Reclaiming a City's Edge: A design study to redevelop the St. Louis Riverfront.

Bonnie C. McFarland

Comprehensive Project
Spring 2003

5th Year Landscape Architecture Program

Department of Landscape Architecture

College of Architecture and Planning

Ball State University
Muncie, IN 47306
Reclaiming a City’s Edge: A design study to redevelop the St. Louis Riverfront edge.

Bonnie C. McFarland
Comprehensive Project – Spring 2003

Department of Landscape Architecture
College of Architecture and Planning
Ball State University
Muncie, IN 47306

Acknowledgements:

Professor Robert Benson – I couldn’t have chosen a better advisor to work with. I appreciate all your advice and encouragement along the way.

Dr. Ronald Spangler and Mr. Darren Reno – Your support and enthusiasm continued to keep me on the right track and confident throughout the semester.

My Family and Friends – Thanks for always having faith in me and keeping me smiling.

SWT Associates – I am thankful for all the resources you’ve provided and the experience that inspired me to do this project.

St. Louis Urban Planning and Design Agency – I am grateful for the provision of base maps and other data collection.

Reflecting pond within Jefferson National Expansion Memorial
Downtown St. Louis
Window in Old Cathedral
# Table of Contents:

<table>
<thead>
<tr>
<th>Index</th>
<th>Page</th>
<th>Special Considerations</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>3</td>
<td>Data Needed and Collection Strategies</td>
<td>20</td>
</tr>
<tr>
<td>Abstract</td>
<td>4</td>
<td>Site Inventory</td>
<td>21</td>
</tr>
<tr>
<td>Introduction</td>
<td>5</td>
<td>Site Analysis</td>
<td>22</td>
</tr>
<tr>
<td>Assumptions</td>
<td>6</td>
<td>Project Goals and Objectives</td>
<td>23</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>6</td>
<td>Project Program</td>
<td>25</td>
</tr>
<tr>
<td>Historical Perspective</td>
<td>7</td>
<td>Preliminary Concepts</td>
<td>26</td>
</tr>
<tr>
<td>Case Studies</td>
<td>9</td>
<td>Design Development</td>
<td>28</td>
</tr>
<tr>
<td>Criteria for Site Selection</td>
<td>16</td>
<td>Master Plan and Details</td>
<td>29</td>
</tr>
<tr>
<td>Description of Site and Context</td>
<td>17</td>
<td>Summary</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bibliography</td>
<td>38</td>
</tr>
</tbody>
</table>
**ABSTRACT:** Urban waterfronts are unique in their potential to provide various opportunities for economic development, public enjoyment, and civic identity (Wrenn). These precious resources have been one of America's most neglected assets. Cities today are detached from their water's edge, forgetting the rivers' historical importance. Reclaiming this edge reconnects the city as a whole, combining history with opportunity. Several cities have begun this extended planning process, however, there are still many cities that need to be reunited with their rivers.

Historically, settlement was directly dependent upon the accessibility of waterways. As patterns of commerce have changed, the nature of these waterfronts has been altered. Due to increased public awareness and appreciation of urban open space, these untapped resources are being reclaimed to provide civic green space. The profession of landscape architecture is increasingly aware of the significant benefits this reclamation movement may bring to an urban community. This study attempted to define these benefits, determine design principles necessary to achieve such benefits, and apply these guidelines to a specific site. State of the art designs such as Boston's Charles River Basin, Cincinnati's Central Riverfront Park, and Louisville's Waterfront Park served as model projects representing current and emerging design trends, principles, and theories of urban riverfront redevelopment and design.

This riverfront reclamation project was focused on the redevelopment of St. Louis' Mississippi Shoreline. This existing section of the Mississippi River is currently home to the Arch and the Jefferson National Expansion Memorial. Previous riverfront developments have provided the city with many positive assets. However, the river's edge has been overlooked in all these master plans. Today the levee serves solely as a parking lot for visitors. The cobblestone slopes are in poor condition, broken and uneven, especially directly on the river's edge. What was once appropriately Wharf Street, now named Leonor K. Sullivan Boulevard, runs parallel to the river connecting the East terminus under the Poplar Street Bridge, through the historic Eads Bridge, to the West terminus, Laclede's Landing (the only remaining semi-intact historic district in this area) and the floating casinos. The present conditions of the site provide several opportunities for design enhancements as well as potential new developments to reunite the city with the river. These enhancements include recreational trails, historic information, and additional public plazas and green space. This study sought to identify design guidelines to this partially developed site in order to produce a visually pleasing and physically inviting riverfront park while re-establishing St. Louis' urban waterfront.
INTRODUCTION: The City of St. Louis, Missouri (image at bottom left of page) has evolved from repeated booms of development since Pierre Laclede established the area in 1763 and named the city, claiming it was to become “one of the finest of cities” (McNulty, 5). Through the years St. Louis has developed into an amazing blend of cultures, ethnicities, and history where quaint historical neighborhoods sit only a few minutes from soaring twentieth century skyscrapers. A perfect example of this enticing contrast is St. Louis’ 1850s neoclassical courthouse framed by the strikingly modern Gateway Arch. Once a frontier trading post, St. Louis was dependent upon the Mississippi River for its growth and survival. Today, although still the country’s second largest inland port, the city is additionally supported by rail, truck and plane commerce. This diversion of industry has forced St. Louis’ connection with its river to weaken and diminish. The purpose of this study was to develop theories and criteria to reunite St. Louis with its historical riverfront.

