



**Brownfields Redevelopment:
Reclaiming Land, Revitalizing Communities**
A Compendium of Best Practices





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Elizabeth B. Kautz

Dear Mayor,

This is the fifth consecutive compilation of best practices in brownfields redevelopment that The U.S. Conference of Mayors has published. Each year, the best practices we profile seem to shine a light upon a different aspect of this vital community revitalization strategy. In our report last year, for example, we noted that most of the projects we profiled had moved forward despite the nation being in the throes of the deepest economic recession in decades. That's true of the projects we've profiled this year as well. We also noted the importance of public-private partnerships in brownfields redevelopment—each of our projects profiled this year brought city, state and federal officials to the table with private developers and other business leaders, nonprofit and philanthropic leaders, and community residents. Likewise, none of these projects could have been completed without a combination of private capital and public dollars.

What's particularly striking about the best practices profiled this year is how each development has, in its own way, become a landmark, so to speak, in its City. Houston built a park that's not only spurred over \$500 million in new development in the downtown core, but in two short years become one of the best known and most popular parks in the city. Dallas created a vibrant new neighborhood that generated a billion dollars in investment, on the former site of an electric power generating plant. In Asheville, Coralville, Dubuque and Baltimore, redevelopment in each case has helped not only enhanced the City's tax base, but helped its residents reclaim and reconnect with the waterfront (where the abundance of brownfields are a legacy, to be sure, of our nation's long manufacturing and shipping history).

I'm extremely proud of the work that The U.S. Conference of Mayors has undertaken over the past two decades to raise the profile of brownfields redevelopment as an important tool for environmental remediation, sustainable development, and economic growth in cities. What we can take away in addition from this year's crop of best practices is that brownfields redevelopment doesn't simply transform the physical fabric of community—it can transform the social and cultural landscape as well. In these tough times, creating and strengthening our sense of community can hardly be more important.

Sincerely,

Elizabeth B. Kautz
Mayor of Burnsville
President, The U.S. Conference of Mayors





Table of Contents

- 7 Asheville's First Brownfields Redevelopment – A Study in Reuse, Recycling, and Reinvestment (Asheville, NC)
- 11 A Reclaimed Brownfields Site Brings Jobs and Revenues to Baltimore (Baltimore, MD)
- 17 From Industrial Off-Ramp to City Gateway (Coralville, IA)
- 21 A Sports Arena Becomes an Anchor for a Vibrant New Neighborhood (Dallas, TX)
- 25 A City Reconnects with the Majesty of the Mississippi (Dubuque, IA)
- 29 A Public Park Creates an Economic Engine for the City (Houston, TX)





Asheville’s First Brownfields Redevelopment – A Study in Reuse, Recycling, and Reinvestment

Mica Village
City of Asheville, NC
Mayor Terry M. Bellamy

Introduction

The Lofts at Mica Village is a new residential development located in Biltmore Village near downtown Asheville, North Carolina. The building, originally a mica processing facility from the early 1900s and located along the Asheville waterfront, provides the perfect setting for historic loft-style living. In fact, this development is historic in more ways than one—The Lofts at Mica Village, consisting of ten loft apartments constructed in the spirit of New Urbanism, and utilizing the best principles of Green Building, represents the City of Asheville’s very first residential brownfields redevelopment project. As such, everyone involved, from the developers to city officials to the lender who provided financing for the project, faced a steep learning curve. But the lessons learned from their experience have paved the way for future brownfields redevelopment in Asheville—and the opportunities are endless.

Site History and Acquisition

Located just 1/4 mile from I-40, the three-acre site is located along the banks of the Swannanoa River that flows through the City of Asheville. It’s within walking distance of the historic Biltmore House, the national historic landmark which is the largest private residence in the United States and one of North Carolina’s top tourist attractions. Right outside the gates of Biltmore House is the Biltmore Village historic district, the ‘company town’ George Vanderbilt established for workers on his estate, today a vibrant commercial district with an eclectic collection of shops, restaurants and other businesses. Nearby Mission Hospital is the primary medical center for all of western North Carolina and the largest employer in the state west of Charlotte. With its wealth of surrounding amenities and resources, the City felt that the site would be a prime location for a new housing development, which the neighborhood had relatively few of at the time of redevelopment.

The site itself was home to the Asheville-Schoonmaker Mica Company (formerly the Asheville Mica Company), established in 1898. For more than 100 years, Asheville Mica has been a worldwide supplier of mica products.

Mica, a mineral known for its chemical stability and high resistance to the passage of electricity and heat, is used as an insulator for high voltage electrical equipment and as peepholes in boilers and wood stoves. In its ground form mica is used in the manufacturing of drywall, and in paint to increase its resistance to weathering and to brighten the tone of pigments, among other applications.



The Lofts at Mica Village features ten loft apartments constructed in the spirit of New Urbanism, and utilizing the best principles of Green Building. (Photos courtesy of Mica Village Partners, LLC)





Economic changes in the mica industry brought hard times to the Asheville employer, causing the company to consolidate the majority of its production facilities in neighboring Newport News, VA in 2008. (Asheville Mica, however, remained as a tenant during the remediation and redevelopment of the site and through the completion of the The Lofts at Mica Village.)

In the wake of Asheville Mica's planned relocation, the site went through a string of owners in relatively rapid succession. The two parcels that comprised the project site were purchased from Asheville Mica by WE3, LLC, who in turn sold them to Mica Village, LLC in 2006 as a brownfield redevelopment parcel.

Remediation and Redevelopment

Both soil and groundwater contamination was found on the site. Soil contamination was largely due to petroleum leakage from an above-ground tank located between two buildings on the site. The small area surrounding the contaminated soil was fenced in and covered with brick for encapsulation.

The site prior to redevelopment. More than 300 dumped tires were recycled, and concrete debris was reused to create paver style sidewalks and patios. (Photos courtesy of Mica Village Partners, LLC)

The groundwater was contaminated with tetrachloroethylene, a chemical compound commonly used in dry cleaning, engine degreasing, and paint-stripping products. The likely source of this contamination was not Asheville Mica Company itself, but an unrelated business on a neighboring property, which was believed to have dumped tire cleaner (which contains tetrachloroethylene) into the creek that borders the Asheville Mica site. (That business closed down in 2000.)

Because of the nature of the groundwater contamination, the high groundwater table (five feet) and the location of the site near the river (which provides drinking water for the city), traditional groundwater controls that would require excavation, such as storm water drains, weren't feasible. The City worked with the developer to come up with a remediation and groundwater control plan that focused on reshaping the landscape with elements that would capture, filter, and recirculate groundwater on the site. One such element is the bioswale, which consists of a wide and shallow drainage course or ditch with gently sloped sides, filled with vegetation, compost and similar material. The water's flow path through the bioswale maximizes the time water spends in the swale, which aids in the trapping and removal of silt and pollution from surface runoff water. The ultimate goal of the groundwater control plan was to reduce the levels of groundwater contamination as much as possible, and as of 2009, groundwater contamination on the site had fallen within acceptable levels, as established by the state.

While the developer removed more than 300 tons of waste material from the site, the project was more notable for what it kept. Over 60% of the building materials were recycled from the original mica plant. Colorful glass from the building's original broken window panes was transformed into glass tiles and glass-infused kitchen and bath countertops. Metal used for stair rails and to support kitchen bar countertops are the original sprinkler pipes from the factory. Concrete debris from the site was repurposed for paver-style sidewalks and patios. All the wood used in the project was either reclaimed from the site or purchased from locally owned Sunrise Sawmill.

The Lofts at Mica Village, formed out of the bones of the mica processing plant, consists of ten loft apartments constructed in the spirit of New Urbanism and utilizing a variety of green building techniques. Some of the building's significant features include exposed original brick and hemlock beams, original wood floors, covered lower-level parking,



and a large park-like greenway—created when the developers ceded a 50-foot setback to the City, in order to create a connection with the existing Asheville parks system and to preserve community access to the riverfront. An ancillary building on the site, built in the early 1900s as the original boiler house for the mica plant, was transformed into the Boiler House Kitchen, an outdoor amenity for the residents at Mica Village.

Administrative Process and Public Involvement

Mica Village was the first residential brownfields redevelopment project undertaken in Asheville. As such, there was a steep learning curve, not only for local residents but for local officials as well. While the Land-of-Sky Regional Council, the regional planning organization, had identified brownfields redevelopment as a “Tier One” priority, the City itself hadn’t had experience with the various components of brownfields redevelopment, and cleanup requirements, for example, initially posed a significant challenge for local officials. Mica Village, for those officials, was truly a case of on-the-job learning.

The public at large, meanwhile, was for the most part ambivalent about brownfields redevelopment – to most people the concept had no meaning, and for those who did understand it, the concept of building anything, much less park space and residential units, on a contaminated site was understandably of great concern.



