Montgomery Park Business Centre: A Brownfield Redevelopment Best Practice

By Christopher De Sousa, David Godin, and Michael Testaguzza (2014)

SITE HISTORY

Montgomery Park Business Centre is an award-winning adaptive re-use brownfield office redevelopment project located in Baltimore, Maryland. Project developer Himmelrich Associates, Inc., has demonstrated leadership in its retention and sensitive conversion of the 1.3M square foot, eight-story, nationally-listed art deco heritage warehouse building into a Class A office complex that achieved LEED Gold certification from the US Green Building Council. Remediation of the brownfield site occurred under the auspices of the Maryland Department of the Environment Voluntary Cleanup Program. The ambitious project utilized a variety of brownfield, heritage retention, and green building tax incentives and financing tools from the City of Baltimore, State of Maryland, and the Federal Government. While it came to market during the Great Recession, a steadily growing list of tenants from both the private and public sector have leased more than 540,000 square feet of space and 1,800 workers are on site daily. When the full 1.2 million square feet are leased, between 3,500 and 5,000 workers are projected to be on site.

1 Methodological note: Information for this case study was obtained from available project reports, site visits, and structured interviews with key stakeholders (at least 4-6), including developers, planners, consultants and community representatives. For any questions, please contact Christopher De Sousa, Associate Professor, Director, School of Urban and Regional Planning, chris.desousa@ryerson.ca. The project is ongoing, and the information here is current up until December 2013. For any questions, please contact Christopher De Sousa, School of Urban and Regional Planning, Ryerson University, chris.desousa@ryerson.ca. Research assistance provided by David Godin and Michael Testaguzza, Ryerson University, Toronto and Jason Tilidetzke, Joe Peterangelo, and Kevin Duffy, University of Wisconsin-Milwaukee.

2 (The Centre for Brownfields Initiatives at the University of New Orleans, 2010)

3 (The Centre for Brownfields Initiatives at the University of New Orleans, 2010)

4 (Paull, no date)
Site Description

The Montgomery Park Business Center (MPBC) is located in the southwestern area of Baltimore, approximately 1.5 miles southwest of the Central Business District in the ‘Baltimore West’ office submarket. The site is adjacent to Washington Boulevard, an important cross-town arterial road, and close to Interstate 95, Interstate 395, and state highways 295 and 1. The MPBC building is located on a 16.5 acre parcel of land, which is part of a larger 27.5 acre site that is divided by a railway right of way owned by CSX. The property is located in an industrial area of Baltimore and is part of the West Baltimore Empowerment Zone. Neighboring properties include a gasoline station, a MTA bus terminal, Carroll Park – recreational park land owned and maintained by the City of Baltimore – and assorted industrial buildings housing light manufacturing, logistics, distribution, and warehousing facilities. The MPBC is connected to City of Baltimore municipal water and sanitary and storm sewers.

No new buildings were constructed on site as part of the redevelopment. MPBC features the refurbished eight-story, 1.3 million square foot former Catalog House office building and attached 100,000 square foot “flex space” building. The other renovated buildings include a 630,000 square foot distribution center and other adjacent properties that total 275,000 square feet. The total space for the project is 2.2 million square feet.

Site History

The site of the MPBC has been continuously occupied by commercial enterprises since the beginning of the 20th Century. Industrial land uses have included brick manufacturing, paint and varnish production, and general manufacturing. The former Catalog House office building dates back to 1927, when construction was completed on a new Mid-Atlantic regional distribution centre and headquarters for the Montgomery Ward catalog company.

Energetic lobbying by the Baltimore Association of Commerce and local elected officials convinced the Montgomery Ward company that Baltimore was an advantageous location for a new regional headquarters and distribution centre and the services of architect W.H. McCaully, the firm's in-house Engineer of Construction, were employed to design the building and oversee its construction. The enormous 1.2 million square-foot, eight-story structure was built between 1925 and 1927 by Wells Bros. Construction Company and featured 143,000 square foot floors, high ceilings, art deco architectural details, a clean whitewash façade, a large rooftop sign, and extensive surface parking.

Understanding the history of land uses on the site was critical to redevelopment of the MPBC project. According to Sanford Fire Insurance records, a large gas station with six gasoline storage tanks was built on the MPBC property.

---

5 (CBRE, 2013)
6 (Paull, no date)
7 (Maryland Department of the Environment, 2001)
8 (Maryland Department of the Environment, 2001)
9 (Himmelrich Associates, Inc., no date)
10 (Himmelrich Associates, Inc., no date)
11 (National Parks Service, 2000)
fronting Washington Boulevard some time prior to 1950 – the construction date is unknown - and was demolished in 1968. In 1961, the gas station was expanded to include a 14-garage bay automobile service facility, complete with hydraulic lifts, floor rain systems, and a 500-gallon waste oil underground storage tank. The gas and service station was further expanded at an unknown date to include an additional service facility building with two garage bays and hydraulic lifts. Both private and Montgomery Ward-owned vehicles were fuelled and serviced at this facility.