Currently the St. Louis Riverfront lacks excitement, activity, and most importantly, a sense of place. The abandoned cobblestone slopes carry the burden of parked cars twelve months of the year. The existing casino-boats and showboats provide limited entertainment in direct relationship to the river, and proposed recreational trails have no significant terminus or well-defined trailhead. The grand Gateway Mall (image at bottom middle of page) and Jefferson National Expansion Memorial (image at bottom right of page) end abruptly at the floodwalls. These barriers for water should not continue to be barriers for design. There is a great need for the waterfront to be further developed and nurtured in order to create an enjoyable and pleasing space. Riverfront development has been a growing trend throughout the nation, and St. Louis should not neglect the opportunity to add additional recreational and civic opportunities while increasing its overall attractiveness. The purpose of this study was to explore the benefits of a redeveloped riverfront, which meets the needs of the community and provides a conceptual master plan encompassing multiple opportunities for the City of St. Louis.
ASSUMPTIONS: In light of the circumstances for this project, there were several assumptions that were considered. The first assumption necessary was that coordination of land users and owners to provide agreeable decisions regarding property acquisition and site development in order to develop the riverfront to its full potential. It was crucial to this project that the Army Corps of Engineers and Federal Government be open to new ideas and design suggestions in order to help the City of St. Louis in redesigning its riverfront. Secondly, it was assumed that the delimitations of this study would be observed. It was assumed that soil surveys would be taken and that land development would meet those specific suitability standards. It was also assumed that site engineering would be executed to assure that all paths and roadways meet landscape standards and ADA regulations. It is important that thorough cultural studies be done to evaluate the history of the site, existing utilities, and environmental impacts. Community meetings and design workshops were assumingly held in order to understand the wishes and desires of those most affected by the development. In addition to these assessments, it was crucial that an evaluation of flood control and levee development regulations occur. The site was to be designed with the consideration of predictable flood damage, but it certainly should not be the advocate of a more disastrous flood. Most importantly, it was assumed that the City of St. Louis and its residents are eager and willing to cooperative, to implement a new riverfront design.

SIGNIFICANCE OF STUDY: The significance of this comprehensive project was to adopt a challenging and neglected site and developing it according to current trends and design principles in landscape architecture and riverfront design. The research and theories developed from this study would expectantly be added to the collection of riverfront projects, while specifically educating others of the significance in connecting a city with its river. Riverfront design continues to increase in importance throughout environmental professions, for the world is becoming more environmentally aware. As the nation continues to become more protective of its natural resources and undeveloped land, riverfronts are recognized as significant and critical assets in developing environmentally friendly landscapes.
HISTORICAL PERSPECTIVE: Most are familiar with the infamous phrase, “In 1492, Columbus sailed the ocean blue...”. The world as we know it has developed and greatly expanded from the initial days of its exploration. Over time, a limitless period of discovery and exploitation has evolved into the materialistic society we live in today. Historically, humanity respected and depended on the natural resources of the Earth. Technology and endless inventiveness have permitted us to take these amenities for granted. Before automobiles and other rapid modes of transportation, the only means of extended travel was by water. Oceans, lakes, and rivers provided a system of “highways”, creating hubs of trade and centers of growth for most American cities, whose ports were gateways to the world (Harney, 7). Although the development of our major urban centers was initially dependent upon these waterways, our focus has been diverted to the air, rail and truck commerce that now dominates the industry. This diversion caused us to forget the significance of America’s waterfront communities, the majority of which we let become a collection of rotting slips and empty warehouses.

