

**RIVERFRONT REVITALIZATION; REDEVELOPMENT, REUSE, AND REFORM OF
RIVERSIDE NORTH ST. LOUIS**

by

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Under the Direction of John Crowley

Abstract

This paper examines the application of an existing Form-Based Code (FBC) to the area known as Riverside North in the city of St. Louis. By analyzing the current conditions of the Riverside North redevelopment area in St. Louis, it presents some solutions to overcome its obstacles of zoning and abandonment. The thesis explores the various road types of the development site, which are suitable for the FBC designation. Compatible riverfront redevelopment projects are reviewed and they establish common themes that help to make the projects successful. Coupling those principals with the FBC and some economic development tools, this study provides a new plan for Riverside North.

INDEX WORDS: Form-Based Code, Redevelopment, Greenway, Riverfront, Revitalization, Reform, City of St. Louis

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TABLE OF CONTENTS

	Page
LIST OF FIGURES	v
CHAPTER	
1 SIGNIFICANCE OF STUDY	1
2 CASES FOR RIVERFRONT REVITALIZATION.....	6
3 RIVERFRONT HISTORY	12
4 NORTH RIVERFRONT	17
5 RIVERSIDE NORTH OVERVIEW	21
6 A NEW RIVERSIDE NORTH	30
REFERENCES	61

LIST OF FIGURES

	Page
Figure 1.1: Aerial Illustration of National Jefferson Expansion Memorial.....	2
Figure 2.1: Miracle Mile.....	6
Figure 2.2: South Side Works Master Plan and Concepts.....	8
Figure 2.3: Revived Chattanooga Riverfront.....	10
Figure 3.1: City of St. Louis in 1896, Fred Garth	12
Figure 3.2: Riverside North's Unrestricted Zoning	16
Figure 4.1: Aerial North Riverfront Commerce Corridor.....	17
Figure 4.2: North Riverfront Commerce Corridor Opportunity	18
Figure 4.3: Areas of Investment Around Riverside North	20
Figure 5.1: Issues Map	21
Figure 5.2: Downtown St. Louis 2020 Vision Plan	23
Figure 5.3: Circulation Deficiency	24
Figure 5.4: Vacant Land.....	24
Figure 5.5: Levee Wall Art	27
Figure 5.6: Laclede Power Reuse.....	28
Figure 6.1: Traffic Flow & Dead Ends	32
Figure 6.2: Surface Parking	34
Figure 6.3: City of St. Louis and Terminal Railroad Parcel Ownership.....	36
Figure 6.4: New Greenway Network	37
Figure: 6.5: New Greenway Features	38
Figure: 6.6: Designates NG3	45

Figure: 6.7: Neighborhood General Type 3 Zone	46
Figure: 6.8: Neighborhood General Type 3 Zone	47
Figure: 6.9: Designation B2	49
Figure 6.10: Boulevard Type 3 Zone	50
Figure 6.11: Boulevard Type 3 Zone	51
Figure 6.12: Designation NC2.....	52
Figure 6.13: Building regulations of the Neighborhood Center Type 2	54
Figure 6.14: Building regulations of the Neighborhood Center Type 2	55

CHAPTER 1: SIGNIFICANCE OF STUDY

1.1 Research Question

This study will provide a plan to the St. Louis Development Corporation and the St. Louis community to start a conversation about how to facilitate and regulate the growth and major projects of Riverside North. The plan will apply some of the best practices of riverfront redevelopment to Riverside North. The subject area is between the downtown business and commercial uses to the south and the heavy industrial uses to the north. If this subject area is to be developed, the development should be a reflection of the goals of the City's *Downtown Next* vision as well as the Strategic Land Use Plan of the City. Both documents envision Riverside North as a pedestrian friendly area with office and commercial space.

The development of the site should also provide have some continuity of the "City Arch River" principals. The City Arch River project aims to expand the park and open space area of The National Jefferson Expansion. In doing so, it aims to make better connections with the adjacent Central Business District (CDB) and the Mississippi River. These principals and goals are important to Riverside North as well. This study will explore the application of a Form-Based Code to Riverside North that can enhance the area's competitive business climate as well as attract residents and tourist to Riverside North. will measure the difference between the existing conditions and the ideal conditions that are suggested by the research, will advise a master plan for Riverside North.

1.2 Other questions

This study will address the desired achievements for revitalizing Riverside North. Thus, it will answer how those initiatives can be created in a regulator capacity. The site presents



Figure 1.1 – Aerial Illustration of National Jefferson Expansion Memorial redevelopment¹

challenges from a planning perspective, whether they are environmental, social, ecological, or simply aesthetic. These issues are large enough to have a study done on their own but here, we will only briefly address them for background information.

Progressing toward the desired achievements of the City, this study will present practices of economic development that can be used to attract the desired development and uses. Enclosed in this paper one can find case studies that will reference the development of other riverfront revitalization projects that spurred economic development. These case studies will also inform St. Louis of strategies to tackle parallel issues that may exist with Riverside North.

¹ Stefan Behnisch, National Jefferson Expansion Memorial, (www.archdaily.com) 2009

Scholarly articles and other written material may allude to the catalyst of attracting investment to an area. Various authors have written about practices that spark local economic development and how mixed land use encourages sustainable development. This important component of attracting development will be helpful as the study attempts to explain the implementation of a development proposal, thereby, providing the instructions that will bring the vision plan to reality.

This study will also expose the development implications and prospects of building near urban waterfronts. Due to its annual elevation increase, the Mississippi River poses a threat to any development in its floodplain. Thus the study explores the appropriate and ethically acceptable uses inside of a floodplain. Considering the unique character of the area, it is important to consider the environmental integrity of the site and how development can enhance the environmental quality of the area.

The growth trend in St. Louis shows that the downtown and central business districts are growing faster than the city at large. This is consistent with national and global trends that indicate that the bulk of populations reside in urban areas. "In 2008, for the first time, the world's population was evenly split between urban and rural areas...nearly 80 percent of the U.S. population resides in urban areas."² These trends support the idea that Riverside North, being located in the Downtown district, is an area that should plan for growth. Thus, it is vital to define the future land use of the area.

1.3 Methods

This is a design research thesis. The study targets an area that is near the northern edges of Downtown St. Louis and is referred to as Riverside North. The boundaries of the subject area include the Martin Luther King Jr Drive to the south, Mullanphy Street to the north, North Broadway to the west, and the Mississippi River to the east. These boundaries contain

² Human Population Urbanization, <http://www.prb.org/Educators/TeachersGuides/HumanPopulation>, (June 2009).

parking lots, abandoned buildings, light industrial land uses, and an industrialized waterfront. Riverside North also contains informal settlements, an active railway, a levee wall, and an abandoned riverboat dock and promenade that was home to the President's Riverboat Casino .

Along with being located on the Mississippi River, this site develops more significance because of the development proposals that surround the subject area. To the south there is a proposed project named "City Arch River. " It proposes to connect a central corridor of the downtown area with the Jefferson National Expansion Memorial (a.k.a. Arch Grounds). The two are currently separated by Interstate 70, which serves as a physical urban growth boundary.

To the north of the subject area there is the construction of the new Mississippi River Bridge and the expansion of a commercial port (a.k.a. Municipal River Terminal). The construction of the bridge and the expansion of infrastructure to support the increase of vehicular traffic has attracted some serious development interest. There are a number of overlapping or adjacent projects that emphasize the importance of Riverside North. Summaries of those projects are mentioned later in the reading.

The study uses an exploratory method of referencing case studies, historical occurrences, and observations. It will explore a number of different case studies that address comparable riverfront development and revitalization. It will analyze the existing conditions of the subject area, and the allowable development per the existing zoning code. Such an observation may expose some opportunities or problems that are not apparent.

The Exploratory Method is ideal for this study because it is an investigation of what the best practices may be for reviving Riverside North. Referencing relevant cases studies, other literature, and making key observations will be instrumental in creating a development proposal for the subject area.

1.4 Limitations

There were a number of parameters that were placed on this study. They include the site boundary, specific economic development strategies, specific development controls, and selected sources to reference. The St. Louis Development Corporation (SLDC) and I chose the site boundaries because majority of the area is abandoned, blighted, and have unproductive land uses. Furthermore, the boundaries capture an area that doesn't have a defined land use plan. The economic development strategy for enticing private investment proposed through a Tax Increment Finance (TIF) district. Although it is not the only economic development tool for assisting private investment, the TIF is a common tool inside of the City of St. Louis and are usually granted per application of a developer with a major redevelopment project proposal. Being a regularly used tool with the City, this paper explores how it can be applied to Riverside North. Finally, we limited the land use study to the application of an existing Form-Based Code (FBC). The FBC is conducive for encouraging urbanized, aesthetically appealing, and pedestrian friendly mixed-use environments, which is the type of development that is envisioned by the City for Riverside North. With the help of SLDC, these limits were decided in an effort to project and test the application of a FBC and a parallel TIF district.

Because this study will consist of mostly qualitative research, it will have a number of defined assumptions. These assumptions are addressed in the paper. Research of other riverfront areas will assist the creation of a development plan for this site. The research is only a projection of what could be developed under proposed FBC new development standards.

CHAPTER 2: CASES OF RIVERFRONT REVITALIZATION

The revitalization and reinvigoration of riverfronts is a well-known topic in the urban planning field. Existing scholarly articles address the subject matter and consistently point out that neglected riverfronts have been a challenge for planners and development. The topic is not overly explored, nor is it new. The versatility of the topic allows each site to present its different challenges and exposes its opportunities. Below you will read about some various approaches of riverfront revitalization.

2.1 Reclaiming the Miracle Mile: A Greenway Park Design & Land Use Strategy for Springfield's Lower Mill River



Figure 2.1 – Miracle Mile³

In Springfield, Massachusetts the Mill River flows gracefully through a city of approximately 150,000 people. In its past, the Mill River was a primary resource for industry. The common practice of using the river to get rid of industrial waste was imposed on the Mill River and its banks. After being degraded for many years, the river was then abandoned by the

³ Amy C. Verl, "Reclaiming the Miracle Mile: A Greenway Park Design & Land Use Strategy for Springfield's Lower Mill River"(Masters Project, University of Massachusetts, 2009)

industries. However, a Master's project conducted by Amy C. Verl at the University of Massachusetts, Amherst created a vision for how the lower one-mile segment of the river can be restored and reactivated.

Her vision for the Mill River one-mile corridor consisted of several goals and objectives. She sought to create a land use strategy for implementation, design pedestrian greenways that would connect to the Connecticut River, restore the riparian health of the Mill River corridor, and reestablish the connection between downtown Springfield and the Connecticut River.

Applying the Exploratory method she produced an abundance of primary research gathered from site investigation, and personal interviews. She also utilizes secondary research, which helped with information of demographics. Her method and research was successful in creating a long-term strategy that aims to phase out incompatible land uses. Moreover, it created some urban design principles that ask for development to reorient themselves to "river-facing" facades in hopes of increasing the attention of necessary greenway maintenance.

The project explains the need for the city of Springfield to acquire land for riverfront pathways. Acquiring such land would assure connectivity for the one-mile trails and paths. The goals of the project fall short in the arena of restoring the riparian buffer. Amy states that in order to do so, it would take multiple entities and a number of studies over a long period of time to sufficiently achieve this goal.

The Mill River does not have the same capacity of the Mississippi River by any measure. However, the long-term strategy that aims to phase out incompatible land uses is particularly relevant to the Riverside North study. The fact that Riverside North is currently governed by zoning that is in conflict with the City's future land use plan, presents a challenge that will require a phase-out of undesirable land uses. How this phase-out happens will determine the fulfillment of the mixed-use vision. Once the phase out is implemented, it will determine the fluid

transition of land uses that complement the plans for the surrounding land use of the subject area.

2.2 South Side Works – Extending South Side Revival

Located in Pittsburgh, Pennsylvania a south side neighborhood is home to a 123-acre site formerly utilized for industrial purposes by LTV South Side Works (SSW). The site borders with Monongahela River, which was used to receive and distribute goods from the manufacture. The Urban Redevelopment Authority (URA) purchased the property in 1998 with a plan to include the site in a neighborhood redevelopment project that was happening on a near by street. The URA was also interested in reestablishing some economic benefits from the site that once generated substantial revenue as an industrial property.

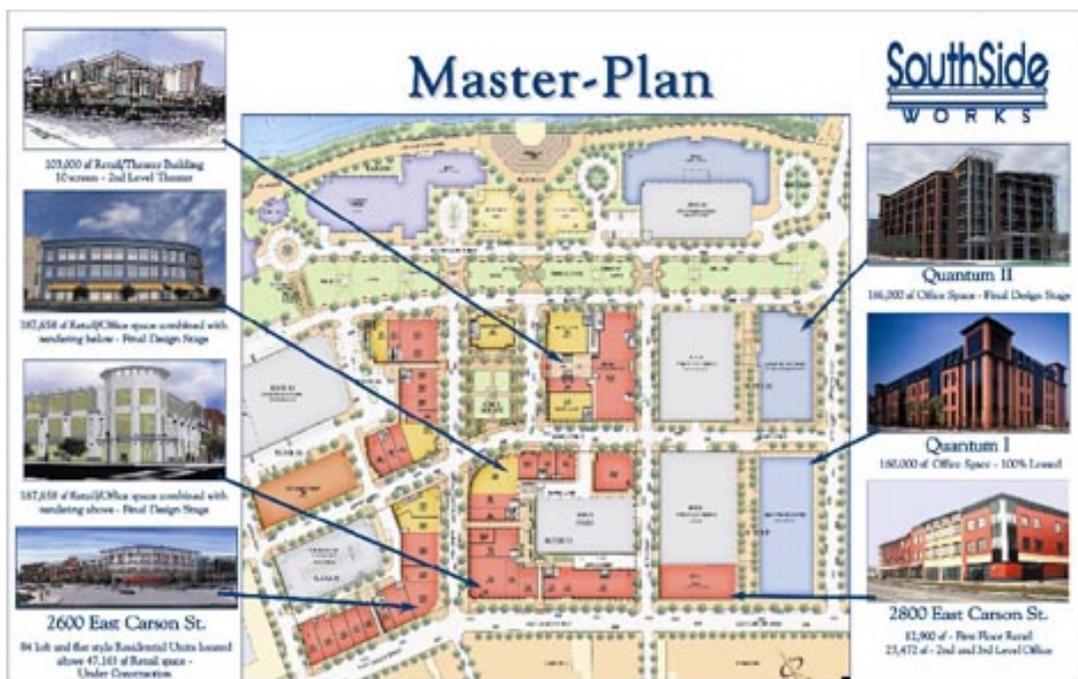


Figure 2.2 South Side Works Master Plan and Concepts⁴

The vision for this site sought to reconnect nearby residents to the river using the neighborhood grid. Feedback during the public meetings showed that the community wanted to

⁴ *South Side Works Master-Plan*, friendsoftheriver.org

have walking paths and trails that meandered along the river while allowing visual and physical access to the body of water. Additionally, the redevelopment of South Side Works aimed to create a mix of commercial, residential, light industrial, and public uses.

In order to make such a vision happen, it took \$103 million of public investment and an additional \$300 million in private investment. The return on investment in this site has exceeded expectation. SSW is now home to a 200-room hotel, a 10-screen movie theater, over 300 residential units, and over 1,500 jobs. The site now annually generates over \$3 million in revenue for the City of Pittsburgh.

This case study is helpful for making an argument that public investment can be a driver for private development. Furthermore, the case study shows that development near the river's edge can be uniquely appealing despite the fact that the industrial functions of rivers have diminished.

