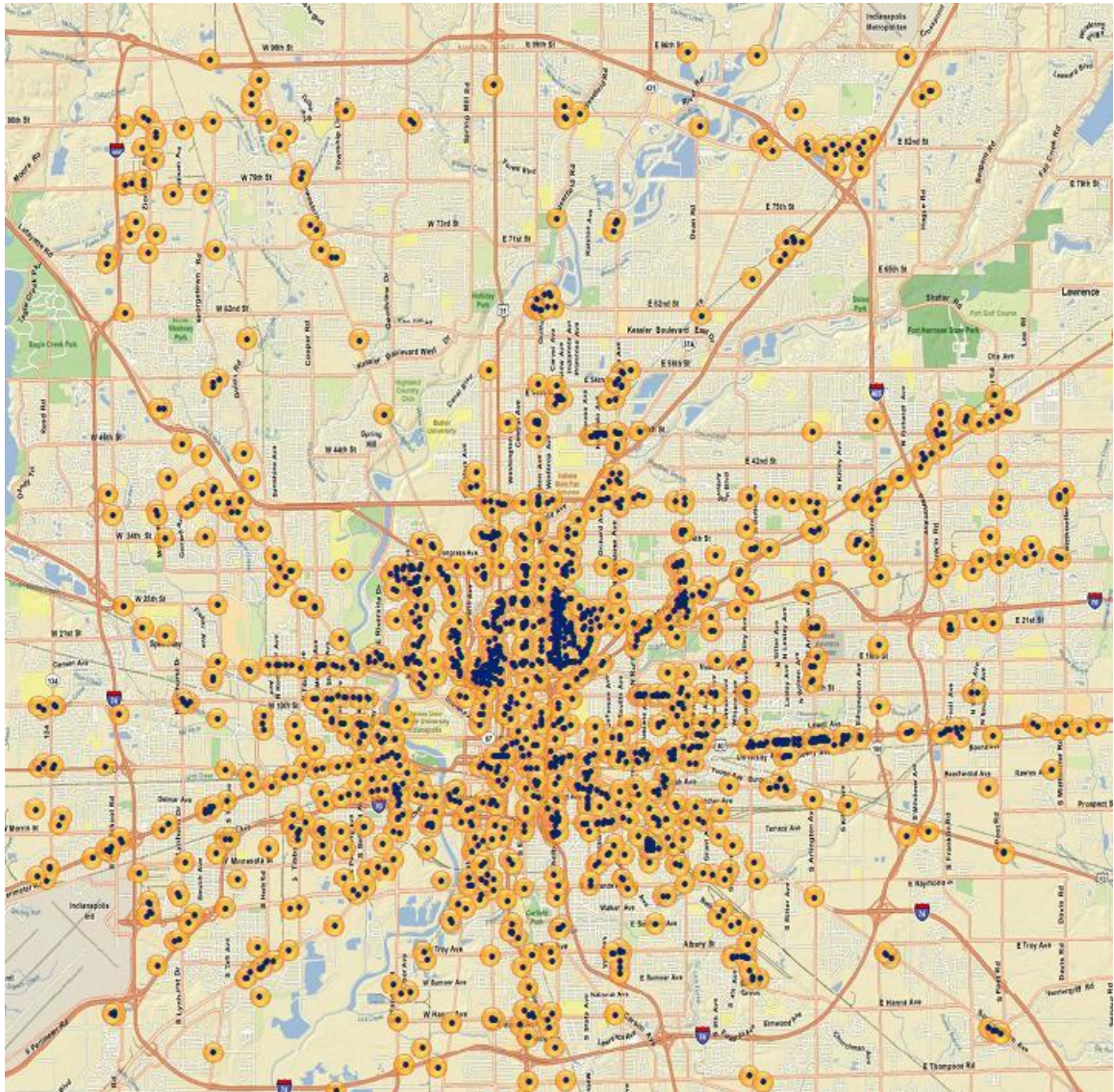
As mentioned in the barriers to brownfield redevelopment, clear title offers reassurance to developers and enables a quicker development process. The Indy Land Bank model could be better linked with economic development efforts in Indianapolis by including commercial and industrial properties.