Landscape architecture has identified these “run down” urban waterfronts as potentially valuable public open spaces. Historically, these have been an important component of our cities and many communities developed centrally located open space for various religious, political, and commercial activities (Beebe, 2). The Renaissance and Baroque periods introduced plazas and urban open spaces as integral parts of the planning and redesign of many European cities. Over time these principles have continued to be implemented during the 19th Century. Fredrick Law Olmsted, the “Father of Landscape Architecture,” believed in improving the quality of life in cities through the provision of urban communal open spaces. His design for Central Park in New York City, America’s first park, is one of the best examples of a successful urban landscape. Olmsted provided passive as well as active recreational green spaces in an overcrowded, dirty city. Another significant historical example is that of the Chicago riverfront park designed by Daniel Burnham, an architect turned planner. The riverpark he designed initially established twenty-four miles of the city’s shoreline, a strip today known for its recreational and cultural opportunities, as well as the infamous Lake Shore Drive (Beebe, 1). Both of these cities have learned to appreciate the function of these designs as they function as their primary public open spaces. Olmsted’s theory that public open space contributes to the healthy functioning of the city continues to be a guiding principle in the
landscape architecture profession, and has been incorporated in the designs for many revitalized urban waterfronts. Moreover, landscape architects have become very involved in waterfront reclamation, addressing a variety of opportunities for "life at the water's edge". The once dilapidated banks of rivers are slowly again becoming important economic opportunities for cities, encompassing the landscape architecture aesthetic, cultural and environmental concerns.

San Antonio, Texas, was the site one of the first waterfront reclamations in America. The 1930's brought its riverbanks renewed vitality. The river was then redesigned to incorporate walkways, shops, and outdoor opportunities that engaged the water's edge in everyday life. Historically, America's urban waterfronts established and defined downtown districts. Even if they had not been the fundamental reason for settlement, waterfronts played major roles in city development (Murotani, 10). Reclamation of the urban waterfront reunites central business districts with aesthetic and cultural opportunities in most major cities. Many other cities have since followed San Antonio's lead. For example, Seattle, San Francisco, Baltimore, and New York have all successfully implemented urban waterfront renewal programs (Harney, 7). Such projects, however, require both public and private investments and usually take many years to complete.

The historical precedent of the landscape architectural profession's involvement with urban waterfront reclamation may seem to have been ignored for many decades. This is because, as implied above, many cities have neglected their waterfronts, and let them become dirtier, rundown and generally wretched places. Only recently have they begun to see their significance and potential. Landscape architects will continue to find reasons to implement urban renewal plans, focusing especially on those that engage the water's edge. Urban waterfronts are being given a second chance as American cities follow the precedents set by those communities which have demonstrated the multiple land use opportunities and advantages in reclaiming such forgotten resources.
CASE STUDIES: It is important for all landscape designers to research state of the art designs that function as model projects. Awareness of current designs and principles broaden one’s knowledge and ability to effectively address and possibly improve the future of urban riverfront development.

Charles River Basin Master Plan – Boston, Massachusetts

After receiving an ASLA Honor Award for Analysis and Planning, the Charles River Basin Master Plan has established itself as a state of the art design from which one can learn. The purpose of the plan was to initiate a guide to the 8-1/2 mile, 90-year-old Basin, ensuring the park’s vitality in a time of diminishing resources. The Charles River Basin is the heart of one of the country’s historically recognized urban park systems, specifically Fredrick Law Olmsted’s Emerald Necklace and Charles Eliot’s Metropolitan Park Commission and its influential plans. Landscape architects (Goody, Clancy and Associates) find it beneficial to create a balance between preserving the historical landscape and altering it to meet the needs of modern day users (www.asla.org). This is a common challenge in urban waterfront reclamation. The role of the landscape architects within this multi-disciplinary team of professionals was to use urban design expertise and lead regional park authorities, and thousands of volunteers through intensive public participation programs. With the collaboration of much expertise, a collection of guiding principles, goals, existing conditions and recommendations were established.
The guiding principles of the Master Plan were design goals that would continue to provide direction to future designers as user needs and demands change throughout the 21st century. These guidelines are as follows:

- The Charles River Basin shall function as the backbone of a connected regional system.
- The water quality of the river should indicate a clean and healthy environment.
- River scenery and landscape shall be enhanced and made accessible to those wishing to escape the confines of the urban environment, as Charles Eliot found necessary over a hundred years ago.
- The quality of open space and landscape shall be complimented rather than degraded by the surrounding structures.
- Pathways shall be integrated with the natural landscape, acting as instruments by which the scenery is made accessible and enjoyable.
- Frederick Law Olmsted's principles of diversity must be actively engaged, providing for a public open space, which welcomes all types and classes of people.
- The parkway as a whole shall incorporate a consistent design theme and a sense of a linear unity (Comprehensive Plan, 21).