PROJECT VISION

Montgomery Park Business Center is a premier Class-A office complex with cutting-edge green building attributes. The vision for the project was to retain a nationally significant piece of Baltimore’s built heritage and create a modern office development that would attract tenants, generate consistent profit, and nurture the Baltimore knowledge economy. Current office tenants include Chubb Group of Insurance Companies, M&T Bank, Maryland Department of the Environment, Maryland State Lottery Agency, NCO Financial Systems, Inc., Omnicare, URS Corporation, and XL Health. Tenant acquisition continues despite headwinds in the Baltimore office market that have been caused, in part, by the Federal Government budget sequestration and the ripple effect this has had on leasing trends of local firms.

The project also serves as a model for both the successful redevelopment of a brownfield site and a productive working partnership between the project proponent and several levels of government. From the outset of the renovation and redevelopment process, a consistent goal was to create a high-performance green building that was economically advantageous for its owner and tenants. From this flowed an emphasis on proven, low-maintenance green building features that would reduce operating costs while improving tenant productivity. The project gained access to several funding mechanisms, including grants, due to the inclusion of green building features, the preservation and restoration of a nationally listed historic building, and the sites location within an Empowerment Zone.

PROJECT CHARACTERISTICS AND DEVELOPMENT

High Performance Green Building

The Montgomery Park Business Center incorporates a wide variety of green building features and it achieved LEED Gold accreditation by the US Green Building Council for its efforts. The green building features can be placed into three categories: (1) Site Features; (2) Building Features – Exterior; and (3) Building Features – Interior.

12 (Maryland Department of the Environment, 2001)
13 (Maryland Department of the Environment, 2001)
14 (Maryland Department of the Environment, 2001)
15 (Maryland Department of the Environment, 2001)
16 (CBRE, 2013)
17 (Himmelrich Associates, Inc., no date)
Site Features

Building Retention

The single most significant green feature of the MPBC project is its reuse of the existing structure of the building. Preserving the building and restoring it within heritage conservation guidelines extends the useful life of the original materials and energy inputs and minimizes the inputs of new materials, energy and capital.

Remediation

During site remediation, buried oil and gasoline storage tanks were removed along with contaminated soil in their vicinity.\(^18\) This process is described in detail in a later section.

Landscaping

Native drought-tolerant plants that require no irrigation and limited maintenance were selected for site landscaping. The pavers near the building entrance were salvaged from the floor of a factory elsewhere in Baltimore, diverting them from the waste stream.

Storm Water Management

Storm water can infiltrate through the “Red” surface parking lot due to the porous “Glassphalt” paving material that is made up of crushed glass recovered from the building’s 70,000 original single-pane windows.\(^19\) Stormwater is also channeled into bio-retention ponds that trap and filter stormwater run-off. A drain field at the bottom of Monroe Street collects stormwater from Monroe Street and the MPBC property. A sand filtration system cleans this non-potable gray water and it is pumped to an underground 10,000 Gallon cistern that is used for toilet flushing.\(^20\)

Cycling and Shuttle Service to Public Transit

Cycling end-of-trip facilities were included in the renovation, including a secure bike lock-up area and change room with showers. A Maryland Department of the Environment grant helps support the operation of morning and evening shuttle bus service that connects the MPBC to public transit at Camden Station, which features bus and light rail transit service. In addition, a local bus stop is located adjacent to the MPBC.\(^21\)

Building Features - Exterior

Green Roof

A signature feature of the MPBC redevelopment is the creation of 30,000 ft\(^2\) of green roofs across the complex: 20,000 ft\(^2\) on main building and 10,000 ft\(^2\) on North Building.\(^22\) A $92,000 grant from the Environmental Protection Agency helped underwrite the cost of the green roofs.\(^23\) The purpose of the green roofs is to minimize stormwater run-off, reduce building energy costs by increasing the effective roof insulation, reduce noise transmission from rooftop mechanical equipment to interior workspace, and to improve the aesthetics and overlook appeal of the

\(^{18}\) (Maryland Department of the Environment, 2001)
\(^{19}\) (Maryland Department of the Environment, 2003)
\(^{20}\) (Maryland Department of the Environment, 2003)
\(^{21}\) (Maryland Department of the Environment, 2003)
\(^{22}\) (Maryland Department of the Environment, 2001)
\(^{23}\) (Maryland Department of the Environment, 2001)
The green roof assembly is made up of a PVC membrane sitting on the roof, Styrofoam insulation board, two layers of textile fabric to prevent root penetration, and 4 inches of soil with a maximum weight load of 18 pounds per square inch. The soil mixture is 75-80% inert expanded slate from an abandoned local quarry mixed with 20-25% water soluble, nutrient-rich organic material comprised of mushroom substrate sourced from a local organic mushroom farm.

