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Detlef W. Diercks

University of Nebraska - Lincoln, dropdet55@yahoo.com

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Kansas City Riverfront District
Mixed-use Urban Development of Brownfield Site

DETLIF W. DIERCKS

University of Nebraska - Lincoln
Master of Architecture Degree
Architecture, Major
Mentor, Mark Hoistad, AIA, NCARB
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Mixed-use Brownfield Development

The project proposed is to implement a master plan for an existing brownfield site. Brownfields are abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated due to real or perceived environmental contamination. Vacant industrial sites, gas stations, commercial buildings and sites with asbestos and lead based paints, as well as, methamphetamine labs can all fall under the heading of brownfield.

This project will be developed in phases. The first phase sets out to understand the design implications that result from the remediation of brownfield sites. I believe that the impact of a remediation will leave a trace on the renovated landscape, the new built environment as a result will respond to those implications in some way. During this phase I will develop an understanding of the various remediation techniques so that I can categorize there impacts.

The next phase of the project will be more involved than the first, and will focus on planning a development for a selected site. In this urban design study I will focus on a few key architectural design projects, including a large housing area, retail center, office complexes, various green spaces and a transportation hub.

The final phase of this project will focus on one specific area of the master plan, and completely design that area in great detail. This detail site area will fit into the context of the master plan. This portion of the project is still undetermined as to project type, scale and program.

This proposed project will use architectural solutions in the form of building materials, matser planning and orther spatial organization concepts to construct a riverfront district that caters to an active urban environment.
Questions Guiding Project

_What are the design implications that result from the remediation of a contaminated site? Are there residual effects that will produce safety concerns for users of the site? There are many remediation technologies, are there some that impose less implications than others?

_How are connections made to and from an isolated site? Is the site in an appropriate location for a light rail or bus hub? How do pedestrians access the site and the park?

_What are the precedents in designing a mixed-use development along an urban waterfront? What characteristics beyond adjacency to the water give waterfront developments their sense of place?

_What is the process to master plan and design a completely empty site with little context? Where do the newly constructed buildings derive their influence? Can a large site with many different programs all relate to the river to create a sense of place?
The proposed project for the Redevelopment of a brownfield site seeks to understand the methodology of transforming a contaminated area into an active urban environment. I see an active urban environment as a area with a sense of place with mixed-uses. There should be places for living, working and playing.

Remediation is the process of removing pollution and contaminants from the environment such as the soil, groundwater, sediment, or surface water. In the United States the Environmental Protection Agency (EPA) determines the guidelines and remediation goals of brownfield sites. Once a site is suspected of being contaminated, the land must be assessed to determine the amount and types of contamination. The historical use of the site and the materials used and produced on site will guide the assessment strategy and type of sampling and chemical testing to be done. Also important is to consider off site contamination or adjacent site contamination, which occurs through decades of emissions to soil, water, and air. Ceiling dust, topsoil, surface and groundwater of nearby properties should be tested both before and after the remediation of a contaminated site.

A large consideration in environmental clean-up deals with funding of the remediation so that redevelopment can take place. Not enough funding is predominantly the downfall of brownfield projects. There are many federal incentives that can make brownfields viable profitable land, to name a few, there are federal EPA brownfield grants, HUD brownfield grants and EDA public works grants. Often times states and sometimes cities have their own set of brownfield incentives in the form of grants and loans. Often times a remediation budget exceeds $1 million, the problem is that developers do not typically have a remediation budget. However, I believe that by implementing the remediation into the design process the overall cost and hours spent will be significantly reduced. Through this project I also hope to determine if the remediation presents any design implications that will affect future projects on site. These implications may include foundation sizing, landscaping, venting and so on.

I am proposing a mixed-use development for my site that will consist of a residential area, retail spaces, offices and parks that adjoin the riverfront. The redevelopment will begin with the conception of a master plan, from that individual projects will be developed. Included will be an urban village with housing and shops, as well as, a possible hotel or residential tower. Other proposed ideas for the site will consist of a small transportation center which will include a light rail/bus terminal.

It is my intent to pursue the redevelopment with sustainability in mind. It is important to me that some of the focused projects meet LEED requirements. The buildings and landscape proposed for the site will represent green architecture and sustainability.

My proposed site is located in Kansas City, Missouri along the Missouri river. The site is bounded between Missouri state highway 9 and Interstate 29 in the east west directions, and bounded by the Missouri river and the NE industrial traffic way to the north and south. The site was once the home of Kansas City Coal-Gas stations A and B. The site was part of a Kansas City voluntary clean up after the site was found to contain hazardous wastes, air emissions and a water discharger that dumps into the Missouri. The site has been completely leveled and is currently undergoing soil remediation. Also on site are rail lines that run along the southern edge of the site, making it a logical place for a transportation hub that will connect downtown Kansas City and North Kansas City which is over the river. The Richard L. Berkley Park is also located on the site; and my master plan will take embrace this park but will not seek to redesign the park. The site is adjacent to a large river boat gaming casino and hotel, an industrial warehouse district, as well as, a large train yard. The area is just minutes away from the Historic City Market, and downtown Kansas City.
I have chosen Kansas City for this site study because it is a leader in Brownfield development. To date Kansas City has had 343 properties assessed since 2001, of which 17 projects have been developed and completed. This has stimulated $150 million in private investments for the city. The city has also received 10 federal brownfield grants worth a total of $2,245,000.

The site assessment will include environmental testing, and an understanding of clean up procedures. There is a wide variety of remediation technologies available to clean up polluted lands. Remediation technologies used in the 1970's-1990's consisted primarily of excavation and disposal of contaminated soils, and groundwater was treated in a process called “pump and treat”. Since 2000, new “in situ” (on site) technologies have become popular, for remediation of a wide range of soil and groundwater contaminants. Remediation by oxidation involves the injection of strong oxidants such as peroxide, ozone gas, or potassium permanganate. Some technologies are controversial, particularly anything involving relative low temperature incineration because of the risks of dioxins released in the atmosphere through the exhaust gases. For this reason remediation proponents often use terminology such as thermal oxidizer and direct thermal adsorption to minimize public concern for personal safety. Controlled, high temperature incineration with filtering of exhaust gases however should not pose any risks.

An alternative strategy would be to treat environmental problems through biological means; this process is known as bioremediation. Bioremediation can be defined as any process that uses microorganisms or their enzymes to return the environment altered by contaminants to its original condition. Bioremediation may be employed in order to attack specific contaminants, such as chlorinated hydrocarbons that are degraded by bacteria, or a more general approach may be taken, such as oil spills that are broken down by the use of multiple techniques including the addition of nitrate and sulfate fertilizer to facilitate the decomposition of crude oil by indigenous or exogenous bacteria. Not all contaminants are easily treated through the use of bioremediation; for example, heavy metals such as cadmium and lead are not readily absorbed or captured by organisms. However, there are a number of advantages to bioremediation, which may be employed in areas that cannot be reached easily without excavation. For example, Petroleum spills or certain chlorinated solvents may contaminate groundwater, and simply by introducing the appropriate electron acceptor or electron donor amendment, this will significantly reduce contaminant concentrations after a period of time. The process of Bioremediation is typically less expensive than excavation followed by disposal. Another strategy may employ the specific use of plants (phytoremediation) to revitalize the land.

Understanding the various techniques is only the beginning. Once the different methods have been determined the design implications will become more evident when compared to brownfield case studies. The redevelopment phase will begin by constructing of a master plan of the site. Within this master plan I am tentatively suggesting that it include at least 4 key elements; a multi-family housing complex, entertainment venue, transportation hub and redeveloped of the riverfront park. A possible eco-industrial park using techniques of industrial symbioses might also be used to buffer the site from the existing industrial warehouse district. These projects combined form a coherent plan of a mixed use redevelopment. The final product will show the evolution of the sick brownfield into a thriving active part of the Kansas City master plan.
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Acknowledgements
to all those who matter
Terminal Project Research Goals

_Understand the various remediation technologies and their impacts on the environment_
  • Research different project types that exist on brownfield sites.
  • Establish basic design implications resulting from remediation of on site contaminants.

_Research Riverfront Developments from around the country_
  • Understand the range in project types that can take place along an urban waterway.
  • Help develop program examples for riverfront development.

_Study various program types for mixed-use developments._
  • Develop a series of case studies of mixed-use developments from the Urban Land Institute.

_Analyze the project site in Kansas City Missouri_.
  • Understand the amount of contamination in order to determine design issues.
  • Determine other design problems of the project site.
  • Explore ideas to involve the surrounding community and Kansas.
The first trajectory of research deals with the various types of remediation technologies that are available today. It was my intent to understand all the various types of remediation so that I can better program the site to accommodate perceived implications. I was able to identify and document 59 total remediation techniques that range from the cleaning of soils, water, and air. There are 28 technologies for the remediation of soil, sediment, bedrock and sludge. There are 25 treatments for groundwater, surface water and Leachate. Finally, I discovered 6 ways to treat off gas and air emissions. The following images depict the remediation of the project site as well as a monitoring station in the Park, an implication of remediation.
Implications of Remediation

Remediation of Project Site

Removal of contaminated soil from Kansas City Riverfront District Site

Monitoring Station in Richard L. Berkley Park

Crushing of Construction Debris for top soil

Contaminated Soil with large construction debris
## Implications of Remediation

### Remediation Technologies

#### Sediment_Bedrock_Sludge
- **In Situ Biological**
  - Bio Venting
  - Enhanced Bioremediation
  - Phytoremediation
- **Ex Situ Biological**
  - Biopiles
  - Composting
  - Landfarming
  - Slurry Phase
- **In Situ Physical or Chemical**
  - Chemical Oxidation
  - Electrokinetic Separation
  - Fracturing
  - Soil Flushing
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  - Solidification_Stabilization
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  - Bioslurping
  - Chemical Oxidation
  - Directional Wells
  - Dual Phase Extraction
  - Thermal Treatment
  - Hydrofracturing
  - Air Stripping
  - Treatment Walls
- **Ex Situ Physical or Chemical**
  - Adsorption_Absorption
  - Advanced Oxidation Process
  - Air Stripping
  - Granulated Activated Carbon
  - Ground water Pumping
  - Ion Exchange
  - Precipitation_Coagulation_Flocculation
  - Separation
  - Sprinkler Irrigation
- **Containment**
  - Physical Barriers
  - Deep Well Injection

#### Off Gas_Air Emissions
- **Biofiltration**
- **Oxidation**
- **Carbon Adsorption**
- **Srubbers**
- **High Energy Destruction**
- **Membrane Separation**
I compiled the various remediation technologies and grouped them into categories based on the effect that they have on the land. Many of these processes leave similar impacts on the environment, and from these different categories I could see what the relevant and lasting impacts were to the site. From these findings I have been able to identify 4 basic design implications that are evident in the majority of remediation processes.