Brownfield Inventory and Marketing

In 2008, the City of Indianapolis contracted with Symbiont, an environmental consulting firm, to create a comprehensive brownfield inventory for the City/County that will include both vacant or under-used brownfield sites as well as possible future brownfield sites. The inventory will include information about prior uses, the method that identified the site as a brownfield, environmental records, photographs of the site, Sanborn maps, and city directories. The information will all be available through GIS. The inventory will be able to show concentrations of brownfields and provide information to the public about brownfields within one centralized system. The system will also improve marketing efforts of brownfield sites and help direct funding to the areas of greatest need.

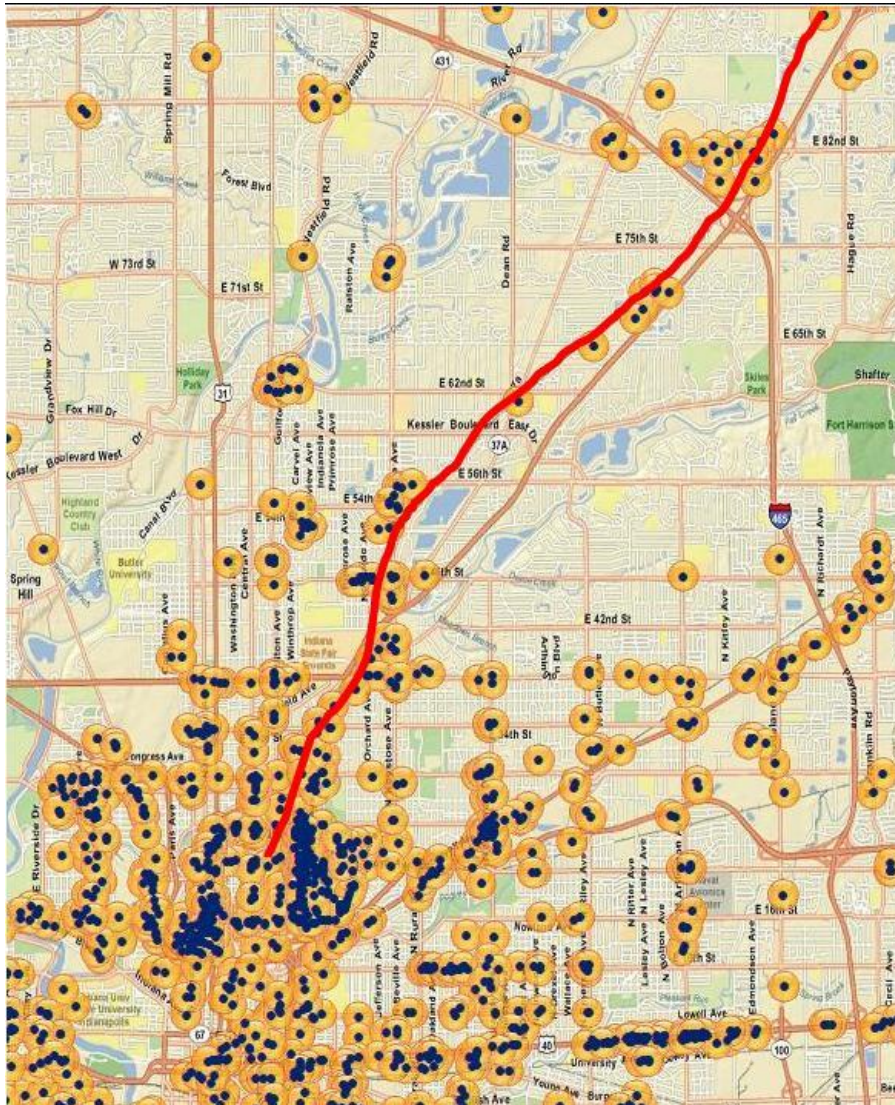
Currently, most marketing of commercial or industrial sites is conducted through Indianapolis Economic Development Inc (IEDI), a quasi-governmental organization that works to encourage businesses to relocate to Indianapolis or expand within the city. The City of Indianapolis Brownfield Program will need to work closely with IEDI to market the identified brownfields and return them to productive, responsible reuse that benefits the entire community.