The green roofs were seeded with hardy, draught-tolerant plants of the Sedum, Rosularia Chysanthae, and Sempervivum families, with common names that include: Russian Stonecrop, Spider-web Hen and Chicks, Pink Stonecrop, and Jellybean Sedum. During the first five years minor annual fertilization is required while ongoing maintenance is limited to weeding. The green roof plant density is approximately two plants per square foot, for a total of 61,000 plants. Upon maturity, the green roofs are expected to reduce peak roof temperature to approximately 80 degrees, while a standard bare roof can reach up to 140 degrees.

Windows

The MPBC has 70,000 windows, all of which were replaced during the redevelopment. The original steel casings were preserved and the panes of glass were removed and pulverized to create the “Glassphalt” permeable paving surface used in the building’s “Red” parking lot. Modern double-paned commercial glazing was installed and every third set can be opened by building occupants to allow for cross-ventilation cooling and fresh air. The glazing features several energy-saving attributes: “low-E” coatings that reduce the transmission of heat from the sun to the interior of the building; and invisible argon gas is sealed between the window panes to improve the window assembly’s insulating properties. The new windows exceed Maryland efficiency guidelines while still retaining the minimum 75% daylight transmission qualities that are a requirement stipulated by preservation guidelines.

Ice Storage Tank

The MPBC utilizes an innovative Ice Storage Tank cooling system to reduce the amount of energy that is consumed while cooling the building. The system consists of a rooftop tank that contains filtered grey water, through which

---

24 (Maryland Department of the Environment, 2003)
25 (Maryland Department of the Environment, 2003)
26 (Maryland Department of the Environment, 2003)
27 (Maryland Department of the Environment, 2003)
28 (Maryland Department of the Environment, 2003)
29 (Maryland Department of the Environment, 2003)
30 (Maryland Department of the Environment, 2003)
31 (Maryland Department of the Environment, 2003)
32 (Maryland Department of the Environment, 2003)
33 (Maryland Department of the Environment, 2003)
runs a sealed coiled pipe containing a water-ethylene glycol mixture.\textsuperscript{34} The presence of ethylene glycol in water deters crystallization and allows the mixture to remain free-flowing well below the freezing point of pure water. During the night, when electricity rates are low, a conventional refrigeration unit cools the water-ethylene glycol mixture in the pipe to 17 degrees Fahrenheit – 15 degrees below freezing – and circulates it through the water in the tank, causing the water to freeze solid.\textsuperscript{35}

During the day, when electricity rates are high, the building's HVAC system uses heat exchangers to draw waste heat out of the building's indoor air exhaust vents. The waste heat energy from the air is transferred through a heat exchanger to the water-ethylene glycol mixture and piped through the frozen water block in the rooftop ice storage tanks. As the mixture passes through the ice block in the tank it drops in temperature to approximately 45 degrees Fahrenheit, and contributes to the slow melting of the ice block throughout the day. The cooled water-ethylene glycol mixture then passes through a pre-chiller heat exchanger on the building's fresh air intake system, which lowers the temperature of the air prior to it reaching the air conditioning unit, which has to work less hard to chill the air to the desired temperature.\textsuperscript{36} The water-ethylene glycol mixture then completes the loop by passing again through the heat exchanger on the indoor air exhaust system.\textsuperscript{37}

The Ice Storage Tank system works in concert with an “economizer” automated building control suite that measures the temperature and properties of indoor and outdoor air using a network of sensors. The economizer evaluates how much heating or cooling is required to reach the desired indoor air temperature and factors in the heating and cooling capacity of the exhaust heat recovery units and the Ice Storage Tank system.\textsuperscript{38} The economizer also measures indoor carbon dioxide (CO\textsubscript{2}) levels and pumps additional fresh oxygen-rich outdoor air into the building's air handling system in order to ensure productive and comfortable indoor air quality.\textsuperscript{39}

**Building Features - Interior**

**Lighting**

All interior lights were replaced during the renovation. The primary indoor workspaces are lit by high-efficiency, low-mercury fluorescent lights in electronic four-tube ballasts. Ambient light sensors control the number of lights that are lit in each ballast and deliver building users a consistently comfortable indoor light level while minimizing electricity consumption.\textsuperscript{40} Ambient light sensors also control the wattage of non-fluorescent lights throughout the building in order to save electricity and maximize productivity.\textsuperscript{41} LED exit lights were used throughout the building and use up to 87.5% less electricity than conventional incandescent bulbs.\textsuperscript{42}

\textsuperscript{34} (Maryland Department of the Environment, 2003)  
\textsuperscript{35} (Maryland Department of the Environment, 2003)  
\textsuperscript{36} (Maryland Department of the Environment, 2003)  
\textsuperscript{37} (Maryland Department of the Environment, 2003)  
\textsuperscript{38} (Maryland Department of the Environment, 2003)  
\textsuperscript{39} (Maryland Department of the Environment, 2003)  
\textsuperscript{40} (Maryland Department of the Environment, 2003)  
\textsuperscript{41} (Maryland Department of the Environment, 2003)  
\textsuperscript{42} (Maryland Department of the Environment, 2003)
The MPBC uses a raised floor system throughout the renovated building. Raised floors create a continuous void space below the load-bearing floor tiles and it is in this space that water and plumbing is run, along with electrical conduit, telecommunications and networking cables, and air handling vents. This system greatly simplifies the installation and upgrade of utilities and services in a building, allows for easy maintenance and cleaning access, and it facilitates reorganization of floor plans to suit changing tenant needs or the emergence of new technologies. Raised floor systems are an attractive alternative to suspended ceiling systems, and create a less cluttered ceiling that can be used for indirect lighting. The raised floor structure used in the MPBC renovation was recycled from a building renovation project in New York City.