_The first design implication deals with foundation depths of buildings placed on the remediated site. For example, capped soils will limit foundation depths which in turn will affect the overall height of the building. Some sites will require shallow foundations, where other sites will not allow any foundation whatsoever as it will degrade the cap and allow for contaminate seeping._

_The second design implication is concerned with allowing a site to breathe. Buildings on site should allow for cross wind ventilation so that the gasses that are produced through the natural decomposition of contaminants can be vented away from the site. While some contaminants decompose they create off-gasses such as methane, carbon dioxide and other potent greenhouse gasses that must be vented. If these gasses are allowed to pocket, they would cause a significant health risk to the users of the site._

_The next design implication deals with the limitations of planting and landscaping on a remediated site. Many plants require certain soil qualities or depths that post-remiated sites may sometimes not allow. However, plants are often required for natural remediation of some contaminants that may exist on the site._

_The final implication is concerned with something I like to call remediation debris. Often times wells are dug or large remediation devices are placed in the ground and must remain in place which limits the ability to build on top of such equipment. Also, after a remediation has taken place monitoring equipment is installed to monitor the site and make sure that problems with contaminants do not continue, these monitoring devices also need to be protected. Frequently these implications will form mandatory green spaces than in turn help with the ventilation of the site._
Brownfield Precedent Study
Omaha, Nebraska, has always been dependent on the heavy industrial activity facilitated by its location alongside the Missouri River. Over time, this transportation resource has been taken for granted. A port that had once been successful became underused and neglected as businesses and residents moved out of the area; fear of potential contamination and environmental liability hindered redevelopment efforts. In response to these problems, a Brownfields Pilot awarded by EPA coordinated efforts among local developers, state and federal programs, and the surrounding community in an attempt to reverse this decline. The resulting transformation of three riverfront properties has leveraged 750 jobs and more than $140 million toward the restoration of Omaha's waterfront area.

The three properties targeted by the Brownfields Pilot—the Miller property, the City Dock Board property, and Freedom Park—are located on prime riverfront land, with easy access to downtown and the interstate. These properties had been used for a variety of industrial activities, including lead smelting, scrap metal recycling, and railroad operations. Fear of potential contamination, however, discouraged potential purchasers and developers from taking advantage of these properties' locations.

**Just the Facts:**

- The Brownfields Pilot performed assessments on three sites along Omaha's riverfront.

- The Pilot initially planned to address only one site, but the efficiency and cost effectiveness of the work allowed for expansion of the Pilot's efforts.

- The resulting transformation of the three Pilot-targeted riverfront properties has leveraged 750 jobs and more than $140 million toward the restoration of Omaha's waterfront area.
The Jordan Valley Corridor, a 300-acre, former industrial area in downtown Springfield, Missouri, was an underused stretch of land. Where factories and used-car dealerships once stood, there is now a 12-acre public park and an ice arena, with an arts center, an Exposition Center, and a minor league baseball stadium underway.

Over the last 150 years, there has been a variety of land uses throughout the Jordan Valley Corridor. As downtown Springfield expanded with an influx of industry and commerce, the demand for land grew. Factories and storefronts were built in residential neighborhoods, intertwining houses and industrial lots. As larger industries relocated to the outskirts of the city or neighboring cities and towns, smaller industries and businesses moved in, offering fewer jobs. Residents moved away from the area to be closer to new jobs and to avoid having a factory or used car dealership as their neighbor. Before long many of the factories, feed lots, lumber mills and car dealerships had relocated as well, leaving old, abandoned buildings in their wake with perceived contamination.

In an effort to address the vacant industrial corridor, community members and Springfield's city council set out to draft "Vision 20/20: Creating the Future," a plan committed to the area's revitalization. During focus group sessions and community meetings concerning the future of Springfield, it became clear that residents wanted a community park to call their own. City officials and members of the newly formed Citizens Advisory Council conceptualized Jordan Valley Park, which would serve as the starting point for redevelopment of the entire industrial corridor.

- The Jordan Valley Corridor, a 300-acre, former industrial area in downtown Springfield, Missouri, had become home to abandoned former industrial and commercial sites with unknown levels of contamination.
- Environmental assessments of properties within the corridor revealed less contamination than expected, allowing for demolition of current buildings and redevelopment to start.
- The city celebrated the grand opening of Jordan Valley Park after the first wave of construction had been completed. In addition to new greenspace, the park features a public amphitheater, an arts center, a water garden, and a pedestrian trail providing access to and from central Springfield.

In addition to new greenspace, the park features a public amphitheater, an arts center, a water garden, and a pedestrian trail providing access to and from central Springfield.
In the shadow of San Francisco’s Bay Bridge and less than 25 feet from the water’s edge is a half-acre lot used for storing construction equipment. Over the past century the site has been home to saloons and restaurants, boarding houses, stables, storage and warehouse facilities, manufacturing and repair facilities, a vehicle depot, and railroad tracks associated with wharf traffic. With community momentum behind it and EPA’s site assessment support, the Port of San Francisco is now working to transform this property into two restaurants that will create up to 100 jobs and leverage more than $8 million in redevelopment funding.

The area that includes this 0.45-acre Brownfields project is known as Rincon Park, and is part of the San Francisco Redevelopment Agency’s Rincon Point-South Beach Redevelopment Plan, originally adopted in January 1981. With the surrounding waterfront area already home to a marina, residential developments, and commercial enterprises, including a new office building for Gap, Inc., the plan calls for redevelopment of this brownfields parcel into two new restaurants.

**Just the Facts:**

- EPA Region 9 provided the Port of San Francisco with approximately $40,000 in assessment assistance for the Rincon Park property as part of EPA’s TBA program.

- The assessment revealed some contamination, and cleanup planning is underway. Although final cleanup costs have not been determined, developers have agreed to pay for the cleanup.

- The $8 million planned redevelopment includes two 7,000-square-foot restaurants that are expected to provide 75–100 new jobs. Gap, Inc., which has an office building located in the surrounding waterfront area, provided an additional $2 million to create a community park on two acres adjacent to the Rincon Park property.
Wellston, Missouri, a small suburb north of St. Louis, is enjoying recent success in restoring brownfields for residential reuse. In a community frustrated with a multitude of boarded-up abandoned houses, derelict, closed-down businesses and littered streets, a small Habitat for Humanity neighborhood has taken root. With the help of a $200,000 EPA Brownfields Assessment Demonstration Grant and a $100,000 Supplemental Assistance Grant, the City of Wellston, working with the St. Louis County Economic Council (CEC), was able to leverage nearly $2 million in redevelopment funding through an innovative partnership with Habitat for Humanity-St. Louis to build 27 affordable homes. Furthermore, the influx of new families into the community motivated the city to transform a former parking lot into a 2.5-acre park. Wellston is becoming a community reborn, thanks in part to this historic partnership and a community’s determination to reclaim itself.

Wellston began as a center for manufacturing, including a large foundry and an electrical components manufacturer. But throughout the mid-1900s many of Wellston’s major employers fled or closed, leaving properties with real or perceived contamination behind. However, the hardest blow to Wellston came with the closing of a large factory and a foundry in 1983 that left major brownfields tracts throughout Wellston. As employers left, most of the community followed, with a 60 percent decline in population. Today, the mostly African-American, 2,400-person community suffers from a staggering 46 percent poverty rate and a 22 percent unemployment rate.

• With help from $300,000 in EPA Brownfields Assessment and Supplemental Assistance funding, the CEC identified an initial 38 abandoned properties for potential residential use, and performed environmental assessments to quell contamination fears.

• Habitat for Humanity provided $927,000 in redevelopment funding to construct 15 single-family houses on 12 properties in April 2001. In 2002, Habitat provided $978,000 to build 12 additional homes on a mix of publicly- and privately-owned properties.

• Investment in 27 new, affordable houses and a neighborhood park has given Wellston’s community a sense of hope and optimism not experienced in decades.
The City of Virginia, Minnesota, located within the Mesabi Iron Range approximately 60 miles north of Duluth, has a long history of iron ore and taconite mining. To address contamination issues related to the area's former mining activity, EPA awarded Virginia a Brownfields Assessment Pilot grant in May 1999. With assistance from the EPA Pilot, the city has leveraged approximately $28 million in redevelopment funding for restoration projects. The transformation of former mine dumps has created jobs and housing opportunities for local citizens and improved the quality of life in the community.

Three former mine dumps—known as the Oneida Addition, Fairview Addition, and Northern Heights properties—were originally targeted for restoration by the city's Enterprise Mine Area Redevelopment Project. Of these properties, the Oneida Addition has thus far seen the most redevelopment activity. The property was used during the 1950s as a dump site for mining by-products, such as tailings and low-grade ore. From the 1950s through 1995 the property was owned by USX, an iron-mining subsidiary of U.S. Steel. After 1960, USX leased the land for large garden plots and recreational uses to various entities, including the City of Virginia. In 1995, the city received the site through an exchange arranged by the Iron Range Resources and Rehabilitation Board (IRRRB), whereby USX turned the property over to the city and IRRRB provided USX with a grant for operational plant improvements.

• Three former mine dumps—known as the Oneida Addition, Fairview Addition, and Northern Heights properties—were originally targeted for restoration by the city's Enterprise Mine Area Redevelopment Project.
• EPA's Brownfields Pilot conducted an initial assessment of the Oneida Addition site, which indicated that there was little contamination beyond a few empty barrels. The only cleanup required was removal of the barrels and other minor debris.
• Creation of an Alzheimer's patient care unit and an assisted independent living complex on the Oneida Addition site represents $12 million in cleanup and redevelopment funding, in addition to 115 new jobs.
• The remaining properties of the Enterprise Mine Area Redevelopment project, Northern Heights and the Fairview Addition, have been assessed through the Pilot program and currently have commercial and residential developments underway.

JUST THE FACTS:
I felt that it was important to study existing examples of cities that have reconnected with their rivers. All of the cities that I examined seem to approach their projects differently, but were all successful in some light. Most importantly all of the cities are attempting to create spaces for people along the waters edge. Creating a sense of place is important in these projects as it sets the character of the project. Who will be the users of the site and how will they use it were questions that these studies tried to answer.

Things learned from the study of riverfront type developments are:

- Green spaces and pedestrian trails are used extensively in many schemes to allow people to experience all aspects of river life.

- Large commercial facilities can do quite well along the rivers edge when they have connections to other density attractors

- The river should remain important to the overall development of the project.
Development Characteristics:

Riverfront Park
Green belt reaching into the city
Large sporting venue
Shops
Restaurants
Residential apartments
Museums

Special Features:

St. Louis Arch

St. Louis has been working on their riverfront for a long time, truly a city that has never turned its back on the banks that founded the city. The major draw to the area is the St. Louis Arch that anchors the large park on the rivers edge. A long procession of a green beltway reaches its way into the city center. This is the city's main connector of all the shops, restaurants, museums and civic buildings that align themselves on this green strip.