2.3 Reprogramming Pittsburgh's Post-Industrial Riverfront: An Open Space Vision for the South Side

Pittsburgh has a very prominent river system that dominates the geography of the city. The Monongahela, Allegheny, and Ohio Rivers curve through the landscape, and force a unique arrangement of development patterns. These waters allowed Pittsburgh to become an economic engine amongst the northeastern American cities. The waterfronts were highly industrialized making it a victim of dumping, and destruction of riparian vegetation. Just as other industrialized riverfronts, it was barricaded from the inhabitants of the city. The goal of this project was to create a vision that would manage a green way system along one of the three rivers that can be used for multiple purposes (commercial and recreation), and connect an adjacent community to the river.

Taking an exploratory approach, the study was able to identify properties that were being used for purposes that could be found in lower or less intense zoning districts. The data

pointed out a number of contiguous parcels that were along the Allegheny River. The study was able to target the most suitable properties for redevelopment and revitalization along the river.

Offering a unique method for finding a subject area to study, this approach uses a strategy of an exact science with a number of constants and variables. By weighting different criteria, different sites can be targeted for different reasons. This is helpful in justification of selection and illuminates some ambiguity that can be associated with the future planning and vision creating of a space.

2.4 Chattanooga Transformation

Measured at 886 miles in length, the Tennessee River is a large river that runs past Chattanooga, Tennessee.⁵ It is a 6-order stream.⁶ To place that in perspective, the Mississippi River is a 10-order stream in its lower branch. A stream with a high order is regionally dependent on other channel tributaries to feed into the main channel. More so than local urban rivers, like the Mill River, the Tennessee River's water quality, and ecological sustainability is dependent on the tributaries that feed the main channel.



Figure 2.3 Revived Chattanooga Riverfront⁷

⁵ U.S. Geological Survey; <http://ga.water.usgs.gov/edu/riversofworld.html>

⁶ Commission on Geosciences; [New Strategies of the American Watershed](#)

⁷ *Revived Chattanooga Riverfront*, www.chattanooga.com (May 2002)

Because of the large scale of the Tennessee River, the restoration or revitalization approach had to be strategic in order to be effective. In order to truly manage the ecological sustainability of the Tennessee River a regional watershed plan would have been needed to make significant impacts. However, since Chattanooga was attempting to clean up its negative reputation of being a dirty place the City tackled issues of connectivity and utilization of the Tennessee River. Their interest was not to clean the River but to dress-up the River's banks. With this goal in mind, Chattanooga defined riverfront revitalization as an economic development initiative.

In 1987, Chattanooga's efforts created the Vision 2000 Plan. Since its creation, the citizen and the city have helped to build a connection of parks, trails, historical landmarks, and greenways along the Tennessee River. Being adjacent to downtown, the City used the greenway to be a catalyst for economic development in the general area. The green way has been awarded credit for rejuvenating the city's economy while connecting its residents and visitors to the rivers edge.

The Tennessee River case study is a reminder to planners that there is not a one-solution-fits-all plan. Chattanooga was challenged with a dirty water source that resulted from being downstream to many other polluters. By cleaning up its own riverbanks, the city assisted in cleaning up the Tennessee River. The image of cleanliness has drawn private investment and this study shows that restoration can be defined in many ways- it is not confined to environmentally positive results but it could be rooted in the economic benefits of riverfront improvements.

Chapter 3: Riverfront History



Figure 3.1- City of St. Louis in 1896, Fred Garth⁸

3.1 Significance of Riverfronts

Some interior cities of the United States owe their existence to their proximity to navigable rivers such as the Mississippi River, Ohio River, and Tennessee River. These large channels of water allowed for the travel of people and goods far inland of the United States of America. Settlements along the banks of large waterways expanded the opportunity for commerce. Having the strategic advantage of location allowed for cities such as Pittsburgh, Louisville, Memphis, New Orleans, and St. Louis to bloom into regional economic centers. Cities such as these owe their significance to the rivers that pass in front of them. Equally as much credit is owed to the riverbanks, waterfronts, and riverside areas that supported the industrialized uses, which promoted the growth of other areas in the city and more inland cities.

Many cities along North American navigable rivers were established in the early nineteenth century. As they began to grow, the cities approximated their road networks and

⁸ Fred Garth, *City of St. Louis in 1896*, www.bigmapblog.com (July 2011)

commercial centers to support the general commerce and enhance transportation. The early development of the cities placed retail space, social, and residential quarters directly adjacent to the river's edge.

By the early 1900's, railroad transportation had become an additional method travel for people, and goods. This placed less significance on the use of the rivers for such tasks, but the riverfront areas still maintained relevance and a great amount of purpose. To accommodate the railroad, much of the retail, social, and residential uses were relocated to downtown areas. The riverfront areas were reserved for industrial, large commercial and warehousing uses. As the demand of the riverfront changed, the cities were able to make the needed adjustments to keep riverfront areas relevant.

By the 1950's, riverfront areas would experience yet another shift in the transport industry. The popularity of trucks and automobiles drove the construction of highways. These highways, further isolated riverfronts from the retail, social, and residential uses that they were once purposed for. This resulted in the decline and neglect of riverfront properties in many cities across the United States.

Cities have not sustained the significance that the riverfronts once held. Physical isolation is one barrier. However functional isolation via brownfields, public perception, obsolete land use regulations, and inflexible planning of riverfronts have handicapped them from sustaining relevance and value to their occupying cities.

3.2 Euclidean Zoning



Figure 3.2 Riverside North's Unrestricted Zoning⁹

American zoning has traditionally been the separation of land uses via the implementation of regulatory codes. Euclidian Zoning is named after the Village of Euclid, which initially used police powers to regulate land use. Their efforts were challenged in court on the basis that the restriction of private property was unconstitutional. After losing in the lower courts, in 1926 the Supreme Court decided that zoning ordinance was a reasonable use of police power and that the actions of the Village were not arbitrary. The decision upheld the Village's actions and set a new precedence for the management of land use.

⁹ Christopher Lee Chavis, *Riverside North's Unrestricted Zoning*, 2012.

Commonly practiced in many urban areas, the goal of zoning was to separate land uses to avoid nuisances that maybe created from an alternative land use. Zoning works by creating designated areas for compatible uses. For example, "...residences here, businesses there, farms someplace else, and industries someplace else"(Stephani, pg9)¹⁰. Inflexible Euclidean Zoning practices can arguably be a primary hindrance to the reuse and redevelopment of today's riverfronts.

In a typical zoning category land uses are listed as one of the following: permitted use, restricted use, or conditional use. The permitted uses of a zoning designation are those that are allowed by right. Permitted uses allow property owners the opportunity to use their land in the manner that is outlined by the zoning district without additional permission from regulatory boards and councils. A conditional use is one that must receive permission from authorities in order for the use to be in compliance with the zoning rules. A prohibited use is deemed to be one that can't be considered for request inside of the zoning district. Prohibited uses typically suggest that there are other zoning districts that accommodate the use.

The urban riverfronts seem to have fallen victim to one of many side effects caused by Euclidean zoning, which seeks to segregate land uses. Many cities dedicated their riverfront gateways to industrial uses. During the prime of the riverfront industry, large amounts of land on the water's edge were zoned for industrial development to exclude other designations such as residential and retail land uses. At the time, these zoning decisions were based in economic security just as much as they were based on planning principles.

In the mid 1900's after World War II, many cities underwent a shift from industrial economies to service economies. As technology improved, industry practices became more efficient, which eventually led to industrial downsizing. Simultaneously, new forms of transportation developed, and created relocation opportunities away from riverfronts. The

¹⁰ Carl J. Stephani, *Zoning 101; A Practical Introduction* (New York, NY 2001)

demand for industrial sites adjacent to the riverfronts decreased dramatically and many businesses abandoned the riverfronts for more advantageous locations. The migration of industry away from riverside areas left behind industrially zoned properties and brownfields that had physical, fiscal, and regulatory restraints for reuse of existing facilities and new development. Specifying land use is an effective tool of Euclidean zoning and it has barricaded the land use transition of riverside areas.

3.3 Reestablishing the Front of the City

National trends show that these abandoned industrial lands, adjacent to the once valued waterways, can be revamped and used to benefit the city for something other than industrial uses. In many cases, the abandoned areas have existing infrastructure that once supported the historically vibrant development. The history that defined the riverfronts' purpose and value is something that cities can help to recreate. "The waterfront is an expression of what we are as a culture. The urban waterfront provides possibilities to create pieces of city..." (Marshall pg 4)¹¹. Old abandoned ports, gutted warehouses, deserted river stone streets, and nearby floodplains can still have purpose for the city today.

The national examples of riverfront revitalization show apparent economic benefits for the reinvigorated spaces. This consciousness has been the catalyst for a number of different cities re-embracing their waterfronts. Because of this, there are many successful riverfront revitalization efforts to reference. However, M. Symes, editor of Urban Waterside Regeneration; Problems and Prospects, highlights that the success of these spaces are due to a combination of things at work and not just the proximity to water edges. "Perhaps because the redevelopment activity has been so spectacular, there is an assumption that, somehow, the locations were self-selecting and the success was in-built"¹².

¹¹ Richard Marshall, *Waterfronts in Post-Industrial Cities* (New York, NY 2004)

¹² M. Symes, *Urban Waterside Regeneration; Problems and Prospects*

CHAPTER 4: NORTH RIVERFRONT



Figure 4.1 – Aerial North Riverfront Commerce Corridor

4.1 North Riverfront St. Louis

The Mississippi River serves as the eastern boundary for the City of St. Louis. That city boundary spans for a distance of 19.3 miles. A high percentage of properties near the river's edge are industrial developments that are in some cases currently underutilized. This study will look at the appropriate land use for an area that is defined by the name Riverside North. Riverside North, the subject area of study, borders and slightly overlaps a larger industrial area named The North Riverfront Commerce Corridor (NRCC). The North Riverfront Commerce Corridor is a 3,000 acre corridor located at the northeast edge of the city, and is filled with established and thriving businesses. While NRCC is tasked with handling the most of the industrial production of St. Louis, Riverside North will be key to enhancing the redeveloped Arch grounds, and drawing residents and tourists to the riverfront.

The St. Louis north riverfront has long been established as a working landscape. Being governed by the unrestricted zoning district "K", it houses a great deal of active and expanding

industrial properties.¹³ The north riverfront has been designated as the “urban commerce core” and functions as a multimodal center that allows for distribution of products using river, rail, and interstate transporting systems.¹⁴



Figure 4.2 - North Riverfront Commerce Corridor Opportunity¹⁵

The NRCC is growing. There is a commitment for over 400 million dollars of private investment towards expansion of businesses inside this corridor.¹⁶ As businesses expand inside the corridor with a desire to stay close to the river, the Riverside North area can supply the best opportunity for growth. With industrial pressure from the north, and urban pressure from the south, Riverside North is being pinched for growth. “The city is becoming less the result of design and more the expression of economic and social forces.”¹⁷ If left to the market place, the

¹³ St. Louis Revised Code Chapter 26.60 states, “In the unrestricted district buildings and premises may be used for any purpose whatsoever not in conflict with any ordinance of the city regulating nuisances....”

¹⁴ St. Louis Development Corporation, North Riverfront Commerce Corridor Executive Summary (www.stlouis-mo.gov)

¹⁵ St. Louis Development Corporation, “North Riverfront Commerce Corridor; Location, Connectivity, Opportunity” (February 2012), 5

¹⁶ St. Louis Development Corporation, Stakeholders Meeting.

¹⁷ Richard Marshall, Waterfronts in Post-Industrial Cities

subject area's development will define the City's priority whether they are industrial, commercial, social or environmental, and currently industrial forces are winning.

The City of St. Louis has had a peculiar relationship with its riverfront. It has embraced the title of being the "Gateway to the West" but has failed to manage the front yard in a manner that will attract people, and businesses to that gate. Richard Marshall, editor of *Waterfronts in Post – Industrial Cities*, had this to say:

"This abstraction acts to diffuse meaningful relationships for those that live in the city and inevitably leads us to feelings of loss and yearning for a better place, for an idealized urban environment. It is within these present difficulties that a space has opened up in the city, which allows expressions of hope for urban vitality. The urban waterfront provides us with this space"(Marshall pg 3)¹⁸

If the scholar is correct, St. Louis is long overdue for revitalization that will support the pressure for urbanization more than the expansion of industrialization.

The construction of the Mississippi River Bridge has spurred new interest in redevelopment of north St. Louis. One of the major collectors of traffic, Cass Avenue, runs directly into the Riverside North subject area. This too will help with access to the waterfront, as the interstate highway is an obstacle of connectivity to the riverfront.

¹⁸ Richard Marshall, *Waterfronts in Post-Industrial Cities*

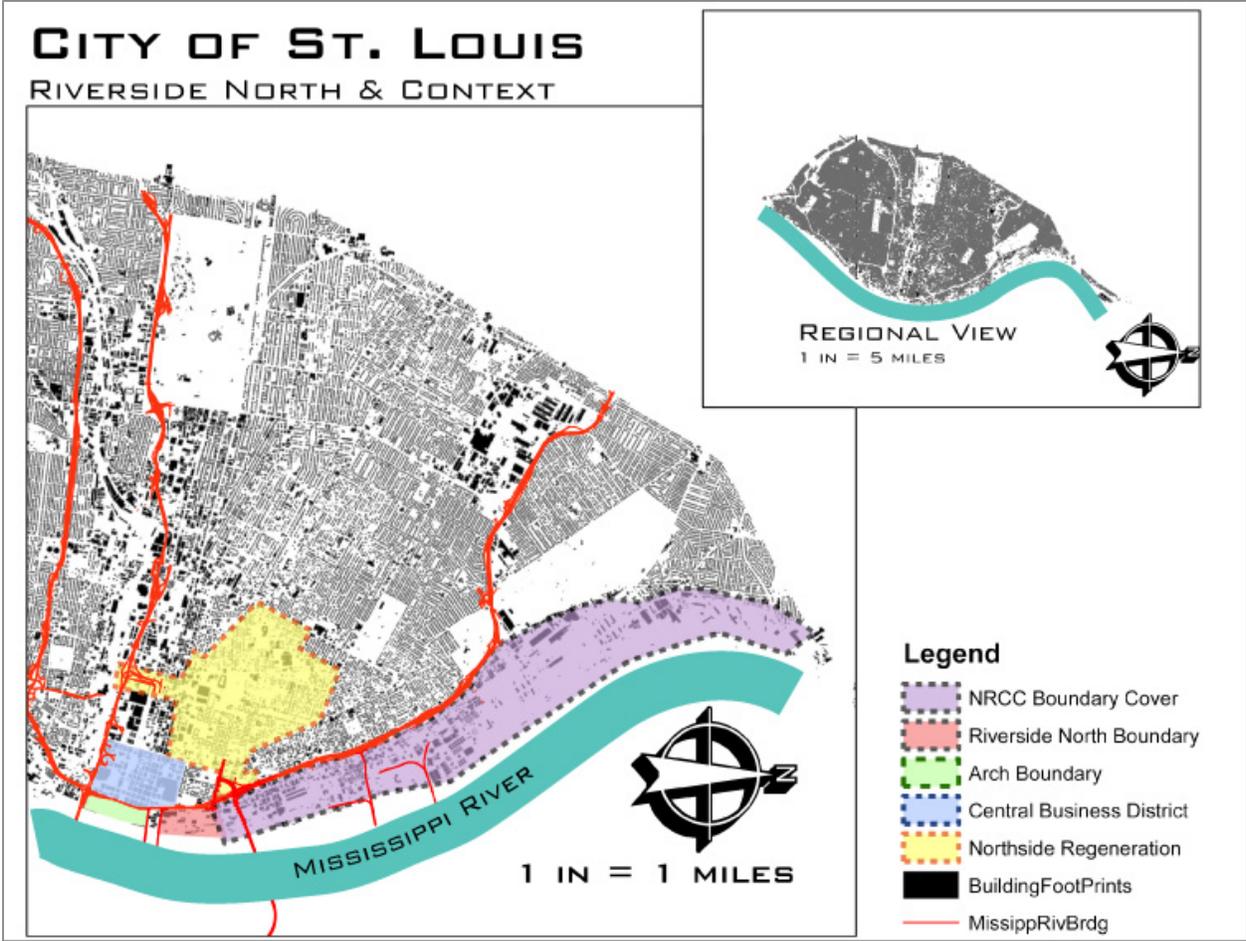


Figure 4.3 – Areas of Investment Around Riverside North¹⁹

¹⁹ Christopher Lee Chavis, *Riverside North & Context*, 2012
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CHAPTER 5: RIVERSIDE NORTH OVERVIEW