The carpeting used throughout the MPBC is a square tile system made up of 18”x18” tiles. This system allows carpet tiles in high-traffic areas that become worn or damaged to be individually removed and replaced, unlike conventional carpeting that would require the removal of an entire carpeted area. Carpet tiles also simplify access to the sub-floor areas of the raised floor system. The “Earth Squares” carpet tiles are manufactured by the Milliken Company of Spartanburg, South Carolina, in a process that uses 100% post-consumer waste as feed stock for the creation of new tiles. To partially meet the needs of the MPBC, 230,000 square feet of carpet was removed during a renovation from a Federal Building in Texas and remanufactured by Milliken. The “Earth Squares” remanufacturing process involves washing, re-texturing, and re-coloring the original carpet and then cutting it into 18”x18” tiles that are installed on the raised floor system in the MPBC using low Volatile Organic Compound (VOC) glue that does not off-gas toxic fumes.

In addition to carpeting, Marmoleum and Bamboo flooring was used in the break rooms and reception area, respectively. Marmoleum is a type of linoleum made from plentiful natural raw materials: Linseed Oil (made from flax seed); Wood Flour (sourced from trees felled in European controlled forestry zones and guaranteed free of tropical hardwoods); Cork Flour (sourced primarily from the waste streams of wine cork makers and from Mediterranean oak tree plantations in which the bark is peeled at a rate of every 7 – 10 years, which does not harm the tree); Rosin (obtained from pine trees, in a method that does not affect their health and growth); natural pigments free of heavy metals; and Jute (sourced from India and Bangladesh, where the crop is plentiful and rapidly renewable). The bamboo floors use Mao Zhu bamboo sourced from Greenwood Products Company, which guarantees the lowest formaldehyde emissions in the industry (0.0127 parts per million), exceeds all US indoor air quality standards, and meets the threshold of the German air quality standard. Bamboo is a rapidly renewable resource and when used for flooring, virtually the entire bamboo shoot is used.

43 (Maryland Department of the Environment, 2003)
44 (Maryland Department of the Environment, 2003)
45 (Maryland Department of the Environment, 2003)
46 (Maryland Department of the Environment, 2003)
47 (Maryland Department of the Environment, 2003)
48 (Maryland Department of the Environment, 2003)
Washrooms

All of the toilets in the MPBC use non-potable grey water that is captured from rainfall and from the Monroe Street sand-filtered field drain and stored in a 10,000 gallon cistern. The completely waterless urinals in the MPBC men’s rooms were the first in Baltimore and each one can save up to 45,000 gallons of water annually.49 Significant water savings are also realized through the employment of low-flow dual-flush toilets, aerated faucets in all the washrooms and kitchens, and low-flow showerheads in the fitness center.50 Recycled content is used throughout the washrooms. The concrete sink tops are recycled, ceramic tiling is sourced from 70% post-consumer sources, and the plastic used in the stall doors is sourced from 100% post-consumer sources.51

Interior Design and Furnishing

Creating a productive work environment is the most critical aspect of designing an office building. The original floor plates of the MPBC are inherently energy efficient due to the presence of high ceilings, and a relatively shallow distance between the outer edge of the building where the windows were located, and its interior. At the time of the MPBC’s design in the mid-1920s, interior lighting was dim by modern standards and architects had no choice but to maximize the use of natural lighting. During the renovation, utilizing the inherent advantages of the original building design was the focus of the interior space planning process and modern office spaces were created to accentuate high ceilings and access to daylight as crucial competitive advantages of the MPBC over its competitors. The standard office plan recommends the placement of open office spaces on the exterior perimeter of each floor and the location of cubicles and enclosed offices and meeting rooms on the interior.52 Window shades have pinholes that allow natural light transmission while also blocking the majority of light, thus ensuring that on the south and western

---

49 (Maryland Department of the Environment, 2003)
50 (Maryland Department of the Environment, 2003)
51 (Maryland Department of the Environment, 2003)
52 (Maryland Department of the Environment, 2003)
sides of the building the heat of the summer sun can be kept out while still letting some natural light through.53