The placement of the Cardinal’s stadium also helps bring in large amounts of users to the area making it a very active and lively space on game days. This site is very similar to my project site in terms of it being bound on two sides by elevated roadways. This is a typical condition for riverfront developments as they are often the front doors to these large cities.
Development Characteristics:

Complete trail system along River
River used as unifier of city areas
Sports Stadiums
Convention Center
Residential Neighborhoods

Special Features:

Easy access to public transportation

Portland uses its long riverfront as a great unifier of the cities various destination points. The river is completely lined with pedestrian trails and is spotted with various park spaces. In most cases these trails connect the many different residential neighborhoods in the city. Eventually, the trails lead to more populated destinations including downtown, the Trailblazer’s stadium, and other convention centers. Portland’s famous public transit system is also always minutes ways with stops on the rail and bus that follow the river, making it easy for people to get around in this very pedestrian friendly destination.
Development Characteristics:

Riverfront Park
Lewis and Clark Museum
Office Park
Apartment Complex
Gallup University
Convention Center

Special Features:

Pedestrian Bridge connecting Council Bluffs
Development of Brownfield site

Omaha is seeking to develop an existing brownfield site that will connect downtown Omaha to the airport just outside of the city along the river. The road that follows the river connecting the two sites is lined with elegant lights, and the strip is known as the string of pearls. This helps to give the newly developing area a sense of place. They have many different project types for the site including the corporate campus of the Gallup Organization, a few apartment complexes, and a string of new hotels. The site is anchored by a new convention center, the Quest center is the largest venue of its kind in Nebraska. It supports many different types of events including; concerts, basketball, rodeos and conferences of all kinds. This new facility brings in many different types of users allowing many different people to use the site.

A unique feature in Omaha is the Pedestrian Bridge that connects Omaha with its neighbor Council Bluffs, allowing people to walk to the Casinos on the Iowa side.
Development Characteristics:

Downtown Adjacency
Riverfront Park
Outdoor Amphitheater
Sports stadiums

Special Features:

Development on two sides of river

Pittsburgh has created Point Park, a public place on their most valuable piece of real estate. That small park reestablished the three riverfronts as the city's primary addresses and new Downtown investment followed. Pittsburgh has taken its most valuable piece of land in the city, and has been developed into a large public green space. Instead of building more steel skyscrapers, the city gave the land back to its people. This area is very active during the day with people coming and going to work in the city for a short break. At night the area comes alive with outdoor entertainment.

The city is also developing on the opposite banks of the river, where it has developed its two major stadiums, and provided large amounts of surface parking. This makes the bridge an important link between the two properties.
Development Characteristics:

Downtown Adjacency
Variety of districts
Housing
Retail
Parks

Special Features:

River is green belt

Minneapolis is unique in the fact that it is developing many different districts along the riverfront. The river is one large green belt with trails and park spaces lining the river. The majority of districts are mixed use developments that contain loft style apartments with other shops and restaurants in those areas. The largest development is the Mills District which will include a large park that approaches the river. Other developments in the area include a new museum and the addition of many new apartment buildings.
Development Characteristics:

Large Riverfront Park
Sports stadium
Fringed by Retail and Restaurants
Amphitheater
Trails system

Special Features:

First completely WiFi park
Development of Brownfield site

The Louisville Waterfront Park exhibits rolling hills, spacious lawns and walking paths on Louisville's waterfront in the downtown area. Louisville Waterfront Park is a 72-acre municipal park adjacent to the downtown area of Louisville, Kentucky and the Ohio River. Specifically, it is adjacent to Louisville's wharf and Riverfront Plaza/Belvedere, which are situated to the west of the park. The park is heavily used on a daily basis, and averages more than 1.5 million visitors per year. Children and families enjoy the Children's Play Area and the new Adventure Playground, while walkers, joggers, picnickers, school groups and others take advantage of its scenic location along the river. The park is an oasis of green in an dense urban environment. The centerpiece of the park is the 12-acre Great Lawn that gently slopes to the river. It is used for large concerts, pick-up football games, viewing fireworks, flying a kite, or just lazing away an afternoon watching the river.
Recently, in the last two decades, the city has begun to turn itself around, reorienting toward the river. In the north end, Mud Island was stabilized and Harbor Town revived both the notion of living Downtown and living on the Mississippi. In the south end, Tom Lee Park was stabilized and enlarged, providing a home for Memphis in May, the largest Mississippi riverfront celebration north of New Orleans. Downtown has seen the restoration of the Peabody Hotel, and Peabody Place, a wonderful new ballpark for the Redbirds, and a new NBA arena under construction.

The Mississippi River is an extraordinary physical attraction, and this plan recommends a mixed-use development strategy aimed at fully maximizing the value potential of the river as a draw and address. The strategy is to extend Downtown to the Mississippi River by extending familiar streets: Union, Jefferson, Adams, Washington, and Poplar.
Cincinnati developed the site with two goals in mind. The first was the two new stadiums for the Reds and the Bengals, which would bring large amounts of people through the downtown and to the site. The second goal was to develop an overall urban design framework for the development of the central riverfront which would capitalize on the major public investment in the stadiums and structured parking. The site itself is extremely isolated due to the fact that it is bound on three sides by large roadways, and bound on its other side by the river.
Development Characteristics:
Restaurants
Museums
Apartment Buildings
Downtown Adjacency
Restaurants
Shops
Conference Center

Special Features:
Harbor

Baltimore's Inner Harbor was once an underutilized body of water at the foot of Downtown. By introducing activity in the water, and enforcing an open space plan, Baltimore's Inner Harbor has become a key model for waterfront revitalization. He Inner Harbor is a historic seaport, tourist attraction, and iconic landmark of the City of Baltimore. The harbor itself is actually the end of the Northwest Branch of the Patapsco River and includes any water west of a line drawn between the National Aquarium in Baltimore and the Rusty Scupper restaurant. The term “Inner Harbor” is used not just for the water but for the surrounding area of the city, with approximate street boundaries of President St., Lombard St., Light St., and Key Hwy. The harbor is within walking distance of Oriole Park at Camden Yards and M&T Bank Stadium and has a water taxi that connects the Inner Harbor to Fells Point, Canton, and Fort McHenry.
University Park is a mixed-use development, comprising a combination of office and laboratory buildings that are home to several biotechnology companies, residential developments, retail areas, and parks and open space. While MIT continues to own the land, Forest City holds long-term leases. The last new building on the MIT-owned land was completed in 2005.

The project includes 668 rental apartments, more than was originally planned, as demand for housing in Cambridge outstripped that for office space by the time of the project's completion. Much of the housing is concentrated on the west side of the redevelopment area, bordering the established residential areas in Cambridgeport. Other residential units include a high-rise apartment tower and a MIT graduate student dormitory.

The Kennedy Biscuit building was preserved and converted to loft housing; it is listed on the National Register of Historic Places. The former shoe factory building was converted to office space.

Some of the other older buildings in the area adjacent to the MIT-owned property have also been renovated. The former NECCO building now houses a unit of Novartis. At the opposite end of the city-designated “revitalization area”, the former Ford plant near the Boston University Bridge, originally built in 1913, has also been converted to office space.

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**Project Data:**
- **Site Area**: 27 Acres
- **Building Area**: 2.3 Million sqft
- **Office**: 1,400,000 sqft
- **Retail**: 100,000 sqft
- **Hotel Rooms**: 210
- **Residential Units**: 670
- **Structured Parking Spaces**: 2,800
Peabody Place, in the heart of downtown Memphis, one of the largest mixed-use developments in the country. The total project area covers about 2 million square feet in several buildings and includes space for retail, commercial, office, residential, and entertainment uses as well as four parking garages with 3,300 spaces. The redevelopment of the urban area to create Peabody Place has included the restoration of several historic buildings.

The project occupies an eight-block area a few blocks away from the Mississippi River. The project is anchored by the Peabody Place Hotel, with all the surrounding shopping this area is a hot destination for tourists coming to Memphis. The area is connected with other destinations in the city by way of a light rail trolley.

**Project Data:**
- Site Area: 9 Acres
- Building Area: 2,081,350 sqft
  - Office: 344,755 sqft
  - Retail: 606,532 sqft
  - Residential: 196,821 sqft
  - Concourse: 73,083
  - Parking Spaces: 2345
CityPlace, is an upscale shopping mall complex, including apartments and offices, located in downtown West Palm Beach, Florida along South Rosemary Ave. The development of this property, constituting several city blocks in downtown West Palm Beach, is largely credited for the city’s urban renaissance several years ago. The area where CityPlace now stands was formerly an extremely rundown neighborhood near downtown. Besides shopping and movies, CityPlace is now at the forefront of West Palm Beach nightlife, having eclipsed the establishments located on nearby Clematis Street. It is a good example of a New Urbanist mixed-use development.

The Raymond F. Kravis Center for the Performing Arts [1] and the Dreyfoos School of the Arts are located within walking distance of CityPlace, as is the newly built Palm Beach County Convention Center. A trolley-bus circles downtown between CityPlace and Clematis Street.

CityPlace also consists of The Harriet Himmel Theater (a renovated Methodist church), and a freestanding Publix on its outskirts. Macy’s and the Muvico 20 movie theatre are its anchors.

Project Data:
- Site Area _ 72 Acres
- Building Area _ 1,080,000 sqft
- Office _ 750,000 sqft
- Retail _ 700,000 sqft
- Hotel Rooms _ 280,000 sqft
- Residential _ 650,000 sqft
- Parking Spaces _ 3,300
Respecting the town’s moratorium on garden-style apartments, The architectural firm created a high-density, mixed-use urban residential district that supports 3,500 residential units, and up to two and a half million square feet of office, hotel and retail space. More importantly, a pedestrian-friendly street grid, a series of public parks and a landmark sculpture have defined a focus for community life. Adjacent to a traffic-calming rotary, three mid-rise buildings wrap structured parking, embracing a public park created from an existing group of trees. A public esplanade and adjacent retail, residential and office uses reach towards the Dallas North Tollway to establish a highly-visible commercial presence.

Project Data:
- Site Area _ 80 Acres
- Building Area _ 2,508,480 sqft
- Office _ 340,000 sqft
- Retail _ 110,000 sqft
- Residential _ 1,276,800 sqft
- Hotel _ 150,000 sqft
- Parking _ 640,000 sqft
- Public Park _ 121,680 sqft
Phillips Place is a suburban mixed-use development that combines specialty retail, a multiplex cinema, apartments, and a hotel, all organized around a main street. The project is located on a 35-acre parcel in the SouthPark area of Charlotte, known for its high-quality office and retail development, well-established neighborhoods, and strong demographics. The site is located 15 to 20 minutes from downtown Charlotte, the airport, and Outer Loop in the rapidly developing suburban area.