Old sprinkler pipes have been recycled into custom vanities, bars, guardrails, and outdoor benches. (Photos courtesy of Mica Village Partners, LLC)

The City and The Land of Sky Regional Council engaged in an aggressive outreach and education program to involve the public in the redevelopment process. Tours of the site were held, both during construction and after completion, for all interested groups. Clearly this was a sound move—the project averaged 20 tours per week. In coordination with the Land-of-Sky Regional Council, the city coordinated brownfields educational meetings and workshops, in an effort to make citizens aware of the positive aspects of redevelopment on the site. In addition, the developers made the property available for fund raisers for Riverlink, a well-known and highly regarded regional non-profit spearheading the economic and environmental revitalization of the French Broad River and its tributaries (of which the Swannanoa is one) as a place to live, work and play. City officials further vigorously promoted the project in the media, to build support for riverfront in particular, and brownfields redevelopment in general.

Today, brownfields redevelopment is more widely understood as an important economic and environmental strategy by Asheville’s citizens. Specific redevelopment projects are actively discussed in community meetings. Where once potential brownfields redevelopment projects were discouraged due to fear and a lack of knowledge, they’re now actively encouraged in all segments of the community.

The Lofts at Mica Village have become a valuable community asset and amenity for the entire city. While Mica Village is, practically speaking, a private development, the community has assumed a level of ownership and investment in the site. The greenspace is enjoyed by a wide variety of residents, and Mica Village hosts community meetings and events of all sorts—including a press conference with city leaders and EPA officials to announce EPA grant awards to the City of Asheville and the Land-of-Sky Regional Council, for further brownfields redevelopment in the city and region.





Financing

Site acquisition costs were approximately \$390,000, with environmental assessment and remediation costs coming in at \$45,000, and \$90,000, respectively. Redevelopment costs, including infrastructure upgrades, totaled \$1,200,000. Local funding appropriated for brownfields redevelopment came from the Land-of-Sky Regional Council's Regional Brownfields Initiative (RBI). Financing was also provided by the private sector; Capital Bank provided a financing at 80% LTV (loan-to-value).

Lessons Learned and Future Directions

Mica Village has been featured in many green tours and national magazines, and has served as inspiration for several other riverfront redevelopment projects in Asheville. In fact, local officials cite the success of Mica Village as being instrumental in obtaining additional grant funding from Washington for future brownfields redevelopment.

The lessons learned on the Mica Village project have served as a foundation for the City's efforts to encourage brownfields redevelopment in Asheville. In the wake of Mica Village, the City has streamlined, to the extent possible, permitting and other processes and provided incentives to developers—for example, the City put in place a 50% rebate on developer permitting costs for brownfields redevelopment.

But many in the development field say more needs to be done, and not just by city officials. Some see the difficulty in obtaining private financing for brownfields redevelopment as a significant challenge—particularly given the current economic climate. They point to a still-pervasive misconception among lenders that development on previously contaminated properties won't be able to command market rents or sales prices, if they rent or sell at all, because people won't want to live there. The fact that units in The Lofts at Mica Village sold for, on average, 30% more than similar properties in the City seems to counter that supposition.

There more than 600 vacant, abandoned or underused acres of land along Asheville's riverfront—cutting right through the center of the city. That's an area twice the size of the National Mall in Washington, DC. Most of these properties have not even been assessed to gauge the nature and extent of potential contamination. Changing the perception of these properties from wastelands to economic opportunities is vital to Asheville's future.

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A Reclaimed Brownfields Site Brings Jobs and Revenues to Baltimore

Harbor Point
City of Baltimore, MD
Mayor Stephanie Rawlings-Blake

Introduction

Once complete, Harbor Point—a 27-acre, mixed-use development located along Baltimore’s historic Inner Harbor—will feature more than 1.8 million square feet of development. Current plans call for more than one million square feet of office, 73,000 square feet of ground level retail, 616 residential units, 260 hotel rooms, 3,000 parking spaces, and, most notably, eleven acres of open space and waterfront promenade. Phase 1 of construction includes a now complete 277,000 square foot, LEED-Silver Certified seven-story office building, as well as a proposed 346-unit, 250,000 square foot apartment building and 250 room hotel. All told, by project’s end Harbor Point is expected to generate 4,700 construction jobs, 3,070 permanent jobs and nearly \$700 million in public and private investment for redevelopment. All this is planned for the site of a former chromium processing and manufacturing plant—a site so contaminated it cost \$100 million to remediate.

Site History and Acquisition

Harbor Point is located in southeast Baltimore, on a peninsula in Baltimore’s Inner Harbor in the Fells Point section of the city. Historically the Inner Harbor has been a major U.S. seaport (dating back to the 18th century) and was characterized by a variety of industrial uses, including shipbuilding, canning and packing, and metal processing. For over one hundred years, from 1845 until 1985, a nineteen-acre portion of the Harbor Point site was home to a chromium ore processing and manufacturing facility. It was one of the largest operations of its kind in the world, with up to 600 men and women working there, producing up to 50,000 tons of chromium products annually. Over the years the company went through successive owners, and in 1954, Mutual Chemical Company, as it was then known, was acquired by Allied Chemical (the corporate predecessor of AlliedSignal and, ultimately, Honeywell International, who retains ownership of the site to this day).

Chromium is a substance used in all sorts of products and processes, from paint pigments to leather tanning to its most widespread uses (due to its high corrosion resistance) in creating stainless steel and chrome plating. However, in its most dangerous form—hexavalent chromium, made famous (or infamous) in the movie Erin Brockovich – the wastes from the manufacturing process can cause cancer and other health problems.

In 1985, the plant ceased operations, and the city was left with a vacant, contaminated property along its waterfront. The long history of chrome ore processing on the site left many of the industrial buildings, as well as the soil and ground



Phase I of construction includes this recently completed, 277,000 square foot office building overlooking the Inner Harbor. (Photo courtesy of the City of Baltimore)





water under the site, contaminated with chromium (including hexavalent chromium). Environmental studies conducted in the 1980s confirmed that chromium from the site was polluting the surrounding waters; in fact, the chromium had contaminated the groundwater so badly that during the winter months it created yellow ice in the harbor. In addition, the contamination had spread, though to a lesser extent, to most of the properties located within a mile radius of the chromium plant site.

Remediation

Because of the nature and extent of the contamination, in 1989 the EPA, the Maryland Department of the Environment (MDE) and AlliedSignal (Allied Chemical's successor company and Honeywell's predecessor) entered into a Consent Decree to clean up the site. The consent decree required a remedy that permanently contained potentially hazardous contamination within the site, eliminated human and animal contact with the contamination, and prevented further contamination of surrounding soils, surface and groundwater.

Specific remedies were extensive. For the 'on-cap' portion of the site – the actual location of the chromium plant—remediation strategies included:

- Dismantling of all existing buildings and structures on the site.
- Building a new embankment on the water-side perimeter of the site to prevent the collapse of chromium-contaminated soil into the Inner Harbor.
- Installing a deep vertical hydraulic barrier to reduce the ability of chromium-contaminated water to flow beyond the site into the Inner Harbor or the groundwater.
- Installing a multi-acre clay cap to cover the contaminated area and seal in the waste produced there.
- Installing a groundwater pump system which prevents contaminated groundwater from flowing outward from the area contained within the hydraulic barrier. All water is contained and shipped off site.

The remaining eight acres of the Harbor Point development comprise what's commonly referred to as the 'off-cap' portion of the site. Not historically part of the chromium processing facility, these sites were contaminated to a lesser extent when chromium leached into the groundwater and soil of properties within about a mile radius of the chromium

plant. The 'off-cap' designation, however, only refers to the fact that these sites are outside the perimeter of the chromium plant – in fact, much of this land was acquired by Honeywell and covered with at least two feet of clean soil and gravel, as mandated by the consent decree.



Construction of a slurry wall in progress on the Harbor Point site. (Photo courtesy of the City of Baltimore)

The consent decree further mandated ongoing environmental monitoring of air, surface water, groundwater, harbor sediments and aquatic life. Remediation of the site – which took a full ten years – was completed by Honeywell in 1999, and cost the company an estimated \$100 million.

In addition to adhering to the terms of the consent decree, the 'off cap' portion of the site was enrolled in MDE's Voluntary Cleanup Program. This afforded liability protections to the developers of the site, and added an important layer of review to the development process.

Public Process and Redevelopment

The consent decree that mandated the cleanup of the Harbor Point site was groundbreaking for its time – it's believed to be one of the first that anticipated future redevelopment and reuse of a site with





such significant environmental constraints. As such, the agreement not only outlined cleanup remedies, but required EPA approval of redevelopment plans, to ensure that any future development or uses would not disturb or interfere with remediation once completed.