The workstations that come standard at the MPBC have walls made of a material called Homasote, which is made from 100% post-consumer newsprint and is itself recyclable.54 Homasote is free of asbestos and formaldehyde and has excellent sound dampening properties. In addition to being made with recycled materials, the process of making Homasote strives to minimize waste.55 Pulping and forming the Homasote workstation panels is water intensive, but the waste water is captured in a closed loop system and reused. Instead of glue, the workstation surfaces are made using an Ultra Violet curing process on the surface sealant and this prevents the off-gassing of VOCs.56 The work surface is made of recycled wheat board while the workstation trim is made of ash wood and it can be replaced without disassembly of the workstation if they become damaged or worn.57

All of the interior paint used to cover drywall is sourced from the Envro-Pure line by MAB, which is free of VOCs that affect indoor air quality and contribute to “sick building syndrome”.58 Acoustic ceiling tiles are formaldehyde-free and contain 79% recycled content. Efficient elevators were installed that use up to 66% less electricity than conventional.

Recycled Content

Part of the requirements for achieving LEED Gold was developing and executing a plan for construction waste diversion. Ninety percent of the original plumbing and sprinklers were retained and re-commissioned following testing.59 Eighty percent of the material removed during renovation was diverted from waste stream and recycled on site, including: 3 million pounds of metal; 5,800 cubic yards of wood; 24,840 points of copper; and 8,036 board feet of wood.60

Soil Contamination Remediation

In addition to the numerous green building features, a significant part of the project involved the investigation and cleanup of the MPBC’s brownfield site. A variety of contaminants were discovered, including lead paint and asbestos, which are commonly found in buildings of its era, and petroleum products and polychlorinated biphenyls (PCBs) that are frequently associated with automotive service and fuel storage facilities. In February 1992, a cleanup process began to address the contamination risk posed by the numerous underground storage tanks that were a legacy of the gas and service station and the Montgomery Ward-era operation of the MPBC building. Two underground storage tanks were removed, including the service station’s 500-gallon waste oil tank and a 25,000-gallon heating oil tank, while a 15,000-gallon oil tank located beneath the MPBC structure was abandoned in place.61 Soil contamination was observed during the excavation of the underground storage tanks and a total of 194 tons of soil was ultimately excavated and transported off-site for disposal.62
In March 1992, four bored soil samples were taken in the vicinity of the two removed oil tanks and the third abandoned-in-place tank, and four monitoring wells were installed to provide long-term sample collection. The samples include nine additional bored samples in the vicinity of the abandoned-in-place tank, did find hydrocarbon contamination, but data from the monitoring wells determined that groundwater had not been affected. In August 1994, based on the findings of the samples and the ongoing monitoring, the Maryland Department of the Environment accepted the Underground Storage Tank Closure Report submitted and in January, 1995, the Department issued a Notice of Compliance.

In order to move the property towards a point in which it could be put on the market for sale, a more rigorous Phase II Environmental Assessment subsurface investigation was initiated in November 1999 that included a geophysical survey, a soil gas survey (33 sample locations), eight bored soil samples, and six groundwater samples. The investigation determined that there was limited hydrocarbon soil contamination present, while the groundwater samples found elevated levels of inorganic compounds – nickel, chromium, and lead – at two locations, including from the site of the former gas and service station that also yielded volatile organic compounds.

In March, 2000, a prospective purchaser - Carroll Park, LLC, c/o Himmelrich Associates – submitted a Voluntary Cleanup Program (VCP) application a ‘No Further Requirements’ determination from the Maryland Department of the Environment, which guarantees in writing that the Department is satisfied that all the necessary steps have been accomplished to investigate and remediate a property and its owner is not legally responsible should further contamination be discovered that predates the VCP application. The Department of the Environment informed Carroll Park, LLC, in writing that it qualified for ‘inculpable person status’ provided the Department received a complete VCP application package and Carroll Park, LLC, would not lose this status if it proceeded with the purchase of the property prior to the acceptance of the VCP.

Upon receipt and review of the VCP package, the Maryland Department of the Environment determined that additional information was required, including: further soil and groundwater sampling; investigation of the anomalies that had been identified by the Phase II Environmental Assessment geophysical analysis; soil sampling in the vicinity of the floor drain associated with a spray paint booth in the former merchandise service area of the Montgomery Ward facility; and soil excavation to evaluate the presence of a septic tank that was noted on an old property map.

An investigation in June 2000 of the anomalies identified in the Phase II Environmental Assessment geophysical analysis discovered, through excavation, that the anomalies were the former gas stations’ six underground gasoline storage tanks, which triggered intervention by the Maryland Department of the Environment’s Oil Control Program. Remarkably, no soil or groundwater contamination was found during the excavation and removal of the six underground gasoline storage tanks, which allowed the tank pits to be filled in with the excavated soil and the Oil Control Program case was closed in September, 2000. In January, 2001, all of the additional investigations required

