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Living with Farm Creek and the Reconciliation of a Laden Landscape

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LIVING WITH FARM CREEK AND THE RECONCILIATION OF A LADEN LANDSCAPE

Masters Project

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*Master of Landscape Architecture
Landscape Architecture and Regional Planning
University of Massachusetts, Amherst*

FEBRUARY 2015



FARM CREEK BETWEEN THE LEVEES

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*Approved as to style
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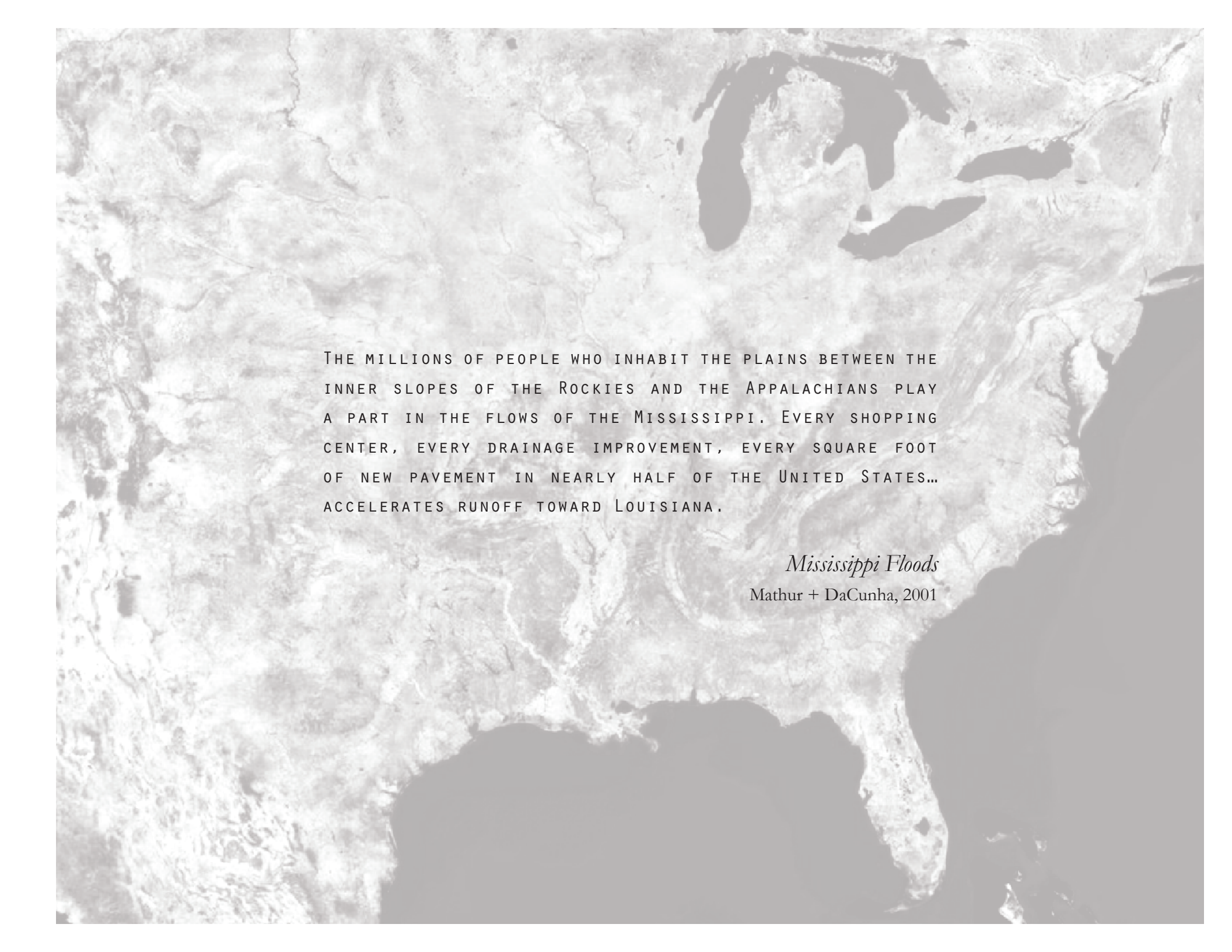
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FOR MY GRANNY, EVA KIRCHGESSNER,

WHO ALWAYS ALLOWED ME TO BE MYSELF.





THE MILLIONS OF PEOPLE WHO INHABIT THE PLAINS BETWEEN THE
INNER SLOPES OF THE ROCKIES AND THE APPALACHIANS PLAY
A PART IN THE FLOWS OF THE MISSISSIPPI. EVERY SHOPPING
CENTER, EVERY DRAINAGE IMPROVEMENT, EVERY SQUARE FOOT
OF NEW PAVEMENT IN NEARLY HALF OF THE UNITED STATES...
ACCELERATES RUNOFF TOWARD LOUISIANA.

Mississippi Floods

Mathur + DaCunha, 2001



ACKNOWLEDGMENTS

Fondness for the city in which I grew up has inspired me to critically examine East Peoria. The more I examined my city, I discovered, the more I found that my citizen's bias was slowly wearing away as I began to ask deeper questions about topics I had previously neglected. As I later found, this citizen's bias is both useful and burdensome, and, invariably, an outsider's perspective has proven to be enlightening. I would like to thank the following people for their help in guiding me in the right direction and for offering their time, knowledge, and experience toward the completion of this project.

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.....

In addition to helping me hone in on a specific project, it has been a rewarding experience to be able to understand my community on a deeper level. Through this, I have felt encouraged to return in an attempt to better the place in which I grew up and accentuate and celebrate its many hidden assets. It is said that you can leave your hometown but your hometown doesn't leave you. It seems I am a shining example of this.



ABSTRACT

Recent trends in East Peoria, Illinois have seen new commercial developments replacing former industrial and manufacturing properties as well as naturalized floodplains. New development pressures have consumed properties located more inland, creeping toward the historic town center.

Meanwhile, a former manufacturing site adjacent to the historic downtown has been developed into a large-lot shopping center and declared East Peoria's 'new downtown,' sucking many businesses out of the historic downtown, which, as a result, has been left compromised in the midst of the new developments.

Following construction of major highway infrastructure in the 1950s, housing availability in and near downtown has continued to shrink, quality has plummeted, and the increased attention given to roadway infrastructure has eroded pedestrian connections near the

city center. The lack of housing in the city center has contributed to increased numbers of personal vehicles on the roads, causing congestion, wider streets, larger parking lots, and fewer pedestrians and cyclists.

Unfortunately, the recent increase in large-lot development has been compromising Farm Creek as well. Frequent flash flooding in the past led to damming, channelizing, and leveeing of the creek, causing the unwanted side-effects of increased sedimentation and water loads to the Illinois River, loss of floodplain habitats, and an eyesore that characterizes East Peoria as a whole.

Despite this, Farm Creek is an under-utilized, under-recognized, and almost unknown asset in East Peoria. With its proximity to the historic and new downtowns, recent commercial developments, Illinois Riverfront, parks, schools, and neighborhoods, Farm Creek sits in

a prime location to become an important artery that connects the community. Not only does the creek represent the geological and cultural history of East Peoria, but it has the potential to become a starting point that initiates sustainable development in the city's future.

Through green infrastructure and ecological urbanist principles, this project aims to restore Farm Creek to a naturalized floodplain as much as possible, and to preserve and rehabilitate the historic downtown while introducing a dense, walkable, well-connected, mixed-use development that includes housing, open space, and recreation in order to address issues with sprawl, congestion, inequality, and poor public transportation infrastructure.

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1 INTRODUCTION

Situated opposite each other along the Illinois River, the cities of Peoria and East Peoria are two very different places. As Peoria aims to transform its former industrial warehouse district into a livable neighborhood, the juxtaposition of East Peoria, with its chain stores and parking lots, is a study in the different ways that these cities have dealt with economic hardship resulting from industrial decline.

One reason for the difference in character and historic development patterns of both cities lies in their unique geological and hydrological contexts, which can hint at how they might also adapt to the future. Built within the floodplains of the Illinois River and its own severely altered artery, Farm Creek, East Peoria must change its relationship to these waterways not only for the sake of water quality, but also for its own quality as a community. East Peoria has an under-recognized asset in Farm Creek that could change the character of the city for the better once rediscovered.

A faded topographic map of a region, likely East Peoria, Illinois, showing contour lines, roads, and water bodies. The map is oriented with North at the top. The text is overlaid on the map, centered horizontally and vertically.

This project **CHALLENGES CURRENT DEVELOPMENT PRACTICES** in East Peoria by employing the **ECOLOGICAL REHABILITATION** of **FARM CREEK** as a **CATALYST FOR CHANGE** through the creek's inherent **PHYSICAL NETWORK** in order to help **RECTIFY THE PAST IMPRUDENCE** of land, waterway, and urban fabric alterations, to **CONNECT RESIDENTS** with **LOST HISTORIES**, the **ILLINOIS RIVER REGION**, and **EACH OTHER**, and to offer a **NEW ALTERNATIVE** for the **SUSTAINABILITY** and **RESILIENCY** of the city going forward by ultimately **ESTABLISHING HARMONY** between the **FLOOD-PRONE CREEK** and its **INHABITED FLOODPLAIN**.

SUMMARY

Recent trends in East Peoria have seen new commercial developments replacing former industrial and manufacturing properties as well as naturalized floodplains. While much of these changes have previously been confined to properties located near the Illinois Riverfront, new development pressures have consumed properties located more inland, creeping toward the historic town center. The most recent project, a former Caterpillar Tractor Company manufacturing site adjacent to the historic downtown has been developed into a large-lot shopping center and declared East Peoria's 'new downtown'—a move that has sucked many businesses out of the old downtown. The original town center, having once already been subjected to a 'raze and rebuild' edict of city planning, has now been left compromised in the midst of the development that continues to surround it.

Meanwhile, new neighborhoods continue to sprawl outward and existing neighborhoods are becoming more boxed-in or eliminated completely. Following construction of major highway infrastructure in the 1950s, housing availability in and near downtown has continued to shrink, quality has plummeted, and the increased attention given to roadway infrastructure has eroded pedestrian connections near the city center. This lack of housing in the city center

has contributed to increased numbers of personal vehicles on the roads, causing congestion, wider streets, larger parking lots, and fewer pedestrians and cyclists. As the city expands its commercial corridors and districts, little room is left for infill, housing, or open space in the urbanized center.

Unfortunately, the recent increase in large-lot development has been compromising Farm Creek as well. These developments, despite being directly adjacent to the creek in most cases, disregard its existence. Throughout its history, the city has been shaped by, around, and because of the creek, with the inhabitants continually altering both its form and function. In some cases the alterations were beneficial, but throughout the history of East Peoria, residents have regarded Farm Creek more often as a liability. Frequent flash flooding in the past led to damming, channelizing, and leveeing of the creek, causing the unwanted side-effects of increased sedimentation and water loads to the Illinois River, loss of floodplain habitats, and, invariably, a large, visible eyesore that characterizes much of the downtown area and East Peoria as a whole.

Today Farm Creek resides at the back of the city's mind, having been subdued to the point where flooding is no longer a threat for the inhabitants. It is now a functional entity—a literal drain conducting water from point A to point B and rarely interacting

with its surroundings. It is not regarded as a thing of beauty or pride, but rather as a place to avoid. Being thoroughly regimented with the hard concrete edges of engineered design, now crumbling and rust-stained in its age, gives the channel the unwelcome appearance of a sewer. There is a sort of danger associated with it—a visage that seems to say "keep out!" even in the absence of signs.