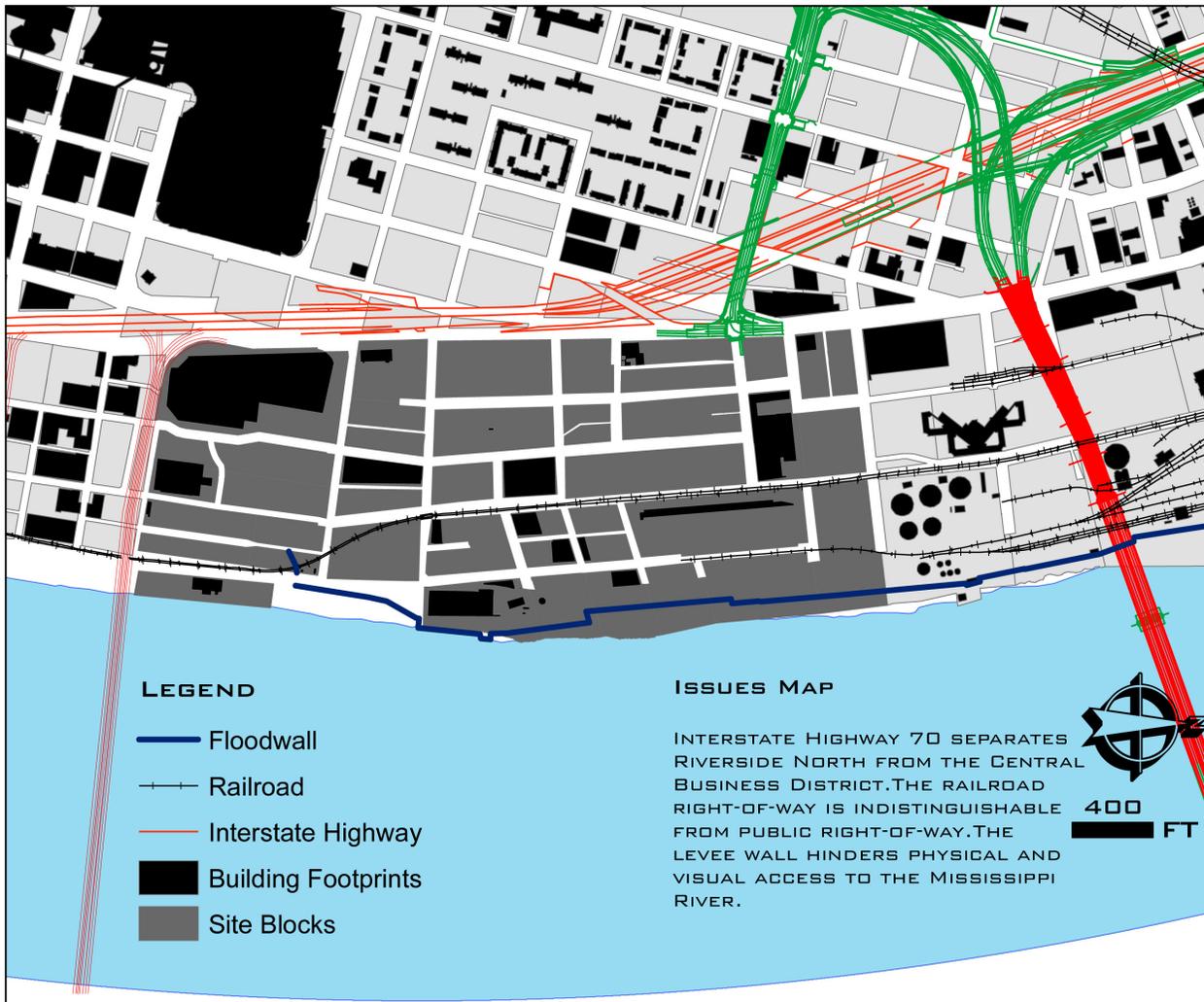


Figure 5.1 – Issue Map

Riverside North is populated with abandoned buildings, vacant lots, blighted corridors of development, and a levee wall - all of which contribute to making the site a navigable challenge, a common place for dead zones, and a perceived unsafe place for visitors. A riverfront revitalization effort here would confront these physical challenges and could produce some connectivity with surrounding and internal development. In doing so, a gradual transition of land use or a management of physical development is necessary to create a fluid urban fabric.

Prior to this study, the city had created the *Downtown Next* vision plan. This general plan for the year 2020, called for Riverside North to consist of mixed-use development. The Strategic Land Use Plan, an adopted document that guides and recommends the long term future land use of the City of St. Louis, suggest mixed-use development for Riverside North. The Downtown Next vision plan was an endorsement of the adopted Strategic Land Use Plan of 2005. These significant steps in the planning process were attempts to discourage the use of the existing “K” zoning district, which is a predominantly unrestricted land-use district that prohibits residential use. The most recently adopted Strategic Land Use Plan does not contradict what is allowed in the “K” zoning district, however the vision is more defined and would initiate some development and land use restraints.

The new vision aspires to provide an urban space with development that will attract and maintain the interest of tourists and city dwellers, while cultivating a friendly environment for office and residential development. The “K” zoning district does not fully support that vision. While it would allow for office development to occur, it would also allow for more intense land uses such as salvage yards and raw material processing. Traditionally, these land uses do not require much building construction for full operation, however, they require large amounts of land for outdoor storage of products and waste.

Beyond the zoning of Riverside North, the subject area suffers from a lack of functional circulation. Pedestrian and vehicular circulation are limited due to the maze like street formation caused by the closing of streets that now abruptly end into surface parking lots and railroad right-of-way.

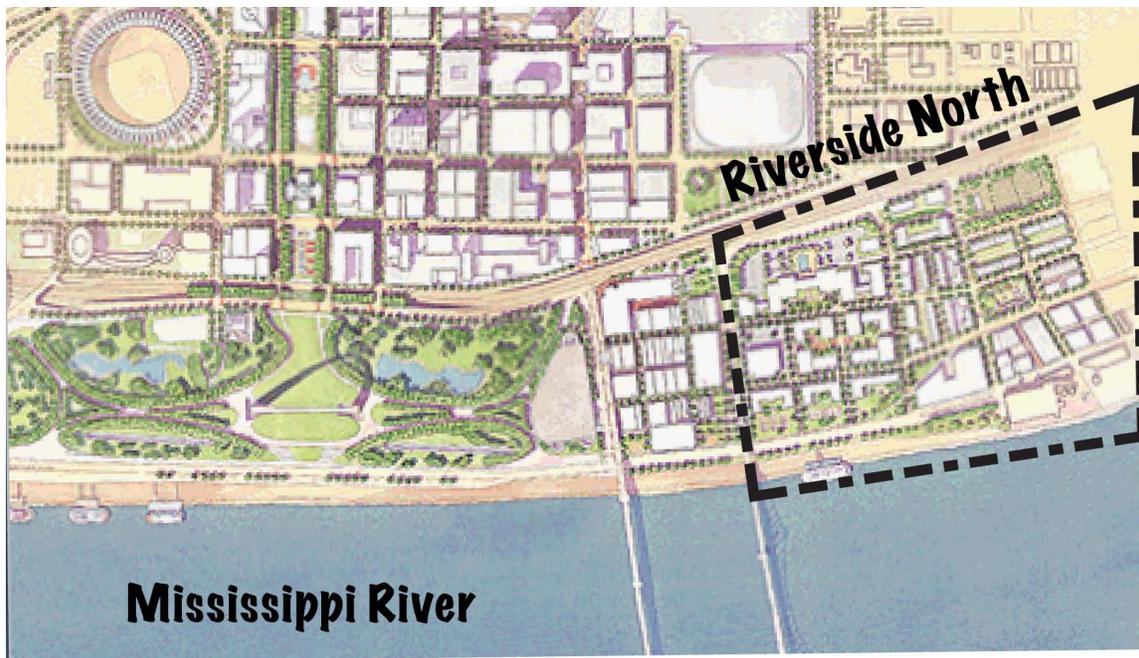


Figure 5.2 – Downtown Next 2020 Plan²⁰

Fragmentation of street traffic flow is furthermore hampered by the prioritization of the railroad. In some locations the street circulation ends for the pedestrian and the automobile because railroad-crossing infrastructure has not been built. Some roads have just been closed off to prevent “through” traffic.

Riverside North is also suffering from an abundance of underutilized land. There are properties that span entire city blocks that serve as “pay to park” lots. Most of these surface lots find some use as overflow parking for special events such as the National Football League games that occur 8 times per year between September and January. There are some daily used lots that consistently fill up. These lots primarily provide parking for the Lumiere Place development, which is a 200-room hotel, and 75,000 square feet gaming facility with restaurants and shops under one roof. Other parking lots were created for Riverboat gambling patrons.

²⁰ The Partnership for Downtown St. Louis, *Downtown St. Louis 2020 Vision Update*, Redevelopment Goals



Figure 5.3 – Depict deficient circulation as many streets are obstructed or they just end.²¹



Figure 5.4 – Pictures of vacant land and abandoned building at Riverside North²²

Because the City’s desires conflict with the current zoning allowances, and Riverside North suffers from blight and disinvestment, it is important that the City provide incentives for potential investors to develop the area according to the Strategic Land Use Plan and against existing zoning. Primarily, it is important for the City to understand what the result of incentivizing Riverside North could be. Thus, a Land Use Study and particularly the test of a Form-Based Code (FBC) may be an appropriate mechanism at this time in the planning process.

²¹ Christopher Lee Chavis, *Circulation Deficiency*, 2012

²² Christopher Lee Chavis, *Vacant Land*, 2012

This study will show the potential of strategic land use planning and examine to what degree an overlay district with a FBC can define the physical development of Riverside North.

The form-based code is one that is already utilized within the City in an area called Central West End (CWE). The Central West End has had great functional success. It has produced the desired mixed-use environment that the city wants to recreate in Riverside North. However, Riverside North has different challenges and opportunities than those in CWE. It is the goal of this study to show, what elements of the form-based code may inherently fit and what elements may not function as well in Riverside North.

5.2 History of Planning and Redevelopment of Riverside North

Riverside North has been acknowledged as an area of redevelopment potential since 1981. The subject area suffered from similar weaknesses like those that it struggles with today. *The Riverside Urban Redevelopment Area* plan, adopted on March 25 of 1981, called for several public improvements including the widening of two east-west streets named Carr Street and Biddle Street and the installation of streetlights.²³

With only a few improvements happening after the 1981 plan, in 1995, Cooper, Robertson, and Partners helped the City to envision how to further utilize the subject area. The plan suggested capital improvements such as road widening for all streets, a large public parking garage, and the creation of a levee gate to provide physical and visual access to the Mississippi River. Furthermore, it emphasized the creation of parks and public space for active and passive recreation.²⁴

The Riverfront Master Plan of 1995 had some success with getting some commercial portions of its plan implemented. Their suggestions of creating a convention hotel, leasing dock space on the river for casinos, and converting Laclede's Landing into a commercial and office

²³ "The Riverside Urban Redevelopment Area", March 25, 1981, St. Louis, Missouri

²⁴ Cooper, Robertson, and Partners, "The Riverfront Master Plan", March 20, 1995, St. Louis, Missouri

area have all become realities. The gaming and casino uses on the river were attempted for nearly a decade but failed to become a sustainable use due to the seasonal flooding which caused riverfront closures.

Considering the previous studies and plans created for Riverside North it is important for us to analyze why the vision plans have not translated into physical development. Understanding such things will allow future plans to avoid duplicating the same mistakes of the past. This will also highlight some practices that have not been explored by the City.

5.3 Surrounding Investment of Riverside North

Riverside north is surrounded by billions of dollars of investment. The construction of the Mississippi River Bridge has \$500 million dollars of public investment tied to it. Secondly, the City-Arch-River project that will revamp the Jefferson National Expansion Memorial has a price tag of \$578 million dollar.²⁵ The adjacent redevelopment area, which goes by the name of North Side Regeneration Project, has been approved by the City for tax increment financing (TIF). This was done to support a project that proposes to develop 4.5 million square feet of office space, a million square feet of retail space, and 10,000 residential units.

The substantial amount of investment taking place around Riverside North is likely to impact the fringes of their development areas – Riverside North serves as the fringe area for all those projects. The location of Riverside North will allow the success of all the aforementioned projects to bleed into the subject area. If proactive planning is practiced, this site can be prepared to handle the pressures of the surrounding expansion. Better yet, planning controls can be put into place to facilitate the strategic land use plan of the City.

²⁵ Tim O'Neil, *Tweaked Arch Plan Get Tag: \$578 Million*, www.stltoday.com/news/local/metro, (January 2011)

5.4 Interior Investment of Riverside North



Figure 5.5 – Levee Wall Art²⁶

Riverside North is in close proximity to the central business district of St. Louis, and allows for spectacular views of the Arch as one looks towards the south. For all intents and purposes, this location seems like it would have been priority for new development many years ago. The vacant and underutilized land allows for lots of opportunity for the regeneration of Riverside North.

Great Rivers Greenway, an agency interested in creating green connections in the St. Louis region, has identified a reason to invest in the subject area. In a partnership with Bike St. Louis, GRG has helped to bring people to the river via designated bike lanes along the levee walls. The 11-mile riverfront trail is aiming to get continuous connectivity from northern St. Louis to downtown. One of the desired routes to access downtown is through Riverside North. GRG has placed a trailhead in the subject area, which allows for bike path users to park their car and access the bicycle trail, as well as the river. GRG's investments have already created interest

²⁶ Christopher Lee Chavis, *Levee Wall Art*, 2012

for redevelopment in the historic Laclede Power Center. The abandoned structure has been primed for redevelopment and reuse by an entity named Trailnet. Their redevelopment plan for the structure includes a bike-friendly visitors' center for that particular trail.



Figure 5.6 – Laclede Power Reuse²⁷

Riverside North will soon be the home to an urban agriculture agency named, “Farm Works.” With a focus on becoming the urban agriculture center for St. Louis, Farm Works proposes to redevelop a structure into a “green” building that will support the harvesting of fish and the production of produce. Because this operation is one of unique character, it aims to attract tourism.

The projects mentioned seem to be environmentally and socially conscious, but most of all they have the potential to become stimulators for growth. Great Rivers Greenway and their riverfront trail system helps bring people closer to the river. The Farm Works project will draw a

²⁷ Christopher Lee Chavis, *Laclede Power Reuse*, 2012

specific population of St. Louisans, promote tourism for the curious, and house a population of under privileged citizens.

CHAPTER 6: A NEW RIVERSIDE NORTH

The challenges and opportunities of Riverside North should be addressed in the vision forward. Placing emphasis on the desired result will help to focus a comprehensive plan for tackling the barriers that have plagued Riverside North. Secondly, the design should consider the aforementioned surrounding and influential projects. If the design of Riverside North is capable of interacting with the sites that are adjacent to its location, then its relevance is greater than itself. Thus making its revitalization partly dependent on the ability of the surrounding development to thrive and partly responsible for the success of those adjacent sites.