Project Data:
Site Area _ 35 Acres

Retail _ 700,000 sqft
Hotel Rooms _ 124
Residential _ 402 units
Parking Spaces _ 790 spaces
Yerba Buena Center is a large scale urban mixed-use district in downtown San Francisco that has been under construction since the 1960s. The 87 acre mixed-use redevelopment project in San Francisco’s South of Market Street district currently includes the 1.3 million square-foot Moscone Convention center, which houses three different hotels. The site has a long history; however, most of its construction has occurred in the last five to ten years, Yerba Buena Center –also known as Yerba Buena Gardens and has been in development since 1953.

The center of the Yerba Buena Neighborhood is the Yerba Buena Gardens complex. Covering two city blocks, this award-winning 5.5 acre urban oasis sits on top of The Moscone Center. The Gardens include the Esplanade, a meadow of green grass that hosts free outdoor entertainment most days between May-October, a sister-city garden, the second largest Martin Luther King, Jr. memorial in the country, restaurants, ice skating and bowling centers, a historic carousel, shopping, movie theaters, and two museums. Residents and visitors alike use the Gardens and the other Yerba Buena Neighborhood public spaces to escape the hustle and bustle of this vibrant area and soak up culture, natural beauty, and relaxation before heading back into the urban fray.

Project Data:

Site Area _ 87Acres

Office _ 30,000 sqft
Retail _ 400,000 sqft
Hotel _ 3 million sqft
Parking Spaces _ 3,877
Public Park _ 180,000 sqft
Valencia Town Center Drive

Valencia, California

Valencia Town Center is a large (860,000 square feet) retail center that consists of a short but distinctive main street and a large conventional shopping mall that is surrounded by parking lots. The main street (Town Center Drive) starts west of McBean Parkway and runs northeast for several blocks until it dead-ends into an attractive traffic circle/plaza that serves as the street’s interface with the large mall. Town Center Drive is lined on both sides with retail shops (most of them familiar chain outlets) and includes several restaurants and other eateries. Other notable sites in the area are an Edwards Cinema and the national headquarters of Princess Cruise Lines.

There are two apartment complexes with more than 500 units located on the southwest end of Town Center Drive, and their residents are within easy walking distance of the theatre, restaurants and shops in the town center.

Project Data:

- Site Area _ 80 Acres
- Building Area _ 800,000 sqft
- Office _ 400,000
- Retail _ 130,000 sqft
- Hotel Rooms _ 244
- Residential _ 500 units
- Parking Spaces _ 80,000 sqft
Site Analysis
The project site can be found directly north of downtown Kansas City along the Missouri River in an area that is being developed as the Kansas City Riverfront District. This area is to include areas for living, shopping and working, as well as, places for recreation.

Formally the site was known as Kansas City Coal and Gas, the industries housed on site powered the downtown area for decades. Unfortunately, the coal and gas plant met its end, leaving behind a substantial ecological footprint. The site was later used as an industrial dumping ground for excess waste. The site has lain vacant for years, until it was taken over by the Kansas City Port Authority.

The Port Authority which controls all development along the Missouri river including the riverboat casinos has big plans for the area. They have divided the project into two parts. The first involved a remediation of the area directly south of the river, which was then constructed as the Richard L. Berkley Riverfront Park. The Second phase, seeks to design an urban village on the project site.

The site is completely surrounded by industrial facilities, shipping yards, railroads and two raised highways. The isolated site's only access to the rest of Kansas City is Grand Avenue. This main thoroughfare connects the project site with all the other major amenities that Kansas City has to offer.

The area should bring in many different users as it is directly next to a casino, the riverfront park, and the historic river market. There is a small residential neighborhood directly south of the site and over the railroad tracks, part of my project will deal with how to connect this area with the project site.

The site presents many opportunities to capture views all around the site. To the south the skyline of Kansas City stands in the distance. The north offers views of the Missouri River, its surrounding tree lined banks and three beautifully engineered bridges.
Featured areas

North Kansas City Railyard
one of the largest rail yards in the midwest

Waste and Water Treatment Facility

Missouri River

Downtown Airport
used for commercial and small private flights

Isles Casino

Project Site
currently undergoing a remediation of the site

Columbus Park Neighborhood

Historic River Market
weekly outdoor market and other local shops

Kansas City Industrial Park
houses many factories and shipping yards

Downtown Kansas City
holds the gov, financial, library and convention districts

Midtown Kansas City
full of shops and bars frequented by locals

Union Pacific Train Station
commuter train station and rail museum

Crown Center
shopping, dining and lodging in one location
The site is poised to become Kansas City’s new front door to the North. To the east is Interstate 29 and 35, they run directly by the site and have ample exits to gain access to the area. These major roads connect with interstates 670 and 70 that run east and west just minutes away from the site.

The only current road through the site is the Grand Avenue Viaduct, a critical link to all of Kansas City’s hot spots. This viaduct is expected to act as the gateway to the city.

West of the site is an elevated highway and a railroad bridge. These bridges connect the city with its more industrial North Kansas City. This area is known for its huge rail yard, one of the largest in the country, and its many manufacturing and shipping companies.

It is evident from the analysis of this map that at a certain point the city street grid alters its alignment to the river. Roads run horizontal and perpendicular to the river instead of north-south, east-west like the rest of the city. Because this precedent exists in Kansas City my master plan will cater itself to the alignment of the river.

This map makes it clear as to the proximity of the site to other important districts within the city. This increases the potential of many different users that would be interested in moving into the Riverfront District. Hopefully people that work in all of these districts would be interested in moving into the new community that is just minutes away from where they work.

The newly built park will also give a lot of gravity to the site, drawing people down to the river for recreational activities and special events. A trails system is in the works to better connect the park and site area with other districts.
The Site is conveniently located near three distinct areas within the Kansas City limits. All of the various townships have something very different to offer the impact area. To the North is the industrial and shipping sector, the south offers the financial, governmental, and recreational facilities, and across the river to the west lies Kansas City, Kansas, a large agricultural center.
There are many different things happening around the project site. The map clearly shows that the site is extremely isolated from other important areas such as Columbus Park and Downtown. However, the site has lots of potential to make new connections, reinforcing the cities reach to the waters edge. It will be a critical part of the design application to accommodate for the heavy rail and industrial uses immediately surrounding the site.
Connections to the City

My site is directly connected to downtown Kansas City and other colorful districts such as country club plaza and Crown Center by way of Grand Avenue which is a major thoroughfare that runs north and south through the city. This provides convenient access to the cities commercial and political center.

Near the site to the southwest sits Kansas Cities’ Historic River Market. The river makret houses a steam boat museum, and a weekly outdoor open market. There are also a variety of local eateries and bars in this area.

To the east on the opposite side of the highway, there is a large riverboat casino catering to large densities of people that would potentially use my site. A day in the Riverfront districts retail shops would be a nice escape from the inside of a casino.

A large apartment complex lies to the south of the site across a series of train tracks that bound the site. To the north the site is the Missouri River and Richard L. Berkley Park. The park was completed as the first phase of the remediation of the site and two monitoring stations now rest within the park.

The site rests just north of downtown Kansas City and caters itself to pleasant views of the city skyline. The area is located within Kansas City’s Riverfront District, which is one of seven distinct neighborhoods within the city.
The Kansas City riverfront is Kansas City’s prime development property and the northern anchor of Kansas City. The Mayor Kay Barnes calls the project the "River Crown Plaza" initiative, and will intended as Kansas City's Front Door.

The riverfront is poised to build on its current successes by:
- Creating a vision of the metropolitan area's next great community in the heart of the city that sustains itself and brings more life to the urban core.
- Capitalizing on location and opportunities to create linkages between Columbus Park and the River Market neighborhoods.
- Developing a master plan for a sustainable, mixed-use, urban village that will serve as a model for other infill developments throughout the country.
- Seizing upon a site without parallel in the Midwest in terms of availability, accessibility, public ownership, location, view and dynamics.

The riverfront is comprised of several components: the planned riverfront development, Richard L Berkley riverfront park, Riverfront Heritage Trail and the Missouri River Corridor. The riverfront will become the next prime east-west corridor in Kansas City.

The riverfront will eventually act as a liaison linking several communities and destinations along the riverfront and provide access to the water. With its visibility, accessibility, picturesque setting and historic past, the riverfront will provide immediate prestige to those who choose to make it their home.
Mixed-use Brownfield Development

Kansas City Area Micro Site Analysis

Detail site featured areas

- Historic Rail Bridge
- Heat of America Bridge
- River Levee
- Dense Railroad
- Smear Zone
- Rugby Fields
- Paseo Bridge
- Isles Casino
- Missouri River
- Project Site
- Industrial Strip
- Columbus Park Neighborhood
- Mixed-use Brownfield Development
Kansas City owes its existence as a major city to its crossroads status. First, it was at the confluence of the Missouri River and Kansas River and the launching pointing for travelers on the Santa Fe, Oregon, and California trails. Then with the construction of the Hannibal Bridge across the Missouri River it became the central location for 11 trunk railroads. More rail traffic in terms of tonnage still passes through the city than any other city in the country. Missouri and Kansas were the first states to start building interstates with Interstate 70. An ever increasing number of interstate loops has encouraged suburban sprawl just to the south of my project site.

The major road ways as well as the airport will be major factors in the design of this site. Both of these areas will make a lot of noise due to traffic and jet engines. Kansas city is well known for there green beltways, a connection from the Richard L. Berkley Park to the beltway on the map would be a nice way to connect pedestrian trail to and from the site.
The above diagram helps to illustrate the isolation of the site by the examining it the rails and roadways that separate the site from nearby structures. Some of these buildings it would be in the best interest to try and hide, but a few are kind of interesting such as the old power station and a large historic warehouse that can be seen in the distance from the site.

The majority of buildings surrounding the site are either factories or shipping yards. There is a residential development to the south west; creating a new roadway into this area would increase the usability of the site.
A_ The Grand Avenue Viaduct enters the site over the railroad tracks and under the heart of America Bridge from downtown and the river market area. This will become the new gateway into the city to access many of the city's tourist destinations.

B_ This is where one enters or exits the Grand Avenue Corridor there are newly constructed exits to allow for easy access to and from the interstate. This area also offers an access road leading directly to the casino.