Historically, this type of designation for a property has been viewed as a proverbial ‘scarlet letter’ by property owners and all but guaranteeing a certain decline in a property’s value and relegating a site to permanent closure and abandonment. By anticipating future use, this consent decree gave hope to property owners and in a sense freed them to openly address contamination issues on their properties. Subsequent studies over the years have found that remediated properties (even those designated as Superfund sites) not only regain, but increase their value over what it was before the contamination was found.

From the outset the City took a leadership role in the redevelopment of Harbor Point. As early as 1993 the City, through its Planning division, put in place a Planned Unit Development, or PUD, for the site. Generally speaking, a PUD is a unified development plan prepared for a large parcel of land. A PUD will commonly outline criteria for elements of the site’s development such as open space; circulation of pedestrian and vehicular traffic; street layout and parking; building heights, setbacks and spacing; landscaping; architectural treatments; and accessory uses, among others. (The Harbor Point PUD has gone through several refinements over the years, and continues to be amended as needed to reflect the evolving needs and desires of the City and its residents.)

The original PUD and its subsequent iterations were informed to a great extent by community input. In the 1990s the Allied Signal Task Force, made up of Baltimore residents and businesses, was convened to provide input into the development process. Through the work of the task force, as well as a series of design charrettes conducted in the early part of this decade, the community was very vocal about its desires for development and future use of the site. This was especially true of those living and working in adjacent Fells Point, represented as it was by as many as thirteen different neighborhood organizations. Chief among the community’s concerns was the provision of ample greenspace in the form of parks and recreational areas. While people were clear about the importance of commercial and retail development on the Harbor Point site and the potential economic boon such development offered, they felt that the waterfront ought to be accessible for recreational and social use by residents throughout the city. To this end, nearly 40 percent of the Harbor Point site—eleven acres—is dedicated to parks and open space.



A cross-harbor view of the chromium processing plant, circa 1950. (Photo courtesy of the City of Baltimore)

In 2003 Honeywell leased the property to Harbor Point Development LLC (a joint venture between two Baltimore-based developers, Streuver Bros. Eccles & Rouse, Inc. and H&S Properties Development, LLC) to move forward with redevelopment. It was the developers, incidentally, who gave the property the name “Harbor Point.” (Prior to that time it had been known variously as the Baltimore Chromium Works site, the “Allied Signal site” or simply as “the old chemical plant” to generations of Baltimoreans.) In addition to ground-leasing the ‘on cap’ portion of the site, the developer negotiated an outright purchase of part of the “off-cap” portion, and plans to purchase the remainder at a later date.

In addition to the eleven acres of open space the development plans call for 1.8 million square feet of mixed use development, exclusive of parking (3,000 spaces), which will comprise another one million square feet. (Adequate parking was another element of development about which the community was adamant—quite understandably, they were concerned about spillover from the development into the surrounding neighborhoods.) The 277,000 square foot office building outlined for Phase I of construction was completed (on an ‘off cap’ portion of the site) and officially opened in June 2010—its signature tenant is investment firm Morgan Stanley, which has signed a lease to occupy





just over half the building. 600 Morgan Stanley employees have already been relocated to the new offices, and the company plans to expand its Baltimore operation to 900 employees by the end of 2012 and to 1,500 by the end of 2018. A portion of the public waterfront promenade opened as well, which connects to the already existing waterfront promenade network and will continue to expand as the project develops.

When the developers broke ground on Phase I of construction in January 2008, the company already had begun design work on a second and third building—an apartment building and a hotel (the developers have already secured a commitment from the Westin hotel franchise)—with the idea that construction would begin as market conditions warranted. Since the recession hit those plans have been postponed, although the developer has since expressed a hope to break ground at least one of those projects in 2011.

Consistent with community wishes and in accordance with the PUD, the City is also working with the developers to secure a 'cultural' tenant—namely, the US Lacrosse Foundation, an educational and athletic/recreational organization which hopes to locate their national headquarters, as well as a museum and 'Lacrosse Hall of Fame', on the Harbor Point site. US Lacrosse, as well as City residents as a whole, would likely make use of the vast open space at Harbor Point, and serve to enhance the City's positive perceptions and ownership of the site.

Financing

Beyond the \$100 million spent on remediation, estimates place the costs for redevelopment at approximately \$700 million. The financing scheme for the project is truly the hallmark of a public-private partnership. The developers have secured or will provide the bulk of that number in private financing – the recently completed Morgan Stanley office building accounts for about \$100 million of that amount. While the developer paid the full costs of public infrastructure for the Morgan Stanley Building, the City has introduced legislation that will establish a development district, or Tax Increment Financing (TIF) district, which will generate funding for another \$110 million in public infrastructure. Planned infrastructure improvements will include streets, utilities, open space, a bridge, water transit piers, a public school, and the waterfront promenade. The process of providing infrastructure to the site is incredibly complex; because of nature of contamination and the restrictions outlined in the consent decree, no digging can occur on the site (to ensure that, as previously noted, the encapsulated contamination is in no way disrupted). Thus, in order to provide this infrastructure— streets and sidewalks, water and sewer, electrical lines, etc. – a layer of clean fill must be spread over the entire site (up to twelve feet in some sections), beneath which needed lines and pipes can be run, and on which streets and sidewalks can be built.

The City plans to finance this infrastructure investment, as previously noted, through tax increment financing, or TIF. TIF is a method of public financing for current development or property improvements through future gains in property taxes. The theory is that the improvements will themselves create the conditions for increased property values and assessments, and therefore taxes. This increased site value and investment would generate increased tax revenues. The increased tax revenues (the portion in excess of the property tax revenue prior to improvement) are the "tax increment." TIF dedicates tax increments within a certain defined district (in this case, the Harbor Point development) to finance debt issued to pay for the project, and creates funding for "public" projects that may otherwise be unaffordable to cities, by borrowing against future property tax revenues. The City intends to introduce companion legislation, primarily ordinances establishing a special taxing district, and authorizing and obligating indebtedness for the public infrastructure in the future.

The base value of the entire site prior to redevelopment was approximately \$11 million –at the life of the end of the bonds issued to finance development, the assessed value of the site is expected to be upwards of \$450 million. Some of that value has already been realized—the Morgan Stanley building has been assessed at approximately \$60 million. The City further anticipates that not only property taxes, but a number of 'piggyback' taxes—payroll, hotel, parking, utility and other similar taxes—will increase as well, as a result of the Harbor Point development.





Lessons Learned and Future Directions

On a brownfields redevelopment project, any number of challenges can present themselves. The land must often be assembled from parcels owned by multiple property owners. Liability issues must be addressed and remediation must occur. Neighboring residents and other community members, particularly in active and vocal communities like Fells Point, must be consulted, and their consensus is as vital to the progress of the project as securing financing—the latter made more difficult in the wake of a global recession.

On the Harbor Point site, those challenges increased exponentially. The extent of the environmental conditions present added an additional layer of complexity to the Harbor Point development project. Arguably this project could not have moved forward had the City not taken initiative and a leadership role from the earliest stages of the project. Literally every city department has been involved, to varying degrees, in this project, and this level of commitment from the City has kept the project on track through the most difficult of circumstances. The city is not only a partner, but an investor in the Harbor Point development.

For many people, brownfields redevelopment still conjures up images of insurmountable contamination, plummeting property values, significant health hazards, and unusable land. But the Baltimore community—city leaders, business owners, and residents all—was not willing to let this world class property, regardless of its status, lie fallow. Throughout a process that's spanned three decades, these stakeholders worked together to overcome the obstacles and to lay the foundation for a development that will generate revenues, jobs and city pride for decades to come.

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From Industrial Off-Ramp to City Gateway

*Iowa River Landing
City of Coralville, IA
Mayor Jim Fausett*

Introduction

Tens of thousands of cars pass Exit 242 in Coralville each week on transcontinental Interstate 80. North of the exit the grassed slope of a large hill pleasantly rises to overlook the Iowa River; in stark contrast, the view to south in the mid-1990s included commercial and industrial businesses crowding around the off-ramp, unappealing and indistinguishable from other off-ramps across the Midwest. If visitors paused to look closer, the “backsides” of historically unplanned development and properties in various states of disrepair were compounded by a sign promoting the local adult dance establishment...hardly the first impression a small Iowa city wants to make on travelers deciding where to pause in their journeys.

Fortunately, that uninviting gateway to Coralville described above is yesterday’s story. The City of Coralville knew it had to change that first impression; from its simplest early vision of “a decent hotel out by the interstate to get people to stop” to the final reality of redevelopment, including a multimillion-dollar hotel and conference center, the saga of the Iowa River Landing revitalization is a benchmark example that “population does not measure success” in brownfields restoration.