Moving forward with a new plan for riverside North, it is important to consider the pillars of success that can be seen in the case studies above. Themes of connectivity, physical and visual river access, and mixed-use development dominate the conversations. It is also vital that the plan considers the needs of the investments happening around this site. For example, the existing acreage of surface parking inhibits maximizing land use and creating the desired urban environment. Thus, in an effort to support the vision of GRG, it is also important to find property that can be converted into a riverfront park. Addressing such opportunities that are site specific will make the implementation easier and more meaningful.

Finally the plan shall define the physical interpretation of mixed-use development for Riverside North. Measurements such as density, building envelope, setbacks, right-of-way widths, building heights, and parking maximums can determine the attractiveness and the physical character of an area. Setting such standards will help to visualize the site at maximum build out. Moreover, such standards will better regulate the type of development than that of the unrestricted underlying zoning.

6.2 Land Development Goals

The development goals of the Riverside North are based on an attempt to aesthetically enhance the subject area as well as solve some of the physical issues that suppress the social potential of the site as investment and development begins to occur in the area. The aesthetic enhancement can derive from planning that will govern the structural measurements mentioned above (setbacks, building heights, etc.). This paper shows that one way of doing so is through the implementation of a form-based code.

The emphasis of aesthetics is not solely focused on the built environment, but it is connected with social concerns such as safety and spreading economic development throughout the site. The evolution of the urban form in this area can help to provide a sense of security for inhabitants and casual users of Riverside North. Furthermore, the aesthetics and development controls can manage density and floor area ratio (F.A.R.) to encourage the build out of the site - thereby endorsing a consistent and vibrant urban environment.

The development plan will tackle the various goals above by reestablishing the street network; bolstering and giving purpose to open space; and encouraging a dense pedestrian scale urban environment. These three objectives are physical components that can highly influence the social realm of any development. But concerning Riverside North, these three pillars aim to increase vehicular and pedestrian connectivity while encouraging a densified built environment that will ultimately decrease the existing impervious surface of the site. By doing so there can be some storm water management advantages but primarily, the use of parks as green infrastructure can add positively to the urban pedestrian experience.

6.3 Fluid Street Network

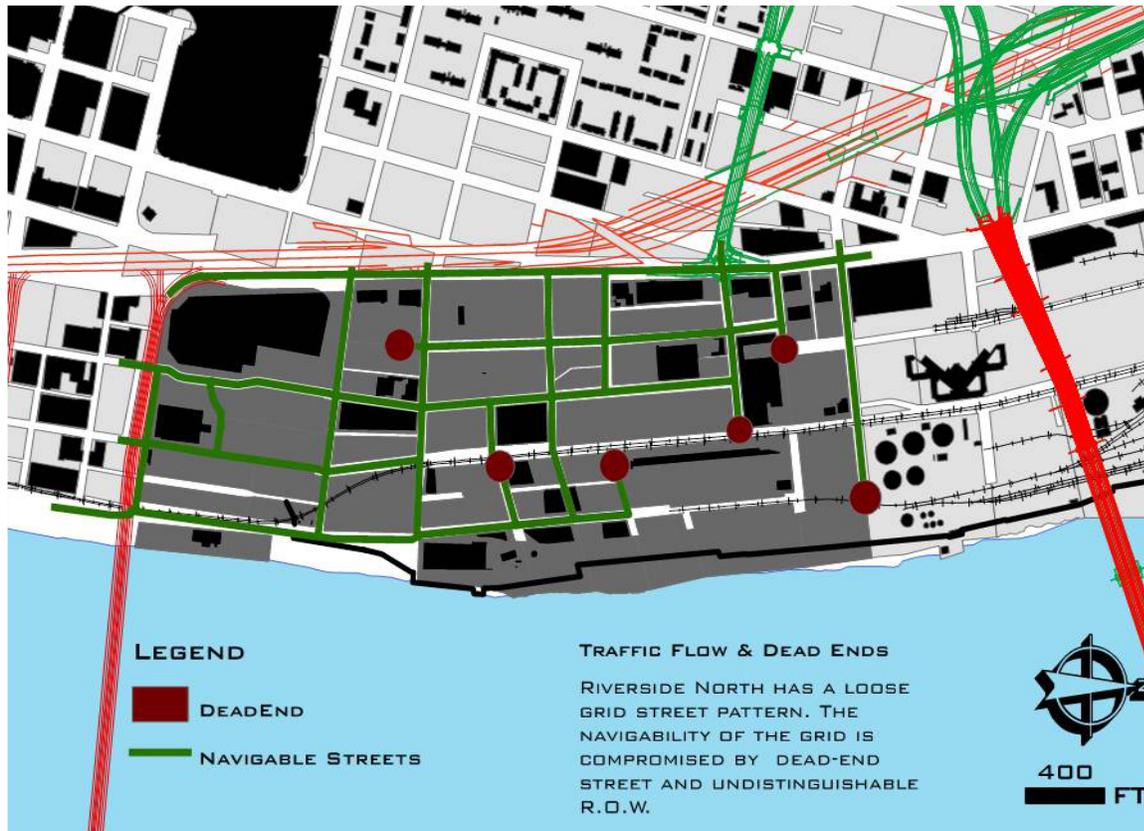


Figure 6.1 – Traffic Flow & Dead Ends

Ben-Joseph, author of *Street and the Shaping of Towns and Cities* profoundly stated, “Street patterns contribute significantly to the quality and character of a community.”²⁸ The urban street network is of the utmost importance to framing the skeleton of any built environment. Street and Right-of-Way (R.O.W.) patterns serve as the web of connectivity that structure the circulation of pedestrians and vehicles while also serving as the boundary for buildings. The boundaries and allowances endorsed by streets and their network connect pedestrians and vehicles to places that they want to be, and gives them options to do so. The book *Urban Places – Urban Spaces* states that an important quality of a place is its “permeability.” Permeability refers to the opportunity of movement and accessibility of any

²⁸ Eran Ben-Joseph, *Street and the Shaping of Towns and Cities*, (Washington D.C. Island Press)2003

particular place. “As visual permeability refers to the ability to see routes through an environment, while physical permeability refers to the ability to move through an environment....”²⁹

Riverside North is challenged with connectivity and permeability to surrounding sites and intra-connectivity. A levee wall restricts physical and visual access to the river, a variety of super blocks reduce the physical permeability of the site, and a fragmented street grid with dead-end and closed streets makes navigation of the site illegible. “...in ‘healing’ established patterns – a balance needs to be struck between providing sufficient area for development...and convenient circulation and for social space.”³⁰ As it is, Riverside North does not have convenient circulation for vehicles or pedestrians.

Despite these obstacles, Riverside North’s existing eroded street grid network can provide better connectivity by extending linear pathways that are severed by superblocks and railroad tracks. Because of the sparse development inside of the site few buildings will be jeopardized by the creation of these extensions. This is also an indicator of the oversized street blocks that can be reduced to small street blocks in an effort to create a fine urban grain. This block structure would increase the visual permeability, and navigable options of a user. Referring to a block’s frame work, Buchanan states, “[Block layout]...structures a city, its land uses and land values, the density of developments and the intensity of their use, and the way the citizens move through, see, and remember the city as well as encounter their flow.”³¹ There is not one physical mechanism in the built environment that has as much influence as that of the

²⁹ Matthew Carmona (Public Places – Urban Spaces)

³⁰ Mathew Carmona, Public Places – Urban Spaces, (Burlington, MA, Architectural Press, 2003), 97.

³¹ Mathew Carmona, Public Places – Urban Spaces, (Burlington, MA, Architectural Press, 2003), 84

block structure. Knowing this allows for the design to create a street network that will support mixed-use as it will be defined later in this paper.

6.4 Purposeful Open Space

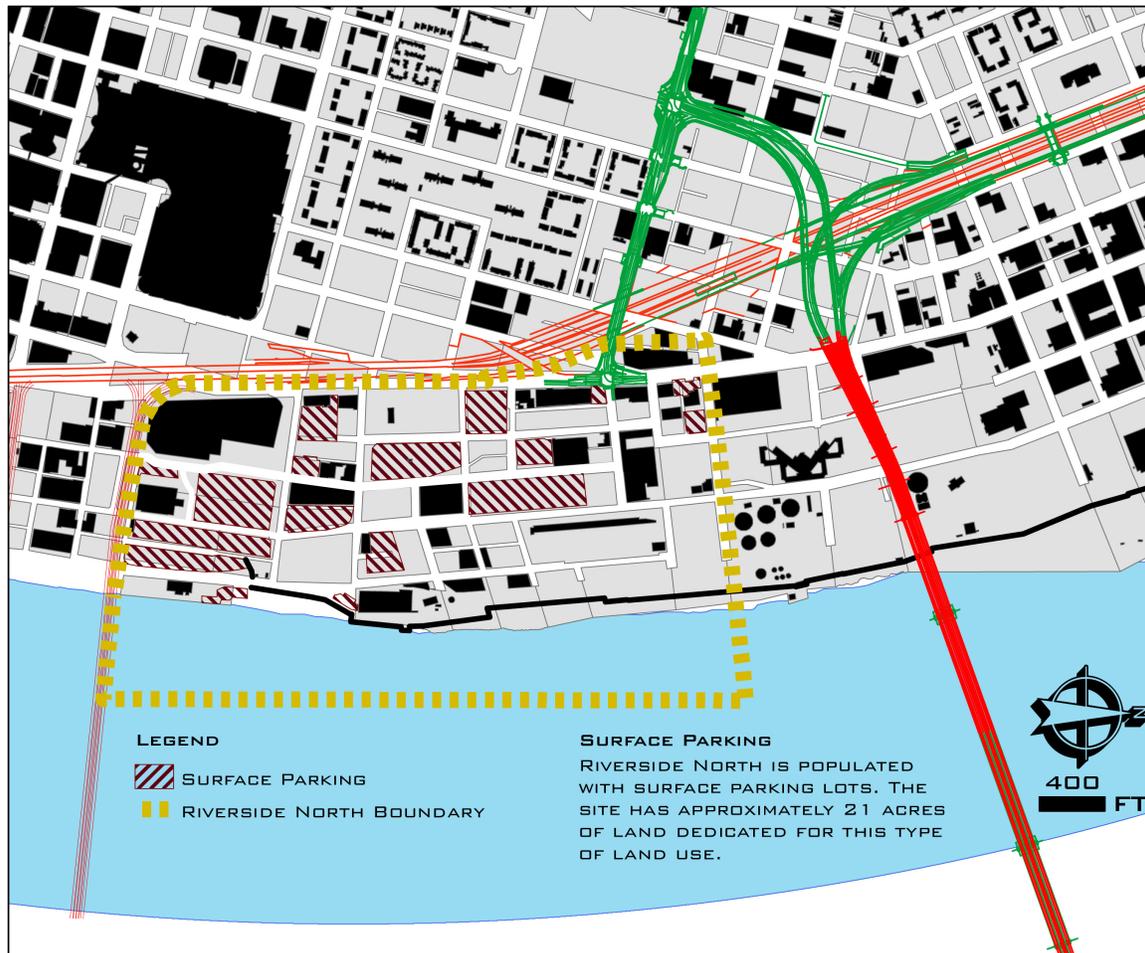


Figure 6.2 – Surface Parking.³²

Riverside North currently has an excessive amount of unutilized open space. A great deal of its land use is classified as vacant or is occupied by surface parking lots. Furthermore, there are some occupied properties that have a floor area ratio of .30 or less. Despite such large amounts of area unoccupied by buildings, the open space does not have meaningful function.

³² Christopher Lee Chavis, Surface Parking, 2012

For example, the vast impervious area that is designated for parking sits dormant and empty. In addition, the pervious land areas are neglected, unmanaged, and have no feature of attraction.

The Form-Based Code addresses these issues by stressing the importance of condensing the existing parking areas into strategically placed decks that will serve the site and its various uses. By doing so, the design will allow the desired mixed use development to occupy the site instead of surface parking. The book, Revitalizing Main Street, explicitly states, “Vast parking lots in the downtown area is a poor use of land when they could be providing housing or commercial space.”³³ Market studies that support this fact will be expounded upon in the implementation portion of this paper.

Condensing the expansive parking surface allows for the better utilization of land for the desired mixed-use development and for expansion of public open spaces. But as mentioned before, it is not sustainable to have open space without purpose. This design bolsters open space by creating a network that allows open spaces to be connected along the Riverfront Trail. Furthermore the opens space network is anchored by various functional spaces that allow users of Riverside North to gravitate toward the river.

³³ Andrea L. Dono, *Revitalizing Main Street; A Practitioner’s Guide to Comprehensive Commercial District Revitalization* (National Trust Main Street Center), 189

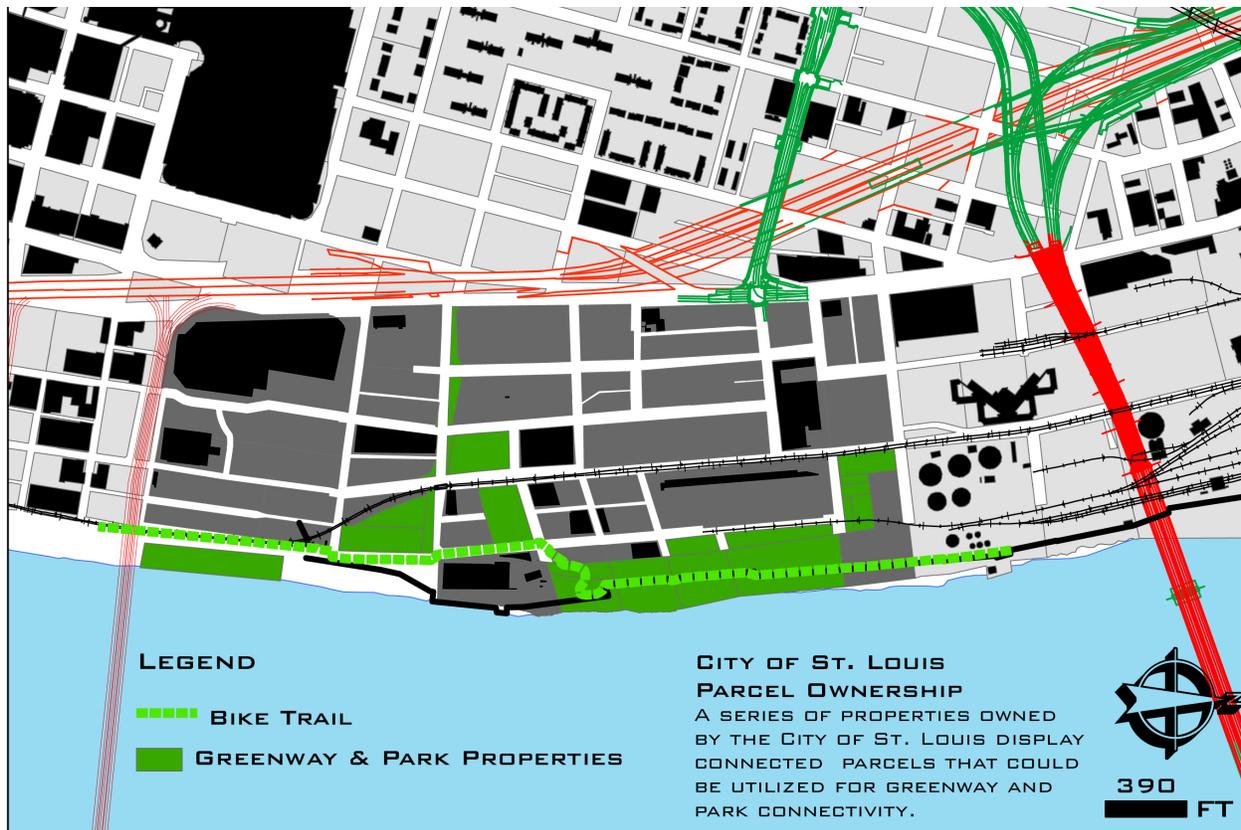


Figure 6.3 – City of St. Louis and Terminal Railroad Parcel Ownership.³⁴

Tom Turner, author of *City as Landscape*, explains the idea of functional open space:

“Green space is all very well. It is soft, relaxing and favoured by those who are charged with keeping municipal order. But green is not the only colour. Other hues, other emotions, and other possibilities can be envisaged and then planned. Imagination and organization are the only requisites. By turns, we feel solitary, gregarious, adventurous, amorous, aggressive, bored and excited. These, and all the other moods, some of which can be symbolized by colours, deserve accommodation in the public realm of a town. So we need harlequin plans for harlequin space, to suit our harlequin lives.”³⁵

³⁴ Christopher Lee Chavis, *City of St. Louis Parcel Ownership*, 2012

³⁵ Tom Turner, *City as Landscape; A Post-Post Modern View of Design and Planning*, (London, Chapman & Hall, 1996), 189

This statement touches on two points that are important to this study. Primarily, Turner advocates a mixture of public spaces that support different emotions. These different emotions are attached to different colors just as different land uses are associated with different colors. This is an effort to capture the diversity of the users and to create character in a place. Secondly, he points out the need to plan for these spaces. Their presence should trigger or invite a particular mood; reflective, calm, fun, sensual and so on. This design displays this diversity of open spaces as these public spaces seek to enhance the mixed-use environment that will surround them.