Marion County Draft Brownfield Inventory



(City of Indianapolis Brownfield Program)

Northeast Indianapolis Draft Brownfield Inventory with Proposed Rail Alignment



(City of Indianapolis Brownfield Program)

Community Development Corporations

The community development corporations in the City of Indianapolis are generally very strong and active in their communities, both as neighborhood organizers and as developers. Many have been quite successful at creating development in neighborhoods that hadn't seen any new development in fifty years. The CDCs' involvement in planning around transit will be essential to using a transit investment to revitalize neighborhoods struggling with brownfields and economic disinvestment. It will be critical that CDCs work with and represent the community to ensure that new development helps existing residents.

Recommendations for Improvement in Indianapolis

Zoning Code and Development Regulations

The City of Indianapolis – Marion County zoning ordinance is in need of a major overhaul to accommodate the variety of development that occurs and is appropriate within the City, especially if it wants to encourage transit-oriented development in the future. The code encourages typical sprawl suburban development such as single-family subdivisions, suburban apartment complexes with an excess of parking, single-story strip malls, and office parks. It emphasizes separation of uses. Unfortunately, while these standards may address development of these types, it is woefully inadequate at encouraging, or even allowing, appropriate urban infill and development around transit.

There are two existing zoning districts outside of the central business district that allow mixed uses, the Commercial Corridor District (C-3C) and the High Intensity Office-Apartment Commercial District (C-2). The C-3C district allows mixed-use development and does not require setbacks. However, it does require transitional yards, large setbacks with required landscaping screening, between this district and a protected district, which includes: any dwelling district, hospital district, parks district, university quarter district, church district, or school district. If a C-3C is across the street from a protected district, a front transitional yard of twenty feet in depth is required. If it is adjacent to a protected district to its side or rear, a required transitional yard of fifteen feet is required. The maximum height in the district is thirty-five feet tall, which is often

too short to be feasible for a developer. (Indianapolis-Marion County Zoning Ordinance, Chapter 732)

The C-2 District requires minimum side and rear yard setbacks of ten feet in depth or transitional yards are described in the C-3C District. The height of buildings in a C-2 can be increased above 35 feet if the minimum required front, side and rear yard setbacks are increased by one foot for each three additional feet above thirty-five feet to a maximum front, side or rear building setback requirement of thirty feet. Large setbacks are not pedestrian-friendly and detract from an urban environment. (Indianapolis-Marion County Zoning Ordinance, Chapter 732)

Both districts require front setbacks based on the street type. On an expressway, freeway, primary arterial, parkway, or secondary arterial, the front setback is required to be at least ten feet from the right-of-way or seventy feet from the center line, whichever is greater. On many inner-city streets that are one lane in each direction, this is a significant setback from the street curb, and, while the building cannot be located within this setback, parking can be. As long as parking is ten feet from the right-of-way, it can be within the front setback. These regulations again encourage an environment that serves automobiles instead of people. (Indianapolis-Marion County Zoning Ordinance, Chapter 732)

The Regional Center zoning district in Indianapolis' central business district better fits the urban context of a downtown, with some drawbacks. The Regional Center prohibits or restricts the following automobile-oriented uses, unless established prior to the adoption of the zoning ordinance:

- Facilities with a drive-in, drive-through, drive-up, or customer service window on any lot with frontage on Meridian Street, Pennsylvania Street, Washington Street, Market Street, or on any lot located within the Mile Square.
- Fuel or gasoline stations on any lot with frontage on Meridian Street, Market Street, Pennsylvania Street, Washington Street, or on any lot located within the Mile Square.
- Outside storage of equipment or materials that is not associated with any sidewalk cafe, outdoor dining, or food or flower cart.
- Outside display of merchandise that is not associated with any sidewalk cafe, outdoor dining, or food or flower cart on any lot with frontage on Meridian Street, Pennsylvania Street, Washington Street, Market Street, or on any lot located within the Mile Square.
- Surface parking lot on any lot with frontage on Meridian Street, Pennsylvania Street, Washington Street, Market Street, or on any lot located within the Mile Square.
- Vehicle sales (new or used) or vehicle service or repair on any lot with frontage on Meridian Street, Pennsylvania Street, Washington Street, Market Street, or on any lot located within the Mile Square. And further, used vehicle sales shall be prohibited except as an accessory use to new automobile sales.

- Vehicle wash (any type, such as, completely indoors wash, self-service wash, automatic or semi-automatic wash) on any lot with frontage on Meridian Street, Washington Street, Market Street, or on any lot located within the Mile Square.

(City of Indianapolis-Marion County Zoning Ordinance, Chapter 735)

The Central Business District One (CBD-1) does not require any off-street parking.

However, Central Business District Two (CBD-2) and Central Business District Three (CDB-3) require off-street parking, unless the property is located within the area known as the Mile Square, bounded by North Street, East Street, South Street, and West Street.

One parking space is required for each eight hundred square feet of the building's total adjusted net floor area. All required off-street parking facilities must be located either on the same lot as the use served or within four hundred feet of the lot. No setbacks are required on any side (Indianapolis-Marion County Zoning Ordinance, Chapter 735).