C_ This is the potential location for a new site connection. Giles road ends as it approaches the railroad tracks. I am proposing that an overpass be constructed over the tracks connecting the Riverfront district with the Columbus Park Neighborhood.
The site is relatively flat due to the process of remediation it is much easier to just level a site when they are finished. This would be a good opportunity to begin to manipulate the topography to better suit the needs of the project. I am going to investigate the possibility of raising the elevation to the south of the site to add greater separation of the rails and to have the site step down to the river. The most extreme grade change occurs at the rivers edge where a 30 foot levee has been constructed to protect the site.

The section shows how the site seems like a valley in between the two raised roadways. There is a drainage ditch in the middle of the site to the east of the smear zone that allows the flat site to drain standing water. There are lots of trees to the south next to the rail lines; they do a nice job to screen the industrial facilities right on the other side.
The development site has been used as dumping ground for a coal gasification plant, power plant, railroads, concrete company, construction companies, and the city as a whole. Contaminants found include coal tar, naphthalene, benzo(a) pyrine, heavy metal trace element, other aromatic hydrocarbons, asbestos, railroad ties, washout from cement trucks, and construction debris. In addition when the adjacent highway bridge was sandblasted in preparation for repainting, lead paint chips precipitated on the west end.

Wind patterns should be considered when developing on Brownfield sites because the wind will help ventilate off gases from decomposing contaminants. If buildings are positioned in certain configurations off gasses can be collected in these places, making the area very toxic for users of that space.
Public health and safety comes first when building on a brownfield site, and many off gasses are toxic enough to be fatal to humans so these areas should be monitored at all times after the remediation has taken place.

The site was enrolled in the Missouri Department of Natural Resources (MDNR) Voluntary Cleanup Program (VCP) which resulted in MDNR’s oversight of the remediation. Remediation efforts costing $11.5 million have been undertaken to date. Contaminants and soil were dug up and shipped to appropriate disposal sites. In the first phase, 60,000 tons of highly impacted coal tar wastes were removed. A small amount of asbestos-containing material (ACM) was removed in this phase. Clean fill replaced the evacuated soil. About 155,000 cubic yards of concrete and construction debris was also removed from the east end.

In the current phase, 6500 cubic yards of debris have been removed with 7,000 cubic yards of highly impacted coal tar waste yet to be removed. Approximately 160,000 cubic yards of clean concrete has been excavated, ground up and replaced as fill material on the current phase. Low concentrations of some contaminants remain but will be covered with three feet of clean fill and land use restrictions will be applied.

**Smear Zone**

There is an area of low concentration coal tar that fluctuates with the change in the water table known as the smear zone. Because of the low concentration and the transient nature of the residue, the area has been mapped and will be capped rather than removed.

This area will be used as an open green space or surface parking depending on the development of the master plan.
Isolated site

- The site is bound on all 4 sides by making it a very secluded site to the north the site is bound by the river and the park. To the south lies a series of rail lines and dispersed manufacturing, and in the east and west we have the raised interstate and highways.

Bound by two raised roads

- The large bridges on both sides of the site limit views past, but also provide nice views from the bridges into the site. They raised roads disconnect the site to its surrounding context.

Smear Zone must remain free of any foundation construction

- The soil cap will prevent anything from being placed in this area that goes deeper than 3-4 ft. Anything beyond this depth and you run the risk of having the coal tar break through the cap and seep into the clean soil.

Limited site connectivity

- As it is existing Grand avenue and a road referred to as the industrial traffic-way are the only connections into the site, besides the exit for I-29 meeting the terminus of Grand Ave.
- Even existing pedestrian and bike trails do not connect into the site. They are blocked by the railroad.
Riverfront Site Analysis

Site Photos

Rails to the South of the site isolate the site from other districts

Elevated Roadways _ Heart of America Bridge

Capping of The Smear Zone

Area where Giles Road Connection would be made
The program that I will be using for the duration of this project was developed by the Kansas City Port Authority. The KCPA has an “Urban Village” planned for the my thesis site, their first project on the site was the remediation and implementation of the Richard L. Berkley Park.

The Port Authority is working to develop the 55-acre tract of waterfront land into an urban, sustainable, mixed-use development. Current plans project the development to consist of a variety of residential units, retail and office space, a hotel and cultural venues.

Riverfront Development Site Background

The riverfront location is a prime development opportunity, located south of the new Riverfront Drive and bound by the Paseo and Heart of America bridges. The site creates synergies among existing neighborhoods in the River Market and Columbus Park.

The master plan for the 45-acre riverfront development site calls for the creation of a world-class urban village of offices, residential and retail space, and cultural amenities—all designed to improve the quality of life within the urban core.

About the Port Authority of Kansas City

The Port Authority of Kansas City, Mo., was established in 1977 to promote commerce, transportation, trade, riverfront development and economic vitality. The Port Authority has undertaken oversight of projects such as the revitalization of the Missouri riverfront, the redevelopment of the Richards-Gebaur Intermodal Freight Gateway and Kansas City’s riverboat gaming operation.

The Port Authority is directed by a seven-member board of commissioners appointed by the mayor. The Port Authority is part of the Economic Development Corporation, the umbrella organization that oversees and supports several development agencies.
Master Plan Programming

Site area _ 1,897,000 sq ft
_ 43.5 Acres

Total building area _ 2,375,000 sq ft

Office _ 250,000 sq ft
Retail/Restaurant _ 195,000 sq ft
Residential _ 1,400,000 sq ft
Parking _ 800,000 sq ft (required by code)
Master Plan Programming

Residential
- ~1.4 million sqft
- Typical unit dimension: 30’ x 40’
- 1200 units
- 1000-1200 sqft each

Office
- ~250,000 sqft
- Typical unit dimension: 50’ x 50’

Retail
- ~195,000 sqft
- Typical unit dimension: 30’ x 45’
Intent Narrative and Conceptual Design
Project Abstract

Located in Kansas City along the Missouri River, this property was once the home of Kansas City Coal and Gas. Later in life the site became a dumping ground for local industry refuse, and today is a large Brownfield site controlled by the Kansas City Port Authority. The first phase of remediation created the Richard L. Berkley Park that is directly North of the project site. The KCPA is intending to remediate the remaining contaminants and construct an Urban Village along the riverfront.

The program for the intended Urban Village calls for 250,000 sq ft of office, 120,000 sq ft of retail space, and a considerable residential portion of 1.2 million sq ft. The site, we will assume, has been through an environmental remediation requiring the design to respond to the implications associated with this process. Most notably is an area referred to as a ‘smear zone’. The area has been capped and no foundation construction can take place on this location.

The first phase of the project is designed to master plan an ‘urban village’ in the near downtown environment. The site somewhat isolated from the rest of the city by the surrounding railroad tracks and elevated highways will be woven into the urban fabric with the addition of an arterial road oriented perpendicular to the river connecting the neighborhoods to the south, and by employing the use of a light rail system providing easy access into the downtown area.

The second phase of this project focuses on the design of one of the buildings derived from the master plan. The Building represented is a mixed-use retail/residential development is intended to hold the edge of Grand Avenue, and incorporates methods of sustainability.

The building will house 4 large retail spaces, parking garage, 32 residential appartments, 12 luxury appartments and 2 penthouse suites, with a hospitality floor with fitness center, 2 party rooms, and access to roof garden.
Project Goals and Objectives

_The design of the Riverfront District should foster a welcoming pedestrian-friendly urban character._

• Pedestrian trails will be used throughout the site to promote walking within the community and encourage less dependency on the automobile. The pedestrian system that allows one to get from point a to point b with relative ease and relative enjoyment (it is walkable in terms of distance and situation)
• Residential building types will orient themselves towards an open green space as opposed to facing the street.
• Conflicts between competing means of circulation are managed but not segregated entirely (where it should be pedestrian only it is pedestrian where both the car and the pedestrian need to coexist they are managed)
• Architecture embraces the pedestrian system while responding to the needs of the car and other vehicular needs (front doors, reasonable car movement with traffic calming techniques an adequate, convenient parking)

_The proposed project will embrace the river as well as recognize the views of the Kansas City skyline._

• All buildings along Grand Ave adjacent to the river will house mixed-use structures consisting of retail, parking, and housing. These buildings will be tall in response to economic probability. Greater density exists along the River/Grand Avenue at each end with the anchoring office towers and in between with the mixed use frontage to acknowledge this asset.
• Enhancement of the public domain along the river side through the location of shops and restaurants along the street frontage also acknowledges the importance of the river.
• The main boulevard of Grand Avenue runs parallel to the river and all other roads will run perpendicular into the river. Perpendicular views and circulation corridors allows deeper connections to the river/park and the rest of the site.
• A 2% grade has been added to the site gradually stepping down to the adjacent park and Missouri River. This also allows greater separation from the railroad
• The Townhouse residential units will orient themselves to southern facing park courtyards with views of the Kansas City skyline.

_To connect the riverfront district to adjacent neighborhoods and Kansas City as a whole._

• Addition of Giles Road overpass will connect the site with surrounding residential area giving access to schools, churches, etc.
• Implementation of light rail along Grand avenue linking all of KC’s prominent areas including country club plaza, crown center, downtown, and the historic river-market.
Site Alignment

As I mentioned earlier the alignment of the streets is a decision that should be made early in the design stage. For the next series of studies I have decided to use a typical city street grid (300’ x 300’). The alignment of roads is consistent with the roads in the surrounding area that orient themselves to the river. By making the roads lie perpendicular to the river, views of the river are visible from the back of the site, thus creating a stronger connection to the site.

Giles Road Connection

One of the most important things I can do to help with the development of the site is to determine a new site connection. I believe that a connection from Giles Road would be the best solution to connect the surrounding districts. First, this will place the new connection in about the middle of the project site. Second, the existing infrastructure of Giles Road already supports the connection. This connection will connect the Riverfront District with the Columbus Park neighborhood where the schools and churches are located.
The Next series of diagrams was my first step in trying to understand the size of a project like this. As it was my first endeavor into master planning, it took me some time to wrap my head around the enormity of a project like this. The diagrams look at basic dimensions set up in the programming phase and then applied in various strategies over the site.

I first applied a simple grid pattern over the site to represent a series of city blocks of 300’ x 300’. This basic grid is an easy way to see how roads will be applied over the site. The grid divides the site into roughly 14 city blocks, giving another inclination as to how large this project will be.

These studies were conducted with the Giles Road addition in mind, so accompanying development will be represented in this area. The addition of this road will increase the viability of the site by a lot.

Future studies will be done to determine placement and the characteristics of new site roads.
This diagram was my first attempt to see what the program would look like applied over the site. This scheme applies the retail and office space along Grand Avenue, and places the residential units in the rear of the site. This type of diagram gives us an idea of how tall these structures might become.