Due to this unfriendliness, it is not surprising that the creek is so often overlooked, and yet, it is ever-present. Farm Creek and all of its tributaries form the very landscape in which the city inhabits. It is in this way that the essence of East Peoria is also Farm Creek. This habit of ignoring the creek has been to the city's detriment. It is becoming the elephant in the room that no one is addressing, and as development continues to advance, the future of the creek—and thereby, the city—is increasingly being placed in jeopardy.

The majority of East Peoria's history has been that of goods exportation and production—not only as the headquarters of Caterpillar Tractor Company, but also due to the bountiful resources the landscape has made available to its inhabitants. The land has been a source of coal, clay, gravel, sand, agricultural products, and game. The waterways have been a source of fresh fish, mussels, ducks, and transportation. The early French settlers often

wrote of the plentiful resources that made it perfect for settlement. Today, these resources have largely been exhausted, or are in danger of becoming so, with the land and waterways becoming drastically altered within the last 160 years.

The days of purposefully pillaging the land are only partially over, as some of these old industries remain. However, the continued negligence of Farm Creek and the impending absorption of East Peoria's only remaining historical downtown strip are problematic for the city going forward. These unique elements cannot be disregarded if there is to be a significant and viable future for East Peoria.

PROJECT GOALS

Farm Creek is an under-utilized, under-recognized, and almost unknown asset in the City of East Peoria. With its proximity to the historic and new downtowns, recent commercial developments, Illinois Riverfront, parks, schools, and neighborhoods, Farm Creek sits in a prime location to become an important artery that connects the community. Not only does the creek represent the geological and cultural history of East Peoria, but it has the potential to become a starting point that initiates sustainable development in the city's future.

This project seeks to address Farm Creek in the heart of East Peoria with the idea of it being a "great connector"—whether that means physically or metaphorically. The chosen site includes existing elements that are potential assets for the broader vision of Farm Creek and East Peoria. It includes Farm Creek and the remaining historic elements of the downtown as well as other significant or under-utilized places. The chosen site, because of its location, easily creates and reinforces connections throughout East Peoria with the intention of improving upon what exists already.

At its heart, this project aims to restore Farm Creek to a naturalized floodplain as much as possible, given the constraints of urbanization, with the goal of reducing sediment loads and increasing floodplain habitat and stormwater storage. It also seeks to preserve and rehabilitate the historic downtown while introducing a dense, walkable, well-connected, mixed-use development that includes housing, open space, and recreation in order to address issues with sprawl, congestion, inequality, and poor public transportation infrastructure. Additionally, the design acknowledges the role of Caterpillar in the city and responsibly celebrates its contribution. This design ultimately seeks to emphasize education of floodplains and the uniqueness of East Peoria's natural landscape, while creating a public amenity that is both visually pleasing and also functional.

- Encourage infill, housing, and revitalization of historic downtown
- Establish connections between neighborhoods, city center, and open space
- Create unique community pride and a sense of community
- Develop in a way that creates a good quality of life that will keep existing and attract new residents to the city
- Create a distinctive attribute that will encourage tourism and hearken the historic role of Caterpillar earth-moving equipment manufacture in the city
- Build upon the existing valuable park system
- Address Farm Creek and Illinois River watershed water quality concerns that pertain to flooding and sedimentation
- Turn Farm Creek into an asset that is both beautiful and functional
- Create and provide common public space that doubles as a sediment and flooding mitigator and a wildlife corridor
- Reverse current status of levees as deemed in "unacceptable" condition by USACE 5-year inspection
- Educate residents and visitors about stormwater management, floodplains, and the unique terrain context of city
- Emphasize the relationship of Farm Creek to the larger context of the Illinois and Mississippi River watersheds



2 LITERATURE REVIEW

What once boasted bustling industrial cities, the Midwestern United States now struggles with dwindling populations, diminishing jobs, increasing numbers of vacant buildings, and deteriorating infrastructure. An economy that formerly thrived on goods production and export is now clinging to whatever it can to stay afloat. Some cities have been hit harder than others—Detroit comes to mind—but there are also several that have rebounded successfully, like Pittsburgh and Milwaukee. It appears that creativity and clarity of goals coming from the planning and design realm, as well as innovative locals, have been the cause of not only adaptation to today's economy, but progress.

MIDWESTERN POST-INDUSTRIAL DECLINE

Donald K. Carter has written about (what he aptly terms) an “established pathology” of decline that has been observed and documented

in countless postindustrial cities over the years. This trend of decline follows a certain pattern:

...loss of industrial jobs; subsequent loss of support and multiplier jobs; out-migration and population loss; lack of private investment; tax base decline; neglect and disinvestment in infrastructure and public services; abandoned factories; brownfields; vacant houses; vacant land; declining real estate values; loss of family equity; increased poverty; and finally, loss of hope and psychological depression. (Carter, 2012)

The Midwestern state of Illinois is one example. As a whole, the state was never able to recover from the 2000-2001 economic recession and has since seen a loss of 455,000 jobs and over \$6 billion in tax revenue. Additionally, thousands of talented and skilled workers have migrated out of the state during this time to seek work and opportunities (Hewings, 2011). The causes of economic decline in the Midwestern former industrial towns are varied but can generally be attributed to:

...loss of basic industries to low-cost, nonunion producers in the Sun Belt, Far East, and Mexico; an entrepreneurial vacuum creating no new industries to replace the lost jobs; the lure of suburbia; racial conflict; white flight; middle-class flight; concentration of poverty and crime in the urban core; investment in highways over public transit; and the overall deterioration of the built environment, including streets, bridges, and buildings.” (Carter, 2012)

ECONOMIC TRANSFORMATION

Not surprisingly, much of these cities’ woes have been caused by economic fluctuations over decades. Today, many of these cities’ economies are largely dependent upon the wellbeing of only a few major companies that employ a majority of the local population. Should these companies experience economic instability, or even go under, the reverberations would be felt throughout not only the city but, likely, the region. This dependence on the economic stability of its largest employers does not make for a stable city in the long run. Paul J. Armstrong (2012) highlights Peoria, Illinois as an example:

...Caterpillar Corporation, which has its headquarters in Peoria, is a major Fortune 50 company that manufactures and markets heavy industrial earth-moving equipment throughout the world. The financial health and well-being of the city of Peoria is directly tied to Caterpillar’s financial growth and continued vitality. The city also believes that in order to continue to grow and prosper, it will need to attract more Fortune 50 companies like Caterpillar, rather than foster its own creative capital of talent, technology, culture, and enterprise.

The cities that have begun to shift their local economies from industry and manufacturing to innovation are better prepared for the future. Paul

Hardin Kapp and Paul J. Armstrong (Synergicity, 2012) attest that while the industrial economy has not vanished from the Midwest, the economy is now “evolving from goods [production] to ideas and invention.”

Indeed, Peoria appears to see itself in this light. An exhibit of the history of Peoria at the Peoria Riverfront Museum (visited 2014) displays curios from the innovative past of Peoria: from early motorcars and bicycles to penicillin and whiskey. The exhibit then boasts (almost forcibly, as if trying to convince us) Peoria’s future as a “knowledge economy”:

Peoria is a prime example of the 20th century shift from an industrial economy toward one based on information. ...In 2001, more than a billion dollars was spent on applied research in the Peoria area. ...The knowledge economy is truly the key to Peoria’s future. ...Peoria’s high-tech research in fields such as metalworking, earthmoving, fermentation, medicine, health and engineering will be the keys to the future success of the city. (*The Street* exhibit, Peoria Riverfront Museum, 2014)

This apparent confidence is related to the current economic strategy at work in the Peoria area, a five-county organizational effort known as Focus Forward Central Illinois (FFCI). Embodied by the not-for-profit corporation by the same name, FFCI “is a regional strategy designed to attract and

retain new business and talent to Greater Peoria with the goal of enhancing economic process and quality of life” (FFCI, 2014). The organization pooled together the assets and resources of the five counties (Peoria, Tazewell, Woodford, Logan, and Mason) to establish the region as an economic whole, believing they are a stronger economic force if they work together. While open to public participation, the organization consists of individuals, businesses, institutions, community organizations, and governmental bodies—groups who are mainly economically-invested—that intend to:

- Create and implement a regional economical development strategy focused on proven practices from around the country
- Increase the total regional wages and generate new state and local tax revenues
- Reverse the current demographic trends by increasing the number of individuals age 25–44 who reside in the region and increasing the percentage of labor workforce participation
- Increase the perception of the FFCI region as the place for people to live, work and play (FFCI, 2014)

The goals of this strategy do exactly what Kapp and Armstrong mentioned above, that is, rather than fostering creative talent from the ground up, the Greater Peoria area is working to attract creative talent from the outside. The organization sees central Illinois in competition with other Midwestern regions of the same caliber:

The Greater Peoria Region must compete with other regions that are marketing their job-ready workforces, their educational/cultural/healthy environments and as the place where it is both business and family-friendly for people of all ages. ...FFCI must initiate change and take an active, collaborative approach to raise the level of awareness of what this region has to offer and make the necessary adjustments that central Illinois is THE place to be. (FFCI, 2014)

While the organization lists “livability” and “quality of life” numerous times, there seems to be no mention directly addressing the strategies of attaining them, seeming to believe that these conditions are merely inevitable results achieved by economic success. Merely talking about the shift in economy and mentioning livability is not enough. “In order for the Midwestern states to return to their former economic prominence, the innovation economy will need every opportunity to flourish. Part of the solution is to design, build, and transform urban environments for this new economy” (Kapp and Armstrong, 2012).

This means that it is not enough to have the economic engines in place, but there must also be a constant source of fuel—innovative workers that are also productive, happy, and giving back to their local economies. These innovative workers are part of what Richard Florida terms the Creative Class: a demographic of individuals who work in creative

industries. This is, broadly, in the fields of science, engineering, education, computer programming, and research, including artists, designers, and media workers. Based off of Richard Florida’s work, Armstrong’s economic strategy is termed “Creative Capital,” which, as he puts it, “encompasses a broad spectrum of people, enterprises, institutions, innovative technologies, and the arts that will drive economic development and urban sustainability in the future” (Armstrong, 2012). Not only does this demographic focus on young professionals who “will also be attracted to a redeveloped urban center” and “already seek the opportunities and vitality afforded by urban environments” (Armstrong, 2012), but a rising trend has seen retirees and ‘empty-nesters’ moving into cities as well. This older generation of workers contribute their own experiences, skills, and expertise that become a vital part of the changing economy.

According to Kapp and Armstrong’s work, the goal of attracting creative professionals to the aging industrial towns is realized through well-designed urban places “by providing environmentally sustainable areas of urban density that allow people to work and live affordably, to enjoy healthy and active lifestyles, and to engage in culture and heritage” (Kapp and Armstrong, 2012). Not only will this foster a new kind of economy for postindustrial cities, but will create social vitality:

Socially, redeveloping the postindustrial district in ways that nurture creative contributions from all citizens can have the potential to reverse embedded cultural and educational inequalities, while at the same time providing environments for better economic production. (Kapp & Armstrong, 2012)

In essence, economies work best when their contributors are happy and cooperating. The creative demographic naturally seeks to collaborate among each other and across boundaries to achieve innovation. It is therefore essential that revitalization is aimed at appealing to this group in order to foster an economy of knowledge and innovation. In other words, the creative class is not impressed by the low-talent jobs often provided by national chain businesses. These institutions have already done the problem-solving and creative thinking in a corporate office thousands of miles away, and therefore offer nothing challenging for the creative worker, who might be happier as an entrepreneur. Providing opportunities for entrepreneurship to occur means making entrepreneurship financially affordable for most people. Among other strategies, this can easily be achieved through good urban design: buildings that offer low rents and high exposure, or the typical dense sidewalk strip found in traditional urban centers.