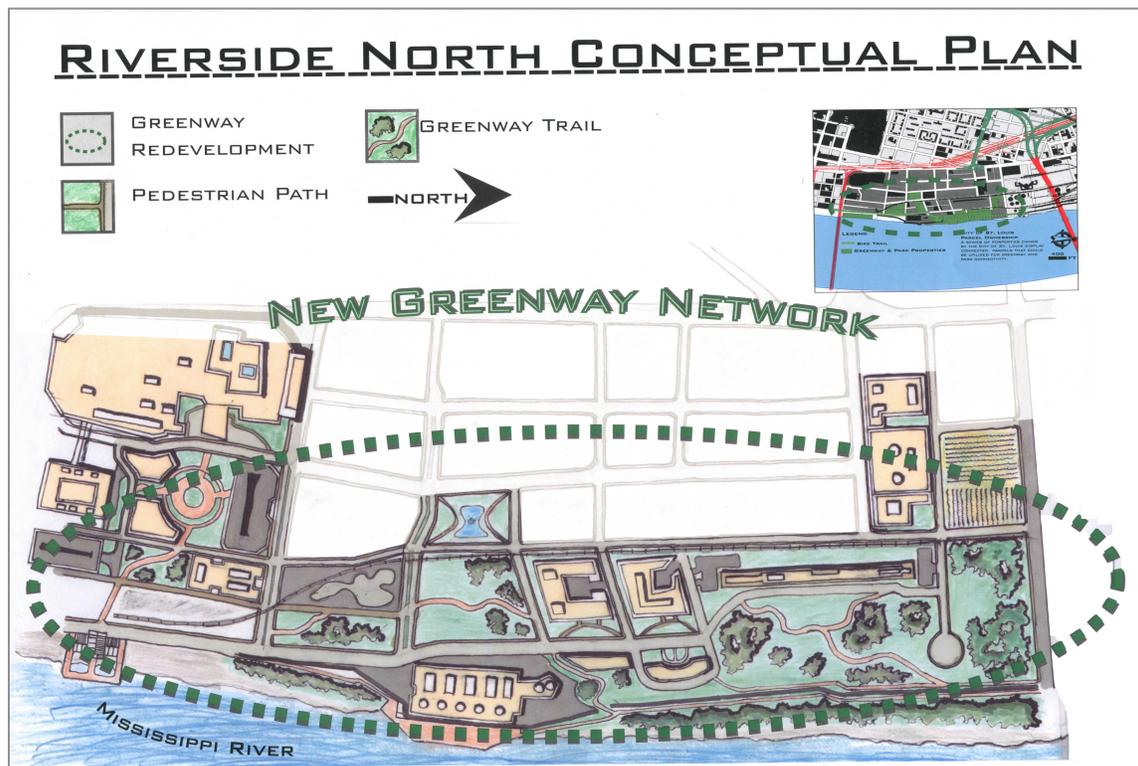


Figure 6.4 – New Greenway Network.³⁶

³⁶ The conceptual plan repurposes under utilized properties in Riverside North.

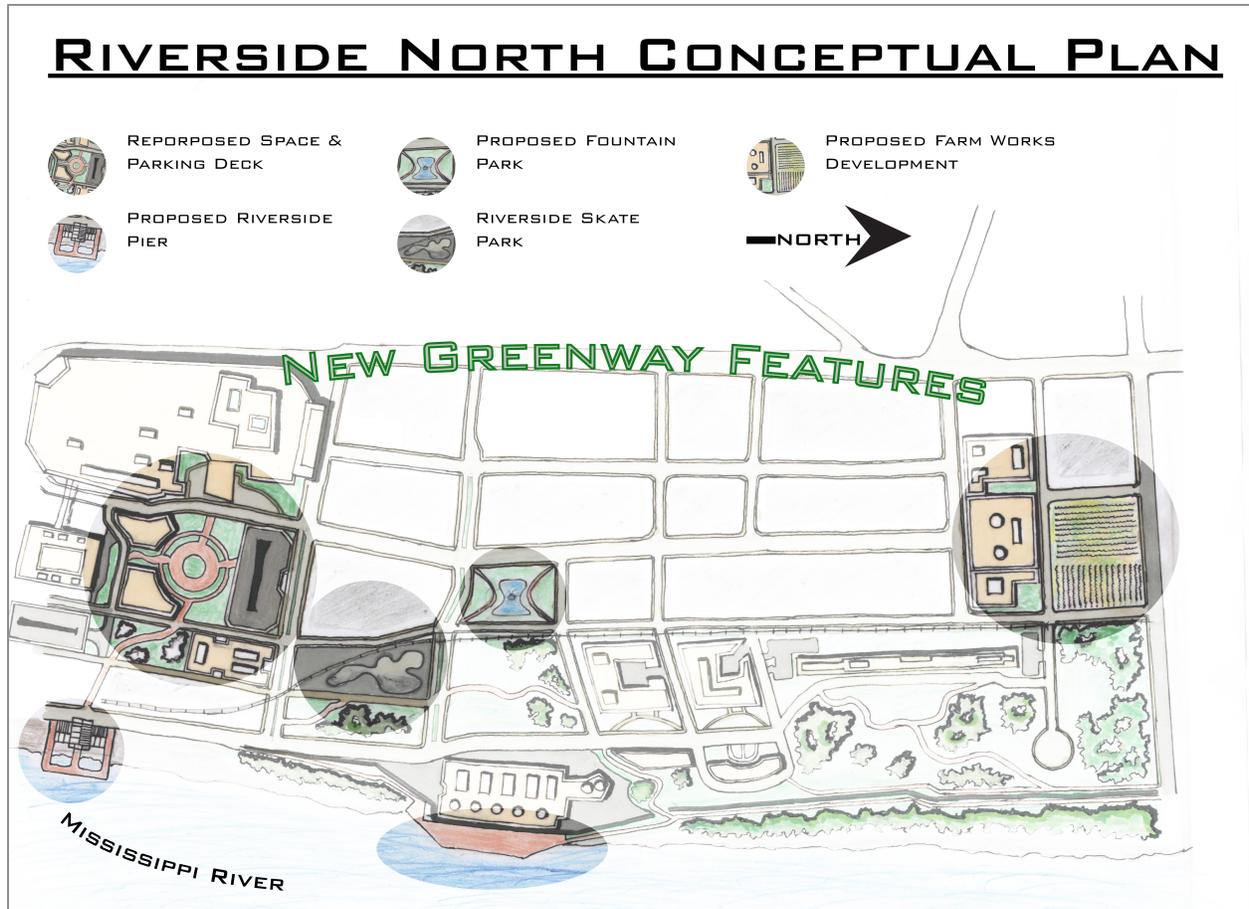


Figure 6.5 – New Greenway Features

6.5 A Form-Based Code (FBC)

The St. Louis Strategic Land Use Plan³⁷ designates the Riverside North area for “Specialty Mixed Use.” Mixed-Use development attempts to bring various land uses together. The goal of mixed-use is to create dense developments that allow pedestrian navigability and the ability to live, work, play, and shop in one place. Mixed-Use can take many forms (vertical, horizontal, walkable, etc.), and the regulating code of that area will be key to determining how the development creates a sense of place.

³⁷ The St. Louis Strategic Land Use Plan is an adopted map that guides the decisions for future development. The current Plan was adopted in 2005.

This paper attempts to define the mixed-use development character of the area. With proper planning and predefining the built character of Riverside North, the implementation of development can ensure that the place will support and encourage a specific urban character. That urban character shall be one that allows for a steady transition of land use intensities throughout the site in efforts to connect the internal and surrounding investments.

This design uses a Form-Based Code that is from the 17th ward in the City of St. Louis.³⁸ In an area known as the Central West End (CWE), a FBC created by Park Central Development has helped to marry various land uses under one development code while touting one of the best urban environments in the city. CWE appears to have the ideal development make up that would define the “Specialty Mixed-Use” of Riverside North.

This paper chooses to use to test a FBC because Form-Based Codes are regulate the construction of buildings to help predict its physical results for a particular district. This is a clear contrast to Euclidean zoning. These regulations focus on the development of a parcel, as opposed to the land use. These codes manage the relationship between buildings, their facades, and the allotted public space such as sidewalks and streets. Addressing the character of development through form and scale controls, the application of form-based codes can be advantageous for aesthetically controlling mixed-use development.

FBCs manage the development of land differently than Euclidean Zoning. Because of that, this paper hypothesizes that it would yield a different result than what has been produced by tradition zoning thus far. The assertion can be made that FBCs are “market friendly” regulatory tools. Despite the trend of the market, FBCs allow flexibility for repurposing and that zoning does not. Riverside North is at a critical junction. The Planners and visionaries of the City of St. Louis should feel pressed to redefine the site, in efforts to install a purpose that will better the site for now and in the future.

³⁸ Park Central Development, *17th Ward St. Louis Missouri*, (2011), (<http://www.fpsedc.org/>)

6.6 Goals of Form-Based Code in Riverside North

Chapter four of this study references many of the issues that plague Riverside North. In order to plan for a successful future, the plan should regulate the development in a fashion to prohibit the concerns and foreseen problems that would contradict the new vision of Riverside North. Planning with the intent to push change will secure the planning efforts that are being directed to better this area.

Some of the issues of Riverside North are due to allowances by the regulatory code. Currently regulated by the unrestricted “K” district there are a variety of issues that could occur that are contradictory to mixed-use development and the creation of an urban environment. The zoning code specifically states:

“In the unrestricted district buildings and premises may be used for any purpose whatsoever not in conflict with any ordinance or the city regulating nuisances or Section 26.60.025, provided that motor fuel pumping stations shall meet the site requirements specified in Section 26.40.027 and carry-out restaurants that sell to customers in the cars or who consume the sold products in cars parked on the carry-out restaurant premises, or sell products through sales windows, to customers who are in cars, for immediate consumption by the customer either on or off the premises shall meet the site requirements specified in Section 26.40.026 B1 or 2 as appropriate. Provided, however, that no building shall be hereafter erected, nor shall any existing building be converted, reconstructed or structurally altered for dwelling purposes.”³⁹

This code allows uses that are contrary to the standard definition and principles of mixed-use development. It allows for the use of the land without construction of buildings. It allows one story big box development or power centers like Wal-Mart and Costco, which have been

³⁹ St. Louis City Revised Code, Title 26, www.slpl.lib.mo.us/cco/code/title26.htm,

accused of harming downtowns. Furthermore, it allows tower and high-rise mixed-use development. This type of development could act as a vacuum, placing a bulk of the mixed-use under one roof. Although mixed-use is applied, this type of development drastically reduces the demand for adjacent mixed-used development. This could hinder the subject area from developing at pedestrian scale and creating an urban environment. The zoning code allows uses that favor the automobile over the pedestrian. Fast-food establishments with drive-through windows, and other uses that cater to users staying in the car is a contrast to the goals of the plan. The code also prohibits the construction of dwelling units. This is a hindrance to a mixed-used development because the model depends on communities and areas, in which a user can work, have recreation, shop at leisure and live a high quality life.

6.7 Form-Based Code of Mid-Town St. Louis

The Form-Based Code of Mid-Town St. Louis, popularly known as the Central West End, was installed to control the bulk and form of development, in particular zones. It is the regulating mechanism that addresses new development, redevelopment, and other improvements of the property. It demands a certain character of development that supports a vibrant and urban atmosphere. In doing so the Form-Based Code provides a clear identification of eight zones of Building Envelope Standards. It identifies each zone with a specific color that correlates with Building Envelope Standards, and the principal form of development for that zone. The Building Envelopes are defined as follows:

- A. **Neighborhood General Type 1 (NG1):** *The intent of this zone is to regulate the physical form of the Neighborhood General Type 1 zone in order to preserve and enhance the integrity and quality of this primary single unit, duplex, triplex, fourplex and rowhouse residential area of the neighborhood. The zone is designed to provide for sensitive and respectful infill development, which allows for the variety of building types and forms, and front yards found in the neighborhood.*
- B. **Neighborhood General Type 2 (NG2):** *The intent of this zone is to regulate the physical form of the Neighborhood General Type 2 zone in order to preserve and enhance the integrity and quality of this primary denser and higher, larger lot residential area of the neighborhood. The zone is designed to provide for denser and architectural appropriate infill development, which allows for a variety of*

building types, heights and forms as well as the common yards found in the neighborhood.

- C. **Neighborhood General Type 3 - Flex (NG3):** The intent of this zone is to regulate the physical form of the Neighborhood General Type 3 zone in order to establish a flexible mixed-use residential area that enhances and densities this primary larger lot mixed use area of the neighborhood. The zone is designed to provide for architectural appropriate infill development, which allows for a variety of building types, uses, heights and forms as well as the creation of a vibrant mixed-use streetscape.
- D. **Neighborhood Center Type 1 (NC1):** The Primary intent of this zone is to regulate the physical form of neighborhood primary and secondary retail centers in order to establish, preserve or enhance the vibrant, pedestrian oriented character of these walkable neighborhood main streets. The physical form of a shop front building is regulated while allowing flexibility in use. The zone is designed to provide convenient shopping and servicing establishments for persons residing in the neighborhood so long as such uses are compatible with adjacent residential uses.
- E. **Neighborhood Center Type 2 (NC2):** The Primary intent of this zone is to regulate the physical form of neighborhood mixed use areas in order to establish, preserve or enhance the existing vibrant, pedestrian oriented character of these areas while allowing flexibility in use. The physical form of these mixed-use areas follow the existing pattern of the area wherein there is a great variety of building types set back from the sidewalk with a common yard. These neighborhood centers are especially useful in close proximity to residential areas.
- F. **Neighborhood Core (NC):** The Primary intent of this zone is to regulate the physical form of the neighborhood core high density mixed use areas in order to establish, preserve or enhance the existing vibrant, pedestrian oriented character of these areas while allowing flexibility in use, height and building type. The physical form of these mixed-use areas follow the existing pattern of the area wherein there is a great variety of building types and set back from the sidewalk with a variety of common yards.
- G. **Boulevard Type 1 (B1):** The Primary intent of this zone is to regulate the physical form of important city-wide Avenue Type arterial thoroughfares with adjacent mixed use high density areas in order to establish, preserve or enhance the existing vibrant, pedestrian oriented character of these areas while allowing flexibility in use. The physical form of these mixed-use areas follow the existing pattern of the area wherein there is a great variety of building types set back from the sidewalk with a common yard.
- H. **Boulevard Type 2 (B2):** The Primary intent of this zone is to regulate the physical form of important city-wide Boulevard Type arterial thoroughfares with adjacent mixed use high density areas in order to establish, preserve or enhance the existing vibrant, pedestrian oriented character of these areas while allowing flexibility in use. The physical form of these mixed-use areas follow the existing pattern of the area wherein there is a great variety of building types with zero lot lines and a variety of frontage types.⁴⁰

A quick analysis of the Building Envelopes indicate that the Envelopes are directly

⁴⁰ Park Central Development, 17th Ward St. Louis Missouri, (2011), (<http://www.fpsedc.org/>)

associated with the street types and lot size. Major traffic thoroughfares, minor thoroughfares, large lots and small lots yield different development types. This is important because the existing streets and lots of Riverside North are equipped to handle some of the Building Envelopes as suggested. However, there are places where large lots suggest a certain envelope but the street type does not support that same suggested envelope. These are the areas that will need improvements and better distinction between the private and public realm of the right-of-way.