This type of arrangement does not allow residents to enjoy the park and river area and leaves the site looking very generic. This concept begins to suggest a green space is shared in between the residential units.
In this concept application the site is split around the smear zone. The residential units are on the larger eastern side of the site and the offices to the west. Flanking the smear zone are retail facilities.

There seems to be too much separation with this scheme, it is not consistent with typical mixed-use developments. The office towers are in a better location in this diagram than the first, they are taking advantage of visibility and adjacency to the elevated highway bridge. Diagram helps to reinforce the development on the ends of the site as prime real estate.
In this example all major retail and office development takes place in the center of the site around the newly added Giles Road addition. The residential units are pushed to the ends of the site. This scheme focuses the attention into the middle of the site.

There is a greater variation in thinking about the arrangement of the residential units. It can be seen at this stage that concepts of courtyards are entering into the overall design concept. The smear zone is also being represented as a green space or public park.
I conducted the plat map study to examine how a developer may approach the site to better understand the magnitude of the project. Many things were being tested in the following studies including the alignment and orientation of the street grid, the application of individual lot sizes, and the exploration of service corridors, as well as, looking at variations in use of the smear zone.

In this study I was able to better understand how to Giles Road would connect into the site. I configured many variations and determined that its alignment of this road alters the condition in which the smear zone area becomes.

The plats are represented in the maps in 3 different sizes; the small plats are intended for residential units, the mid-sized plats are retail spaces, and the large plats represent office development.

Conslusions of Plat Map Study:

_End plots are highly valuable as they are easily accessible and seen on approach from main roads

_Smear zone will create and interesting site condition - placement of Giles Rd is crucial in the development of this zone

_Most valuable land is on the river side while the least coveted is along the rail road

_Residential will consume the majority of the site and will have to take on vertical forms to accommodate the program
Two commercial streets - Grand Avenue and the proposed Giles street extension

Courtyard is created by smear zone and used by both commercial and residential users

Office is space is located on the ends of the site

Residential blocks require taller building to accommodate program
Giles road turned toward park center - Creates unique site condition

Office blocks located on the east and west ends of site - views and access important

Efficient use of residential blocks - largest number of blocks

Smear zone is utilized by residential and commercial units
Giles road turned away from center of park - creates condition of open plaza to the west and commercial to the east.

Larger residential plats on end of blocks

Office and parking located on ends of site
Office blocks are much smaller – promote towers for office space

Two commercial streets

Courtyard created over smear zone and enclosed by retail and restaurants and housing units

Allows for too much commercial space – residential towers can take place in these locations
Smear zone is left vacant opening up the site to the park and river

Commercial/Park condition on both commercial streets

Office towers promoted on the corners with smaller plats
In these development diagrams I divided the site into a grid, the spaces are 100’ x 100’, and began to develop a massing strategy based on a variety of site influences.

It was through these diagrams that I began to see that the edge of Grand Avenue must be emphasized with development. Obviously everyone wants to be next to the river so the properties closest will potentially cost more, and for that reason be denser.

This diagram also helped me to realize that something has to be done to the south of the site in order to bring up its densities. This could be as simple as adding fill to the south in order to give site presence to the river.

These diagrams act kind of like sections of potential development, if explored further this diagram should take on 3-dimensions.
Development Massing

These diagrams were constructed to represent the basic form that the development may take on based on its program and the location. The four categories examined (Accessibility, Adjacency, Visibility and Contamination) are important features to understand and work with when developing a master plan. The average densities and heights were gathered from Typology studies done by the "Urban Land Institute". With these diagrams it is evident where the various entities of the program will align themselves on site.

The first diagram within the individual series looks at density blanketed over the entire site. The second diagram imposes a street grid onto the site, which forces the heights of the remaining forms to go up. Finally, the diagrams are altered again to reflect other additions I have recommended to the site. For instance, the Giles Road overpass, density begins to increase around these zones.

Conclusions from massing study:

1. Upon the completion of this analysis, I was able to understand the areas of the site that had the most potential for development as well as the worst. It is obvious that the highlights of the site are on the ends where there is heavy traffic and also along Grand Avenue.

2. The Weakest areas of the site reside along the railroad tracks to the south of the site. However with the addition of the Giles road overpass this area becomes a better place to develop.

3. The area known as the smear zone has a lot of impact on this study in what I perceive to be on this plat. A park will make for better conditions that a large parking complex.
Development Massing — Accessibility

Overall Density -
based on site accessibility. Site is most
accessible on the east end where a local
road meets the interstate exit ramp and
from along grand avenue.

Subtraction of Right of Way -
density goes up when the streets are
removed from the mass. Smear zone is
seen as open green space.

Addition of Local Access Road -
increases density along this arteria.

These diagrams represent potential development based on Access to the site. The newly constructed
exits to I-29 provide the easiest access to the site, the diagrams clearly show that potential
development will best be placed in this area if access is a factor in its placement.
With the addition of Giles Road and a refurbished park the center of the site becomes more
accessible and the density mass gets larger in this section. Also represented is that the densities
along Grand Avenue are larger than they would in the south of the site.
Mixed-use Brownfield Development

Development Massing - Adjacency

Overall Density -
based on site adjacency to the river and park, interstate and highway, rail road tracks, downtown Kansas City

Subtraction of Right of Way -
density goes up when the streets are removed from the mass. Smear zone is seen as open green space

Addition of Local Access Road -
increases density along this arterial

These diagrams represent potential development based on Adjacency to off site features. As the site is very isolated, identifying areas that will impact the development are few and far between. The diagrams show that the river and the park will impact positive development more than anything else on the site. Views back to the city skyline help increase densities to the south. Again the addition of Giles road will increase the density of development along this roadway.
Development Massing—Visibility

Overall Density - based on site visibility from off site. Site gets most visibility from the interstates and raised highway.

Subtraction of Right of Way - density goes up when the streets are removed from the mass. Smear zone is seen as open green space.

Addition of Local Access Road - increases density along this arterial.

These diagrams represent potential development based on visibility to the site. The two raised highways provide the best opportunities for properties on the site to be seen. Since this location will become the new front door to Kansas City, allowing key elements on the site to stand out will be important.
Development Massing – Contamination

Overall Density -
based on site contamination. Site is affected over the entire site with contaminants, especially in the smear zone and along the bridge.

Subtraction of Right of Way -
density goes up when the streets are removed from the mass. Smear zone is seen as open green space.

Addition of Local Access Road -
does not change anything based on contamination to site.

I conducted this series of diagrams to determine how to react the contamination on the site. Obviously the smear zone remains clear and in this case shows a negative density. Contamination over the entire site results in low development densities.
Development Massing _ Composite Mass

Overall Density - based on all site issues. Site has most potential for development in northeast corner

Subtraction of Right of Way - density goes up when the streets are removed from the mass. Smear zone is seen as open green space

Addition of Local Access Road - increases density along this arterial

The composite diagrams show the total of all the diagrams giving us a skewed but relevant interpretation of how the site may be planned. This study has shown us that development will be its highest on the ends of the site, as well as, in the middle with the addition of Giles Road. A strong candidate for development is the edge of Grand Avenue.
I developed two different schemes after I analyzed the plat maps. The first, in which I call the corridor development plan, focuses the development along Grand Avenue. In this development the ends of the site will house the office towers and large parking facilities. Along the main road is a series of mixed-use retail development to reinforce the strip as a destination.

The Residential units are tucked into the center and rear of the site. The smear zone acts as a single green space that reaches into the existing park. The roads have been made perpendicular to the river and the arterial road serpentine through the site to add interest and slow down traffic in the residential area.

The trouble in this rendition is that it lacked character it could have been anywhere USA, but it did guide me in terms of arrangement, many of the buildings are in the same general areas, but have been adapted with the new program.
In this second plan the “cluster development plan”, the retail space is focused around the smear zone park presenting an entirely different type of condition to the site. Once again the office spaces are pushed out to the ends of the site, because I feel that is where they best belong based on previous diagrams.

This scheme focuses on development around the smear zone park in terms of its densities. In this version the residential units get most of the views to the river, but it also unevenly disburses the commercial sector around the center of the site making it less likely that anyone would walk there from the ends.
Impact Areas and Building Types

### Mixed-Use Developments

- **Block size**: 90,000 sqft
- **Residential plats**: 6 @ 15,000 sqft
- **Building footprint**: 30,000 sqft
- **Buildable area residential**: 60%
- **Parking**: 25%
- **Stories**: 3

### Town House

- **Block size**: 105,000 sqft
- **Buildable area retail**: 15% site coverage
- **Building footprint**: 78,000 sqft
- **Retail**: 1st story retail / market
- **Buildable area residential**: 60%
- **Parking**: 25%
- **Stories**: 5
Impact Areas and Building Types

**Office**

- Block size: 118,125 sqft
  - 8 plats @ avg of 14,000 sqft per
- Buildable area: 40% site coverage
- Building footprint: 30,000 sqft
  - 6 stories

**Smear Zone**

- Block size: 165,000 sqft
- No foundation construction can take place on this area of the site
Process Documentation
The next series of images are from the first semester final review. They include the master planning strategies for the Kansas City Riverfront District, and proposes the building types that will exist on site. There are many different areas of interest within the site. There are the office towers on the corners and a residential tower in the middle of the site across the street from the smear zone. The Retail strip along Grand Avenue is another very exciting destination on site.
The development of the Master Plan was a long process. When I began this master planning project I had no idea that there was so much that one had to understand in order to produce a successful project. The plan I have decided to work with seeks to develop retail center along the Grand Avenue Viaduct. These structures will be mixed use properties that contain commercial space, residential apartments, and parking.

The overall plan seeks to merge green space with the built environment. The pedestrian courtyards kind of weave in and out of the townhouses and are all connected via a pedestrian trail system. In the center of the site is the smear zone which I have decided to make the park, it connects the green spaces on the north and south sides of the site. Again the larger office towers anchor the site and a residential tower near the smear zone adds interest and place to the site.

The arrangement of the buildings allows for air to pass through as well as provide view corridors to the river and the park. It was important to me to keep the pedestrian world somewhat separated from the vehicular one.
The site as it is relatively flat as it approaches both the river and the city. I am proposing the a slight 2-3% change in grade is added to the south of the site. This does a few things. first, it allows the site to step down towards the river emphasizing its importance. Two makes a greater change in grade to the south where a industrial rail line runs. Finally the change in grade elevated the homes to the south enhancing their views of the skyline. Finally the site terminates with a large wall in order to provide greater separation with the trains.

Richard L Berkley Park is to the site. It will be left alone in terms of design. The park was the first area that went through an environmental remediation and now houses two monitoring stations used to monitor any contamination that may recirculate into the site.