The Focus Forward Central Illinois organization

lists their desire to retain and attract a younger demographic as part of their regional economic strategy. Meanwhile, Peoria recognizes that an economy based on knowledge “depends on the relationship between technological innovation and entrepreneurial expertise” (The Street exhibit, Peoria Riverfront Museum, 2014). Who but the creative class is proficient and motivated in this regard? It will take more than just talking about it to make it happen.

While determining the right economic strategies for revitalization is important and necessary, it is also vast and complex. The strategies described above are used as guidelines for framing this project, but are not necessarily the main focus. It is believed that with implementation of proper urban design strategies, much of the desired economic reality will be achieved as a result.

REVITALIZING POST-INDUSTRIAL CITIES

With so many factors working against these aging industrial cities, why should we care about their fate at all, particularly in the Midwest, where it seems there is no turning back? It is because successful postindustrial Midwestern cities do exist, and their adaptations have been identified, that it is conceivable to envision success in revitalization for any

struggling Midwestern city. Not only is revitalization conceivable, but it is necessary. As Paul Hardin Kapp and Paul J. Armstrong state in their book, *SynergiCity* (2012):

Postindustrial development is not only practical, it is fiscally, environmentally, and socially responsible. Why abandon blocks of warehouses and infrastructure to develop rural land into suburban sprawl? With shrinking operational budgets, Midwestern cities are no longer able to build and maintain new infrastructure.

Shrinking budgets, but furthermore, shrinking cities: populations in the Midwest have begun to diminish—but this is not always problematic. “Some cities should become smaller geographically, not larger. ...Many U.S. cities, especially those in the ‘Rust Belt,’ are faced with the problem of revitalizing their urban infrastructures, including aging transportation networks, waste and water treatment systems, and energy delivery systems.” (Armstrong, 2012) Smaller, more compact and densely-populated cities in the long run are more efficient, limiting the amount of resources wasted on “a vast, decentralized, underserved area” (Armstrong, 2012).

The ongoing economic crisis has impelled many people to look for deeper meaning and purpose in life—and for better places to live, with good, family-supporting

jobs and affordable housing, where they can realize a new American Dream of doing purposeful and meaningful work in a real, authentic community that embraces and energizes them and their loved ones, that lets them be part of building something bigger than themselves. (Florida, 2012)

In the end, the goal is not only to create economic vitality, but to create a better place for people to live. Accomplishing this in the most cost-effective, sustainable, culturally-enhancing, and ecologically-viable way is the only move for the future of not only postindustrial cities, but for all cities.

SUSTAINABLE STRATEGIES

City form and function has changed continually throughout history and across cultures. Humans have shaped their cities around their ideals and ambitions—culturally and economically. This has translated into city forms that are dominated by those societies' priorities. If the proliferation of the piazza demonstrates a culture of community in Italy, then what does the abundance of gas stations say about a typical American city? The postindustrial city, now scarred with the remains of past ambitions, must find a way to move forward, and in doing so, create a new identity for itself.

In most cases, these former industrial cities have

developed their own countermeasures for dealing with the changing economy that led to their decline. Some have opted for a purely-economic strategy, focusing solely on job- and wealth-creation. In this instance, cities depend upon the ability to bring in outside sources of income by enticing national companies to establish a branch of their company locally. "However, bringing new businesses and industries into postindustrial communities extracts a price" (Armstrong, 2012). Attracting outside businesses is challenging, as these cities are usually in competition with other, often similar, cities. For this reason, "the harder that cities compete with one another by offering lucrative incentives such as tax breaks, land for development, and pro bono services, the more likely they are to bankrupt themselves in the process." (Armstrong, 2012) Sure, this move creates jobs in the short term, but importing outside talent rarely fosters ground-up development within communities—the type of environment that breeds creativity and the entrepreneurial spirit.

This type of economic development offers quick solutions to the longer-term issues of postindustrial economic decline and is therefore not an option that should be considered by any community hoping to make progress in the future. Fortunately, there are other strategies that address the cities' woes of today, taking into account their success in the future by recognizing the need for fostering creativity and

innovation. These strategies are interrelated, as each of them highlights important aspects of both cities that have avoided serious decline, or cities that have come out of it with great success. Many of them are not direct economic strategies, but instead influence the economy in more subtle, yet important ways. Some of these strategies are:

City-friendly transportation planning: After the rise of suburbia and personal vehicle ownership, the hearts of cities were left empty and lifeless. Thousands of historic buildings were cleared for parking lots in an attempt to lure car owners back into the city (Garrick, 2012). However, the more parking lots created, the less attractive cities became to people on foot, thus encouraging the purchase of more cars and suburban homes. With each new free parking space added to cities, the more congested the cities became. With more congestion, the roads expanded to accommodate the higher volume (eliminating broad sidewalks) and highways were built (eliminating historic buildings and homes and dividing cities through the middle). "Most cities planned for a high percentage of car traffic in the fear that they would lose out if this traffic volume was not accommodated. This is a mindset that reveals a fundamental misunderstanding about the true nature of cities. ...People go to cities to be with other people, not to be around cars" (Garrick, 2012).

Higher densities better accommodate alternative transportation systems. This is good news for cities where the denser fabric has been left untouched: denser places almost require walking, biking, and using public transit because they become much more efficient means of travel than personal cars. However, for cities that are not as dense due to systematic razing of buildings or car-centric design choices, making alternative transportation systems appealing is much more challenging. Besides requiring denser new developments, one way to address overuse of cars is to require a maximum number of parking spaces per development. “Parking not only degrades walkability, thus creating and attracting more car traffic, but it also decreases the economic potential of the city by reducing the amount of land available for productive use” (Garrick, 2012).

Transforming the now sixty-year-old car-imposing infrastructure of cities to allow for alternative forms of transportation is one of the first steps in gaining a people-friendly city—and an environment from which postindustrial cities could benefit greatly.

Preservation/adaptive reuse: This strategy is welcome in cities with a limited budget and a large number of vacant older properties. Historic buildings tend to lend themselves easily to startups and creative types due to their low rental costs and versatility. Old industrial buildings, such as warehouses,

transform into many other uses with ease. Additionally, historic buildings frequently already have the character and spatial qualities that are desirable and typical of heritage tourism (Kapp, 2012). While it is conceivable that a new development could match these characteristics, it is unlikely that they would still be affordable to all income types due to the high cost of construction.

Moreover, ‘Aged’ buildings in a city district have an intangible asset: a ‘grit’ that is best described as character from age. They provide a distinctive identity that is not easily replicated and differentiates one city district from another. City districts need to have some ‘grit’ in order for people experiencing them to feel connected to the place and its history. (Kapp, 2012)

Making cities “livable”: “A livable city—suitable for human living—is one that is in balance such that all of its parts and resources contribute to its inhabitants’ quality of life” (Armstrong, 2012). Postindustrial cities are placed in a difficult position today: with infrastructures and buildings having been designed to make manufacturing efficient, little consideration was made for making places people-friendly. Much of the human amenities, like access to clean waterfronts, were the prime territory of industry, forcing people away from them. This was acceptable at the time, as industry relied upon rivers and streams for energy production, waste removal,

and transportation. Meanwhile, neighborhoods were retreating into the more naturalized suburbs, further from these areas, to avoid the grime and odor that came with them.

As increasing globalization today causes many of those industries to relocate out of cities, an economic vacuum is created, but also a new opportunity. The vacant properties tend to be on prime waterfront locations, or are readily-adaptable warehouse buildings, often at a highly-affordable price. These resources should not be ignored. While they may seem daunting at first, given the amount of restoration that often comes with these properties, the end results pay off, though not always directly. Livability for postindustrial cities includes these two redevelopment strategies: environmental damage must be mitigated, and there must be appropriate public investments to attract capital and residents (Gillem and Hedrick, 2012).

Both of these strategies can manifest in waterfront revitalization and brownfield remediation and reuse projects, but also in freeway replacements, where sites once devoted to several lanes of fast-moving vehicles become parks and pedestrian boulevards.

Livability doesn’t stop there. Urban form and policy both play a major role in how a community regards their quality of life. Affordable housing

and equal access to amenities should be taken into consideration so that all community members can experience the benefits of improved quality of life. This translates directly to urban form, emphasizing density and walkability so that no single group of people is left disadvantaged either at present or by future developments.

As our lives have become more interconnected through communication technology, we have physically become more dispersed. This desire to be connected to other people manifests at a time when many of us are living physically disconnected lives. When many of them have grown up isolated in suburbs, it is no wonder that Millennials have taken to digital communication so readily. We are still social creatures, searching for human interaction. While cell phones and the internet have managed to replicate the social sphere in a more ethereal sense, it is dense urban form with outdoor public spaces that satisfies this desire in the physical sense. The desire to be social is just one of our many needs as humans, and one that can be easily addressed in urban form.

Creating and fostering quality of life: Quality of life is defined as: “the interaction of human needs and the subjective perception of their fulfillment, mediated by the opportunities available to meet those needs” (Armstrong, 2012).

It is helpful to have a composite of different indices of a city to determine what measures “quality of life.” Different than the World Health Organization’s more health-related measures (World Health Organization, 1997), the “Creativity Index,” proposed by Richard Florida in 2002, measures the ‘livability’ of cities based on innovation, high-tech industry, diversity, and percentage of the creative class in the workforce (Florida, 2002). It is the benefits offered by good quality of life, Florida argued, that “draw the creative class to unlikely places” (Armstrong, 2012) and not just the availability of jobs.

What determines good quality of life depends on the different aspects of a community’s resources that are in place: social capital, human capital, built capital, natural capital, and technology capital, which have been aggregated under Armstrong’s umbrella of “creative capital.” Armstrong defines each type:

- Social capital: networks and norms that facilitate cooperative action
- Human capital: knowledge and information stored in our brains, as well as our health and labor potential
- Built capital: manufactured goods (tools, equipment, consumer goods), buildings, and infrastructure
- Natural capital: structure of natural ecosystems
- Technology capital: development of new technologies in biomedicine, ecology, and informatics

These measures must be relatively high in order to provide the sort of quality-of-life that the creative class is searching for. If these foundations have been laid, not only will the creative class take notice, but existing residents will benefit as well.

Ecological rehabilitation and stormwater management: With the redevelopment of postindustrial cities comes the opportunity to address issues such as climate change and the need for preserving the natural environment. In contrast to much of the Western United States, the Midwest has virtually unlimited access to fresh, potable water, “which should not only be conserved and carefully managed from an environmental point of view but also social and economic terms” (Kapp & Armstrong, 2012). However, Midwestern postindustrial cities often face a dichotomy: bountiful freshwater resources which (now abandoned) industrial operations both monopolized and destroyed long ago, rendering them unusable or inaccessible today. Additionally, these cities are oftentimes using the same stormwater treatment infrastructure built in the heyday of engineered solutions. With these aging systems reaching the ends of their usable lives, cities are now facing the question of whether to repair these expensive, outdated systems or to try something different altogether.

To this end, many cities have decided to reverse the

decline of their watersheds by becoming environmental stewards, “developing environmental strategies to mitigate the effects of flooding, erosion, and pollution” (Armstrong, 2012) This can be through use of stormwater management tactics that keep storm flows from leaving a site and emptying into local sewers or water bodies; through promotion and use of green technologies such as green roofs, rain gardens, and cisterns; through restoration and cleanup of polluted or otherwise damaged natural areas and brownfields; and through educating the community on stormwater and water quality issues. Not only do these actions restore ecological function to damaged land and waterways, but they enhance the cities as well. It logically follows that “protection of these natural resources is vital to the ecology of both the cities and the region” (Armstrong, 2012).