Building Envelope definitions are the macro managing tools used to emphasize compatible development, but the envelopes codify more details of how a parcel is developed. The micro-managing tools, which will be assessed next, regulate building placement, building heights, and building types. These pillars address the setbacks, building lines, and building types to unify the character of development.

6.9 Micro Managing Tools of Form-Based Code

Building placement is a primary objective of any FBC. The streetscape and public realm are emphasized for structuring the desired urban environment. The placement affects the visual edges of a user's experience. The building placement should also consider the privacy and experience of the property owner. Furthermore, building placement can regulate the allowable number of buildings on a parcel, and their proximity to one another. Various building placement techniques can be applied to any development project, but because the measurements of a FBC are physical, the techniques can be tested and can offer a more foreseeable result.

Built-to Line (BTL) is defined as "A line parallel to the property line where the façade of the building is required to be located."⁴¹ BTL assists in creating a consistent wall of building fronts that assist in forming the urban character. This regulation is more

⁴¹ Parolek, Daniel, *Form-Based Codes: A Guide for Planners, Urban Designers, Municipalities, and Developers*, (Hoboken, New Jersey, John Wiley & Son, Inc, 2008)

stringent than the setback minimum regulations. BTL specifically states the placement of a building, and eliminates the ambiguity of “setback” practices.

A setback is the distance by which a building must be separated from the property line or ROW, typically defined and regulated as a minimum.⁴² Setbacks are not strong in defining a relationship of building with the public realm but they can help to assure space between buildings. Setbacks are especially effective for regulating side yards and rear yards.

In attempts to regulate the built environment, widths, depths, and heights are all important to create an urban feel. Thus, maximum and minimum height standards are just as important in establishing the urban form. Placing limits on heights endorses appropriate scale for the intended form. The best practices for regulation suggest that the code should regulate building heights by the number of stories.

6.10 Form-Based Code in Riverside North

In this plan Riverside North has three different road capacities as defined by CWE Code; Major Collectors (avenue type), Minor Collectors (boulevard type), and the local street (neighborhood type). These street designations correlate with the basis of some building envelopes that are associated with such road types. This study selects three building envelopes to test inside of Riverside North.

The first building envelope to be tested is the Neighborhood Type 3 Flex (NG3). “The intent of this zone is to regulate the physical form of the Neighborhood General Type 3 zone in order to establish a flexible mixed-use residential area that enhances and densities this primary larger lot mixed use area of the neighborhood.”⁴³ Being of the

⁴² Parolek, Daniel, *Form-Based Codes: A Guide for Planners, Urban Designers, Municipalities, and Developers*, (Hoboken, New Jersey, John Wiley & Son, Inc, 2008)

⁴³ Park Central Development, *17th Ward St. Louis Missouri*, (2011), (<http://www.fpsedc.org/>)

“Neighborhood Type” this envelope should be placed along a local road that is adjacent to large lots and has the connectivity and permeability to allow a user to have a pleasant urban experience.

The 2nd Street corridor seems to carry these characteristics. Spanning from the Martin Luther King to Cass Avenue, the road has the longest continuity of all the internal streets of Riverside North. Because of this it has the opportunity to carry the flexible mixed-use throughout the site while providing access to other designated areas throughout the site.

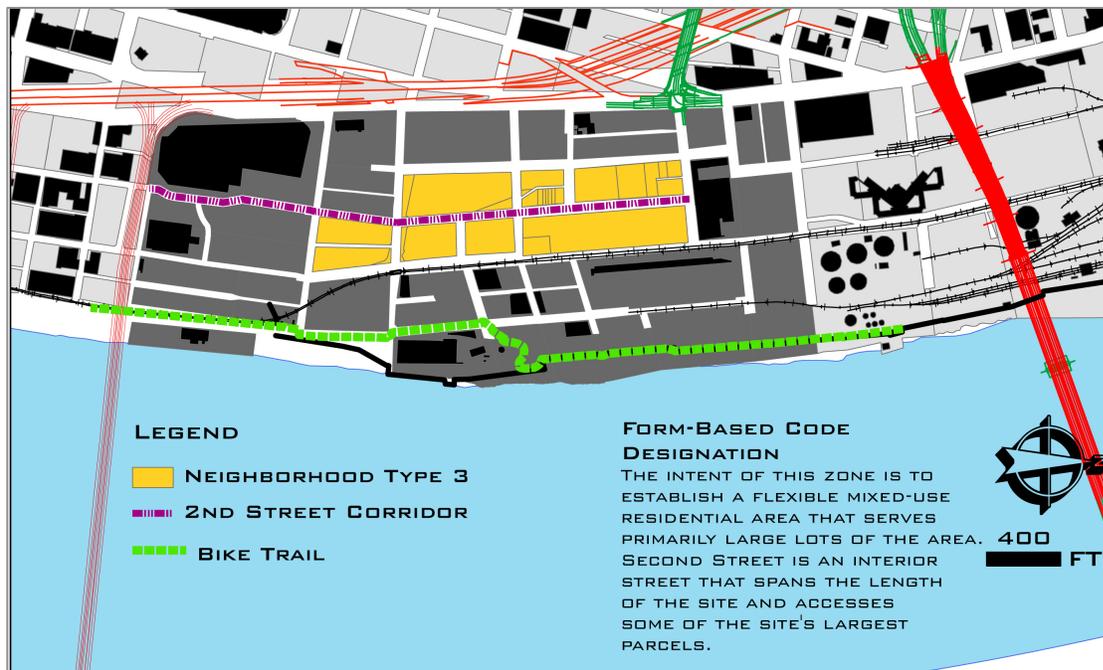
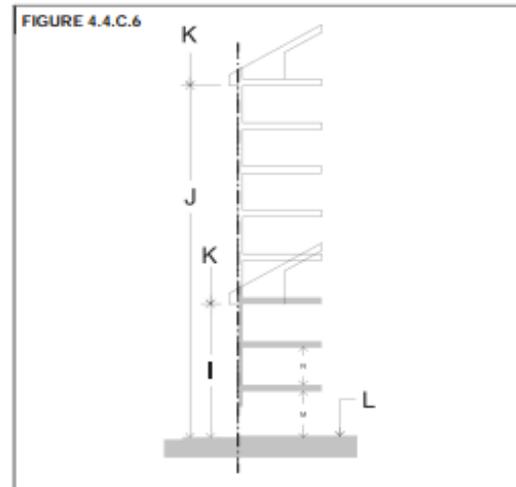
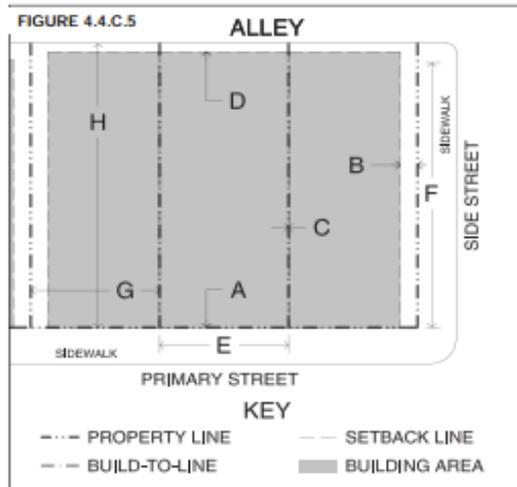


Figure 6.6.- Designates NG3⁴⁴

⁴⁴ Christopher Lee Chavis, *NG3 FBC Designation*, 2012

4.0 BUILDING ENVELOPE STANDARDS : NEIGHBORHOOD GENERAL TYPE 3 - FLEX



4.4.C.1 BUILDING PLACEMENT

BUILD-TO-LINE:

- [A] FRONT: 0 ft
- [B] SIDE STREET: 0 ft min | 10 ft max

SETBACK:

- [C] SIDE: 0 ft min | 10 ft max (1)
- [D] REAR: 5 ft min | 10 ft max (2)

BUILDING FORM:

- [E] PRIMARY STREET: At least 80% to BTL (3)
- [F] SIDE STREET: At least 80% of Side Setback
- [G] LOT WIDTH: Per Existing (4)
- [H] LOT DEPTH: Per existing | Alleys to remain

FOR REFERENCE NOTES & GENERAL NOTES,
REFER TO PAGE 4-14 OF THIS CODE.

4.4.C.2 BUILDING HEIGHT

- [I] BUILDING HEIGHT MINIMUM: 3 stories and 35 ft (5)
- [J] BUILDING HEIGHT MAXIMUM: 8 stories and 130 ft (5)
- [K] MAX TO EAVE / T.O. OF PARAPET: 15 ft
- [L] FINISHED GRND FLOOR LEVEL: Max 6 in above back of sidewalk for all other uses than residential which must be Min 24 in | Max 36 in
- [M] FIRST FLOOR CEILING HTS: 12 ft min | 25 ft max clear
- [N] UPPER FLOORS CEILING HTS: 8 ft min | 12ft max clear

MEZZANINES AND PODIUMS: Mezzanines and podiums greater than 1/3 or 2/3 of the floorplate area shall be counted as a full story

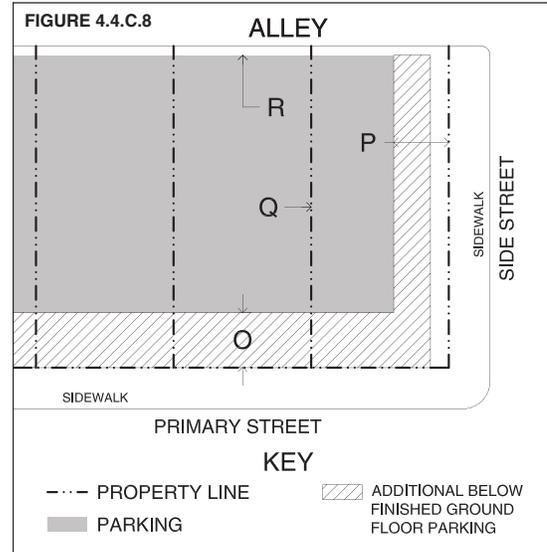
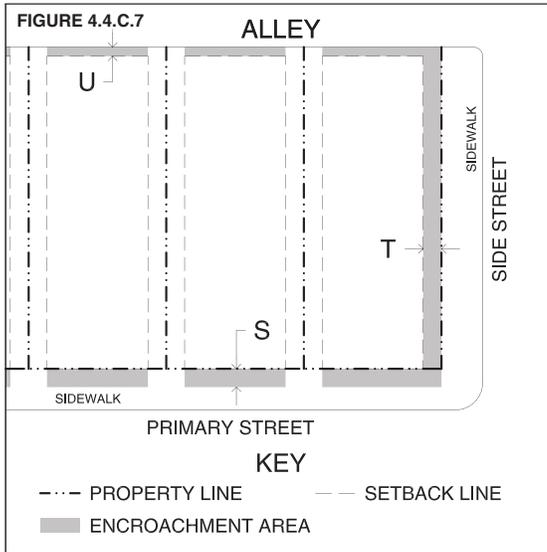
4.4.C.3 BUILDING TYPES

Duplex, Triplex, and Fourplex
Rowhouse and Courtyard Rowhouse
Stacked Flats
Courtyard Building
High Rise Residential Building
Commercial Building
Flex Building
Liner Building

See Section 6.4.4: Building Types for further details.

Figure 6.7 - Neighborhood General Type 3 Zone.⁴⁵

⁴⁵ Park Central Development, 17th Ward St. Louis Missouri, (2011)



4.4.C.4 ENCROACHMENTS

LOCATION:

[S] PRIMARY STREET:	10 ft max (6)
[T] SIDE STREET:	10 ft max (6)
[U] REAR:	5 ft (7)

4.4.C.5 USE

GROUND FLOOR USE:	Office Office Service Residential Primary Retail Secondary Retail Special (8)
UPPER FLOOR(S) USE:	Office (9) Residential Special (8)

See Section 8.3: Use Tables for further details.

4.4.C.6 THOROUGHFARE TYPE

See Section 5.0: Thoroughfare Standards for applicable Thoroughfare Type and Sidewalk Type.

4.4.C.7 PARKING

LOCATION:

[O] PRIMARY STREET SETBACK:	50 ft min (10)
[P] SIDE STREET SETBACK:	30 ft (11)
[Q] SIDE SETBACK:	0 ft, if surface lot 1 per main building if structured parking
[R] REAR SETBACK:	5 ft

REQUIRED SPACES:

GROUND FLOOR PRIMARY RETAIL:	
< 3,000 SQ FT:	No off-street parking requirement
> 3,000 SQ FT:	One (1) space per 700 sq ft in excess of the 3,000 sq ft
GROUND FLOOR SECONDARY RETAIL:	
< 7,500 SQ FT:	No off-street parking requirement
> 7,500 SQ FT:	One (1) space per 1,250 sq ft in excess of the 7,500 sq ft
UPPER FLOOR(S) OFFICE:	
< 7,500 SQ FT:	No off-street parking requirement
> 7,500 SQ FT:	One (1) space per 1,250 sq. ft in excess of the 7,500 sq. ft
UPPER FLOOR(S) RESIDENTIAL:	
	One (1) space per dwelling unit or half (1/2) a space per studio unit

Figure 6.8 – Neighborhood General Type 3 Zone⁴⁶

⁴⁶ Park Central Development, 17th Ward St. Louis Missouri, (2011)

The second building envelope to be tested for placement in Riverside North is Boulevard Type 2 (B-2). “The Primary intent of this zone is to regulate the physical form of important city-wide Boulevard Type arterial thoroughfares with adjacent mixed use high density areas in order to establish, preserve or enhance the existing vibrant, pedestrian oriented character of these areas while allowing flexibility in use.”⁴⁷ Because of the underutilized properties of Riverside North, it is difficult to locate this Building envelope near the suggested high-density mixed-use areas. However, the street classification can guide design designation.

The thoroughfare mentioned in the Boulevard Type 2 description can be related to the street character found with 3rd Street and N. Broadway. Most travelers use 3rd/N. Broadway to access Interstate 70 or the north riverfront industrial areas. This corridor serves traffic that is funneled from the Martin Luther King Bridge, and downtown St. Louis. At the completion of the Mississippi River Bridge, there will be yet another bridge that funnels traffic towards N. Broadway – thus, it meets the criteria for “important city wide boulevard.”