Iowa River Landing’s extensive landscaping, water features, trail connections, pedestrian bridge and green space create a rewarding sense of place. (Photo courtesy of the City of Coralville)

Site History and Public Involvement

Redevelopment of Iowa River Landing became a primary focus for the City of Coralville in the mid-1980s. Recognizing the need for professional creativity and planning, the City convened a planning committee comprised of representatives from the City Council, business and community leaders, University of Iowa employees, citizens and others. The planning committee prepared an ambitious master plan based on public input, and with the help of a 1998 U.S. EPA Brownfields Assessment Pilot Grant, Coralville began to make this vision a reality.

Prior to redevelopment, this area encompassed more than 110 mostly underutilized or abandoned parcels owned by 74 separate individuals. Reinvestment was nonexistent due to inadequate site planning, poor building maintenance, environmental contamination from past and present uses, and rumors of illegal tanker dumping in the area.





Both smaller single-family homes and multi-family housing units border Coralville’s brownfields zones; many of these multi-family units are located in the older area of Coralville near the old Industrial Park and within the area affected by 2008’s devastating flood. Over 60% of residents living in and around Coralville’s brownfields zones report an annual income of less than \$50,000. While 10% of Coralville and Johnson County’s population make more than \$100,000 annually, only 1% of the population living within the brownfield zones makes the equivalent.



Prior to redevelopment the site was primarily industrial—encompassing more than 110 mostly underutilized or abandoned parcels owned by 74 separate individuals. (Photo courtesy of the City of Coralville)

Public input during the City’s land use planning process confirmed that the area had the potential to become a “riverfront district,” accommodating the community’s accelerating demand for commercial, retail, and residential space. To promote greater sustainability within the area, the district’s overall goal became the removal of distressed properties that were impeding redevelopment, while encouraging new uses that built upon, rather than distracted from, existing community businesses.

Remediation and Redevelopment

Over the past 12 years, Coralville has completed more than 75 Phase I and nearly 30 Phase II Environmental Site Assessments, purchased more than 60 acres of land, and performed remediation on nearly 30 acres within its brownfields redevelopment zones. On-site contaminants included petroleum fuel, oil compounds and other hazardous substances in soils and groundwater, often co-mingled. Heavy

metals were consistently found across the site, with background arsenic concentrations routinely exceeding statewide standards. Soil contamination was addressed through risk-based corrective action, most often through removing materials. At one site in particular, more than 71,000 gallons of mixed diesel and gasoline attributed to a former truck stop have been removed from groundwater using a dual-phase extraction system. With the bulk of the diesel and gasoline removed, Coralville is moving forward with an innovative remedial technology that will destroy residual amounts of diesel and gasoline in the soil and groundwater. Once this is accomplished, this underutilized property will be cleared for a beneficial reuse.

For any community—particularly one of Coralville’s size with just 18,500 residents—remediation and redevelopment activities occurred remarkably quickly due to community cooperation and participation. The City of Coralville continues to perform environmental site assessments on various properties throughout its brownfields areas, including a few within Iowa River Landing, with remediation work on various sites as necessary.

Today, Coralville’s Iowa River Landing is an exciting, community-driven project featuring a mix of unique and diverse land uses reclaimed from industrial and commercial use or blighted vacant property. Honored as the EPA’s first national runner-up grand prize 2007 Phoenix Award winner, Iowa River Landing now acts as the new gateway to Coralville, University of Iowa campus and athletics and University of Iowa Hospitals & Clinics. It features attractions, shopping, restaurants, the Coralville Marriot Hotel and Conference Center, and residential areas. The project’s bricked streets and roundabout, clock tower, extensive landscaping, water features, trail connections, pedestrian bridge and green space all combine to create a rewarding sense of place.

Iowa River Landing’s cornerstone is the Coralville Marriott Hotel and Conference Center. Until its completion in 2006, the Iowa City/Coralville area was the only Big Ten university home without sufficient conference space. Now it offers the largest combination of hotel rooms and convention space in the state, with 286 guest rooms and 60,000 square feet of group meeting and exhibition area. More than 80 events new to this market—accommodating university-affiliated groups, state associations, affinity groups and corporate functions—have injected an additional \$2.5 million in





catering revenue and \$3 million in room revenue into the city economy. So far in 2010, the hotel has hosted more than 30,000 conventioners, and its occupancy rates are consistently above local, regional and industry averages.

Perhaps most strikingly, the Coralville Marriott is more than a standard chain hotel. A community-led effort planned the facility, resulting in artwork created exclusively by lowans, a library featuring works written by authors associated with the internationally acclaimed University of Iowa Writers Workshop, an entirely smoke-free facility, free wireless Internet access inside and out, and beautifully landscaped grounds. In every sense the Coralville Marriott Hotel and Conference Center has fulfilled City's vision that a hotel and conference center could serve as an economic development engine for the community.

River Bend, a mixed-use commercial and residential development next to the Coralville Marriott, features three-and four-story buildings with commercial space on the ground floor and 50 condominium units in the upper stories. Additional nearby attractions include the Johnson County Historical Society, with a collection of more than 10,000 items, and the Antique Car Museum of Iowa, with its unique collection of more than 65 automobiles ranging from 1899 to 1990 in its 28,000-square-foot showroom.

Iowa River Landing's next phase is perhaps the most gratifying aspect of the project to date: the University of Iowa Hospital & Clinics broke ground in 2010 to relocate its Ambulatory Care Clinic Facility to the project's west entrance, injecting more than 300,000 patients/visitors into the area each year and a renewed excitement about the area's regional potential.

Key elements of the Iowa River Landing project include:

- Restoration of environmentally impaired industrial property for residential, commercial, and recreational reuse in close proximity to the scenic Iowa River, one of the nation's most impaired rivers.
- Leadership in the use of brownfields grants—to date, the project has received seven EPA Brownfields Assessment Grants totaling more than \$1.8 million, which have been competitively won and implemented by the City to evaluate environmental issues associated with brownfields sites.
- Use of state and local funding to implement corrective measures on sites impacted by petroleum and other hazardous substances.
- Use of innovative environmental and financing techniques, as well as creative program management, to clean up and redevelop the site.
- Cooperation between the City of Coralville and multiple partners.
- Sustainable design including salvaging, crushing and recycling nearly 40,000 cubic yards of concrete and asphalt pavements, recycling of existing metal buildings and various building components as well as green space restoration, use of indigenous plants and construction of bioswales and wetlands.
- Flood-related infrastructure improvements.
- Innovation in use of grant funds and a partnership with the University of Iowa's Urban and Regional Planning graduate program to staff the City's brownfields coordinator position.



The Coralville Marriott Hotel and Conference Center offers the largest combination of hotel rooms and convention space in Iowa, serving as an important economic development engine for the community. (Photo courtesy of the City of Coralville)





Financing

Important environmental issues have been and continue to be addressed in the Iowa River Landing area through the use of multiple EPA brownfields assessment grants in combination with Iowa Department of Economic Development money and public capital for actual property purchases. Additional funding sources over the past decade of redevelopment include the U.S. Army Corps of Engineers; Federal Highway Administration; Iowa Department of Transportation;



River Bend, a mixed-use development next to the Coralville Marriott, blends commercial and residential uses in an attractive environment. (Photo courtesy of the City of Coralville)

Iowa's LUST program; I-JOBS, Iowa's infrastructure investment initiative; the Iowa Department of Natural Resources; and the University of Iowa. These investments have mitigated potential threats to the region's ground water resources and the greater Iowa River watershed while creating an attractive, exciting mixed-use area. The bioswales and wetland areas constructed during the initial project phases will continue to protect these resources for years to come.

Lessons Learned and Future Directions

The sheer number of 74 property owners and 110 parcels created a unique and nearly insurmountable logistical challenge. However, through patience and persistence, the City of Coralville gained access for assessments through the painstaking education of property owners concerned with public records accessibility. By taking on this proactive role supported by multiple EPA assess-

ment grants, it ensured success by creating larger parcels available for redevelopment.

Successful brownfields redevelopment is a public jigsaw puzzle: every piece needs to "fit" with its connecting agency, and each piece must be aware of the larger brownfields picture. These crucial public and private partnerships continually moved the project forward, providing guidance and support at just the right times. The EPA, Iowa Department of Transportation, U.S. Army Corps of Engineers and Iowa Department of Economic Development, city council and mayor, numerous private consultants and involved citizen groups can all take credit for Iowa River Landing's success. It is important to note, however, that public perception of the overall redevelopment effort was not universally supportive. The Iowa Supreme Court eventually heard two unrelated cases regarding Iowa River Landing, twice ruling in favor of the City of Coralville and allowing the project to continue.

No matter what the community's size, a formally established and well-defined brownfields program firmly rooted in the economic development and public planning departments is essential. By using sound technical practices to routinely approach brownfields environmental issues as fundable, solvable aspects of a construction project, any brownfields project can revive blighted areas and return vital land to the community just as it happened in Coralville.