“Many of these [postindustrial] cities owe their existence to the transportation corridors and industrial potentials provided by lakes and rivers. ...The question of how urban environments should relate to their hydrological contexts is one of the most fundamental ecological issues shaping their futures...” (Wasley, 2012)

Urban waterways are coming into the spotlight in recent years as more cities learn the benefits of greening their waterfronts by creating a unique amenity for their residents and an attraction for

visitors. Because most postindustrial cities developed along waterways, virtually all of them already have an asset waiting to be enhanced.

Recapturing these unused industrial sites presents opportunities for changing the status quo of development, whether that means restoring the sites to entirely ecological functions or by redeveloping them using green technologies and sustainable stormwater management practices. Decisions to ignore these opportunities and to continue developing as before only waste money and community resources in the long term—not to mention disregarding the benefits of access to natural places on human happiness and productivity. As urban planner Weiming Lu puts it, ‘urban development is most successful when there are natural areas nearby, where people can escape the city for a quiet walk or a moment of reflection’ (Armstrong, 2012). Economically-speaking, properties located near a park (or other attractive landscape) are more desirable and therefore increase in value. Additionally, natural stormwater management systems are much cheaper to implement and maintain than traditional systems, making them even more attractive to cities on a budget.

It is to the city’s advantage to work at making blighted and under-used industrial properties into attractive and functioning environments. “To draw

private development that supports social equity, environmental sustainability, and livability, postindustrial cities need to reinvent themselves by restoring damaged landscapes and building vibrant public realms” (Gillem and Hedrick, 2012).

ECOLOGICAL RESTORATION AS A CATALYST FOR REVITALIZATION

The human need for natural settings is not unknown, though it has been expressed differently throughout the history of civilization. In Europe and the United States, when our cities became overcrowded and filthy with industry, we remembered the natural environment just outside the city borders. We migrated there to reunite ourselves with nature periodically. Later, once we had realized that industry was not leaving the city, we moved ourselves away from it permanently, into the suburbs, now visiting the city periodically. When we realized the commute to the city was unbearable, industry began to follow us into the suburbs.

This constant rubber-banding between our desire to be in the natural environment and our desire to be part of a productive, social society continues today. Efforts in the past to address this tension have resulted in ideological plans like Ebenezer Howard’s Garden Cities and to some degree the City Beautiful

movement. These ideas fundamentally expressed the belief that cities and nature must be intertwined to create harmonious environments for people. A product of their times, these beliefs were more the result of human intuition than scientific backing. However, it is human intuition that guides our lives, whether we recognize it or not, and to which we owe our experiences. Cities, in the most elemental of definitions, are habitats for humans. Successful cities address the specific needs and preferences that humans require to thrive, just as any other plant or animal on Earth. But cities should not be isolated human habitats in the natural world, just as animal habitats are not isolated from each other. It is coming to light in recent years that the city, as part of the closed system of earthly processes, exists as one fraction of the natural landscape (an ecosystem within a larger ecosystem) and that, not only do we as humans need to recognize this fact, but we should also be designing our cities to incorporate the world that surrounds them.

As the culmination, decline, and subsequent abandonment of industry in the city opens up the city once more for human habitation, we have lessons from history, science, and technology to move our human intuition in the right direction. The most recent of these theories is Ecological Urbanism, described below.

ECOLOGICAL URBANISM

The concept of Ecological Urbanism is more than just a hybrid of ecology and urban planning—rather, it is additionally derived from the fields of “climatology, hydrology, geography, psychology, history, and art” (Spirn, 2012). While young in theory and practice, it is supported by ample research in the variety of fields from which it is derived. Ecological Urbanism, in reality, is a hybrid of two relatively young theories, Landscape Urbanism and Urban Ecology (Steiner, 2011).

Landscape urbanism evolved from design theory within both architecture and landscape architecture. It melds high-style design and ecology. ... Thus far, landscape urbanism is largely theoretical, with a few, highly visible actual projects. ...**Urban ecology** evolved from science-based research. Scholars apply ecological methods, largely developed in non-urban places, to metropolitan regions. To date, urban ecology exists primarily within the world of academic journals and books. (Steiner, 2011)

Because applications of landscape urbanist projects are few, it requires further research and observation over time, though the current examples appear promising. Noteworthy landscape urbanist projects include Field Operations and Diller Scofidio + Renfro’s High Line project in Manhattan, James Corner and Field Operations’ Fresh Kills park on Staten

Island, and Chris Reed and StossLU’s competition entry for Lower Don Lands in Toronto, Canada.

The result of this melding of theories is Ecological Urbanism, a theory promoted by Mohsen Mostafavi and Gareth Doherty of Harvard University Graduate School of Design. The theory has been criticized for being too closely associated with Landscape Urbanism: “Mostafavi and his colleagues draw strongly on landscape urbanism, but pay scant attention to the advances made in urban ecology. If those ecological advances were incorporated, then one might imagine a truly new synthesis: landscape ecological urbanism” (Steiner, 2011). Regardless, the young concept offers a new field of research that blends nature and culture, which is promising for the future of cities:

Urban ecology research indicates what should be obvious: people interact with other humans and with other species as well as their built and natural environments. The city is a human-dominated ecosystem. Landscape urbanism projects... illustrate how designing with nature can improve the quality of cities for people, plants, and animals. (Steiner, 2011)

Not only does Ecological Urbanism strive to create beautiful natural spaces within cities, but they must also be functional and reciprocal within the larger context of their respective climatic, biological, hydrological, and cultural zones. This idea that cities

are part of the larger system of Earth's processes and why this should not be ignored is illustrated in Anne Whiston Spirn's attribution of a locale's "deep structure":

While urbanization radically changes the surface of the landscape, the deep structure of a city, with its distinctive rhythms, is expressed in that city's climate, geology, physiography, and bio-climatic zone. Deep structure remains crucial to the history and future of a place—why it was settled, its initial location, its transportation routes, its economic development and population distribution, the character of its buildings, streets, and parks, and the health and safety of its residents. The design of cities that are in agreement with the deep structure of a region, rather than counter to it, is essential to fostering resilient urban form. (Spirn, 1993)

TENETS OF ECOLOGICAL URBANISM

Through the understanding of cities and their greater context, we must become sensitive to how we design our cities both at small and large scales. In a 2012 essay by Anne Whiston Spirn, *Ecological Urbanism: A Framework For The Design Of Resilient Cities*, she described a few defining tenets of Ecological Urbanism theory and how those might be applied to the design of resilient cities:

■ CITIES ARE PART OF THE NATURAL WORLD

- Recognize cities as part of the natural world and design them accordingly.
- Design the city as a life-sustaining and life-enhancing habitat.
- Celebrate the natural processes that shape the urban habitat and that sustain life, make them tangible and understandable.

■ CITIES ARE ECOSYSTEMS

- Design the city as a whole, as well as every park, building, and district within that larger whole, as ecosystems that require minimal inputs of energy and resources to build and sustain.

■ URBAN ECOSYSTEMS ARE CONNECTED AND DYNAMIC

- Identify and portray the interplay of natural and social processes that shape and structure the city.
- Address social and environmental challenges within appropriate boundaries at the appropriate spatial and temporal scales.
- Define multi-purpose solutions to comprehensively defined problems.
- Take account of history.

■ EVERY CITY HAS A DEEP STRUCTURE OR ENDURING CONTEXT

- Adapt the physical shape and structure of a city—the infrastructure of roads and sewers, the buildings and parks—to its deep structure.
- Anticipate and exploit natural catastrophes.

■ URBAN DESIGN IS A POWERFUL TOOL OF ADAPTATION

- Design resilient cities.
- Act comprehensively and incrementally.

Because Ecological Urbanism is such a new concept, the passage of time and the advancement of ideas and projects will help give the theory a more established body. Existing projects that appear to be successful so far have already begun to transform abandoned and polluted urban areas in a more ecologically-oriented and culturally-sustaining way. While envisioning entire cities transforming in the ways that Ecological Urbanist theory suggests may seem daunting due to the vastness and complexity it proposes, there are opportunities inherent within the transformation of postindustrial cities.

The postindustrial city has entered a new era, one in which design must "address the spatial transformation brought about by new patterns of finance linked to increasingly rapid transportation, communication, and organizational technology" (Thomson, 2012) Given the diverse evidence purported above, postindustrial cities have nothing to lose and everything to gain by implementing these strategies in the course of their redevelopment. Further decline due to industrial abandonment can be reversed and improved once the wheels have been set into motion. Of course, that is the first step. "For postindustrial cities, this theory demands restoration of generative physical elements (water quality improvement, soil toxin removal) and seeks civic and economic prosperity within the context of a budget bound by the ecology of place" (Thomson, 2012).

GREEN INFRASTRUCTURE: ARUP'S "CITIES ALIVE" REPORT

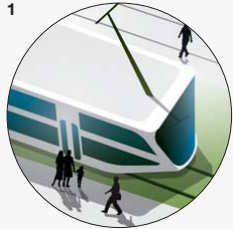
In 2014, London-based firm Arup's Landscape Architecture team paired up with its Foresight + Research + Innovation team to develop a report on the effect of green infrastructure found in our

cities and how these technologies can be used to create sustainable, pleasurable, and healthful city environments that will also be resilient in the face of climate change fluctuations.

The report acknowledges the importance of nature and green spaces within cities to mitigate current

urban problems that will worsen over time as more and more people begin to inhabit cities.

"At present, most cities woefully fail to achieve any sort of balance between people and nature. As pressure has grown on expanding urban areas, urban green space has had to compete against high land prices and increasing densities of development and



Automated public transport is advancing rapidly. In the future we can expect to see more driverless electric trams, buses and trains in the streetscape. This will reduce the dominance of and our reliance on the car; lower pollution, noise and congestion; increase safety; make cities for people; and provide the opportunity for green corridors.



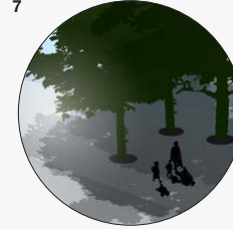
Vertical farming may become more popular as urban populations explode and available space shrinks. The use of roofs, vertical spaces and basements to grow arable crops could result in shorter, more environmentally friendly distribution routes, healthier diets and fresher foods.



In denser city environments our **public realm, streets and squares** will gain in importance as vital places for people to meet, relax and socialise. Large city trees and urban woodland will be more essential than ever to create attractive and healthy spaces with comfortable microclimates.



Green roofs, walls and façades are likely to become more prominent in cities, as we need to exploit and retrofit the layers of the city to find space for recreation and nature. Supporting valuable ecology, or as pleasant places for urbanites to hang out, these features also provide pollution mitigation, natural warming/cooling, rainfall attenuation and insulation to lower energy costs.



Cool city parks—spaces for larger urban populations to socially interact, keep healthy and escape—will become even more important than they are now. These spaces will need to be more densely tree-covered to provide vital urban cooling, shade and weather protection, and they should incorporate or retrofit multifunctional design features like temporary floodable areas to provide climate change mitigation.



Extensive green networks through the city are the aim of a green infrastructure design approach. Networks can be formed over time to create an encompassing "city ecosystem" that can support the sustainable movement of people, rebuild biodiversity and provide substantial climate change adaptation.



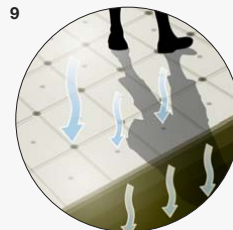
Entertainment in the urban environment for citizens is very likely to move into the digital age. Features such as interactive art installations allocated in denser urban environments will provide opportunities for social interaction, community involvement and tourism—all essential for successful cities.