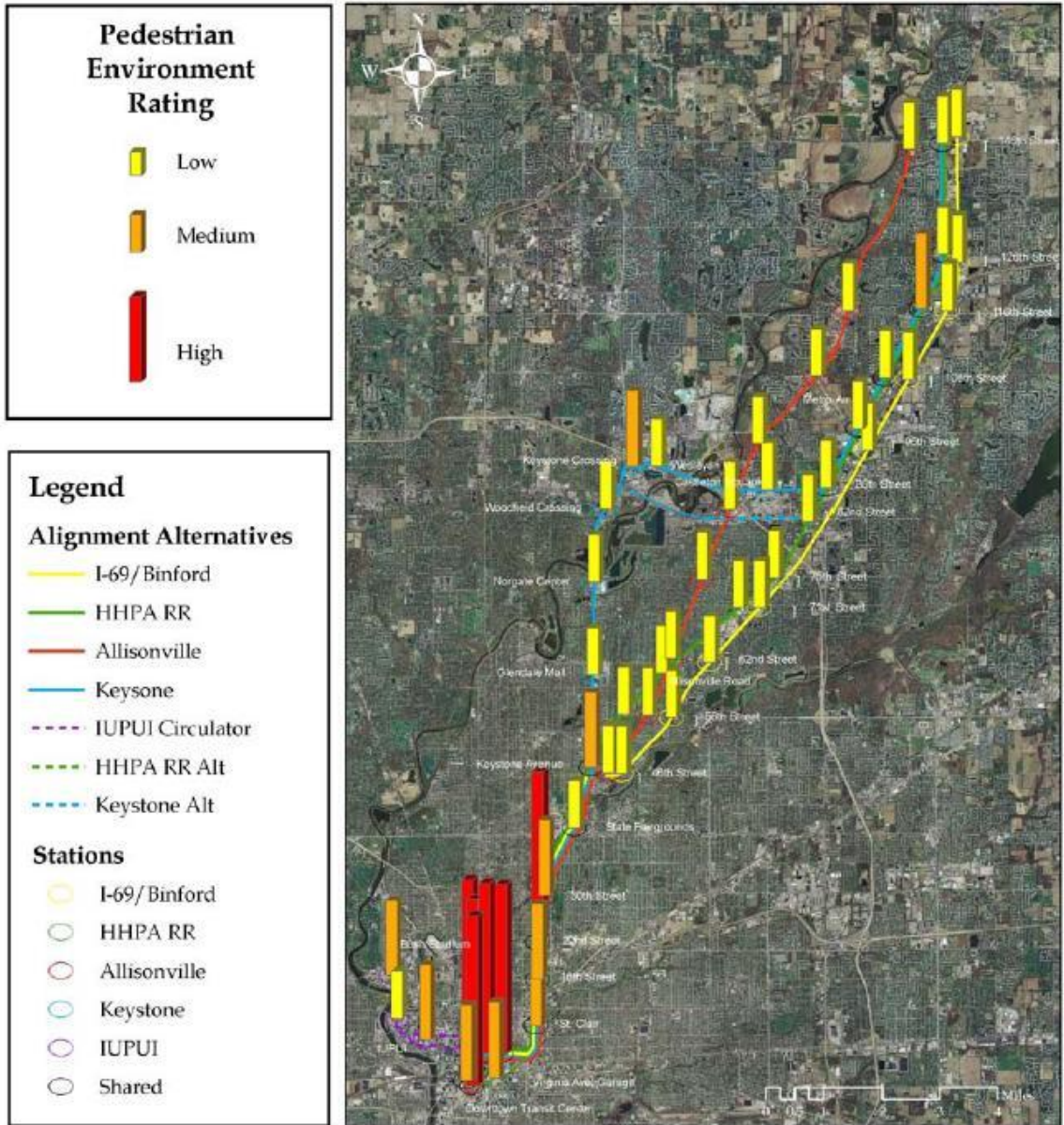
All development in the Regional Center requires approval from the Metropolitan Development Commission through the Regional Center approval process. There is one staff planner who works exclusively with rezoning, variance, and approvals for the Regional Center district. Downtown development must meet design guidelines that were developed to emphasize mobility; health, safety, & opportunity; adaptability & sustainability; the public realm; and character & vitality.

These design guidelines are already serving as a model for other neighborhoods in Indianapolis. In 2008, the Broad Ripple Village Neighborhood, located 5 miles north of downtown, began a Visioning Process to develop a set of design guidelines that would encourage development that accomplishes the community's goals. In the past, the