These mixed-use buildings are tall in response to the economic development along Grand Ave. They begin to create a rhythm that begins to set up the character of the site. this commercially lined strip will become a destination for people who enjoy shopping and entertainment in a unique setting. The parking contained within these structures will accomodate the people visiting the site for shopping as well as provide parking to the residents who reside on the top 4 stories.
The River is not directly accessible from the site due to the fact that there is a large levee preventing the quick descent into the water.

A densely planted shelter belt on the north side of the river provides a nice buffer to the industrial park and large freight yards for the trains that rest in North Kansas City.

The Smear Zone will remain construction free as proposed during the remediation assessment. The park acts as the neighborhood park in contrast to Richard Berkley park which is a much more public type of venue. This green space is the main link between the east and west neighborhoods as it connects the network of pedestrian trails and green space courts. The tall office blocks on the corners will minimize the impact that the elevated highways have on the site. Views into the residential area are less obstructive from the bridge.
The site gathers its form from many key factors. The first would be the position of the roads that all run perpendicular to the river. This helps to orient the structures to the river as well as opens up view corridors into the park and river. The smear zone obviously gives us a condition in which we must deal with a large open space in the middle of the site. The next factor deals with the addition of the new Giles road overpass which will begin to create greater densities as it steps into the site.
Access to the site was considered in the form, it is easiest to access the corners of the site for this reason the office towers have been located here. The train rail to the south of the site supported the need for a buffer zone this is why a wall and a park have been added as well as a 2% grade change to the south of the site.
Kansas City Riverfront District — Computer Model

Townhouse Courtyard
An interesting thing happens in the residential sector of the riverfront district, all of the town houses face directly into an open green space that contain a network of pedestrian trails that all one to walk freely and efficiently through the site, whether it is to the market to get some dinner at night, walking to the office in the morning or just going to visit a friend. This system allows the people who live here to rely less on the automobile to get around. These courtyards interlock with a series of car courts that are used to access townhouse garages and to provide overflow parking to these residents. A wide trail travels the length of the site to the south along the wall, this trail will be wide enough to support the needs of a fire truck that may need to access the area.
Smear Zone Park

The smear zone provides a unique condition to design around. It must be assumed that no construction can take place in this area, and a large 300ft wide open space is created in the middle densely populated urban village. I am using the smear zone as an attraction to this corner of the site. As this is where the Giles Road overpass comes in, guests are welcomed into the site with grand views of the river as well as immense amounts of park land, but they will still understand that is an area where commercial development is at its densest as this is where the sites two main roads come in contact with each other. The park may also provide a nice place to sit and wait for the tram that will stop directly in front of the park. The commercial and residential units are the densest in this area in response to both access roads and by the addition of a park.

Also located around the park are some studio apartments that are intended for small business owners to run the shops on the first floor and then have an opportunity to live directly above.
Kansas City Riverfront District—Computer Model

Studio Apartments
These small retail units are intended to add some small shop charm. Ideally shop owners could live above the very shops they run, or artist could live and work upstairs and have shops to sell their art on the ground floor. There are two locations on the site that are constructed like this, one across from the smear zone park, and the other across from the office tower to the east.
South Edge Wall
To the south of the site the ground plane has been elevated, a green buffer zone with bike trails and trees, and a tall wall help to define the edge of the site. Similar to the idea behind “Byker Wall” in England, this feature sets out to greater the site from the surrounding context of the area.
Grand Avenue Edge
This thoroughfare connecting all of Kansas City is reinforced by strong building features to the north of the site creating an edge. This street will be lined with trees, shops, and outdoor cafes. A light rail system also travels along this road. This street is lined with a variety of similar mixed-use developments. In the master plan these buildings are all represented the same, however, I feel that these building need only have to follow a few select design guidelines.
This section shows the condition across Grand Avenue. It includes the mix-use building types, outdoor cafes located on the sidewalk, and a light rail system, and single lanes of traffic to minimize the size of the right of way. Street trees line this boulevard in an attempt to make it feel like a gateway to the city.
Kansas City Riverfront District – Street Section B

This street section looks at the condition that exists in between the Mixed-use developments. This is somewhat of a framing element for the townhouses; the large buildings make a frame that opens up views of the park and river. The street trees rise up into the third and fourth floors of the buildings.
This modest street section looks at the condition that exists in between the townhouses. These roads lead into what is characterized as a car court. This street section occurs on the same street as the section before, but is on the south side of the site.
Kansas City Riverfront District _ Street Section D

This street section looks at what happens on the arterial road that bisects the site. Thus is a wide street with lanes for both cars and bicycles. The condition on the north is considerably different that the condition to the south, and is shown by using a larger street tree to reflect the buildings character.
Kansas City Riverfront District _ Street Section E

This street section examines the residential tower that overlooks the smear zone which is a park. The road shown is Giles Road, this new connection makes the implementation of this project much easier. There is parking available on this street, not many of the other streets have on street parking because enough garages are planned to cater to all the parking needs.
These building types will rest along Grand Ave. The first floor will house retail shops and restaurants on the river side and parking in the south as well as the second floor that will supply parking to visitors to the retail area and the support the living units above. There are 4 floors of apartments with 8 units per floor, all apartment views orient towards the river.

6 Stories
32 residential units per building
Two office towers will hold the corners of the site. The office units will be eight stories tall anchoring the band of retail units along Grand Ave. Parking garages will accompany the office buildings. The office tower located on the east end of the site will be slightly larger than its counterpart to the west.

8 Stories
152,000 Sq ft each
This tower is large selling point of the site, its height provides some character and emphasizes the center of the site. The 1st floor will consist of a market that will support the grocery need of the community. Parking will be provide on the second floor and in the accompanying garage. 10 stories of residential units will provide both views to the river and the Kansas City skyline.

12 Stories
80 residential units total
The town-houses all face an open park space that is interconnected with pedestrian trails. A car court is located behind these units providing garage access and guest or overflow parking. Typically two stories the town homes

2-3 Stories
26 residential units per building
Building Types – Studio Apartments

These units provide a retail space on the first floor with living units above them. Intended for small business entrepreneurs that would prefer to live above their shops.

3 Stories
20 units total
Kansas City Master Planning Conclusions

At the end of the first phase of this project I gained a greater understanding for what goes into master planning strategies. There are really endless possibilities of what form a site can begin to take. I tried many different exercises to wrap my head around this project in terms of its scale and project type. Some of the things I tried were very rewarding and I learned a great deal from them, other attempts at determining exercises for master planning were not as effective. Either way it was a process that I think I will be able to take a great deal from.

I learned from the first phase of the project that whether you are designing a small intimate building of a large site, all of the basic design principles remain the same. and it is just a matter of understanding the human scale as it is applied to the project.

The street section analysis was very interesting in terms of all the various types of street types that are needed on this very large site. I never knew how much thought and design can go into something like the right of way of a street.

Starting with a completely blank slate was different for most other project that I have tackled over the years because you have to develop and determine what is or what will affect the site in the future.

Finally determining the various building types was a great evolution for a thesis project. It allowed me to work with the master plan exclusively in the beginning and then allowed me to determine what the most important feature were on site and to work exclusively with that building type in the second phase of the project which is a mixed-use residential tower that lines the grand Ave corridor.
Mixed-Use Development Schematic Design
Mixed-Use Development Goals and Objectives

_ Reinforce Grand Avenue as a major boulevard to enliven the riverfront district through expanded retail, housing mixed-use structures.

_ Provide ample parking on the interior of the building for residents as well as users of the retail space to minimize the impact of the automobile on the site.

_ Building will respond to site conditions, emphasizing the views to the river and the city skyline.

_ Building will have character and provide a sense of place, both the building itself as well as the individual units.

_ Building will strive to include as many sustainable features as possible. This may include green roofs, local materials, water collection system, and the use of daylighting.

_ The building will allow for a variety of different apartment types ranging from basic units to luxury penthouse units.
Building Program

Site area _ 75,000 sq ft
_ 1 city Block (300' X 250')

Total building area _ 90,000 sq ft

Retail/Restaurant _ 10,000 sq ft

Residential _ 54,000 sq ft

Parking _ 24,300 sq ft (required by code)
_ 130 parking stalls
_ 40 public stalls
_ 90 private stalls
Schematic Design
Schematic Design
Schematic Design
Schematic Design – Model Images

Concept model 1

Concept model 2
Schematic Design - Model Images

Concept model 3

Concept model 4
Alternatives to Parking
Residential Corridor
Benefits of Green Roofs

Even today the opportunities of Green Roofs are still underestimated. The “natural look” is only one obvious credit within the broad range of arguments for Green Roofs. Further benefits of Green Roofs include the protection of waterproofing, water retention, thermal insulation, improvement of the climatic environment as well as new natural habitats for flora and fauna. No other architectural style provides such a wide range of positive effects for buildings, inhabitants, and the environment. Thus, Green Roofs meet one of the essential conditions of sustainable development, the reconciliation between economy and ecology.

It is very difficult to find positive arguments for bare or graveled roofs. Lower building costs for “Non-Green Roofs” in comparison to a Green Roof, are weak arguments considering it is only a short term calculation. Long term costs of maintenance and repairs of ‘naked roofs’ are much higher than that of Green Roofs. It has to be considered that roofs belong to the most strained parts of a building; if no precautions are taken and product qualities lack, problems arise quickly.
Extensive Green Roof

There are two main utilization options for Green Roofs: one, as a wonderful roof garden with a pleasant view for the owner; the other, an undisturbed habitat for flora and fauna within grey city centers. Both variations provide a broad range of private and public benefits. Deciding on which utilization to focus is crucial and has to be considered as early as the planning stage. In addition, the maximum load bearing capacity, maintenance, plant selection, substrates and the expense budgeting must correspond with the desired Green Roof type. For the application of this project I will be planting an extensive green roof so that it can support planting as well as be strong enough for people to be on.

Reduction of Dust and Smog Levels
Inner city air pollution can cause serious adverse health effects, which has been proven by numerous studies over the last years. In particular, nitrogen oxides, carbon monoxides, volatile organic compounds, and diesel exhaust gases are creating dangerous combinations of toxic substances for urban inhabitants. Plants are able to enhance the quality of the air. One square meter of Green Roof can filter approximately 0.2 kg aerosol dust and smog particles per year. In addition, nitrates and other harmful materials in the air and from rainfall are deposited in the growing medium.

Storm water Retention
Green Roofs are very important instruments in preventing local flooding. Depending on the Green Roof system and the depth of the growing medium, the immediate water run-off can be reduced by 50-90%. Most of this water returns directly into the natural water cycle by transpiration/evaporation of the Green Roof. The excess rainwater is filtered and drained off with a temporal delay. This leads to reduced stress on the sewer system during the year and at peak flow periods. As a result less or smaller dimensioned sewerage systems can be installed. In combination with other forms of modern rain water management (for example, storage tanks or retaining trench-soaking hole-systems) the rainwater can be entirely infiltrated on the landowners ground. The benefits of Green Roofs for storm water management can lead to incentive programs for Green Roofs in various cities, such as, reduced storm water taxes.