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A Sports Arena Becomes an Anchor for a Vibrant New Neighborhood

*Victory Park
City of Dallas, TX
Mayor Tom Leppert*

Introduction

Many cities have grappled with this issue – sporting venues become outdated and professional sports teams seek public funding for spacious new arenas with greater capacity and the latest technology. Sports arena construction costs, however, regularly run into the hundreds of millions—and such a massive allocation of dollars often requires, as was the case in Dallas, public approval by voter referendum. In Dallas, city leaders worked with their local sports franchises and a prominent local developer to craft a redevelopment plan that envisioned the new arena as an anchor for what would become Victory Park, a 75-acre mixed-use residential, office, hotel and retail neighborhood on the northwest side of Dallas’ downtown. In the process, the City not only limited its own financial exposure, but effectively leveraged \$165 million in construction costs to generate, at most recent count, over \$1 billion in private development investment.



The completed American Airlines Center. (Photo provided courtesy of the City of Dallas)

Site History

What today is known as Victory Park was initially thirty-two separate parcels of land totaling 75 acres, and owned by a variety of individuals and corporations. While a portion of the Victory Park site had seen residential and commercial use over the years, historically the primary uses on the site were industrial. At some point during the 1800s the site had been home to a garbage crematorium and a meatpacking facility. But for nearly a century, from the late 1800s up to the time of acquisition, the site was occupied by an electric power generating plant, a Union Pacific Railroad rail yard and maintenance facility, several dilapidated warehouses, a grain elevator and a landfill which contained debris from an 1898 fire in downtown Dallas.

The site occupied a prime, high-visibility location, adjacent to the city’s Downtown, Woodall Rogers Expressway and Interstate 35. The site was also bordered by the Uptown District and nearby State-Thomas, an historic neighborhood which, through its establishment as a tax increment financing (TIF) district in the late 1980s, had undergone significant new residential and associated development.

Site Acquisition, Administrative Process and Public Involvement

In the mid-1990s the city’s professional basketball and hockey teams (the Dallas Mavericks and Dallas Stars, respectively), expressed a desire for a new arena to replace the outdated Reunion Arena, which had limited capacity. City leaders, for their part, were vested in keeping the teams in downtown Dallas (as opposed to seeing them relocate to one of the surrounding suburbs, for example). The sports events held at the old Reunion Arena drew an estimated two





million attendees each year, generating significant hotel, sales, and other tax revenues. Overall, the teams’ economic impact on the City was an estimated \$236 million annually.

City leaders worked in earnest with the teams’ management to negotiate the terms for a Master Plan Agreement for a new arena and surrounding development. The City would own the new arena, which would be located in downtown Dallas, and lease it to the teams for a term of 30 years. The teams, in return, would agree to keep their teams in Dallas for the duration of that term. The teams would have the option at the end of the lease to purchase the facilities or to continue to rent it on a year-to-year basis.



Originally the site was home to, among other uses, an electric power generating plant (and the associated miles of pipes). Photo provided courtesy of the City of Dallas.

The developer, Hillwood (a real estate development company owned by Ross Perot, Jr., who at the time also was a majority owner of the Mavericks) would acquire 12 acres of land and donate the parcel to the City for the new arena and parking garage. Hillwood would acquire an additional 40 acres of land around the arena for a mixed use retail, office and residential development that would be built out as market conditions permitted. (Hillwood ultimately purchased about 90 acres in total; after the requisite land was dedicated for roads and the arena and garage, this netted roughly 65 acres for development. Today about 37 acres remain undeveloped.)

There were seemingly endless details to be worked out—but no issue generated as much discussion among those at the table as the issue of financing the construction of the new arena. To all parties involved, it was clear that in order to achieve this ambitious vision, some level of public funding would be needed to support redevelopment. However, City management understandably wanted to limit its financial exposure—and furthermore, a voter referendum

would be needed to approve any public funding for the arena. Eventually, the parties came to an agreement—public funds for construction of the arena would be limited to \$125 million, which would effectively be offset by the teams’ rental fees (\$3.4 million per year for the first thirty years, or \$102 million). The teams would pay the remainder of the construction costs for the arena, including any cost overruns. In addition, the private developers assumed all costs for constructing the development beyond the arena—except for public infrastructure (roads, water, sewer, etc.). To finance these costs, the City would establish a tax increment financing (TIF) district around the sports arena. But rather than having the City pay outright for these expenses, the deal required the developers to pay for all infrastructure improvements up front and to be partially reimbursed from revenues generated by the TIF.

As Hillwood worked to finalize the acquisition of the 32 parcels needed for redevelopment, city leaders, led by then-Mayor Ron Kirk, an educational and public campaign to inform citizens about the plans for and benefits of building the new arena. The campaign was a success—in 1998 Dallas citizens approved, by voter referendum, partial public financing for the project. The plan authorized, but strictly limited, the City’s contribution to the new arena, the American Airlines Center, to \$125 million, or just under 30 percent of the total arena cost. That same year, the City established the Sports Arena Tax Increment Financing District, to support infrastructure improvements to the areas around the arena that would become Victory Park.

Remediation

As a result of the many industrial uses over a 100-year span, the acreage had a variety of environmental issues. Environmental contaminants on the site included metals (primarily lead, arsenic, and mercury), poly-aromatic hydrocarbons (PAHs)—primarily benzo(a)pyrene, and municipal solid waste. In addition, petroleum had leached into the soil and groundwater.

Each of the site’s 32 parcels was enrolled separately into the Texas Natural Resource Conservation Commission (TNRCC) [now the Texas Commission on Environmental Quality (TCEQ)] Voluntary Cleanup Program (VCP)]. This





required intense coordination among a host of real estate attorneys, environmental attorneys, owners, and environmental engineers. Actual submission of VCP applications in some cases were submitted on the same day as (often just minutes before) the real estate closings on the selected parcels.

To facilitate the actual environmental site evaluation and remediation work, the developer assembled a diverse team of experts which included engineers, surveyors, demolition crews, companies providing environmental remedial services, and environmental lawyers. Site evaluations or Environmental Site Assessments (ESA) and subsurface investigations were conducted to determine the presence and extent of affected media. At the outset, the entire property was surveyed and a grid was superimposed over the site; this allowed everyone to know exactly which section of the grid contained which contaminants, and the appropriate course of environmental action to take in each case.

A comprehensive soil management plan was established, which led to the excavation and disposal of 310,000 cubic yards of contaminated soil. Another 250,000 cubic yards of soil were reused on the site. Approximately 15 million gallons of groundwater were treated by sparging (a process of introducing air into the water) and carbon filtering. A total of 47,000 cubic yards of concrete were recycled. Across the site, 45 structures were demolished and 26 miles of underground utilities were excavated and reworked. More than 700 trees were planted to support the site's eventual use as a centerpiece within the larger redevelopment project. The project's environmental consultants worked with TNRCC to determine site-specific cleanup levels, which were subsequently met by the development. For its success the project was awarded the TCEQ's Environmental Excellence Award and the EPA's Phoenix Award.

Redevelopment and Financing

American Airlines Center, an 840,000 square foot sports and entertainment venue, was completed in 2001 and anchors the Victory Park development, which includes 771 residential units, 251 hotel rooms, 585,000 square feet of office space, and 210,500 square feet of retail. The City's \$125 million contribution ultimately represented roughly 29 percent of the total \$420 million arena construction cost. Through the Sports Arena TIF District the City has already completed almost \$31.5 million infrastructure improvements to support the Victory Park development. All told, this TIF district has seen approximately \$836 million in new private development through the end of 2009. In addition to the \$420 million American Airlines center, this includes:

- The W Dallas Victory Hotel & Residences, completed in 2006, which boasts 145 condos, 251 hotel rooms and 42,500 square feet of retail space, at an estimated value of \$159,000,000.
- The Terrace, completed in 2006, with 97 condominium units and 24,000 square feet of retail total, valued at nearly \$30 million.
- The Vista, completed in 2007, a 127-unit apartment complex with 28,000 square feet of retail total, valued at more than \$22 million.
- Cirque, a 252-unit high-end apartment complex with 11,000 square feet of retail space completed in 2008, with an estimated value of \$59 million.
- One Victory Park, a 430,000 square foot office tower with 10,000 square feet of retail space, completed in 2008 and valued at nearly \$65 million.
- The ever-popular House of Blues, an adaptive reuse project sited in an old warehouse, completed in 2008.
- The House by Starck and Yoo, completed in 2009, with 150 condominium units and 30,000 square feet of retail space, valued at approximately \$64.7 million.



An aerial view of the Victory Park site, October 2008. The arena (at left) anchors the 75-acre site. (Photo provided courtesy of Hillwood Development, LLC)





As of this writing, the Perot Museum of Nature and History, located adjacent to the TIF District but within Victory Park, is under development at an overall cost of \$185 million. This project takes the Victory Park development value over the \$1 billion mark.