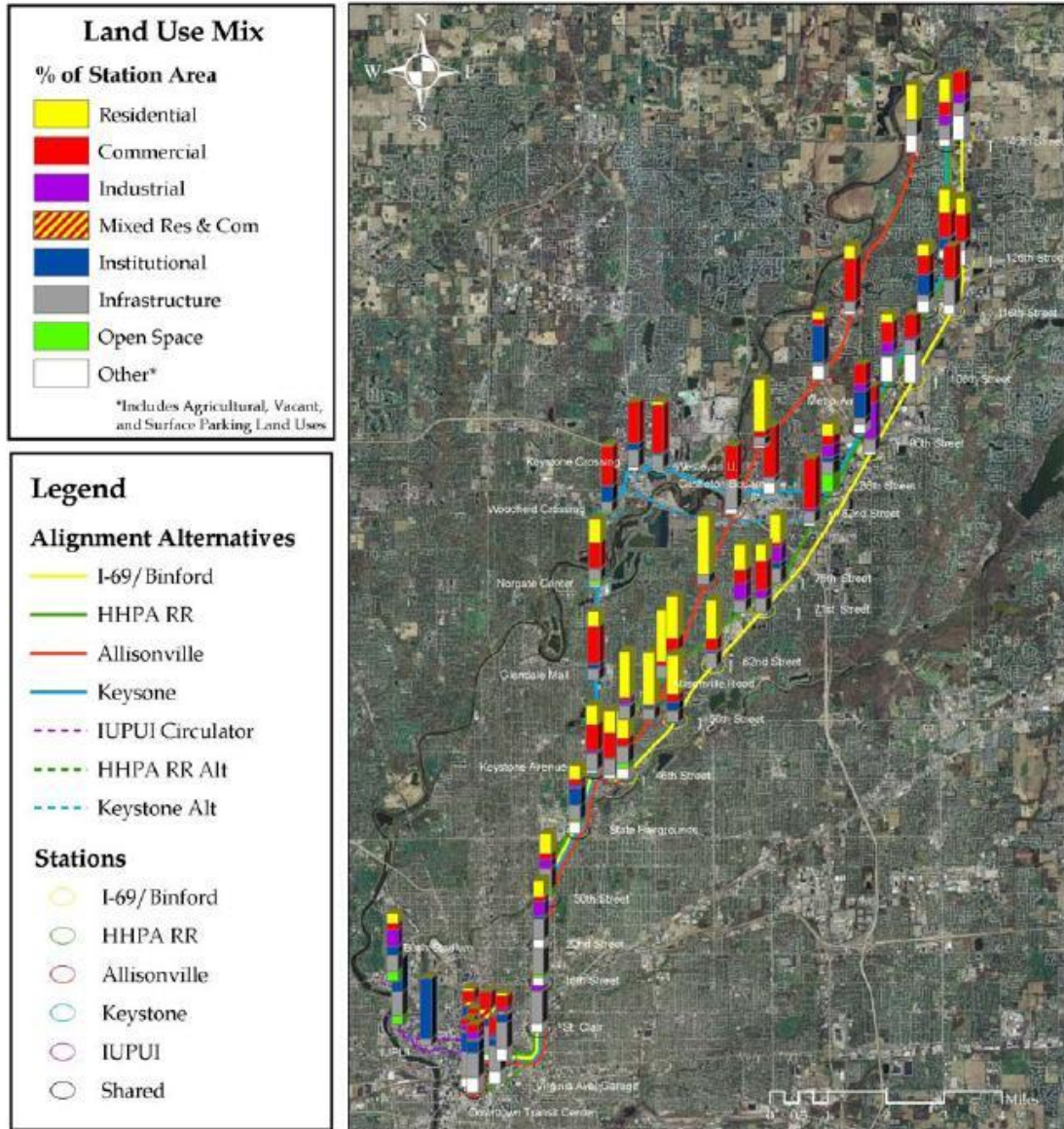
neighborhood had organized only in opposition to proposed development. The design guidelines are an opportunity for the neighborhood to express what they do want and to provide clear expectations for developers. The movement towards design guidelines is one positive point among Indianapolis development regulations.

Because of these restrictions within the zoning code, it is unlikely that transit-oriented development could be done without using the PUD ordinance, or planned-unit-development and design guidelines. While a PUD could accommodate transit-oriented development, the City of Indianapolis does not proactively zone for PUDs unless they are requested by a developer. Therefore, development that fails to accomplish transit-oriented development or community goals could take place next to rail stations under the current zoning ordinance. Design guidelines could be used along the proposed rail line to ensure that development at least meets the design requirements of a successful transit-oriented development.

The maps below show that the land use mixes and pedestrian environment along all of the alignments that were proposed are not good enough currently to fully support transit. Encouraging mixed-use development and pedestrian connectivity will be key to making transit more viable.



(Indianapolis MPO)



Source: Indianapolis MPO, 2007.