The goals for the Basin included insights from the Citizen Advisory Committee, which expand the scope and intent of the five focus areas of design:

- The historic landscape
- The natural landscape
- The river
- The parks
- The parkways and paths

These five areas provide specific design recommendations necessary to implement a holistic design program.

The remaining elements of the Master Plan provide preservation recommendations and identify important existing conditions and issues. These criteria for design development were extremely influential on future waterfront reclamation.
The landscape architects have thoroughly addressed the ecological, historical, and functional aspects of research necessary for a successful Master Plan. Specific areas of investigation are as follows:

- Archaeological reconnaissance
- Expansion of the National Historic District
- Preservation treatments for surrounding buildings and landscapes
- Research on misunderstood historic properties and types
- Identification of appropriate public uses for vacancies
- Development of standard procedures with involved preservation agencies affecting historic resources of the Charles River Basin

In addition to the recommendations for historic preservation concerning the Basin, existing conditions and issues were taken into account. The plan encompasses (at least) 12 urban neighborhoods, numerous commercial developments, and some leading educational institutions. Historic and natural resources, were addressed include existing dams, a granite seawall, several bridges, smaller parks, boating docks, boathouses, recreational facilities, acres of marshland, and miles of parkways and pathways. Once these existing elements have been acknowledged, the designers then show environmental responsibility, recommend water quality improvements, restore wetlands, etc.

The design guidelines, goals and techniques set forth in the Charles River Basin Master Plan have created a guide for managing Boston’s most noteworthy and appreciated public open space system for the next 50 years. These design principles can also benefit the design processes of other waterfront landscapes. There are several elements of this master plan that greatly reflected upon this particular design study. Specifically, the desires to focus on both historical and natural landscapes and the quality and diversity of the public open space in a unifying linear park can be easily transferred to the desires for a renewed St. Louis Riverfront.
Cincinnati Central Riverfront Park – Cincinnati, Ohio

Significant efforts to revitalize Cincinnati’s riverfront have also created a model project for the study of the principles of waterfront design. Urban Design Associates, the firm in charge of planning the central riverfront, calls this one of “the most complicated projects in the United States.” Within this complex planning process is embedded a vision of the Central Riverfront Park that provides a backbone for the city’s redevelopment. The project responds to Cincinnati’s interest in revitalizing downtown and mixing public open space with future development. Its goal is a changed riverfront with the high hopes of incorporating existing urban context and new civic construction in all directions from the site.

The primary purpose of this reclamation was to reconnect downtown Cincinnati to the Ohio River, taking advantage of existing floodplains. In order to develop such a master plan, four significant goals were established:

- Create a grand urban civic space that acknowledges and incorporates the distinct character of Cincinnati.
- Reestablish connections between the city to the river.
- Revitalize the river’s edge by strengthening direct views and pedestrian opportunities.
- Provide adequate space for additional festivals and events, as this park will act as the primary linkage throughout the city.

The design process for this project consisted primarily of a series of workshops/charettes beginning in 1998. Through public meetings, focus groups and the help of Park Advisory Panel, the following goals and principles were developed:

- 6 acre Great Lawn – green open space for passive recreation
  - Approximately 6 acre, vehicle-free festival event space shaded with trees
  - Interactive fountain, carousel, and playground for more active recreation
- Bike path(s) and an accessible walkway along the stretch of the park
- Pedestrian access overlooks providing contemplative vantage points throughout the park
- A “green thread of urban fabric”, or streetscape elements to reinforce the connection between downtown and the river (www.cinci-parks.org/riverfront).

Cincinnati’s Central Riverfront Park successfully addresses the cultural and physical needs of the urban environment. By accommodating historical elements such as the Ohio River itself and the Roebling Suspension Bridge, the design reinforces the individual character of Cincinnati. The design creates a strong visual and physical linkage to the downtown district with the river and vice versa. These adaptations provide for economic opportunities as well as a greater appreciation for the city’s greatest natural resource.