---

63 (Maryland Department of the Environment, 2001)
64 (Maryland Department of the Environment, 2001)
65 (Maryland Department of the Environment, 2001)
66 (Maryland Department of the Environment, 2001)
67 (Maryland Department of the Environment, 2001)
68 (Maryland Department of the Environment, 2001)
69 (Maryland Department of the Environment, 2001)
70 (Maryland Department of the Environment, 2001)
71 (Maryland Department of the Environment, 2001)
72 (Maryland Department of the Environment, 2001)
by the Maryland Department of the Environment for the Voluntary Cleanup Program had been completed and on February 5th, 2001, the Department issued a No Further Requirements Determination on the use of the property for commercial or industrial purposes, with the expressed prohibition of groundwater use for any purpose.73

**Project Financing**

Securing the approximately $100 million in capital required for the project was a challenge. A variety of grants and loans from the Federal Government, the State of Maryland, and the City of Baltimore were secured by Himmelrich Associates, Inc., along with private equity, a philanthropic contribution, and commercial financing.74

- Green roof grant from US EPA: $92,000
- Citibank Construction Loan: $29.8 million
- City of Baltimore – HUD Section 108 – $8 million
- Empower Baltimore Management Corp. – $4.5 million
- Lubert Adler Real Estate Fund – $1 million
- Maryland Brownfields Revitalization Incentive Program - $2 million
- Reimbursements from Tenants – $1.98 million
- Maryland State Tax Credit investor equity – $13.87 million (Historic Preservation)
- Federal Tax Credit Investor Equity – $13.66 million (Historic Preservation)
- General Partner Equity – $1 million

A $29.8 million construction loan was secured from Citibank in large part because Himmelrich Associates, Inc., demonstrated that it had secured numerous government loans and grants. A Federal Housing and Urban Development (HUD) $8 million Section 108 loan was secured in conjunction with the City of Baltimore. This type of loan is “a source of financing allotted for the economic development, housing rehabilitation, public facilities rehab, construction or installation for the benefit of low- to moderate-income persons, or to aid in the prevention of slums”.75

A one million dollar HUD Brownfields Economic Development Initiative (BEDI) grant was secured for use as an interest reserve for the Section 108-backed loan. The Federal Environmental Protection Agency gave a $92,000 grant to support the creation of the green roof. The Maryland Department of Business and Economic Development Brownfields Revitalization Incentive Program provided a $2 million grant. Four and a half million in grants were provided by the Empower Baltimore Management Corporation, which oversees the West Side Empowerment Zone. The location of the MPBC in the West Side Empowerment Zone and the project’s preservation of a nationally-listed historic building resulted in the project receiving $13.87 million in tax credits from the State of Maryland and $13.66 million in Federal tax credits. One million dollars were philanthropically provided by the Lubert Alder Real Estate Fund and $2 million were provided as reimbursements for tenant improvements by a variety of government environmental and economic development incentive programs. Himmelrich Associates, Inc., contributed $1 million in equity for the project and assumed liability for the loans.

---

73 (Maryland Department of the Environment, 2001)
74 (Paull, no date)
75 (Housing and Urban Development, 2010)
BENEFITS, BARRIERS, AND LESSONS LEARNED

Economic

Benefits
The project is expected to create economic benefits for the West Side Empowerment Zone of Baltimore, Himmelrich Associates, and potential tenants. The amount of employment in the West Side Empowerment Zone is expected to increase significantly. 1,800 workers are on site daily and the project is expected to retain & create 3,500 to 5,000 jobs once it is fully leased. The project also triggered secondary economic growth in the West Side Empowerment Zone.

The reuse of the existing building, other recycling initiatives, and grants from external agencies meant that the project was very inexpensive to build (83$ per-square foot, this is relatively low in comparison to the cost of new construction). Additionally, various green building systems in the building reduce operating costs for Himmelrich Associates. Lower construction and operating costs will be borne by both Himmelrich Associates and potential tenants. These savings will also make the building more competitive in the office rental market in Baltimore, and thereby help ensure that the project realizes economic benefits for the West Side Empowerment Zone generally.

Barriers
Project financing proved to be extremely challenging as the project was not fiscally viable without the use of multiple grants. This was further exasperated by a great deal of uncertainty regarding contamination and the regulatory approval process, which slowed the sale of the property.

A glut of new office space coming online in the Baltimore market may depress rents and lower net operating income. This highlights the fact that in order for any project to be fiscally viable it must take into consideration market conditions.

Lessons Learned
Public grants and loans were needed to secure private financing for the project, especially in the face of economic Great Recession financing challenges; in their absence the project may not have been able to proceed. Had the project not proceeded the economic benefits to the West Side Empowerment Zone would not have been realized. As such, the project demonstrates the value of these types of incentives in making a project fiscally viable and improving conditions in depressed localities.

Environmental

Benefits
The project received LEED Gold certification by piloting multiple green building features, some of which (the maintenance-heavy waterless urinals and green roof) have proven to be less beneficial than hoped while others (the Ice Tank System) have been found to work as well or better than predicted. By implementing several green building features, the project demonstrates the feasibility of incorporating multiple green building features into a renovation project. In addition, no new buildings were constructed on the site as part of the redevelopment, saving a significant amount of material during redevelopment relative to new construction.
The formerly contaminated site was remediated to the point where the Maryland Department of the Environment was able to declare the property viable for commercial or industrial purposes (with the expressed prohibition of groundwater use, for any purpose).