Lessons Learned and Future Directions

At its heart, a brownfields redevelopment project is a real estate development project, with an additional layer (remediation). Though remediation can pose significant challenges, those challenges are sometimes exceeded by other aspects of the deal. In the case of Victory Park, coming to terms with the private partners (the teams and the developer) on the financing structure of the project was as much of a challenge as remediation. Furthermore, public input and approval, while important to any redevelopment project, was not simply a matter of civic process, but in fact vital to the realization of Victory Park.

Managing expectations is another significant challenge. Given the scope of this project, it has taken 12 years to see the major development around the arena grow to a desirable level. Such an extended timeline may complicate the process of keeping all the stakeholders—developers, prospective tenants, investors, and the general public—engaged and committed, through changes in ownership and leadership.

The City met these challenges head-on, negotiating with the developer to craft the Master Plan Agreement for Victory Park; coming to agreement on a financing scheme which limited the City's financial exposure; embarking on an ambitious campaign to generate voter support for limited public financing of the new arena; and creating a TIF district to cover infrastructure costs for the Victory Park development. As a result, the City of Dallas realized over a billion dollars worth of investment in the tax base. Beyond this, new jobs were created—and the city gained a dynamic new gateway to the Downtown area.

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A City Reconnects with the Majesty of the Mississippi

America’s River
City of Dubuque, IA
Mayor Roy Buol

Introduction

In the 1980s, the future looked bleak for Dubuque. Dubuque’s economy was heavily invested in a handful of manufacturing industries, and when those businesses experienced an economic slump few residents were immune to the repercussions. Furthermore, the collapse of these businesses left the riverfront area, now known as the Port of Dubuque, plagued by environmental issues, undervalued property, and a mix of heavy industrial uses adjacent to downtown. These issues created both a physical and psychological disconnect between residents and visitors and the Mississippi River, the city’s greatest potential asset. The site, essentially, was the epitome of a brownfield environment, burdened with obstacles to redevelopment.

As the gateway to Eastern Iowa, the Port of Dubuque was in vast need of redevelopment and repositioning, and the city seized the opportunity to reconnect with the Mississippi. In the late 1990s, the community came together on a project, America’s River, that would forever change the riverfront of Dubuque. The America’s River project transformed 90 acres at the Port of Dubuque into a destination that captures the historical, environmental, educational and recreational majesty of the Mississippi River. Today, America’s River at the Port of Dubuque, a 90-acre, mixed use redevelopment surrounding the historic Ice Harbor along the Mississippi River waterfront, is one of Iowa’s finest tourism attractions and continues to set state tourism attendance records.



The 86,000 square foot Grand River Center is designed so that it literally seems to be cantilevered over the river. (Photo courtesy of the City of Dubuque)

Site History and Acquisition

The area in question has had a long history of industrial activity dating back to early 1800s—trapping, fishing and shell harvesting later gave way to shipping, shipbuilding, leather working, brewing, and sawmill operations. The early to mid 1900s saw a number of formerly thriving businesses cease operations, including a minor league baseball park, a bulk petroleum storage facility, the former Dubuque Star Brewery, a cold storage facility and a bulk asphalt terminal. Several facilities had been closed and abandoned for decades.

By reclaiming brownfield property for mixed-use development and creating a world class venue where people can reconnect with and experience the river, the America’s River project provided a much needed boost to Dubuque’s struggling economy, tourism, and image.

The Mayor, City Council, and other community leaders worked together to undertake one of the largest economic development projects in the community’s history. Local support was further demonstrated by the large number of local organizations and citizens who worked on this project, and as local government, business leaders and non-profit organizations alike embraced the vision of rejuvenating community spirit and revitalizing the economy, a unique collaboration emerged. The City of Dubuque worked with multiple property owners to assemble the parcels needed for the





project, and moved active businesses to other locations in the region. In addition, the City partnered with the Dubuque Area Chamber of Commerce and the Dubuque County Historical Society to pool resources and to seek funding from local, state and federal agencies for the America’s River project. This unprecedented private-public partnership ultimately included 13 federal agencies, the State of Iowa and many of its agencies and departments, five Governors along the Upper Mississippi River, a number of national navigation associations, and 35 national environmental groups.

Administrative Process and Public Involvement

In 2001, the City Council launched a yearlong community planning and design effort to craft a comprehensive, long-term vision and redevelopment concept for America’s River at the Port of Dubuque. The planning process began with



Prior to redevelopment, several facilities on the site had been closed and abandoned for decades. (Photo courtesy of the City of Dubuque)

a 10-member committee established by the City Council, which included representatives from the City of Dubuque, Dubuque Area Chamber of Commerce, Dubuque County Historical Society, Greater Dubuque Development Corporation, and private developer Platinum Hospitality. A team of consultants, including economic analysts, planners, and urban designers, guided the work of the committee. The committee worked with local property owners, developers, City Council members and citizens at large to get their input on the most appropriate plan for the Port of Dubuque. This process included monthly meetings, public workshops, news articles and one-on-one consultations. The city also sponsored a developer’s workshop, which brought together nearly 60 potential developers from the region to review the plan and to discuss properties available for redevelopment, along with a list of potential incentives.

As the lead government organization for America’s River project the City of Dubuque dedicated its resources for planning, engineering, facilitating, and funding of the

America’s River effort. The Mississippi River Museum was the lead non-profit organization for America’s River project and dedicated its resources to research, planning support, exhibit development and fundraising. The lead business and tourism organization on the project, the Dubuque Area Chamber of Commerce and its Convention and Visitors Bureau, focused their efforts on product development, additional fundraising, public awareness and tourism development aspects of the plan. Dubuque County, an active partner in the effort, also endorsed and contributed to the project in many ways.

Financing

The America’s River project became a nearly \$400 million revitalization effort, one of the most successful in Iowa. The America River’s redevelopment initiative has provided the City with new office and showroom space, residential and commercial development, and greenspace. The city used a combination of state, county and local funding for the project, as well as private contributions. The City of Dubuque allocated just over \$100 million, or 35% of the total funding, for the America’s River project. In addition the city received \$400,000 from the Environmental Protection Agency Brownfields Pilot and Clean Up grant program, and grants from the US Economic Development Administration and US Department of Housing and Urban Development provided more than \$2.35 million to cover property acquisition costs. State grants in excess of \$55 million provided significant funding for various redevelopment projects. These grants included the Vision Iowa Grant, the Community Attraction and Tourism Development Grant, and Clean Up Grants. Dubuque County contributed \$1.7 million to the redevelopment project, and private contributions totaled just over \$15 million.





Remediation and Redevelopment

Soils and groundwater impacts on the assessed properties were significant. Soil impacts were found throughout the top ten feet of variable fill across the area. Arsenic concentrations in excess of statewide standards for soil were identified in numerous locations, generally distributed throughout all soils. Lead, possibly associated with industrial land use activities or historical lead mining operations in the area, and polynuclear aromatic hydrocarbon (PNA) impact associated with the storage and use of petroleum products and industrial by-products, were also identified in several of the soil borings throughout the area. Inorganic metal and volatile and semi-volatile organic compound impact was identified in groundwater at multiple sample locations.

Release of petroleum over the approximate 50-year operating life of the bulk petroleum storage facility resulted in impacts to soil and groundwater over five acres, bounded by the Mississippi River to the southeast and Ice Harbor on the southwest side. The close proximity to adjacent surface water boundaries posed a significant threat to the aquatic environment. Due to the frequent flooding, the riverfront was also the location of uncontrolled filling activities from industrial. Risk-based evaluation under the state voluntary cleanup programs generally demonstrated that the sites are suitable for reuse through a combination of land-use controls, engineered barriers, construction-worker cautions, and/or other methods without the need for extensive physical remedial activity such as excavation and disposal of impacted soils, which could be cost-prohibitive.

Environmental assessment and clean up of interior areas of Port of Dubuque began in May 2003. Phase I assessments have been completed on 11 targeted properties containing 29 individual parcels. Phase II assessments have been completed on 7 properties using US EPA Brownfields funding. Cleanup of residual petroleum impact resulting from a bulk petroleum storage facility was completed in late 2007. The petroleum cleanup made use of an innovative technology that involved multi-arrayed vacuum extraction of free product and hydrogen peroxide injection to address dissolved impact in groundwater.

Phase I of redevelopment consisted of five anchor components: the Mississippi Riverwalk, the National Mississippi River Museum and Aquarium, the 86,000 square-foot Grand River Conference Center, the Grand Harbor Resort, and the Star Brewery. These five facilities, completed in 2003, accounted for \$188 million in redevelopment. Throughout most of the decade the Port of Dubuque has continued to be a busy construction zone, thanks to a \$200 million vision for America's River Phase II, which included an expansion of the National Mississippi River Museum and Aquarium; new offices for McGraw-Hill Higher Education and the Durrant Group, an architectural firm; an expansion of the Diamond Jo Casino; renovation of the historic Star Brewery and historic Shot Tower; a public parking ramp; transient boat slips in the Ice Harbor; and a 92-slip marina on the riverfront. As of 2010 most components of Phase II have been completed.