The design of Cincinnati’s Central Riverfront Park is an excellent model project for the development of St. Louis’ Riverfront because of several coinciding principles. While the Cincinnati master plan hopes to create a riverfront “backbone” and provide a primary linkage throughout the city, St. Louis’ Riverfront will complete an already existing linear green space, the Gateway Mall. Both demonstrate the desire to create reconnections of the city to the river while taking advantage of floodplains and recreational opportunities. The implications of Cincinnati’s Central Riverfront Park on the design development for St. Louis was additionally emphasized the importance of successfully addressing the cultural and physical needs of the urban environment.
Louisville Waterfront Park – Louisville, Kentucky

The Louisville Waterfront Park designed by Hargreaves Associates consists of a variety of activities and elements that bring a new and significant sense of identity, character, and accessibility to the Ohio River, a riverfront that was once neglected. The design involves a series of varied, flexible and programmable spaces (www.hargreaves.com). These spaces include a working wharf, Festival Plaza, Overlook, Great Lawn, and 80 acres of greenspace with pedestrian trails, native riparian plantings and wetland development. “The entire project is graded to provide flood protection, while simultaneously breaking down visual barriers between the city and the river,” (www.hargreaves.com). The landscape architects developed creative and original engineering solutions to potential riverfront issues such as: barge wakes, a bumper system was developed to protect the structural supports of the Great Lawn and Overlook -- which actually extend over the river on piers -- from the potential for barge collisions.
The City of Louisville intends on enjoying many amenities because of this new downtown park. Some of these include:

- A beautiful “great lawn” allowing for games and concerts.
- A festival plaza for special events
- A children’s play area, unique to those nearby
- A linear park providing picnic areas, groves of trees, walking paths, and breathtaking views up and down the Ohio River.

Hargreaves Associates has definitely illustrated “state of the art” design, and has successfully revitalized Louisville by reconnecting the city with the Ohio River. This design provides insight for how St. Louis may be reconnected with its river and what types of activities will excite the potential users. Louisville’s Waterfront Park provides excellent examples of how to meet the community’s needs while matching the nature of the river. This principle is a significant goal for all riverfront developments. Once again, there are several successful aspects of waterfront design illustrated in this design that can be addressed to other thriving waterfront redevelopments around the world.

Riverfront developments around the country are becoming increasingly prevalent. Previous state of the art projects are one of the best tools a landscape designer can use in determining progressive standards for waterfront design. Not only do
their successes demonstrate exciting design opportunities, but they also embody planning processes and development principles significant to the futures of all of America's riverfronts.

**CRITERIA FOR SITE SELECTION:** To apply my accumulated knowledge and the design objectives an appropriate site was needed. There are several criteria that a project site must meet in order to be most fitting for this design study. First and foremost, reclaiming the city's riverfront edge was the main objective; therefore, it was crucial that the site be directly adjacent to a river. The river's edge must also suffer from lack of design and appropriate attention. Ideally the site provided ample open space and undeveloped land in order to implement new developments and multiple opportunities. This open space was suitable for a variety of types of site developments such as planting vegetation, constructing accessible walks, and connecting the community.

In addition to the physical criteria involved in choosing a site, there were several cultural and sociological influences that aid in determining the most suitable location for development. No matter how well conceived a riverfront design may be, it will fail without community linkages. It is important to have community support in all projects, especially in one of this proposed scale. This can be done through a series of public meetings and workshops. It is also necessary for the site to have several opportunities to strengthen contextual relationships. These connections reinforce the design and involve the neighboring residents and landowners, providing potential users for the new development. This objective can also result in economic, social, and environmental improvements within the city. It is also beneficial to develop a site with a noteworthy history or story. Incorporating the site's history emphasizes the intent to “reclaim the city’s edge” and tie things back together.
DESCRIPTION OF SITE CONTEXT: There were several locations that successfully met the given criteria. Only one city, however, has drawn my attention and developed a strong will in me to reconnect it with its river. St. Louis, Missouri, has been one of the U.S.’s largest and most important river-oriented cities for centuries. The history and culture of both the city and the river provide interesting background, while the existing site aches for a 21st century makeover.