**Barriers**

Soil contamination proved to be a significant barrier as it required substantial remediation at a cost that exceeded $2 million. In addition, the pay-back period of the green building features was difficult to factor into the budget. Lastly, the project remains automobile-dependent, with good connections to several highways, and a large amount of surface parking. It should be remembered that the project has made some headway in both these regards by providing improvements to cycling infrastructure and a shuttle service to public transit; as well as a permeable, "Red" surface, parking lot.

**Lessons Learned**

Operating cost savings are quantifiable benefits that support the inclusion of numerous green building features, however less quantifiable attributes, such as indoor air quality, extensive recycling during construction, and the use of renewable building materials, still have value to tenants and workers. In the long run these features may help attract more tenants to the building.

Some of the green building features used in the MPBC had never been implemented in Baltimore, which led to some uncertainty surrounding them. By introducing these features into the Baltimore context there viability/feasibility will be better understood by local developers and contractors going forward. Indeed, the developer of this project should be highly commended for his willingness to try new products and for his keen and inspirational sense of how the green building features affect the quality and the bottom line of the project from both a capital and long-term operating cost perspective.

**Community/Society**

**Benefits**

The surrounding community benefits from the redevelopment of the MPBC. The community receives a preserved and refurbished nationally-significant/listed art deco heritage warehouse. The refurbishment of the building was coupled with brownfield remediation and the refurbishment of other buildings on site; and therefore significant blight removal. The project has also brought employment to a declining part of Baltimore and as such has reinvigorated the local economy. The significant concentration of workers attracted by the redevelopment creates opportunities for new businesses in the vicinity, which could further stimulate the local economy. Public transit shuttle service and cycling infrastructure promotes less automobile dependency and thereby decreases congestion and increases access to the site (and therefore to employment) for people without a car. In summation, local residents receive access to more jobs, an improved built environment, and preservation of a historic building.
The municipality receives increased revenue from property taxes, the potential for further improvement to properties in the area, and reduced water and stormwater demands for the site relative to conventional properties.

**Barriers**

There remain several run-down buildings and vacant lots in the neighborhood and few commercial amenities. This could deter businesses from locating/relocating to the MPBC. This would negate many of the aforementioned community benefits.

**Lessons Learned**

The combination of incentives and tax credits were instrumental in making the project financially feasible and ultimately delivering jobs and other improvements to the neighborhood. The only significant barrier remaining is the condition of the surrounding neighborhood. Further incentives and tax credits to surrounding properties may be essential to support further redevelopment of the area, which will support the long term success of the project itself. However, the initial success of the project, as alluded to in the benefits section, has the potential to spur further investment in the neighborhood, which may reduce the role of grants and incentives in the redevelopment process over time.

The MPBC project seems to be part of, as well as a catalyst for, a larger trend towards redevelopment and truly exceptional repurposing of existing brownfield and historically significant sites using green technology in the Baltimore area. The list on the following page outlines a few projects in Baltimore that have similar characteristics.
### Brewer's Hill
- Is a mixed retail, light industrial, residential brownfield redevelopment on the site of two former locally significant breweries - the Gunther Brewery and the National Brewery. Several historic buildings were retained and repurposed. The redevelopment includes 2 million square feet of office and warehouse space on 30 acres of land. The redevelopment will eventually include 11 buildings. Several green building features have been built into the redevelopment including a green roof, a grey storm water system, and the use of recycled material.\(^7^6\)
- For more information see http://www.brewershill.net/

### American Can
- Is a retail and office complex which has attracted several information technologies firms, retail stores, and restaurants. The site was formerly a brownfield and contained a historic, former metal can manufacturing facility. The existing buildings were retained and repurposed.\(^7^7\)
- For more information see http://www.epa.gov/dced/case/canco.htm and/or http://www.thecancompany.com/

### American Brewery
- The former American Brewery building is now the headquarters of Humanim, a social service nonprofit. Humanim repaired the historic building with the help of tax credits and philanthropic dollars.\(^7^8\) Prior to this, the building was abandoned for nearly 40 years.\(^7^9\) The building now houses employment programs and clinical support services for area residents and has proved to be a catalyst for other development in the neighbourhood.\(^8^0\)

### Tide Point
- Formerly the site of Procter & Gamble soap producing plants, the historic buildings were renovated and a new building added, which now house high tech companies and institutions. The project has improved water quality in the adjacent harbor through increased filtration.\(^8^1\)
- For more information see http://www.w-architecture.com/?sec=projects&pg=tide_point

### Clipper Mill
- Is a mixed use community with residential, retail, and commercial office space. The site was formerly a large machine manufacturing plant that had to undergo $1.2 million in environmental remediation. All 5 historic buildings were maintained, and renovations included the addition of green infrastructure elements including a living wall, a green roof, and a porous paving system. The site is located near a light rail line and there is shuttle service to other modes of public transit.
- For more information see http://clippermillbaltimore.com/ and/or http://casestudies.uli.org/Profile.aspx?j=8126&p=2&c=231