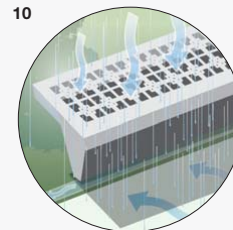
With land at a premium, creating city space for people will call for courageous design. As cities expanded in previous times urban railways went underground—why not **underground roads** now? Burying key highways will significantly lower pollution, noise, congestion and barriers to movement. This will create huge gains by freeing up city space for people and enhancing the city environment.



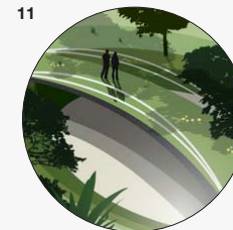
Research is being poured into vehicle automation and electric cars. **Automated private cars** will act to improve safety for pedestrians, whilst lowering pollution and noise to create better city environments where people come first.



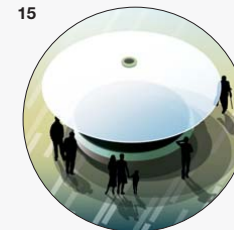
Permeable paving and soft landscape areas will help urgently convert grey to green in future city environments. This is a simple technology, but a vital one to improve water absorption and slow rain water run-off. This will help cities cope with extreme weather events and increased precipitation whilst significantly visually improving the environment.



City environments will need to be modified to design in or retrofit **sustainable drainage systems** within streets and city green spaces to better cope with predicted extreme weather events. Measures may also include temporarily floodable areas of public realm and "**water roofs**", designed to hold stormwater which is often cheaper than conventional drainage systems.



Green bridges can retain important links in green infrastructure city networks. They also act to provide continuous wildlife corridors to benefit city biodiversity and bring opportunities for healthier traffic-free routes and pedestrians crossings over waterways and roads.



The urban environment will need to work harder in the future in cities to provide flexible uses when city space is in demand. **Adaptable public spaces** can be designed for multiple functions: as meeting places, markets and entertainment and education places. This approach will help local business and engender local community pride.

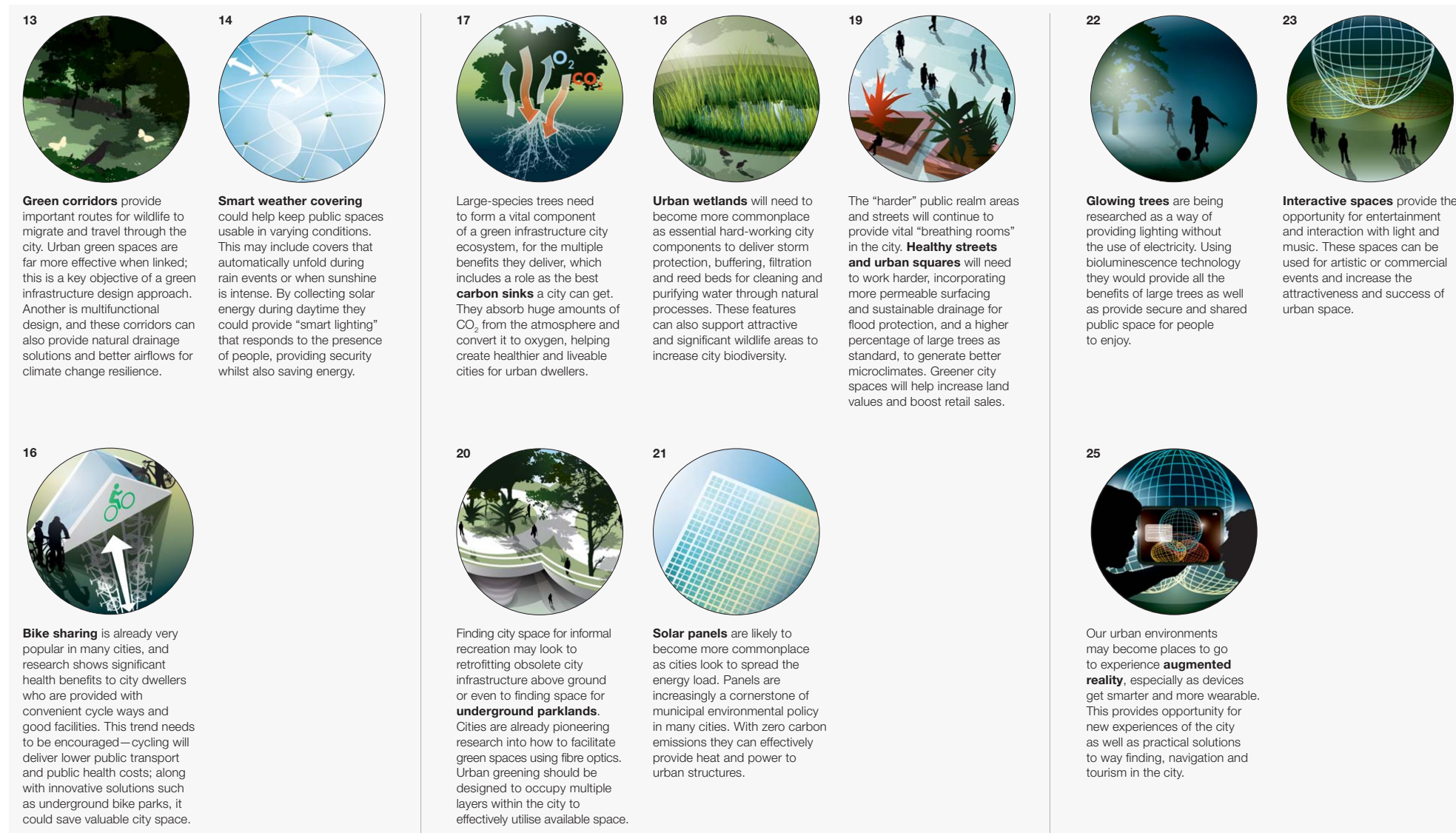
urban infrastructure, thus squeezing nature out of our cities. This has had a detrimental effect on urban environments with resulting social and health impacts.” (Armour, et al., 2014, p. 17)

“Using nature as a driver for the design of urban environments can deliver wide-ranging gains including greater social cohesion, improved mental and physical health (with resulting economic savings), and lower crime; economic vitality, inward investment and increased property prices; and better urban microclimates, reduced pollution, flood resistance, an increase in biodiversity and lower city carbon footprints.”

(Armour, et al., 2014, p. 10)

“Cities Alive: Rethinking Green Infrastructure” is available online, as is the infographic shown below, which highlights changes that can be made in cities to help them become sustainable, resilient, and healthy environments for people to live.

The report identifies social, economic, and environmental benefits that result from implementing green infrastructure in cities:





3 CASE STUDIES

With the decline of industrialization, we have begun to understand how our past treatment of urban waterways has affected water quality and ecosystems of today—and why it is important that we restore them. These alterations have also affected the communities in which they exist. As we have come to understand the essential functions that waterways offer, we must change our relationship with them in our urban environments. The challenge of the twenty-first century is to bring back the amenities that we have expelled from our cities long ago. Doing so will help revitalize cities in ways that have been forgotten over generations. To illustrate how this might be possible, I have consulted three examples that seek to reconcile natural processes in urban environments: the restoration of the L.A. River in Los Angeles, California; the restoration of the Lower Don Lands of Toronto, Ontario, Canada; and the revitalization of post-industrial Milwaukee, Wisconsin through biophilic design.



L.A. RIVER: LOS ANGELES, CALIFORNIA

The L.A. River is one example of a large-scale waterway intervention completed by the U.S. Army Corps of Engineers, built to quickly transport flash flood waters to the ocean from the Los Angeles valley. Similar to East Peoria's Farm Creek in many ways, the present-day L.A. River was shaped by the mindset that excessive water is a problem that must be solved by engineering. Not only was this project chosen because of the similarity in appearance and function between the L.A. River and Farm Creek—the typical concrete, trapezoidal channel section, edged by railroads and power line towers that run through the heart of the city—but because for so long, the same popular attitude toward the channel

exists here too: that it is a place to be avoided. The channel is inaccessible by the public and creates a barrier within the city. Where neighborhoods might connect to it, the streets have been blocked off. Because of this, residents of Los Angeles hardly know that a river exists in their city at all. This story is therefore not only about the environmental liability created by the concrete channel, but also about how it interacts with its inhabitants, its city, and its region.

The city of Los Angeles has recognized the various problems associated with the L.A. River and today, a massive-scale rehabilitation of the channel is underway. The project's goals include enhancing flood storage and water quality; restoring function and habitats to the river by slowing flows and intro-

ducing plant species; restoring public access; incorporating existing neighborhoods; using the corridor to create green connections; influencing economic development; incorporating community involvement and education; and improving the quality of life within Los Angeles.

The designers of the L.A. River master plan see the river as the “soul of the city” that can “catalyze change in diverse communities throughout its 32-mile corridor.” Importantly, the revitalized river would “provide park frontage... with its associated economic benefits,” but also create a link between disconnected natural habitats and neighborhoods. (The Los Angeles River Revitalization Master Plan, 2007)

It was noted that the channel may not be returned to its original floodplain wildness—allowing the river to migrate over time, as rivers do in their floodplains. This behavior would not be possible due to the amount of development in the city. The solution, therefore, is that the river would still end up being channelized, but the channel would become much more naturalized within.

Of particular relevance is the issue with channelized edges that cannot be expanded at present. Slowing the river and allowing for more vegetation requires space that just does not exist today. While some solutions are to store excess water off-site, there are also long-term strategies in mind, such as purchasing adjacent private properties that will allow for river expansion in the future.

One way the project deals with short-term flood storage is by locating it off-site, or essentially dispersing the floodwaters over a broader, controlled area. Where channels cannot be expanded, replacing existing concrete channel walls with natural plantings is deemed as a viable short-term solution for increasing habitats and slowing water speeds. These solutions are ideal for Los Angeles as a long-term strategy with incremental phases that help improve the river between now and its eventual completion.

Phasing strategies for both trapezoidal and rectangular channels have been devised to take place in the near- and far-term, depicted on the next page. These include “terraces, natural areas that provide habitat, overlooks, and pathway connections. These features can be introduced with minimal changes to the existing channel configuration.” As funding and site allocations become available, the long-term improvements will be phased in.

Near-term improvements include: public access, bike paths and pedestrian trails, wildlife habitat, and water quality treatment at or slightly below the top of the existing bank. “Improvements at or near the top of the existing banks might include water quality ‘green strips’ and tree plantings that provide wildlife habitat, shade, and cover. Improvements within the channel might include in-channel water quality treatment terraces, trails or overlooks, pocket parks or native areas, and temporary ponded areas.”

Long-term improvements include: restoring ecological function through reintroduction of a riparian corridor in the bottom and sides of the channel. “Longer-term modifications entail reconstructing the channel bottom and lowering banks to provide a pool and riffle system for steelhead trout or other fish, and to reestablish a riparian corridor.”

There is no doubt that the existing concrete channels designed by the U.S. Army Corps of Engineers do the job they were intended to do. Flood capacity of the channels is at an efficient high because its smooth walls allow for fast water speeds that quickly shuttle water out of the city. For high-stage events, this is appropriate, but for all other times of the year, the channels remain barren, with just a shallow trickle of water streaming along the bottom. Flood capacity, therefore, becomes a concern when altering the channels. The L.A. River master plan acknowledged that “restoring wildlife habitat and vegetation within the River channel, and providing for recreational improvements, would require additional and compensatory flood capacity. Introducing vegetation in the River bottom, for example, will require the channel capacity to expand by one and one-half to five times its present width depending on the type and extent of vegetation used.”

One major factor the L.A. River project takes into account is water velocity. In order to establish viable habitats, velocities must be at or below 12 feet per second. Since much of the 32-mile L.A. River is concrete channels, velocities are quite high. By comparison, only one mile of Farm Creek is concrete-lined and the velocities only peak at 12.06 fps at one location in the channel.