*A cross-river view of the America's River development.
(Photo courtesy of the City of Dubuque)*

Lessons Learned and Future Directions

America's River demonstrates the importance of public/private partnerships—a strategy which continues to play a key role in many of the city's long-range plans. The pairing of public and private investment dollars to complete the America's River project has literally changed the landscape of Dubuque's riverfront and the city as a whole.

The America's River project further provides a practical framework for communities interested in waterfront redevelopment.



ment as more than a financial concern. Real estate development tends to focus, first and foremost, on profitability. Environmental concerns are at the forefront of any brownfields redevelopment project, and with the America's River project The City of Dubuque and its various partners have expanded on those more conventional environmental considerations. Each of the components of the America's River project, from the conference center to the museum, from the aquarium to the river walk, has helped the community reconnect with the Mississippi River on different levels. And the project has benefitted not only Dubuque residents, but visitors from all over the world, who through the various America's River amenities and features can learn about the importance of the Mississippi River as an economic engine for industry, its role as an environmental habitat, and its recreational opportunities. By recapturing, leveraging and ultimately caring for this vital natural resource, Dubuque has realized a vision that will continue to pay for the city, both literally and figuratively, for generations to come.

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The renovated Star Brewery is one of the anchors of the America's River development. (Photo courtesy of the City of Dubuque)



The expanded National Mississippi River Museum and Aquarium is an affiliate of the Smithsonian Institution. (Photo courtesy of the City of Dubuque)



A Public Park Creates an Economic Engine for the City

Discovery Green
City of Houston, TX
Mayor Annise D. Parker

Introduction

Completed in 2008, Discovery Green, a twelve-acre, LEED Gold Certified park located in Downtown Houston, includes a remarkable variety of activities for all ages. Kinder Lake (comprising over an acre of the site) features water gardens and a shallow pool area for model boat enthusiasts, which in cooler months becomes an ice skating rink. Other interactive water features in the park engage and refresh visitors during Houston’s long warm season.

Lush gardens featuring native flora and fauna are interspersed with spacious green expanses, large enough to host public festivals and cultural events. An amphitheater stage hosts free movies and concerts featuring musicians from around the world; it’s also the platform for a series of exercise classes that draw hundreds to the park every week – some of the two million visitors to the park attracted by over 800 free events thus far. Two restaurants, a children’s playground, a growing collection of visually arresting public art, dog runs, a jogging trail, and even a branch of the Houston Public Library system round out the park’s amenities. There’s literally something for everyone at Discovery Green.

“Discovery Green stands as a beaming example of environmental best practices applied to a public project that has become the centerpiece of Houston’s downtown,” says Houston Mayor Annise Parker. “It was the vision of my predecessor, Bill White. He deserves a thank you for ensuring it became a reality.”



During excavation a number of live oaks were carefully relocated to another section of the park site.

In fact, for the City’s municipal leaders and business community, the park is more than an enjoyable destination for residents—it’s a vital and thriving economic engine for Houston. Situated in close proximity to the George R. Brown Convention Center, Discovery Green was conceived not simply as a public park, but as an amenity to attract convention revenue to the City, and an anchor for downtown development. By all accounts, the park is meeting its mission. In less than four years, the site that became Discovery Green was transformed from a contaminated, underdeveloped parcel on the east edge of downtown into one of the most vibrant and active destinations in the City.

Site History and Acquisition

Originally a high-end residential neighborhood, the current site of Discovery Green was radically altered with the construction of a railroad station in the early 20th century along the eastern border of downtown. With the construction





of the railroad a variety of industrial operations sprang up nearby, including machine shops, filling stations, and metal processing facilities. For much of the 20th century these types of operations constituted the primary uses of the site. During the 1970s, Texas Eastern, a gas pipeline company, quietly acquired 32 blocks of downtown, extending from one block east of Main Street (in the downtown core) to U.S. 59 on the east. On the blocks closest to Main Street, Texas Eastern developed Houston Center, an expansive, mixed use commercial complex including large office buildings, a shopping complex, and a hotel. Texas Eastern cleared the remaining blocks, closer to US 59, to install surface parking to service the development.



Originally the site was mostly acres of parking—its lack of structure and program made it effectively inhospitable. (Photo courtesy of the City of Houston Convention and Entertainment Bureau)

Houston Center struggled to entice businesses to move further and further east. People generally perceived the development and the businesses located there as being ‘on the edge’ of downtown –in hindsight this perception might have been fed by the location of acres of surface parking in this area of the new development.

Hoping to provide a boost to the development, in the early 1980s Texas Eastern offered the easternmost four blocks of the site (directly adjacent to U.S. 59) to the City of Houston, for development of a convention center, in the hopes that it would serve as an anchor to drive traffic to the Houston Center businesses. The George R. Brown Convention Center (opened in 1987), was named for one of the owners of Texas Eastern. (George R. Brown, along with his brother and Texas Eastern co-owner Herman, also established The Brown Foundation, which, interestingly, was one of the earliest and most significant supporters, financially and otherwise, of the project that would become Discovery Green.)

repurposed a strip of the surface parking they had created to develop Houston Center Gardens, a green space ‘mall’ which stretched three city blocks directly from the Houston Center to the convention center. Unfortunately, bounded as it still was by acres of surface parking, residents and visitors didn’t make much use of the isolated green space.

To create a better connection between Houston Center and the newly opened convention center, Texas Eastern

In 2002 two large parking lots, located directly across from to the convention center and situated to either side of Houston Center Gardens, were sold to the City as part of an unrelated legal settlement. The City’s goal was to redevelop these parking lots, which comprised about six acres of land, into uses that could support and enhance convention activity. The initial concept centered on a large entertainment complex—a concept that was supported by Houston’s business community, particularly the hotel industry. However, while the City now owned a significant portion of a largely under-developed eight-acre site in a prime downtown location, Houston Center Gardens remained a privately held green space.

Administrative Process and Public Involvement

In early 2004 the owners of the Houston Center (now a real estate investment trust, or REIT, called Crescent) announced that they would be selling the Houston Center along with the rest of the undeveloped property they owned – which included the Houston Gardens green space. Prior to the sale much of the Houston community (that is, those who were aware of the green space—largely environmental and community development advocates) had believed Houston Gardens was a publicly owned and operated amenity, and when it became clear that the green space could be sold and converted to a parking garage or some other private use, the response from these sectors was dramatic.

A group of philanthropists led by The Brown Foundation and the Kinder Foundation approached then-Mayor Bill White, who’d just come into office in early 2004, with an idea – acquire the Houston Gardens property to create a





permanent downtown green space/public park. The Mayor agreed, and became a strong supporter and advocate of this public-private partnership. Several other philanthropic foundations joined the effort, including the Wortham Foundation and the Houston Endowment, Inc.

The coalition secured an agreement from Crescent to hold off on the sale of the property until the end of 2004, to give the City and the foundations an opportunity to put a deal together. By the end of summer the plan was taking shape – the City would contribute the two large parking lots that bounded Houston Gardens on either side (about 5.5 acres), and close a section of Crawford Street (which ran through the site – another acre or so of land). In addition the City, along with the foundations, would contribute cash to acquire the remainder of the site that would become Discovery Green (just shy of twelve acres total).

Throughout the fall the City and the foundations worked to fine-tune the details of the project. The foundations created a nonprofit organization to represent their interests; the nonprofit and the City crafted an agreement that outlined the roles and responsibilities of each entity. The foundations, through the nonprofit, would be responsible for raising all funds necessary to develop the park; the nonprofit, called the Discovery Green Conservancy, would operate the park once open; and the City would contribute a certain amount of funding each year to support the park’s maintenance. Interestingly, those funds came not from the City’s parks and recreation budget, but from Convention Center revenues – while the park was viewed in its own right as a valuable green space for the city, the driving force behind the City’s commitment was the potential value of the park as an amenity to attract convention traffic to Houston.

The land was acquired in mid-December 2004; on the same day, the contracts between the City and the Conservancy were approved by City Council, and a new local government corporation was created by the City Council to serve as the public owner of the property.

There were some misgivings in the hotel community, which pays the taxes that support the convention center. Hotel industry leaders still thought that convention center dollars and the site itself could be better used—such as for the entertainment complex idea that they originally had supported. It’s worth noting that there weren’t many recent examples at that time of transformational public parks that attracted significant crowds. These concerns were mitigated because the city used parking revenues, not hotel taxes, to fund its portion of the land acquisition. And The Conservancy made the case that public parks could be transformational in ways that could exceed the impact of a more traditional anchor development. They cited the model of Bryant Park, a New York City public park that had once degenerated into a drug haven and had recently been revived into a vibrant public park that attracted crowds, and revenue, to the businesses surrounding it.