Currently the St. Louis Riverfront lies just East of the Jefferson National Expansion Memorial in the shadow of the Gateway Arch along the deteriorating banks of the Upper Mississippi River. This is the terminus of what city planners call the Gateway Mall a formal urban open space stretching from the Arch through the heart of downtown to Union Station. The existing riverfront consists of a throughway street, Leonor K. Sullivan Boulevard, primarily used for access to the Arch parking for visitors. This parking unfortunately extends from one end of the Jefferson National Expansion Memorial to the other on the old, deteriorating, cobblestone riverbank. The remainder of the site consists of two main sidewalks embracing the Sullivan Boulevard. These walks have sporadic clusters of tree grates and benches along them, providing limited shade and sitability. Vehicular access to the site currently exists solely via the Sullivan Boulevard. The site is much more pedestrian accessible; however, providing accessibility from most directions.
As mentioned previously, the existing riverfront is the missing link between the river to the east and the Jefferson National Expansion Memorial to the west. North of the site lies St. Louis' infamous historical district, Laclede's Landing. This landmark is an excellent opportunity for this design project, providing historical reference and a significant sense of place. Laclede’s Landing consists of numerous thriving restaurants, clubs, retail, institutions, and businesses. A significant connection exists between the site and this district. The historical Eads Bridge, completed in 1874, spans the Mississippi demonstrating the world's first steel trusses. The foundation of the bridge, made up of a series of grand arches, provides an enticing portal between the two spaces. The area to the south bears an entirely different sense of place, or lack there of. Leonor K. Sullivan Boulevard ends abruptly as it turns under the Poplar Street Bridge, which carries various interstates across the River. This boundary of the site could potentially be an aesthetically pleasing terminus rather than a vast and undefined edge. The water's edge is lined with several casinos and dinner/café boats. Some may say these take away from the nature of the river, but they have their benefits as well. These establishments bring in large numbers of visitors and substantial amounts of revenue that aid in further development and economic stability. In addition, these massive structures hide cross-views to the east of the decrepit riverbanks of Illinois. Similar to the north/south contrast, the context to the west is starkly different from that of the east. Behind the massive concrete floodwall, the Jefferson National Expansion Memorial provides adjacent vast open space and ample wooded areas, not to mention the astonishing, towering Arch. This National Park also includes the St. Louis’ Old Courthouse, a Metro Link.
stop, two grand reflecting ponds, and the Museum of Westward Expansion. A parking garage is located on the most northern edge of the park. This structure is rarely full and could potentially absorb some of the unnecessary traffic flow onto the levee. To the west also lies the most direct connection with downtown St. Louis. The Gateway Mall stretches from the Courthouse down Market Street all the way to Union Station, providing a continuous urban open space throughout the City. The surrounding areas include the central business district with some commercial and residential uses. Residential density continues to increases progressively towards the west. This creates another significant opportunity within the St. Louis Riverfront site. A plan for a riverfront trail is to be completed by 2004. This trail will run approximately eleven miles from the Gateway Arch to Riverfront Park in North St. Louis. The trail follows various levees and floodwalls providing the community with a pedestrian friendly recreational and wildlife experience. A new riverfront design would benefit from this trail connection in the form(s) of additional access and connections to the surrounding community.

**SPECIAL CONSIDERATIONS:** Underlying the various benefits of choosing this site, there were special considerations that must be considered in order to produce a successful conceptual master plan. The site currently lies within the primary floodplain of the Mississippi River. It was important to address this condition throughout the design process. The last major flood of this area was in 1993, one of the most destructing in history, forcing the City to administer a buyout program designed to clear these floodplains of potentially affected properties. The site does not include many commercial properties or any homes. However, these spaces are commonly converted to parks and natural areas (www.stlouis.missouri.org/5yearstrategy). These floodplains are ideal for such developments because parks (pathways and green space) are much more feasible for a city to reconstruct given another flood occurs.
DATA COLLECTION STRATEGIES:  The data needed to help support this design study and conceptual master plan included:

- Aerial photography
- Historical maps
- Site photos and inventory
- Contextual surveys (Sanborn Fire Insurance maps and Neighborhood maps)
- Topography maps
- Precedent studies
- Design standards and guidelines

The collection of this data was provided from multiple resources. The St. Louis City Planning and Urban Design Agency supplied the aerial photography and neighborhood maps. The majority of the historical data and topographical maps were collected from the St. Louis Central Public Library and various books noted in the annotated bibliography. Several site visits provided the site photos, inventory, and analysis, while contextual surveys are also obtained during these site visits as well as derived from the Sanborn Fire Insurance maps collected from the public library. Precedent studies and design standards and guidelines were developed through various researches and continued to expand throughout this design study. All works used to date were cited in the annotated bibliography.
SITE INVENTORY:

View of Old Courthouse

Existing Floodwall and Lighting

Poplar Street Bridge - South Boundary of site

Existing Levee Conditions and Eads Bridge

Existing Overlook and Grand Staircase

Existing Riverboat - Café / Souvenir Shop

Saint Louis Riverfront Development
SITE ANALYSIS:

Parking
- Damaging environmental issues
- Uncomfortable parking facilities
- Unpleasant aesthetics of levee

Jefferson National Expansion Memorial
- Designed by Dan Kiley
- Home of the Gateway Arch, Old Cathedral, and terminus for the Gateway Mall

Historical Laclede’s Landing
- Commercial district
- Active nightlife
- Asset to riverfront

Floodwall
- 40’ Concrete Floodwall
- Barrier between park and riverfront

Eads Bridge and Poplar Street Bridge
- Provide significant site boundaries
- Need serious attention as terminus of riverfront
PROJECT GOALS: Thesis: Reclaiming a City's Edge: A Design Study to Redevelop St. Louis' Riverfront Edge.