PUBLIC ACCESS

Construction of the concrete channels of the L.A. River brought with it alternative undesirable effects. For safety and liability reasons, the channels were restricted from access by fences and walls, cutting off access to the river but also across the banks. Additionally, homeless encampments and gang activity have sprouted in some areas within the channel. One of the major goals of the restoration

project was therefore to restore the river as a shared community amenity and use it to create connections within the city. With improved and desirable access to the river, river and riverside recreation become a major program element.

The lesson from the L.A. River project is that there is hope for reversing environmental damage and restoring a functional and beautiful asset to the city and which also benefits residents. The constraints,

of course, are greater for Los Angeles than for East Peoria. They are dealing with a much larger river, and a much larger and denser city, with much more infrastructure. However, the fact that a project like this is considered possible on the large scale means that it is possible on a small scale too. While local environmental considerations differ from site to site and region to region, the basic notion to restore waterways in urban areas must be considered a viable option as part of revitalization.

TYPICAL TRAPEZOIDAL CHANNEL



TYPICAL RECTANGULAR CHANNEL

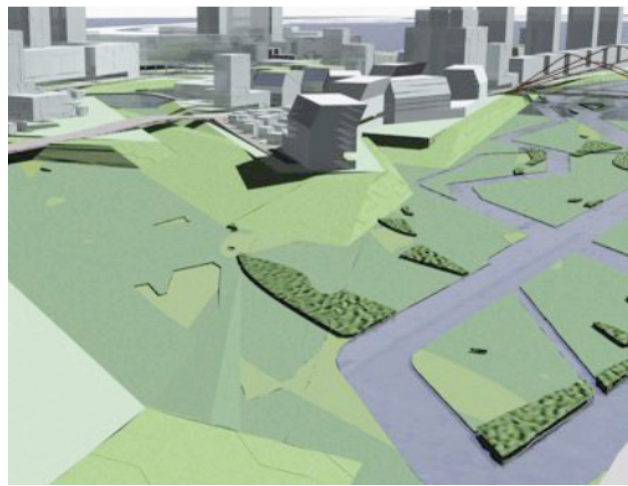


LOWER DON LANDS: TORONTO, ONTARIO, CANADA

In a competition to rehabilitate Toronto's waterfront area, the Portlands, many firms submitted ideas and finally, the work of Michael Van Valkenburgh Associates was chosen. However, I am reviewing the submittal by StossLU, which emphasizes public interaction with the Don River and its estuary marsh.

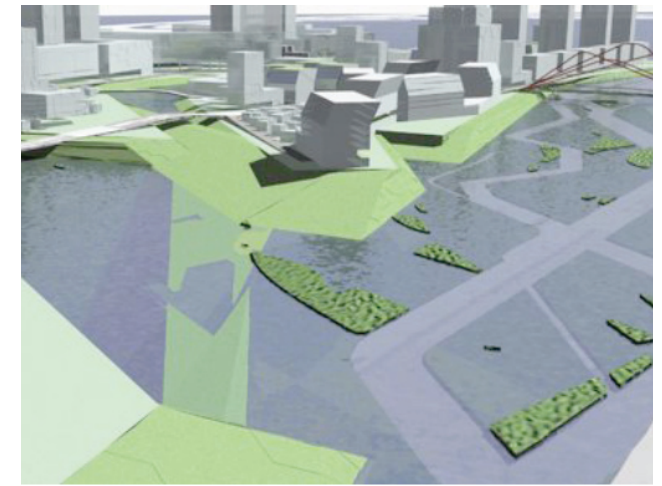
The design was primarily influenced by the river, which it uses to revitalize Toronto's waterfront. The intent was to get communities living and recreating in a functional estuary marshland that sustains "the body, the city, the environment" (StossLU, 2007). The design was also about creating a destination that was unique and created a lasting experience for the visitor while at the same time redefining what it is to live in a "green" manner. In the end, the design recognized that it would not be possible to address the Lower Don Lands in a top-down, master planning fashion and sought to implement a system of parts that could be integrated as a whole.

The design emphasized three influences: ecology, recreation, and culture. These would seek to integrate a new development, community access to waterfronts, flood control measures, and public aware-



ness. The designers recognized here, too, that the river and marshlands had been urbanized beyond the point of returning it fully to nature. However, therein lies the constraint: to combine naturalization measures with existing urbanization in a more integrated way. The strategy for revitalizing the river emphasized this hybridization. "By hybridizing the physical parts of the river system, and by flexibly deploying them to form a primary channel, broad marshes, a floodway, and armored uplands, we can set up a framework that both structures and emancipates" (StossLU, 2007).

The design sought to implement sediment-control measures at the mouth of the Don River as well as "dynamic flood control." Utilizing elevated river spits, the land below is able to become inundated while creating peninsulas into the water. This emphasizes water levels and reminds visitors that the river is constantly changing. Finally, the design



included different housing typologies, creating unique, recognizable districts.

These strategies have implications for East Peoria through educational purposes. Making flooding a highly-visible phenomenon helps to educate residents and visitors on the natural processes of flooding and to help ameliorate the fear and trauma that is associated with it. Interaction with the water in all of its forms should be emphasized. Flooding should be celebrated as a renewing phenomenon, as it would be viewed by those who depend on annual fertile soils for farming—rather than a terror. Additionally, it has been documented that those who spend time interacting with natural environments have more empathy for nature and natural systems. People who are invested in nature, whether through gardening or recreation, are calmer overall, which reduces crime and increases personal accountability and environmental stewardship.



BIOPHILIA + REVITALIZATION: MILWAUKEE, WISCONSIN

A little closer to home, (220 miles north of East Peoria) the post-industrial city of Milwaukee, Wisconsin is experiencing an upward climb. Along the Milwaukee and Menomonee Rivers once existed one of the nation's largest brownfields—the remains of manufacturing and food processing plants that had been abandoned since the 1980s. When the plants closed, tens of thousands of jobs disappeared, but the contamination remained. In 2004, the city had collected \$16 million in tax increment financing and \$14 million in grants to reinvent the two mile stretch along the rivers. Instead of developing on the brownfields, the city restored native plants and wetlands to the site – sixty acres – that catch runoff

and filter it before it leaches into the river.

“But restoring native plants to a brownfield was not just an ecologically correct choice; it was a matter of hard-headed practicality. These prairie species are deep-rooted and suited to survive the catastrophic storms and floods that are occurring in the upper Midwest with appalling frequency” (Manning, 2014).

Not only were the abandoned manufacturing plants replaced, but adjacent abandoned properties including homes became community gardens, prairies, and outdoor classrooms. Additionally, green infrastructure was implemented along the city streets that captured runoff, eliminating all but one of the city's 50-60 combined sewer overflows.

The decision to build greenways with water treatment wetlands proved to be more cost-effective in the long term than the traditional industrial alternative of digging pipes and building water treatment plants. Not only that, but it created more jobs for the city, such as the 150 people employed in the Water Business Council, which has now streamlined its ability to allocate funds for similar projects due to ten years of experience. Manufacturing has not died in Milwaukee either, with some 1,300 new manufacturing jobs added in industries such as wind turbine and solar panel production.

The benefits extend even further in Milwaukee. Ecological exposure and education for adults and children to the new greenway has improved crime rates and test scores alike.

The social improvements are lately being consolidated under one term, biophilia, from Latin, meaning “love of life, all life, as in nature” (Manning, 2014). The biophilia hypothesis, argued E.O. Wilson in a 1984 book, is that nature makes humans more attentive to their surroundings. Biophilia is a trait most apparent in, for example, a preference for waterfront property or views of a park, and is innate in all of us.

Richard Manning reports the varied benefits of exposure of natural settings in an article for *OnEarth Magazine*. Surgery patients in hospitals with a view of trees or open space demonstrated a measurable immune response and recovered faster. Schoolchildren do better on exams if they have walked through a park beforehand than those who walk through a city street, while office workers are more productive and report fewer sick days. The University of Illinois at Urbana-Champaign reports evidence of decreased violence and aggression in low-income housing projects that have access to green space.

Over the years, this idea has transformed into concepts of biophilic design and biophilic cities—ideas that include but also transcend green building and sustainability and seek to “capture the innate human attachment to nature and increase well-being by honoring it” (Manning, 2014). How does this relate to Milwaukee? Milwaukee, along with other cities

like Portland, Oregon, San Francisco, and Wellington, New Zealand, are considered to be biophilic cities by Tim Beatley, a landscape architect at the University of Virginia. The disparate elements that biophilia addresses eventually “weave together to enmesh those very social and economic problems that plague any city’s budget: crime, productivity, health care, education, to name just a few” (Manning, 2014).

Proponents of biophilic design now have abundant evidence of the value of nature in cities. “...the biophilia hypothesis can untangle many disputes about the environmental costs of development,” says Marcia Caton Campbell, executive director of the Center for Resilient Cities. Not only can incorporating nature into cities improve the natural systems, themselves, but also have tremendous benefits for society as a whole. Happier and healthier residents make for happier and healthier cities.

REFLECTION

Misunderstandings of the interconnectedness of Earth’s processes and its life forms have led to degradation, destruction, and exploitation of the earth throughout human history. Continuing our belief that humans, plants, and animals exist in solitary realms on Earth will only result in further divisions

between us. We must be conscious of how our decisions impact not only our immediate surroundings, but also our global environment. We must recognize and improve our role on Earth in order to benefit not only other life forms, but ourselves.

As human populations continue to grow, densifying our existing cities will play an ever more important role in curbing urban sprawl and protecting the natural environment. But just as animals cannot thrive outside of their adapted conditions, we, too, cannot thrive in cities without access to nature. To ensure a mutually-beneficial relationship between human cities and all other ecosystems, we must work together. We must design our cities to exist as one component in a larger closed system. Cities must allow for the forces of nature rather than attempting to conquer or oppose them, which will only waste resources.

With technology, we have distanced ourselves from nature, causing us to evolve our lifestyles past the limits that Earth can handle. The attempt to intertwine the natural and built environments may prove to be a constant struggle in our future if we continue to ignore our impact on the earth. If we are to have a viable future as fellow inhabitants on this planet, we must start with integrating our own habitats with our environment.



PLANTS AT COOPER PARK WETLAND
ALONG THE ILLINOIS RIVER

4 METHODOLOGY

Observance of the literature and case studies appears to address two opposite issues. On one hand, we recognize the existence of East Peoria as a city, with residents and businesses, highways and industry. On the other hand, we must acknowledge the natural features that make the city unique but which have been hidden and changed as the city developed.

The natural forces of the creek can no longer compete with our desire to live in its floodplain. The more we ignore the creek, the more resources we expend and the less value we get in return. This cycle is not sustainable. We cannot continue to demand so much from the creek while simultaneously ignoring our impact on it. In an effort to take responsibility for East Peoria's major artery, this project seeks to reconcile the dichotomy of both letting Farm Creek live and living with Farm Creek.

To achieve this, it is necessary to understand the issues that plague East Peoria and Farm Creek at present by observing the current trends in the City of East Peoria regarding Farm Creek, United States Army Corps of Engineers documents pertaining to Farm Creek and its levee system, and other related materials. We must also take lessons from literature and case studies that deal with those issues and how they might be addressed in the design phase. These are in ecological restoration, urban design, and urban wetlands. Of particular interest are the lessons from case studies that deal directly with urban revitalization due to waterway restoration, such as that of the Milwaukee River.