The 3rd/N. Broadway corridor currently houses the backside of the Lumiere Palace, where the user can see the exposed loading dock. Despite the orientation of the Lumiere Place, its success alludes that high-density mixed-use development is supported with adequate access via the aforementioned thoroughfare. However, the largest challenge of the 3rd/N. Broadway will be to create a desirable urban fabric. The corridor is adjacent to the elevated interstate 70, and has an open air power station that will disrupt the pedestrian experience but may also hinder vertical development recommended for this building envelope.

⁴⁷ Park Central Development, *17th Ward St. Louis Missouri*, (2011)

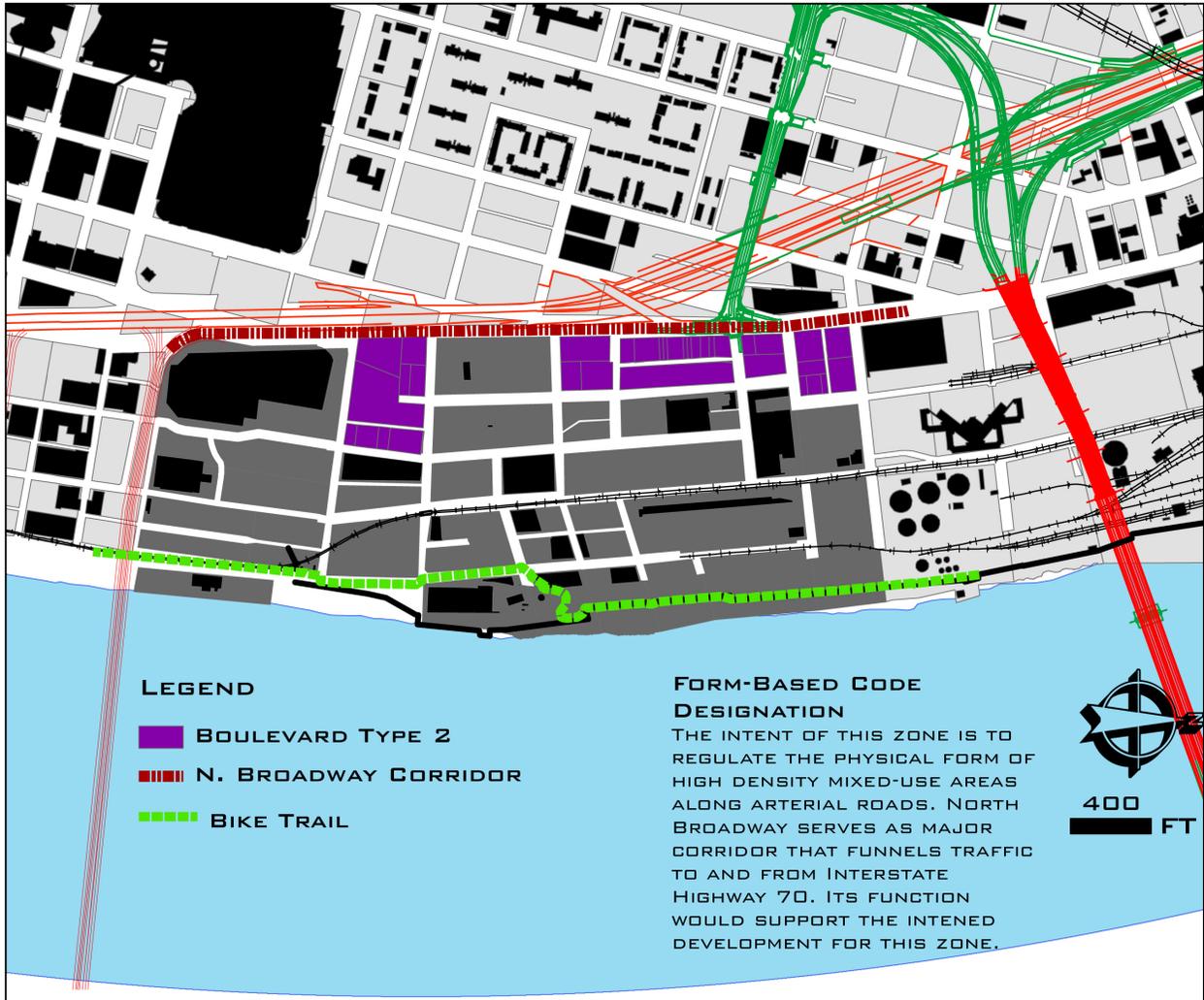
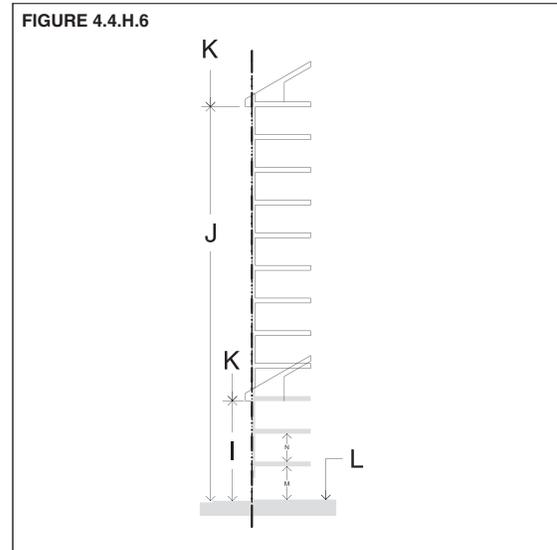
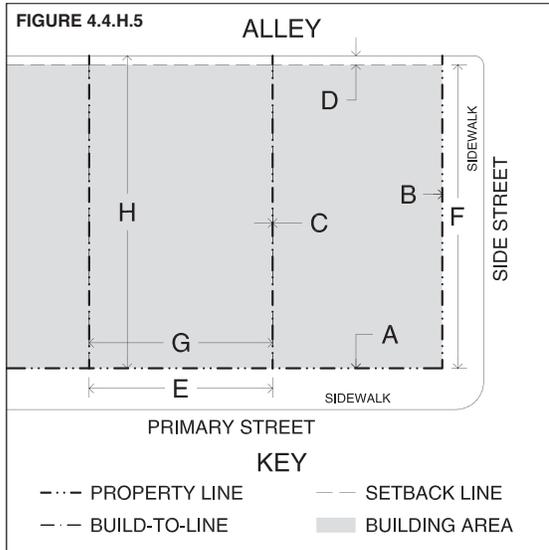


Figure 6.9 - Designation B2⁴⁸

⁴⁸ Christopher Lee Chavis, *NG3 FBC Designation*, 2012



4.4.H.1 BUILDING PLACEMENT

BUILD-TO-LINE:

- [A] FRONT: 0 ft (1)
- [B] SIDE STREET: 0 ft

SETBACK:

- [C] SIDE: 0 ft min | 10 ft max
- [D] REAR: 5 ft min | 10 ft max

BUILDING FORM:

- [E] PRIMARY STREET: At least 85% to BTL
- [F] SIDE STREET: At least 85% to Setback Line
- [G] LOT WIDTH: Per existing
- [H] LOT DEPTH: Per existing | alleys to remain

FOR REFERENCE NOTES & GENERAL NOTES,
REFER TO PAGE 4-34 OF THIS CODE.

4.4.H.2 BUILDING HEIGHT

- [I] BUILDING HEIGHT MINIMUM: 3 stories and 35 ft (2)
- [J] BUILDING HEIGHT MAXIMUM: 12 stories and 200 ft (2&3)
- [K] MAX TO EAVE / T.O. OF PARAPET: 15 ft
- [L] FINISHED GRND FLOOR LEVEL: Max 6 in above
back of sidewalk
- [M] FIRST FLOOR CEILING HTS: 12 ft min | 25ft max clear
- [N] UPPER FLOORS CEILING HTS: 8 ft min | 15ft max clear

MEZZANINES AND PODIUMS: Mezzanines and podiums
greater than 1/3 or 2/3 of the
floorplate area shall be
counted as a full story

4.4.H.3 BUILDING TYPES

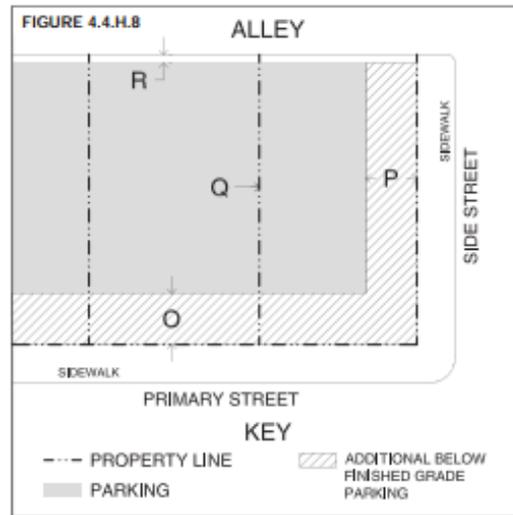
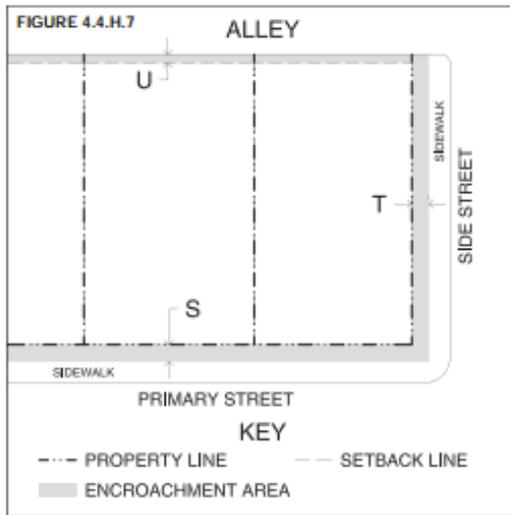
- Duplex, Triplex, and Fourplex
- Rowhouse and Courtyard Rowhouse
- Stacked Flats
- Courtyard Building
- High Rise Residential Building
- Commercial Building
- Flex Building
- Live / Work Unit (4)
- Liner Building

See Section 6.4.4: Building Types for further details.

Figure 6.10 – Boulevard Type 3 Zone. ⁴⁹

⁴⁹ Park Central Development, 17th Ward St. Louis Missouri, (2011)

4.0 BUILDING ENVELOPE STANDARDS: BOULEVARD TYPE 2



4.4.H.4 ENCROACHMENTS

LOCATION:

[S] PRIMARY STREET:	10 ft max (5)
[T] SIDE STREET:	10 ft max (5)
[U] REAR:	5 ft (6)

4.4.H.5 USE

GROUND FLOOR:	Residential
	Secondary Retail
	Office
	Special (7)

UPPER FLOOR(S):	Office
	Residential
	Special (7)

See Section 8.3: Use Tables for further details.

4.4.H.6 THOROUGHFARE TYPE

See Section 5.0: Thoroughfare Standards for applicable Thoroughfare Type and Sidewalk Type.

4.4.H.7 PARKING

LOCATION:

[O] PRIMARY STREET SETBACK:	30 ft
[P] SIDE STREET SETBACK:	30 ft
[Q] SIDE SETBACK:	0 ft
[R] REAR SETBACK:	10 ft

REQUIRED SPACES:

GROUND FLOOR PRIMARY RETAIL:

< 3,000 SQ FT:	No off-street parking requirement
> 3,000 SQ FT:	One (1) space per 700 sq ft in excess of the 3,000 sq ft

GROUND FLOOR SECONDARY RETAIL:

< 7,500 SQ FT:	No off-street parking requirement
> 7,500 SQ FT:	One (1) space per 1,250 sq ft in excess of the 7,500 sq ft

UPPER FLOOR(S) OFFICE:

< 7,500 SQ FT:	No off-street parking requirement
> 7,500 SQ FT:	One (1) space per 1,250 sq ft in excess of the 7,500 sq ft

UPPER FLOOR(S) RESIDENTIAL:

One (1) space per dwelling unit or half (1/2) a space per studio unit

Figure "6.11" Boulevard Type 3 Zone.⁵⁰

⁵⁰ Park Central Development, 17th Ward St. Louis Missouri, (2011), (<http://www.fpsedc.org/>)

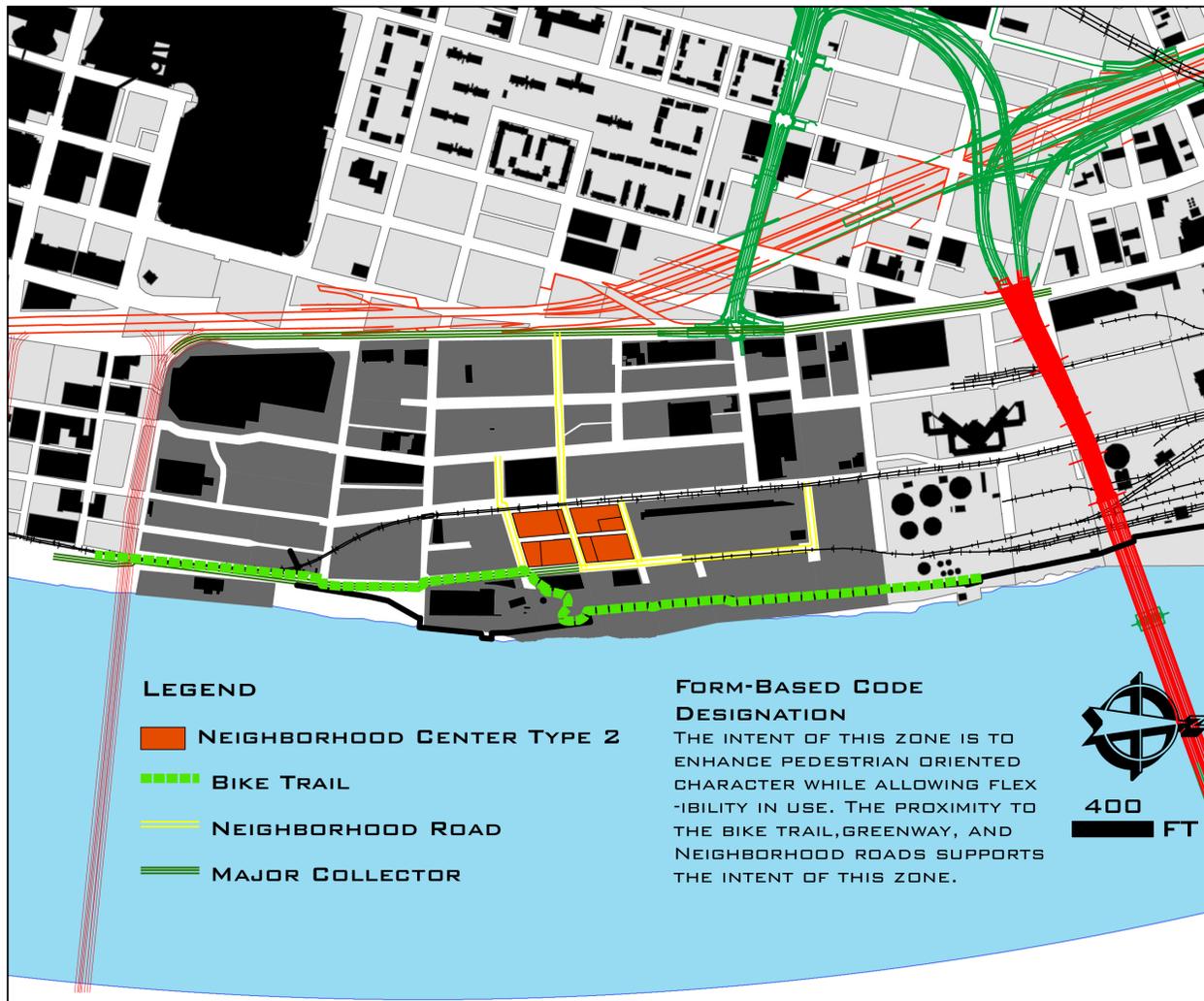


Figure 6.12 – Designation NC2⁵¹

The building envelope, Neighborhood Center Type (NC-1), is intended “...to regulate the physical form of neighborhood primary and secondary retail centers in order to establish, preserve or enhance the vibrant, pedestrian oriented character of these walkable neighborhood main streets. The physical form of a shop front building is regulated while allowing flexibility in use.”⁵² Comparatively, this envelope yields much less density and commands for more open space.