Goals and Objectives:

I. Create a recreational landmark for the city of St. Louis.

II. Provide urban recreational opportunities that connect to the surrounding vicinity.
   A. Design site amenities to existing or proposed recreational trails and greenways.
      1. Create a throughway recreational trail connecting the Concorde Trail on the north boundary to Grant’s Trail and the Riverfront Trail from the South.
      2. Address significant views from trail by providing stopping points or overlooks.
   B. Extend the Gateway Mall to the river’s edge by creation of additional public open space(s).
      1. Extend band of green space to the water’s edge providing a more park-like atmosphere along that portion of the Mississippi adjacent to the Jefferson National Expansion Memorial.
      2. Provide opportunities to look back (west) toward the Gateway Mall. (e.g. views from within the downtown area to the river are quite common, but the Mall provides an engaging chance to visually penetrate the city itself).

III. Enhance existing aesthetic qualities of the St. Louis Riverfront.
   A. Augment the appearance and function(s) of the historical Jefferson National Expansion Memorial through additional developments and possible alterations in the context of Dan Kiley’s original plans.
      1. Use existing hardscape to connect the Memorial to the Riverfront.
      2. Improvement of pedestrian connections from Mall to Arch
         a. pavings
         b. bridges
         c. roof over highway
      3. Improve the appearance and accessibility of existing parking garage through planting and signage.
GOALS CONTINUED...

B. Provide more functional, aesthetically pleasing and environmentally sound parking facilities.
   1. Prohibit parking on historic levee
   2. Provide additional parking facilities at the north and south boundaries of the site.
   3. Use vegetation and pervious material to create environmentally friendly and pedestrian safe parking facilities.
PROGRAM:

CIRCULATION -
- Improved parking
  - new/additional surface lots or structures
  - vegetative buffers
- Recreational trails connecting to existing network
  - paved bike and pedestrian trails
  - significant north and south connections
- Pedestrian paths
  - Primary walkway from north to south on the riverfront (streetscape feel)
  - Wide enough for emergency traffic
  - Secondary paths throughout park connecting to recreational trails and JNEM

CIVIC CELEBRATION SPACE -
- Civic celebration space
  - waterfront gathering space
  - festive accessories (flags, lights, paving)
  - possible amphitheatre or performance space
  - urban plaza feel
- Riverfront termini relative to Poplar Street and Martin Luther King Drive
  - signage and plantings
  - portal architecture
  - decorative accents to Poplar Street Bridge
  - preservation and restoration of Eads Bridge

- Overlook(s)
  - possibly incorporated into celebration space
  - historical overlook of brick and cobblestones
  - trail overlooks
  - significant view to river and back into the city and Arch

DESIGN DEVELOPMENT -
- Repositioning of riverboat locations
  - Possible alterations of existing waterfront boats to be incorporated into design
- Vegetation rehabilitation and/or new
  - More park-like atmosphere
  - Lawn and plantings to accent and accentuate riverfront development
- Seating of various types
  - Benches
  - Seatwalls
  - Lawn
- Deck(s) or pier(s)
  - recreational boating tie ups
  - river tours
  - access to water for passive recreation

FLOODWALL -
- Breaking down of barrier between city and waterfront
  - Terraces of plazas and planter space providing a smoother transition while continuing to function as a floodwall
  - Greater aesthetic qualities to the wall and overall appearance
PRELIMINARY CONCEPTS:

Important Considerations:

- Improve overlook area and develop a festive celebration space
- Consider views both to the River and East St. Louis as well as westward to the downtown of St. Louis and the Jefferson National Expansion Memorial
- Enhance existing promenade with street trees and various pavings
- Develop functional and attractive parking facilities
- Provide for proposed greenways and trails to cross the site and connect on both the northern and southern boundaries.
PRELIMINARY CONCEPTS:

Existing Section

Parking Concept

Boardwalk Concept

Existing Parking Conditions

Saint Louis Riverfront Development
Parking/Terrace Concept:
- Grand Staircase on both north and south ends of site
- Terraced parking – much safer and more organized
- Floodwall becomes a series of terraced planters and plaza space or open lawn
- Main pedestrian artery centering on celebration space crosses entire riverfront
- Open lawn and/or naturalized area to river’s edge
- Possible inclusion of historic steamboats
- Existing riverboats reorganized on northern edge
MASTER PLAN:

- Historic Eads Bridge
- Existing Parking Garage
- Terraced Floodwall
- Turf Embankment
- Boardwalk
- Buffer of Existing Railroad
- Relocated Existing Riverboats
- Gateway Arch
- Existing Stairway
- Celebration Plaza and Reflection Pool
- Historic Mississippi Steamboat Museum
- Buffer of Existing Railroad
- Pedestrian Promenade
- Turf Embankment
- Terraced Parking
- Poplar Street Bridge

Saint Louis Riverfront Development
TERRACED PARKING PLAN:

- Staircase
- Plaza
- Planters
- Plaza
- Parking
- Visitor Drop Off
- Pedestrian Walk
- Pedestrian Cross Walk

Saint Louis Riverfront Development
TERRACED PARKING SECTION:

The orange cut line on the plan to the left illustrates from where the section below is drawn. The effects of this terraced floodwall allow for a greatly improved pedestrian scale, a transitional space from the Jefferson National Expansion Memorial, a expanded floodway, and a more organized parking facility.

The parking area provides a comparable number of parking spaces to the existing parking conditions; however, it is suggested that the existing parking garage at the north end of the site be improved and used to its fullest capacity.
CELEBRATION PLAZA PLAN:

- Existing Staircase
- Pedestrian Promenade
- Ramp
- Plaza/Overlook
- Reflection Pool
- Steps
- Special Paving
- Lawn
- To New Parking
- To Boardwalk

Saint Louis Riverfront Development
CELEBRATION PLAZA SECTION:

The orange cut line on the plan to the right illustrates from where the section below is drawn. The intention of the Celebration Space is to provide St. Louis with a festive and very active community gathering space. The plaza can be used as an amphitheater for performances, concerts, and the like if the grand staircase is used as seating and the overlook as the stage. The space also creates a significant landmark and terminus for Downtown’s Gateway Mall.

The Pedestrian Promenade, Celebration Plaza, and Reflection Pool exhibit refurbished existing and historical levee stones within various paving patterns. These stones not only create a connection with the history of the St. Louis Riverfront, but also with the Mississippi River.
This design provides a formal pedestrian promenade from one end of the site to the other. This space is not only providing comfortable transportation but also a calming and enjoyable shaded space connecting all elements of the design.
AERIAL VIEW OF REDESIGNED RIVERFRONT:

This view is designed to provide a better understanding of the elevation changes and floodwall adjustments along the Riverfront. It also creates a sense of place and example of what one might see traveling across the bridge from Illinois.
SUMMARY:

The Saint Louis Riverfront Development, focused on the Mississippi Shoreline between the Poplar Street Bridge and the Historical Eads Bridge, provides this midwestern city with numerous opportunities while reconnecting the city to its river. There is now a graceful transition from the infamous Gateway Arch and Jefferson National Expansion Memorial to the green embankments of the river. The series of floodwalls provide a larger floodway while providing a more beautifully vegetated urban open space. The Celebration Plaza provides the city with a generous opportunity for festivals, group events, and continuous dedication to the City of St. Louis and the Mississippi River. The Pedestrian Promenade carries visitors and tourists from one end of the site to the other shaded by trees. This is a much more peaceful walk and enjoyable space than what had existed before. The parking facility provides visitors with a comfortable and functional vehicular space attentive to the needs and safety of pedestrians. Overall, the newly developed Riverfront allows citizens of St. Louis and the surrounding community to reconnect to the river. The Riverfront is a place for recreation, relaxation, and education. The existing and proposed recreational trails connect and flow directly through the site. There are ample green lawns for picnics and game playing. The Historical Riverboat/Steamboat Museum educates visitors of the grand boats that once traversed the river while adding another dimension to the design. And last but not least, the Riverfront provides St. Louis with an urban landmark and a great first impression for those coming across the river from Illinois. Providing St. Louis with this development allows the city to be involved in a growing trend across the country. The benefits from this design are plentiful and will hopefully initiate various other developments for the City of St. Louis and the Mississippi River.
BIBLIOGRAPHY:


Online Resources:

American Rivers: “Putting the “river” back in “riverfront”. Miller, Kelly.
http://www.americanrivers.org/thrivermonitor/riverfront.htm

American Society of Landscape Architects Online: Charles River Basin Master Plan
http://www.asla.org/meetings/awards/asds01/charlesrvr.html

Charles River Basin Master Plan
http://www.state.ma.us/mdc/CRBasinHomepage.htm