Increased Local Capacity and Advocacy

The City of Indianapolis rarely acquires tax-delinquent commercial or industrial properties. The city is hesitant because of liability concerns as well as a lack of capacity. There are only 4 staff members in the Economic Development section. The focus is mainly on property management of the few properties that the city owns. Most of the redevelopment the city does is through partnerships between Community Development staff and community development corporations on residential development. Chris Harrell, an Economic Development staff person, focuses exclusively on brownfield redevelopment. While he has been very successful at securing grants for the program and partnering with organizations and departments both within and outside of the city government, there are some tools that are beyond the ability of one person to manage, such as the EPA's Revolving Loan Fund program.

The Division of Community and Economic Development and the Division of Planning will need to collaborate to create and implement plans, a connection that is often not made, if successful large scale redevelopment is to occur. The Division of Planning is divided into Current Planning, which works on rezoning and variance petitions as well as subdivision platting, and Long Range Planning, which focuses on land use recommendations for the future. Long Range Planning will need to expand its focus if major redevelopment is to be encouraged and planned in the city. There are some indications that there will be more focus on working within neighborhoods on design guidelines and other community issues in the future as there are several new initiatives in city neighborhoods.

The City of Indianapolis will need strong local government advocates for rail to provide the funding for a transit system, to create and enforce transit-supportive regulations, and to develop the staff capacity to handle transit-oriented development projects. Community activists also need to organize around the issue and better support transit efforts in the city and the state. The lack of both governing and civic capacity around these issues has left the rail transit planning process stuck at the gate. Until the priority is made to provide resources that support transit-oriented development and brownfield redevelopment, the city's development patterns are unlikely to radically change.

Moving Forward: Abandoned Properties Program

In the summer of 2009, the Department of Metropolitan Division of Community and Economic Development reorganized staff to form a program focused on abandoned properties. Staff includes an Assistant Administrator of Abandoned Properties, the Land Bank Manager, the Brownfields Program Manager, the Great Indy Neighborhoods Initiative Project Manger, and several other staff members. The reorganization moves the Abandoned Properties program management from the Mayor's Office into the Department of Metropolitan Development, the department with the authority to redevelop abandoned properties. The Brownfield Program's inclusion in the reorganization offers the possibility that residential, commercial, and industrial redevelopment may be better linked to one other in the future – bringing jobs, housing, and retail into neighborhoods suffering from disinvestment.

Chapter 6 – Conclusion

Combining brownfield redevelopment with transit-oriented development provides an opportunity to address multiple city issue at once, revitalizing communities and increasing sustainability. Despite some conflicts in best practices, both development types have many similar best practices that help make these projects more successful, both to the community and the developer. Although combining the two increases the complexity somewhat, developers are already growing comfortable with the risks and developing an expertise in these types of development. The market for more urban redevelopment will probably only increase as demographic shifts make transit-oriented developments and walkable communities more desirable.

The City of Indianapolis has taken some positive steps towards encouraging brownfield redevelopment and supporting plans for rail transit. The AIA SDAT program is a great example of partnerships that can be formed to create a plan that will make the most of opportunities to redevelop existing neighborhoods. The city's Abandoned Housing program and Indy Land Bank may also form a positive model that assists in land acquisition and redevelopment projects. However, the city's zoning regulations are still ill-equipped to encourage transit-oriented development and infill development. There is also a lack of local capacity to lead local redevelopment and transit advocacy. Until there is more leadership on these issues, an investment in transit is unlikely to occur, and even if it does, it is more likely to be transit-adjacent than transit-oriented. The city will need to build partnerships and collaborate with community development corporations to

reverse metropolitan sprawl and inner-city disinvestment. The proposed Northeast rail corridor is a good place to start.

Opportunities for Further Research

Further research could be done on this topic quantifying the increase in the property value of brownfields after rapid transit is implemented near them. The differences between different forms of transit could be examined in more depth as well. Commuter heavy rail will have a different impact than a streetcar. Additional research could be done studying in-depth case studies of brownfield redevelopment as transit-oriented development in peer cities of Indianapolis. The case studies examined in this thesis are not necessarily comparable to Indianapolis in terms of history, demographics, and market.

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