⁵¹ Christopher Lee Chavis, *Neighborhood Center Type 2 Designation*, 2012

⁵² Park Central Development, *17th Ward St. Louis Missouri*, (2011), (<http://www.fpsedc.org/>)

Considering the building envelopes, thus far, Riverside North has had the road structure, and/or the existing environments that support the proposed building envelopes. A building envelope with a heavy emphasis on being pedestrian scaled, walkable, and having common yards, should be near the proposed Greater River Greenway and the bike trail. With the investment and enhancement of the greenway and bike trail the parcels along Leonord K. Sullivan Drive and O'Fallon Street can become the desirable place described by NC-1 – a walkable, bikeable, secondary retail center.

Various aspects point to the NC-1 being appropriate in this location. The first is the emphasis on green space and shared common space in the public realm. Secondly, this development type maximizes the height of buildings at five stories. This fact is significant for the reasons of protecting views of the river. In continued effort to make sure that the river is the destination it is important to enhance the experience of the user on the ground, as well as the user in the vertical buildings.

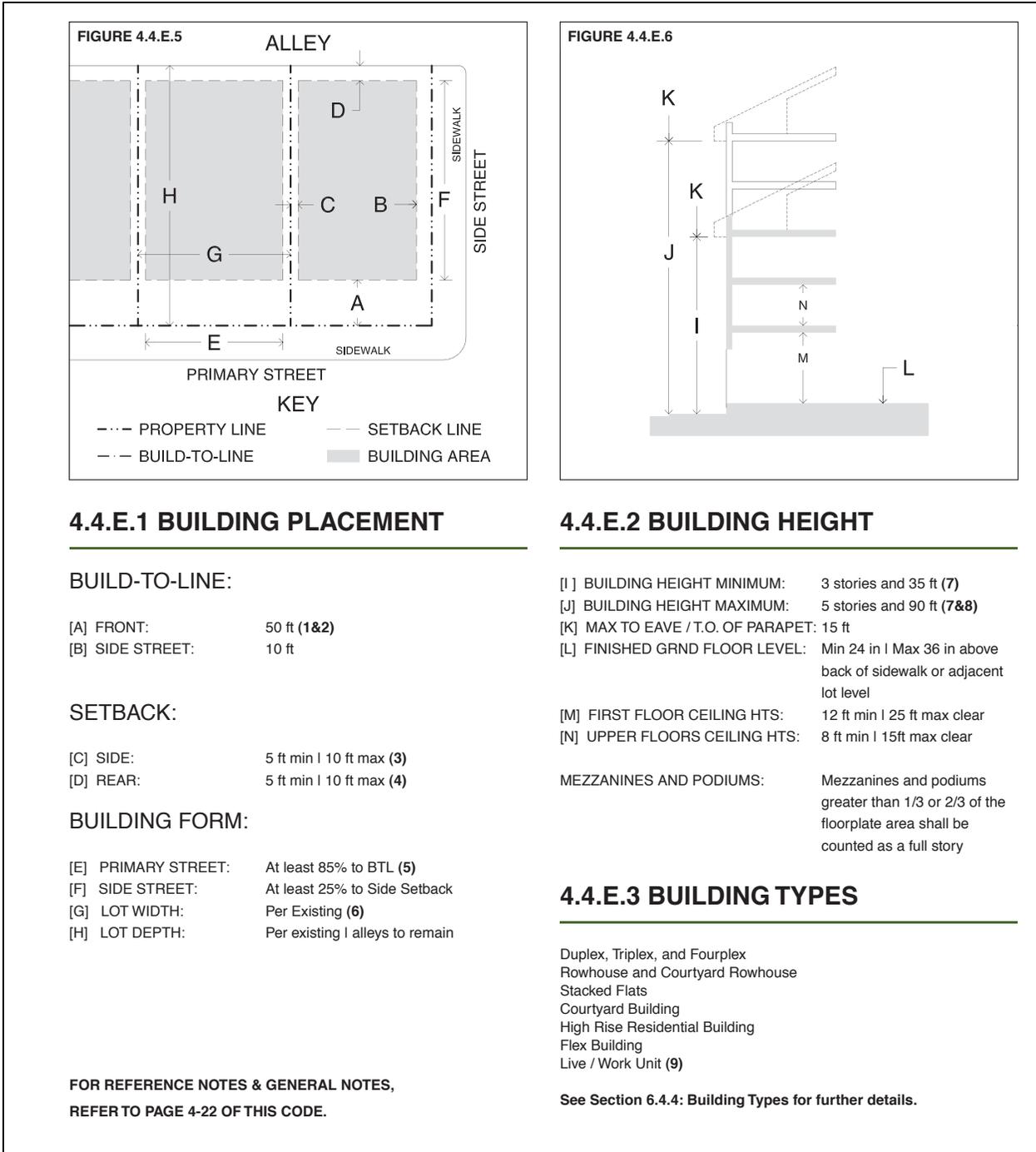
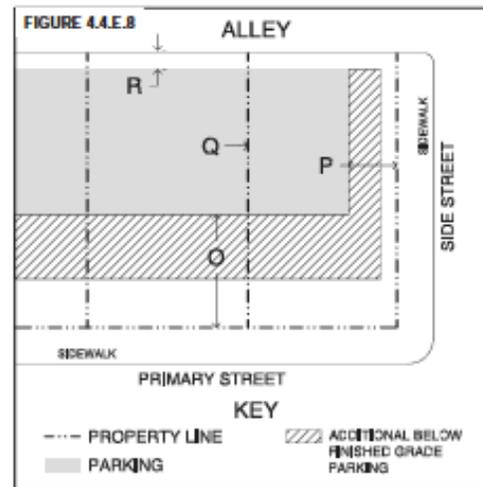
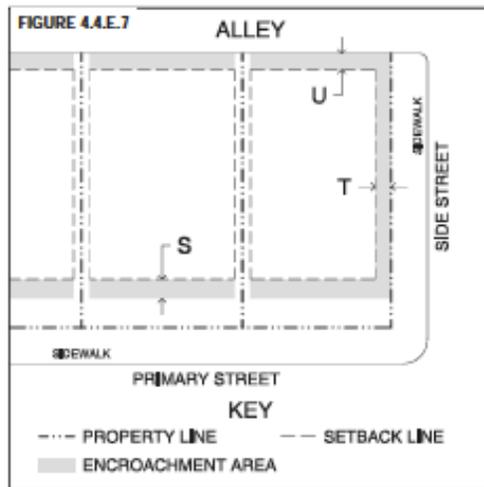


Figure 6.13 – Building regulations of the Neighborhood Center Type 2.⁵³

⁵³ Park Central Development, 17th Ward St. Louis Missouri, (2011), (<http://www.fpsedc.org/>)

4.0 BUILDING ENVELOPE STANDARDS : NEIGHBORHOOD CENTER TYPE 2



4.4.E.4 ENCROACHMENTS

LOCATION:

[S] PRIMARY STREET:	12 ft
[T] SIDE STREET:	10 ft
[U] REAR:	5 ft

4.4.E.5 USE

GROUND FLOOR:	Office Office Service Residential Secondary Retail
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UPPER FLOOR(S):	Office Residential
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See Section 8.3: Use Tables for further details.

Note: See Reference Note (10) for Civic / Institutional Uses.

4.4.E.6 THOROUGHFARE TYPE

See Section 5.0: Thoroughfare Standards for applicable Thoroughfare Type and Sidewalk Type.

4.4.E.7 PARKING

LOCATION:

[O] PRIMARY STREET SETBACK:	80 ft max (11)
[P] SIDE STREET SETBACK:	30 ft (12)
[Q] SIDE SETBACK:	0 ft, if surface lot per main building if structured parking
[R] REAR SETBACK:	5 ft

REQUIRED SPACES:

PRIMARY RETAIL:	
< 3,000 SQ FT:	No off-street parking requirement
> 3,000 SQ FT:	One (1) space per 700 sq. ft in excess of the 3,000 sq. ft

SECONDARY RETAIL:	
< 7,500 SQ FT:	No off-street parking requirement
> 7,500 SQ FT:	One (1) space per 1,250 sq. ft in excess of the 7,500 sq. ft

OFFICE:	
< 7,500 SQ FT:	No off-street parking requirement
> 7,500 SQ FT:	One (1) space per 1,250 sq. ft in excess of the 7,500 sq. ft

RESIDENTIAL:	
	One (1) a space per dwelling unit or half (1/2) a space per studio unit

Figure 6.14 – Building regulations of Neighborhood Center Type 2.⁵⁴

⁵⁴ Park Central Development, 17th Ward St. Louis Missouri, (2011), (<http://www.fpsec.org/>)

6.11 Next Steps for Riverside North

The subject area is riddled with problems and issues of the physical environment. These issues are certainly prohibiting factors from the area meeting its potential. This study implies that a FBC is the answer to defining an urban environment. A form-based code would better address and prohibit the unpredictable results of development, more so than the existing zoning. A form-based code will help to revitalize the landscape and manage its growth. The standards of a flexible Form-Based Code will better govern and accommodate change over long periods of time. Markets and trends will change, and so will the demand for space. However, a FBC would help to create a strong development pattern that would be supportive of various changes.

Significant improvements are needed in order to make Riverside North live up to any of the visions that have been prepared for it over the last 30 years. So the question remains, how does St. Louis move forward with its isolated piece on the riverfront? Growth and improvements of the area have to become apparent in order for a FBC to be effective in any manner. It is vital that the City continues to engage with stakeholders like Great River Greenway and Farm Works. It is also imperative that the City invites its citizens into the conversation about the riverside's future. The citizens will be the future investors, users, and inhabitants who will have to embrace the reform of Riverside North.

Because Riverside North has been in a state of decline and because the risk of private investment appears greater than the risk of investing in an already established neighborhood or area, the City of St. Louis would need to invest in and incentivize the development of Riverside North. Attracting development to Riverside North and making it a success will come from multiple factors. Earlier, in this paper Symes reminded us that location alone will not rehab the subject area. The three decades of vision plans will not rebuild Riverside North. The failed riverboat industry reminds us that entertainment and recreation industries will not sustain vitality

in the area. The St. Louis Strategic Land Use Plan designates the subject area as specialty mixed-use, thus there will be a mixture of elements that will reform the vacant lands.

One of those elements is the introduction of residential development to the area. As the FBC suggested, mixed-use implies the ideas of “Live-Work-Play.” The success of establishing residential presence and stability is the seed to growing the desired dense environment that the application of this FBC would suggest. Because it is a variable that has not been tested, it is necessary to conduct a feasibility study for such a use.

In urban environments, it is the presence of other people and civil activity that provides users and residence with comfort of a place. Thus, the construction and programming of public spaces is important for attracting future residents of Riverside North. This includes embracing the ideas of Great Rivers Greenway, reestablishing and enhancing public right-of-way, and creating passive and active recreation near the Mississippi River.

The case studies show that successful riverfront revitalization takes a mix of public and private investment to invigorate the enthusiasm of the riverfront. The City of St. Louis has a number of financial mechanisms that can spark private investment. Among them is the use of a Tax Increment Finance (T.I.F.) district. The Lincoln Institute of Land Policy describes a TIF as a “...tool that allows municipalities to promote economic development by earmarking property tax revenue from increases in assessed values.”⁵⁵ TIFs are used as leveraging mechanisms that encourage the development of existing unsightly and underdeveloped areas or those places suffering from blight.

TIFs are particularly attractive to developers because they encourage a fiscal partnership with the governing municipalities. It provides the developer with a guarantee that the private investment in a district will be reciprocated with public investment. TIFs are appealing to

⁵⁵ Richard F. Dye and David F. Merriman (2006). “A Tool for Local Economic Development”. Lincoln Institute of Land Policy

municipalities because the private improvements increase tax revenue, which allow them to invest in districts with hope of attracting more private investment.

The existing public infrastructure of Riverside North is dilapidated. The proposed FBC would attempt to improve and expand the public realm. The physical environment is a major factor in a business' site selection. "Increasingly site selection experts are considering the advantages of seeking locations that either provide future opportunities or at least do not restrict future possibilities."(Blair, 24)⁵⁶ Because a TIF can be used to rehab, reconstruct, or repair infrastructure, it is advantageous for cities to consider using the economic development tool. Blair emphasizes the need for public entities to create environments that are appealing to businesses and institutions that are willing to invest.

To assist in the redevelopment of Riverside North, a plan of economic development should occur just as a plan for physical development. Riverside North shows that physical planning is not mutually exclusive from economic development planning. In fact, the two are inseparable in the case of Riverside North. It will take a combination of the two planning practices to make the visions of the site a reality.

Proactive economic planning can endorse a development friendly environment. As this paper proposes to create an overlay district for the physical environment, it is additionally proposing to parallel a Floating Tax Increment Finance (FTIF) district overlay for Riverside North. A Floating TIF (FTIF) district will have the same benefits as a standard TIF district. However, the goal of the FTIF is to comprehensively direct the pattern of growth and investment of a site to avoid the piecemeal effect that could occur otherwise.

A FTIF is very similar to that of the Strategic Land Use Plan, which suggests future land use for an area. FTIF would work on multiple scales. Primarily, the Floating TIF, with public discussion, would identify and prioritize blighted and underinvested areas that are then

⁵⁶ John Blair, *Local Economic Development; Analysis, Practices, and Globalization*, (Thousand Oaks, California SAGE publications, Inc. 1995)

applicable for becoming TIF districts. On a micro level, it will define the public need and purpose of that specific district, which would require any development that benefits from the TIF district to invest into the Strategic Plan produced by the City and its citizens. A plan such as this would allow a consistent concentration of public investment in preselect segments of Riverside North. With each segment receiving a certain amount of time to attract new private investment, the segment will automatically benefit from public investment of infrastructure created by the private improvements of their neighboring segments.

The next steps for the City of St. Louis should be to charge the St. Louis Economic Development Corporation (SLDC) with creating a task force consisting of parties that are currently investing in Riverside North and the entities that are investing around Riverside North. Their investment can be fiscal or social. It shall be their duty to aid the regeneration of the site. With the assistance of SLDC, the task force shall focus the ideas of the private sector while informing them of the tools that can be administered by the public sector to assist them in their goals for Riverside North.

The Strategic Land Use Plan and the Downtown Next Vision have established the general goals for future development for Riverside North. This land use study has suggested ways to manage that development in efforts to minimize the existing uncertainty allowed by the zoning district. Now it is necessary to attract and finance the appropriate uses for Riverside North. The essential steps to accomplish this include:

- Defining what Riverside North will be to the City by adopting a more detailed plan
 - Conducting a study on the building inventory that will produce a cost analysis for rehabilitation for potential mixed-used purposes.
 - Conducting a study on current infrastructure capacities that will detail the improvements needed to support a mixed-use development

- Conserving public parcels and acquiring adjacent parcels that will serve as functional open space for the development site
- Promotion and Marketing of the site via public programs and festivals
- Assuring elected officials that Riverside North is worth public investment

Riverside North is vital to success of the adjacent investments and development projects. It is even more vital to the image of the City of St. Louis.

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