Heat Shield
During the summer months Green Roofs reduce indoor temperatures through transpiration. According to tests from Drefahl (1995), the microclimate of an apartment underneath a Green Roof is comparable with one on the base floor. The typical overheating of attic flats in summer can be avoided with vegetated roofs; therefore, decreasing the use of air conditioning and energy consumption.
North Elevation
Mid-Phase Design – First Floor Plan
Mid-Phase Design – Second Floor Plan
Mid-Phase Design - Regular Apartment Floor Plan
Mid-Phase Design – Loft Apartment Floor Plan
Mid-Phase Design _ Penthouse Floor Plan
Mid-Phase Design — Model Images
Mid-Phase Design — Model Images
Mid-Phase Design Conclusions

The mid phase review focused on a variety of issues that range from building structure to the buildings mechanical system. Starting on the ground floor it was mentioned that the floor should become more user friendly and should consider more service access for things like garbage pick up. The parking could be reconfigured to better accommodate the people coming and going. The streetscape was also discussed in terms of the plant materials and placement.

The residential apartments were very utilitarian and do not offer a lot of design. They are what is referred to as dumb plans, meaning that they work, but could be a lot better. We also discussed how private residents would access their apartments through the use of a semi private corridor.

The review panel discussed the perforation of windows and discussed whether or not they were appropriate for a north facing façade. Along with the façade design we touched base on material selection, and I have responded by assigning most of the materials as Kansas City locals.

It was also time to begin to discuss how one begins to create a sense of place. Making the building a place as well as having individual places within the building.
Final Design Documentation
Final Design — Presentation Model
Final Design _ First Floor Plan
Final Design — Third Floor Plan
Final Design – Fourth, Fifth, Sixth, Seventh Floor Plans
Final Design - Eight and Ninth Floor Plans
Final Design—North Elevation
Final Design — Building Section
Mixed-use Brownfield Development
Final Design — Detail Green Roof Section Model

1. Vegetation
2. Soil or Growing Medium
3. Sopdrain
4. Microfab
5. Concrete curb
6. Gravel or Paver
7. Cap Sheet Membrane
8. Base sheet membrane
9. Primer
10. Polyethelene or stainless steel flashing
11. Quad-Deck concrete floor — Minimum slope drain 3 degrees
12. Quad-Deck Panel
13. Roof Drain
Final Design Model Image
Final Design – Model Image
Final Design — Model Image
Final Design – Model Images
Final Design - Model Image
Final Design - Model Image
Final Design – Computer Model
Final Design — Computer Model
Final Design – Computer Model
Final Design – Computer Model
Bibliography and Other Source Material
Books

New Apartments presents an exclusive collection of stunning apartments that form part of mult-residential buildings designed by some of the most respected contemporary architects in the world. Each project in New Apartments is illustrated with full color photographs and includes complete floor plans. The exterior of each building is pictured, along with the lobby and entryway, as well as the private interior units that make up the housing scheme. The renowned architectural firms whose work is featured in this book include Perkins & Will, Murphy & Jahn, MVRDV, Klein, Dytham, and Dale Jones-Evans.

Examples of modern apartments from around the world included are plans, elevations, and photos of the building projects.

These are papers that have been compiled that represent a case study for the Boston waterfront. The book is divided into three sections; the first section discusses the environmental controls of waterfront development. The next section talks about the visual design of waterfront projects. Finally, the book presents various case studies of riverfront projects.

This book gives us a direct visual information about how designers may approach open space planning. Today most of our cities are full of unidentified voids. In this book one finds how these voids are designed with an avant-garde and profound awareness. In these examples the user is no longer an observer but an active subject who uses and enjoys the urban space.

A global survey of forty of the most remarkable buildings of the 1990s…this is architectural criticism at its most lyrical.

A complete history of Kansas City in terms of the architectural accomplishments and styles of the area. The book also includes some urban planning strategies that were implemented into the cities master plan.
New Sustainable Homes address the question by presenting a wide range of projects where the architect and client have made a conscientious effort to incorporate sustainability into the design of the home and construction materials used in its execution. The result is a home that is less toxic to live in, is cheaper to operate, and often gives back to the environment rather than taking away. Also, and this is the most important consideration for many, it is a great looking, highly livable home that not only retains its value but has been shown to increase in value more quickly than more conventionally conceived houses because of cheaper operating expenses. These designers and their clients are not on the fringe.


This report was prepared to identify risks and rewards of developing on brownfield sites. There are five sections identifying the various stages of brownfield development, each of which is followed by a successful case study.


This book collects designs for 21 locations in the Stuttgart region, results of an international workshop. They all show variations in different open urban spaces.


A reference source providing easy access to the design, building, financing and management of multi-family housing. Dissects housing into its various components: architectural, structural, mechanical, electrical, behavioral and financial. Synthesizes all factors through the design methodology of high, low, and mid-rise prototypes. Includes important coverage of housing for the elderly and the handicapped; energy conservation; pre-cast and pre-stressed techniques and context sensitivity. Features 87 outstanding projects illustrated with photos, plans, site plans and cost data; extensive bibliography and over 600 illustrations.

Kansas City Development Department. Kansas City Urban Design Guidebook: Ways to Promote and Improve the City’s Value for investment, Living and Working. Published by City Development Department. Kansas City, Missouri. 1978.

This book presents guidelines for designing various types of structures and places while keeping in accordance with the Kansas City Master Plan. The book begins with the development of neighborhoods, followed by major streets and centers. The book then focuses on landscape strategies and building design.
MARC Board. Framework for Development: Kansas City Metropolitan Region. Published by MARC Board. Kansas City, Missouri. 1977.
This book discusses the historic land use trends in the Kansas City metropolitan region, and also presents future land usage. The book maps out and discusses the 100-year floodplain areas, and also identifies all soil types of the surrounding area.

This book provides a brief history of the Kansas City Riverfront District, as well as, all of the eleven other districts within the city. This book also gives a brief history of architecturally significant structures within the various districts.

This book is a case study of the Memphis riverfront. It includes a history of the site, and continues to discuss what the site has become. It also presents feasibility plans for the redevelopment of the space.

This book contains an assortment of writings pertaining to urban development. I am most concerned with part three of the book, in this section the authors discuss waterfront planning as a strategic incentive to downtown enhancement and livability. They also discuss a brownfield restoration as it pertains to waterfront development.

This thesis presented to the college of community and regional planning is an in depth analysis of the factors that influence brownfield redevelopment. It discusses environmental laws and their impact of brownfields, and other barriers to brownfield development. There are also a couple of case studies discussing the redevelopment process. Finally conclusions and recommendations are given on the issue of brownfield development.
This is a presentation of the open recreational spaces in the greater Kansas City area. It discusses current land uses and presents options for increasing and implementing outdoor recreational spaces into the city master plan.

This book discusses options for housing redevelopment in Kansas City. The book categorizes Kansas City’s historical vernaculars and graphically represents methods to incorporate them into newer developments in the city.

Omaha – Council Bluffs Riverfront Development Committee. A Proposal for a Model River Project Concerning “Riverfront Beatification and Utilization in Metropolitan Areas”. Published jointly by the cities Of Omaha and Council Bluffs. Omaha, Nebraska. 1972.
This proposal discusses the possibility of enhancing the riverfronts of Omaha Nebraska and Council Bluffs Iowa. The book includes a brief case study of riverfront developments, and proposes features to include in future riverfront developments as well as strategies of planning such developments.

Four themes form the basis of this book and provide a structure for considering particular aspects of waterfront redevelopment-connection to the waterfront, remaking the city image on the waterfront, port and city relations, and the new waterfronts in historic cities. Broad issues that might be applicable to a variety of situations are dealt with alongside specific city case studies.

Filled with strategies, techniques and applications for environmentally damaged sites that are directly applicable to the design profession, You get fully illustrated planning and landscaping tools for site: Assessment, Cleanup, Remediation, Redevelopment and Recovery.

This book details the techniques and working methods of a major urban design and architecture firm.  Covering the process from basic principles to develop designs, the book outlines the range of project types and services that urban designers can offer and sets out general operating guidelines and procedures for: developing a master plan, preparing a pattern book, and implementing contextual architectural design.


The latest volume in ULI’s highly respected Development Handbook Series, this handsomely illustrated reference takes you step by step through the development of complex mixed-use projects. You will learn about the key points that can make or break a project, and get in-depth information on feasibility, financing, planning and design, regulatory issues, marketing, and management. Case studies describe how seasoned professionals developed projects with a wide range of densities--from suburban town centers to high-rise mixed-use towers.


Waterfronts provide a natural opportunity to make a memorable urban place, yet many of them remain obsolete or underused. Remaking the Urban Waterfront, written by expert architects and planners, explains the importance of and challenges inherent in transforming waterfronts, the key design issues, zoning and land use regulations, environmental obstacles, development incentives, and how the public and private sectors must work together to create spectacular new waterfronts. Case studies of both small- and large-scale projects describe how mixed-use, residential, retail/entertainment, commercial/ industrial, civic buildings, and parks were developed in the United States and abroad.


Urban Spaces No. 3 is a lavishly illustrated, thoughtfully annotated tour of diverse projects throughout the world. John Morris Dixon, FAIA, long-time chief editor of Progressive Architecture magazine, explains the major design challenges and accomplishments of these outstanding projects. Visited are such public facilities as Denver’s Invesco Field; mixed-use urban developments such as Millennium Place in Boston, and the Shops at North Bridge in Chicago; resort communities such as Martinique on the Alabama coast and River Run in the Colorado Rockies. Current community planning is exemplified in revitalization plans for Joliet, Illinois, and Jupiter, Florida, and in new communities such as Alameda Point in California. Looking abroad, you will examine the Manchester Regional Center in England, and audacious plans for the Beijing Olympics.

Wilson describes the major events that took place within Kansas City during its City Beautiful movement. This book describes the political process involved to implement a unified master plan in a historical context of Kansas City.


This book presents a chronology of the life of J.C. Nichols and the development of the Country Club District. The Country Club District is one of the most well known urban spaces and is a highlight of Kansas City.

Images


Detlef Diercks. All site pictures taken by author

Open Source Image Websites:
www.flickr.com
www.images.google.com
www.Corbis.com
Online Resources

Brownfield Resources

http://www.epa.gov/brownfields/
http://www.urbanmines.org
http://www.ce.cmu.edu/Brownfields/
http://www.kcmo.org/planning.nsf/busast/brownfld
http://www.dnr.mo.gov/env/hwp/geo/mapgallery
Acknowledgements
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