To bring these concepts home and make them relevant to East Peoria, it is necessary to collect current and historic maps of East Peoria, obtain

an understanding of its regional context, climate, weather patterns, geological history, settlement, cultural history, and business practices. Understanding historic reasons for development choices is helpful for understanding how the city of today exists, but also for understanding cultural inclinations. Making the new project culturally relevant to East Peorians according to their local context is important for establishing community pride. While at the same time, East Peorians should be aware and relate to the larger context of the Illinois River and even the Mississippi River region in order to foster environmental culpability pertaining to the interconnectedness of its watersheds.

The physical features of the City of East Peoria are a large part of its identity and should be emphasized. Use of technical maps regarding elevation

and contours in combination with FEMA flood maps provide a comprehensive understanding of the terrain as it relates to the functions of Farm Creek but also to the city's image, its level of connectivity, and its social distinctions. Historic maps reveal an East Peoria before flood control measures and industrialization, which can provide a window into what a new East Peoria might be like based on what it once was.

Finally, choosing a site in East Peoria which might exert the most impact is important for the viability of the project. The chosen site should already be struggling with the interplay between city and nature, but at the same time be rife with opportunity for improvement. The site selection and accompanying design is revealed in Chapter 7.





ILLINOIS RIVER FLOOD OF 1922:
VIEW OF WEST WASHINGTON STREET

5 HISTORY + CONTEXT

The state of Illinois is located in the Midwestern United States. It is bordered by Wisconsin to the north, Kentucky to the south, Iowa and Missouri to the west, and Indiana to the east. Perhaps most widely known for its largest city, Chicago, the state also shares the shore of Lake Michigan with Wisconsin and Indiana.

Peoria is the largest major city in Central Illinois and shares the Illinois River. The 'Greater Peoria Area,' which includes small municipalities in the counties of Peoria, Woodford, and Tazewell, reside in what is called the 'Tri-County Area.' Nearby Logan and Mason counties are also included in a regional economic strategy called Focus Forward Central Illinois. The purpose of this collaboration is to recognize the unique economic contributions of each county and to work together to create a more unified regional economy.

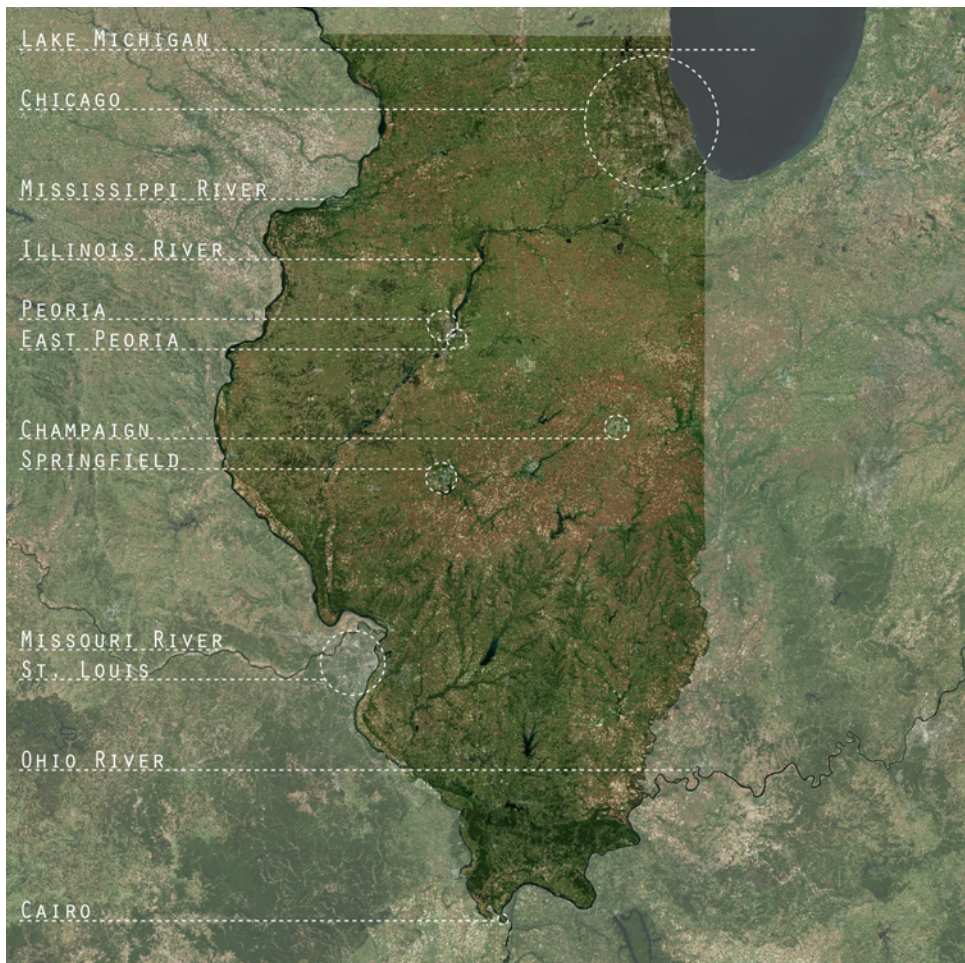
EAST PEORIA, ILLINOIS

Located 126 miles southwest of Chicago, the cities of Peoria and East Peoria occupy land straddling either side of the Illinois River (a direct tributary of the Mississippi River). Peoria (a mid-sized city of 115,687 people [City-Data.com, Peoria, IL, 2012]) is north-west and across the Illinois River from the City of East Peoria.

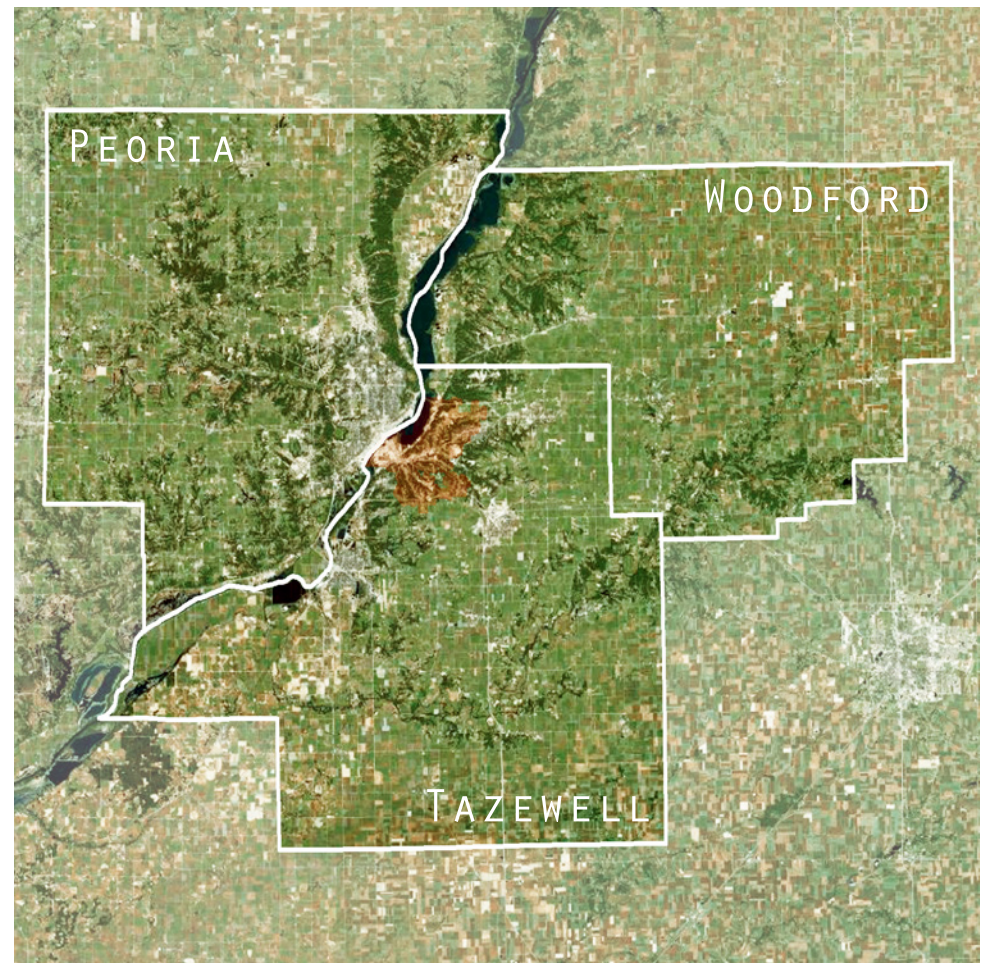
While both cities share a common locale and are often assumed to be one and the same place by visitors, they have very different traits, and are, in fact, located in two separate counties. That is not to say that they are lacking in collaboration, however, as the municipalities are highly cooperative. Peoria is located in Peoria County and is an older city with high-rise downtown buildings and old warehouses. Its population density is twice that of East Peoria.

East Peoria is located in Tazewell County and is a much more sprawling community, occupying 18.8 square miles. With only 23,445 residents as of 2012, its population density is 1,246 people per square mile. The population of East Peoria is 93% white, with a median household income of \$58,000. Median resident age is average for the state at 40 years old with a 3.6% increase in population since 2000. There are eight elementary schools, one middle

STATE OF ILLINOIS CONTEXT



TRI-COUNTY AREA [EAST PEORIA IN RED]



school, one high school, and one community college. (City-Data.com, East Peoria, IL, 2012)

East Peoria occupies much of the shore of Lower Peoria Lake. The only major tributary to the Illinois River within East Peoria is Farm Creek, which makes up a majority of the city's boundaries. It is surrounded to the south and east by the communities of Creve Coeur, Washington, and Morton.