### Union Mill
- Is a historically significant former mill. The site was redeveloped, with the original stone building being renovated and expanded upon. Various green infrastructure elements were included in the redevelopment and the building is LEED certified.\(^8^2\) The site underwent remediation under the Maryland Voluntary Cleanup Program. Today the site has more than 25,000 square feet of office space for nonprofit organizations as well as 56 apartment units that sell at discounted rates for Baltimore area teachers.\(^8^3\)
- For more information see http://www.epa.gov/reg3hwmd/bf-lr/newsletter/2012-Spring/Marylands_Voluntary_Cleanup_Program.htm and/or http://theunionmill.com/living-in-baltimore/

---
\(^7^6\) (Brewers Hill, 2012)
\(^7^7\) (EPA, 2013B)
\(^7^8\) (Foster, 2009)
\(^7^9\) (Humanim, 2013)
\(^8^0\) (Foster, 2009)
\(^8^1\) (W Architecture, n.d.)
\(^8^2\) (EPA, 2013A)
\(^8^3\) (Seawall Development Company, 2013)
<table>
<thead>
<tr>
<th>YEAR</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992, February</td>
<td>Two underground oil storage tanks were removed (a 500-gallon waste oil tank and a 25,000-gallon heating oil tank) while a third (15,000-gallon oil tank), located beneath the building, was abandoned in place. 194 tons of contaminated soil was excavated and transported off-site for appropriate disposal.</td>
</tr>
<tr>
<td>1992, March</td>
<td>Soil samples were taken from the vicinity of the two removed oil tanks and the third abandoned-in-place tank, and monitoring wells were installed. While hydrocarbon contamination was found in the soil, the monitoring wells determined that groundwater had not been affected.</td>
</tr>
<tr>
<td>1994, August</td>
<td>The Underground Storage Tank Closure Report was submitted to the Maryland Department of the Environment.</td>
</tr>
<tr>
<td>1999, November</td>
<td>A Phase II Environmental Assessment was initiated and included: a geophysical survey; a soil gas survey (33 sample locations); eight bored soil samples; and six groundwater samples.</td>
</tr>
<tr>
<td>2000, March</td>
<td>Prior to purchasing the property, Carroll Park, LLC, c/o Himmelrich Associates, submitted a Voluntary Cleanup Program (VCP) application ‘No Further Requirements’ determination from the Maryland Department of the Environment.</td>
</tr>
<tr>
<td>2000, June</td>
<td>Investigation of anomalies identified in the Phase II Environmental Assessment geophysical analysis discovered, through excavation, six underground gasoline storage tanks. The Discovery triggered intervention by the Maryland Department of the Environment’s Oil Control Program.</td>
</tr>
<tr>
<td>2000, Summer</td>
<td>The Environmental Oil Control Program determined that the tanks had not leaked and no soil or groundwater contamination was found during the excavation and removal of the six underground gasoline storage tanks.</td>
</tr>
<tr>
<td>2000, September</td>
<td>The Maryland Department of the Environment Oil Control Program closes the MPBC file.</td>
</tr>
<tr>
<td>2001, January</td>
<td>The Maryland Department of the Environment determines all requirements of the Voluntary Cleanup Program had been met.</td>
</tr>
<tr>
<td>2001, February</td>
<td>The Maryland Department of the Environment issues No Further Requirements Determination on the use of the property for commercial or industrial purposes, with the expressed prohibition of groundwater use for any purpose.</td>
</tr>
</tbody>
</table>
REFERENCES


http://nrhp.focus.nps.gov/natregsearchresult.do?fullresult=true&recordid=0


ACKNOWLEDGEMENTS

This work was performed under a subcontract with the University of Illinois at Chicago and made possible by grant number TR-83418401 from U.S. Environmental Protection Agency and its contents are solely the responsibility of the author and do not necessarily represent the official views of the University of Illinois. The author would like to sincerely thank the interviewees for graciously providing a wealth of information about the project. The author would also like to thank his student assistants - David Godin, Michael Testaguzza, Joseph Petrangelo, Phin Hansen, Jeff Hintz, Kevin Duffy, Jason Tilidetzke, Laura Lynn Roedl, and Elizabeth Durkin - for their research support.

The Sustainable Brownfields Consortium is an interdisciplinary group of researchers and technical advisors who are analyzing best practices for sustainable redevelopment of brownfields and the environmental, economic and public health benefits that can result. Funded by a grant from U.S. EPA, the project is a collaboration of the University of Illinois at Chicago (where it is based), University of Illinois at Urbana-Champaign, University of Wisconsin-Milwaukee, Ryerson University, Resources for the Future, Kandiyo, and Hellmuth+ Bicknese Architects. The project website is at www.brownfields.uic.edu.