In its approval of the contracts, City Council mandated that the public at large be engaged in the design and development of the park. However, while people “in the know” recognized the importance of the park site as a green space and as a convention center amenity, to the public at large the private green space and its surrounding surface parking were essentially a blank spot on the Houston map. Relatively few people actually used the green space as it previously existed; short of traveling to the convention center, the vast majority of the general public—residents and visitors alike—never interacted with the Houston Center Gardens. Thus the bar was set high to engage people in the project.

The Conservancy approached the task in earnest. Even before design consultants were hired the Conservancy mounted an intensive public process, with the guidance of Project for Public Spaces, which included both large public meetings and smaller focus groups to solicit public feedback. That feedback became the basis for the park’s program (or site activity plan), and when designers were ultimately hired, that public program was inserted into their contract for implementation, to ensure that the final design adhered to public needs and desires.



Discovery Green’s twelve acres now include a lake, community gardens, a dog run, jogging trails, and many other amenities. (Photo courtesy of Discovery Green)



In addition, the Conservancy engaged Elmore PR, a public relations firm, early in the redevelopment process to ensure a high level of ongoing communication and engagement with the public. The strategies employed to engage the public included a popular and successful citywide naming contest (from which the park's name, Discovery Green, emerged).

Remediation and Redevelopment

Because the City had already gone through the process of acquiring part of the site (the parking lots) in 2002, by 2004, when the remaining parcels were acquired, an initial Phase I environmental site assessment had already been conducted, so all parties were well aware of the status of the site as a brownfield. In order to avoid any oversights, the Conservancy engaged TGE Resources to oversee the process, beginning with a new Phase I study.

The site was voluntarily entered into the Texas Commission on Environmental Quality's Voluntary Cleanup Program. Given the intended use of the site as a park, the City and Conservancy's mutual goal was to achieve residential cleanup levels via the Texas Risk Reduction Program. Rather than encapsulate contaminants, which can encumber a property in a sense and lead to public doubt about safety levels, the City and Conservancy aimed to achieve complete remediation.

No one large industrial facility or concern accounted for the site's contamination; rather, a variety of small entities – machine shops, filling stations, and the like – that were located on the site throughout the first half of the 20th century accounted for the contamination:

- A gas station on a corner of the site nearest to downtown had leaked petroleum into the soil and groundwater. Because no major excavation was planned for this part of the site—which was occupied by a number of large mature trees that the Conservancy and the City wanted to retain—a less disruptive process, called biotreatment, was used to address the contamination. Biotreatment is the processing of waste or hazardous substances using living organisms such as bacteria, fungi or protozoa. It is an environmentally friendly, relatively simple and cost-effective alternative to physical or chemical clean-up options. Essentially, compounds were injected into the soil and groundwater to neutralize the contaminants.
- Groundwater contamination was also present on the edge of the site farthest from downtown, in the form of 1,2-dichloroethane (1,2 DCA), also commonly known as ethylene dichloride. This chemical compound is used in the production of PVC, and as a degreaser, paint remover, and 'anti-knock' additive in leaded fuel. It was suspected that the contamination in this case might have occurred due to a motor freight facility, or possibly a metal processing plant which had also occupied that location. Interestingly enough, over the course of several years – from 2004 to



Every Sunday, the Urban Harvest Farmers Market at Discovery Green features locally grown produce, as well as, clothing, and regional specialty items from area farms and craftsmen. (Jeff Fitlow)

2007 – this part of the site ‘self-remediated.’ Groundwater monitor wells (which had been installed throughout the park site) found that over time contamination levels at that part of the site dropped below applicable state regulatory thresholds.

- Another, larger gas station, this one in the middle of the site, was the worst problem. Eight underground tanks had rusted out and leaked their contents into the soil and groundwater – right on the edge of the location of an underground garage that the City was funding as part of the overall project, where excavation would obviously be necessary. There was little choice but for complete removal of contaminated soil, at a cost in excess of \$300,000 for this cleanup alone. In accordance with EPA regulations the soil was disposed of at a facility with the highest level of certification.
- Various metals and other toxins, including arsenic, lead, and mercury, had contributed to surface soil contamination on other parts of the site as well. The causes of this contamination were never fully determined – it was believed that contaminated surface soil may have been brought in at some point during the site’s history as fill material. To address this issue, this less contaminated surface soil was removed from the site, treated, and (as is acceptable and common practice) used as fill material for the construction of U.S. Highway 90 in northeast Houston.



Live Oak Promenade – when lit at night, the effect is stunning. (Photos courtesy of Discovery Green)

Financing

The total cost to acquire the parcels that became Discovery Green was approximately \$57 million. While the land purchased from Crescent was valued at approximately \$30 million (or \$125 per square foot), the cash cost to acquire that land was \$24 million. Crescent, the seller, made a donation of \$25 per square foot (or roughly \$6 million); the City contributed \$8 million to the final purchase price and the foundations, through the Conservancy, contributed the remaining \$16 million. The seller also provided a \$500,000 escrow fund to help defray the cost of environmental remediation. The parking lots and street right of way that the City contributed for the development of Discovery Green account for the remaining value of \$33 million.

The total cost to build and outfit Discovery Green was an estimated \$125 million. In addition to acquisition costs, park construction costs totaled \$30 million (the Conservancy ultimately raised more than \$56 million). The underground garage paid for by the City added an additional \$21.5 million, and the remaining \$16 million funded environmental remediation; planning, design, furniture, fixtures and equipment (including for two restaurants on the park site); and acquisition public art for the park—including a donation by the Dan Duncan family of a sculpture worth in excess of \$7 million (*Monument au Fantome* by world-renowned artist Jean Dubuffet).

Lessons Learned and Future Directions

The convention bureau reports that convention bookings have in fact risen since Discovery Green opened in 2008—and anecdotally, they hear all the time that convention-goers immensely enjoy the park as an unconventional and refreshing amenity. In the summer of 2008, Houston hosted Microsoft, a Holy Grail of conventions, so to speak, in part because of the anticipated completion of Discovery Green. Discovery Green has arguably raised the profile of Houston as a viable host for the nation’s and the world’s most coveted events.



Beyond driving convention activity, the park has become an anchor for \$500 million in downtown development. Two significant projects have chosen locations on the east side of downtown largely due to the Discovery Green project: (1) One Park Place, a high-end residential tower with 346 units (the first new residential construction in downtown in almost half a century), has just been completed and is signing leases at a rate substantially ahead of projections, and (2) Hess Tower, an office development that has already leased 100% of its space. A third project which is currently under construction, Embassy Suites, represents the first new, 100% privately financed hotel project in Houston's downtown in decades.

Significantly, the office and residential projects were completed without any city property or sales tax abatements – from the City's perspective, Discovery Green has created an attractive destination in its own right, and created tangible financial value for any development in its vicinity – largely obviating the need for traditional development incentives.

More intangibly, Discovery Green has helped Houstonians re-conceive downtown as a destination for play as well as work. During the planning phase, attendance was projected at an ambitious 500,000 each year, which was achieved in the first six months. As a public park, Discovery Green plays a very important role in the City—it has engendered a level of ownership by all residents in the downtown core and throughout the region, and instilled a renewed sense of civic pride in the city.

But such a significant achievement is not without its challenges. The timeline set for completion of the project, from City Council approval to the opening of Discovery Green, was three years (the park opened just shy of three months behind schedule because of weather delays). One of the critical factors the City cites in adhering to such a tight timeline is the importance of bringing in consultants—particularly those responsible for remediation—at the earliest planning stages of the redevelopment process. Commonly, once remediation begins, a city often finds that contamination is more extensive than originally understood (in this case several additional underground tanks, not indicated in the historical records, were discovered after excavation had begun). Having the appropriate contractors and consultants in place as early as possible goes a long way to ensuring that delays due to unanticipated problems will impact the project timeline—and by extension, project costs—as minimally as possible. Because of Discovery Green's tight timeline, remediation began concurrent with construction, as opposed to (as is usually the case) a separate process prior to construction, increasing the need for engaging environmental planning consultants as early as possible.

Another factor critical to the success of Discovery Green was the development of a detailed plan for park funding, operations and maintenance at the outset of the project. City leaders and officials recognized early on that while the City has an obvious role to play, it was not ideally equipped to manage the programmatic operations and maintenance of Discovery Green. Handing these functions over to the Conservancy, in the opinion of city officials, is one of the best decisions they made and a key factor in the park's success to date. In fact, two additional park projects currently underway in Houston are basing their management plans on the Discovery Green model.

Ultimately, this underscores perhaps the most compelling element of the story of Discovery Green – the project could not have been completed without the partnership of the philanthropic community, business leaders, and others. This truth extends beyond the project itself – while the City has a role in improving quality of life for its residents, and in stimulating economic activity, the engagement of private partners is vital to the success of both endeavors.

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