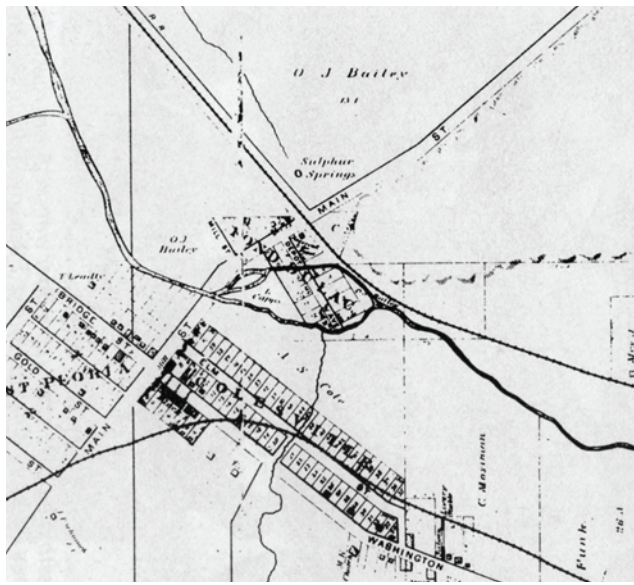


FARM CREEK WATERSHED

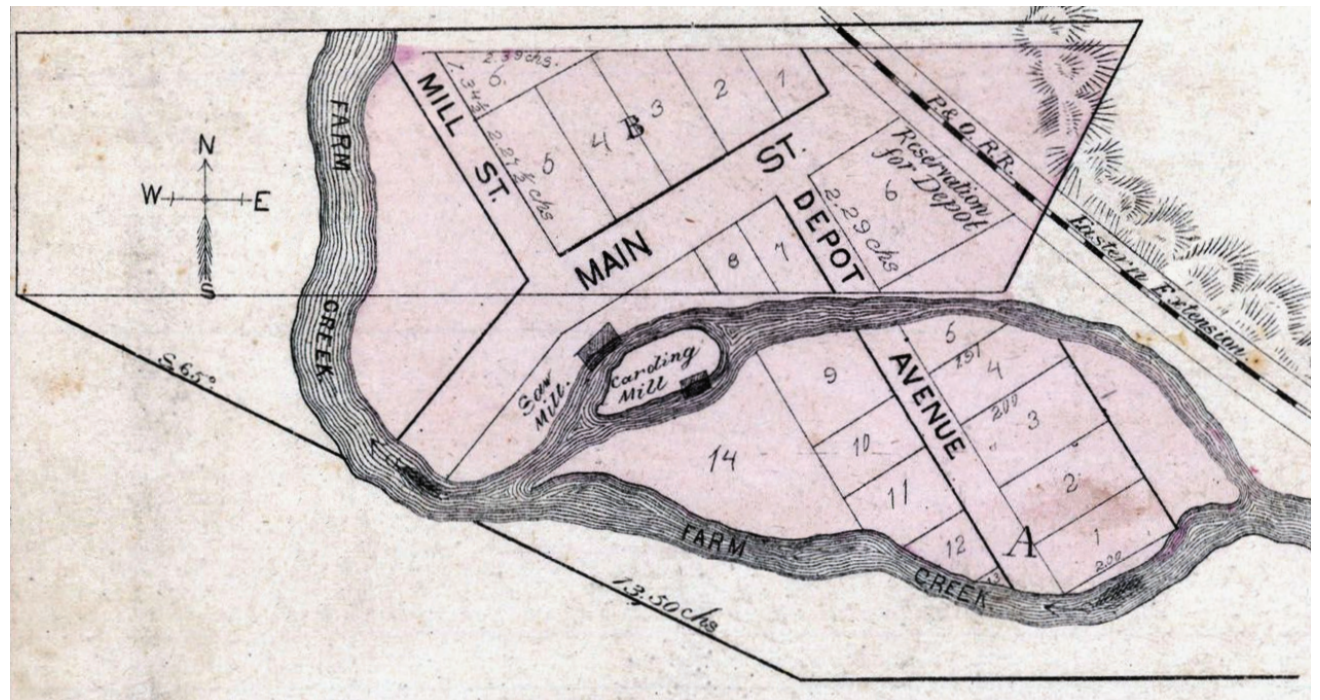


EAST PEORIA CITY LIMITS





ABOVE: 1891 MAP OF EARLY EAST PEORIA DOWNTOWN.
 RIGHT: 1872 DETAIL MAP OF FONDULAC SHOWING FARM
 CREEK DIVIDED AND BEING USED FOR MILL WORK.
 BELOW: BIRD'S EYE DRAWING OF EAST PEORIA IN 1867.



SETTLEMENT

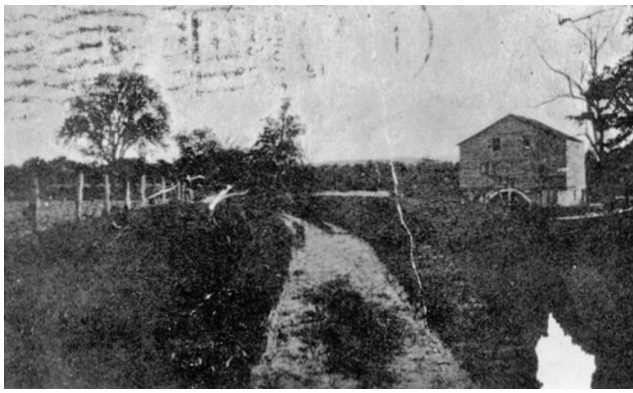
Named after the Native American tribe who once existed in the region, Peoria's first European settlers hailed from France. Finding the Illinois River as an ideal inland route between their two cities, Montreal and New Orleans, the French explorers, fur traders, and missionaries established Fort Crevecoeur in 1680 on a bluff just south of present-day East Peoria (LaKemper, 1984). A tumultuous 150 years would see many forts burned and rebuilt in the area, various wars between native tribes, the American Revolution, and the War of 1812. These events made settlement difficult in the region and eventually caused the French to leave altogether. Resettle-

ment of East Peoria would occur just after Illinois became a state in 1818 at a time when westward expansion and land prospects captivated Europeans and crowded, disillusioned Easterners.

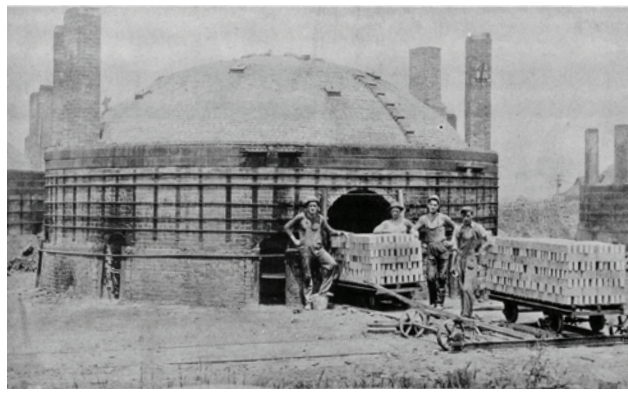
Still a wildland opposite the early Peoria settlement, East Peoria began to attract pioneers who staked out

their homesteads while natives still roamed the area. As their farms grew and became more productive, the early settlements developed into two separate towns, Fondulac (from French *fond du lac*: "foot of the lake") and Bluetown, under the Fondulac Township. During this time, Bluetown was a marshy area prone to flooding and home to many farms. Rail





WATERWHEEL MILL ALONG FARM CREEK IN EARLY FONDULAC SETTLEMENT, CA. 1850



A BEEHIVE KILN OF THE F. R. CARTER BRICK COMPANY



THE PEORIA & OQUAWKA RAILROAD BRIDGE AND COLE WAGON BRIDGE INTERSECTION, 1852 (PEORIA BEHIND)

lines built early on in the area contributed to an exportation economy of agricultural products.

The Town of Fondulac established what would become East Peoria's original town center. A plat depicting a two-block area of Main Street encompassing Farm Creek was submitted for approval by the District Court in 1855 (see maps on previous page). At the time there existed a sawmill, a cording mill, and part of the Peoria & Oquawka Railroad (LaKemper, 1984). Soon coal mines would be established in Bluetown and by the mid-1880s, those mines, railroads, and farms had "transformed the wilderness of [Fondulac Township] into a fledgling commercial center, connected by steel rails and telegraph wires" (LaKemper, 1984).

In 1884, Fondulac and Bluetown united under the name Village of Hilton, to be officially changed to Village of East Peoria just five years later. By 1910,

many of the large lots owned by original settlers of the area would begin to be divided into compact parcels, awaiting development into neighborhoods and businesses.

Many businesses of early East Peoria were coal mines, farms/groceries, brick kilns, and taverns. In 1887, a land purchase would change the course of East Peoria's economy. A former farm became an industrial site: the Herschel Manufacturing Company which built agricultural equipment. This purchase would be the first piece of land in East Peoria dedicated to industrial use and would transform East Peoria from a farming community into an industrial community within a few decades. Soon, the Holt Caterpillar Company arrived in East Peoria, establishing the first manufacturing site for Caterpillar tractors in the Midwest and influencing East Peoria's economy ever since. (LaKemper, 1984)

EAST PEORIA: IN TRANSITION

With the overall decline of industry in the Midwest after the second World War, manufacturing economies would never be the same. While much of East Peoria's wealth today still comes from Caterpillar, with many of its factories still in existence, many other manufacturing industries have suffered and abandoned the town.

With most cities across the region facing the same problems, the strategies for recovery have been varied. The trend, it seems, in terms of revitalizing post-industrial towns is to transform old abandoned warehouses into functional spaces: apartments, shops, etc. Peoria, for example, has already begun to make this transition because it has that type of infrastructure in existence. East Peoria, on the other hand, has very few older buildings to put to such uses.

Incidentally, the industrial histories of the two towns were very different, which, in turn, produced different types of infrastructures. Peoria: once a booming distillery town and trading hub; East Peoria: coal mining, brick-making, electric power generation, and agricultural equipment manufacturing. As a result, the industries of East Peoria, despite being successful and profitable, were notoriously regarded as ‘filthier’ than the relative glamour of distillery labor and the business of trade in Peoria, which had given East Peoria a reputation for being more undignified, blue-collar, and rugged.

It seems this roughness has been the mark of shame that which East Peorians have shouldered since the

town’s initiation. Because East Peoria has long been considered the unsophisticated industrial arm of Peoria, perhaps its citizens have longed for a better image from the beginning. That desire seems to have translated into the mentality that “any change is better than what we have now”—where *any* ‘progress’ is *good* progress, regardless of its actual consequences. It seems this insecurity felt by East Peorians throughout the town’s history has impacted planning choices of the town. Instead of a ‘cherish and reuse’ style of policymaking regarding historic or substantial buildings and establishments, the attitude of locals appeared to seek a clean slate through razing and starting over, a trend that also impacted many other communities at the time.

As a result, a sizeable number of the original buildings and homes were razed and replaced by new developments in East Peoria. The most apparent of these drastic changes occurred in the 1980s in East Peoria’s downtown, called “The Four Corners” due to the presence of prominent buildings along the axis of two main roads: Washington Street and Main Street. Three of these four blocks were demolished, including historic homes, where now only one small strip remains of the original buildings. Incidentally, the nickname seems to have gone out of style since the buildings vanished.

While it is true that some of the architecture in East Peoria may not have been worth keeping, this men-



WILLIAM F. SOMMERFIELD, WHO IMMIGRATED FROM GERMANY IN 1871, ESTABLISHED EAST PEORIA’S FIRST RETAIL STORE AND LONGEST-RUNNING BUSINESS, SOMMERFIELD HARDWARE & GROCERY. HIS RESIDENCE (ABOVE) WAS LOCATED ADJACENT TO HIS BUSINESS (RIGHT) ON EAST WASHINGTON STREET. THE RESIDENCE (BUILT 1902) WOULD BE RAZED IN 1969 FOR A PARKING LOT. THE CITY OF EAST PEORIA WOULD PURCHASE THE STORE TEN YEARS LATER AND DEMOLISH IT TOO. (LAKEMPER, 1984)



tality of blotting out the ‘blemishes’ in the name of progress is nothing new to urban planning in general. Municipalities legally refer to such areas as TIF districts or, simply, *blight* in order to gain eminent-domain rights of condemned or contaminated properties with the aim of improving them. Since there is no single definition of the word blight, it can often be shrewdly exploited. In this way, as Alan Berger (2006) explains, “cities are increasingly designating property as ‘blight’ not because it exhibits... conditions such as toxicity, but because the city views the property as unproductive (from a tax-revenue perspective or an aesthetic one).”

Because I was not yet born when the former East Peoria downtown was demolished, I am unable to

attest to its condition—perhaps it was, in fact, blighted beyond repair, or never good to begin with. On the other hand, old photographs of the buildings along East Washington Street (opposite the remaining buildings) depict a town of completely different character than what exists today (see below). The old buildings are charming and quaint, mimicking their survivors in style and height, and refer to the early settlement days of the town. If those buildings were in similar condition to the ones that remain, then it can be inferred that demolition was not warranted, even if the businesses were not desired.

In place of the demolished buildings and homes, modernistic-style shopping centers, each (almost satirically) named “Town Centre,” were erected

on the three blocks: four single-storey strip malls, a big-box grocery store (Kroger), a Wal-Mart, and a single-storey city hall building adjacent to a six-storey Regions Bank. These developments included installation of massive parking lots, the removal of existing trees and homes, and the general expansion of space between buildings.

In an address to the public in September of 1983, Mayor of East Peoria, James Ranney declared the opening of this new shopping center to be East Peoria’s new beginning. Using words such as “renaissance” and “rebirth” in his statement, Mayor Ranney paints a picture of a city on the verge of upward mobility, with no end in sight:

DOWNTOWN EAST PEORIA CA. 1971: BUILDINGS ON LEFT NOW DEMOLISHED

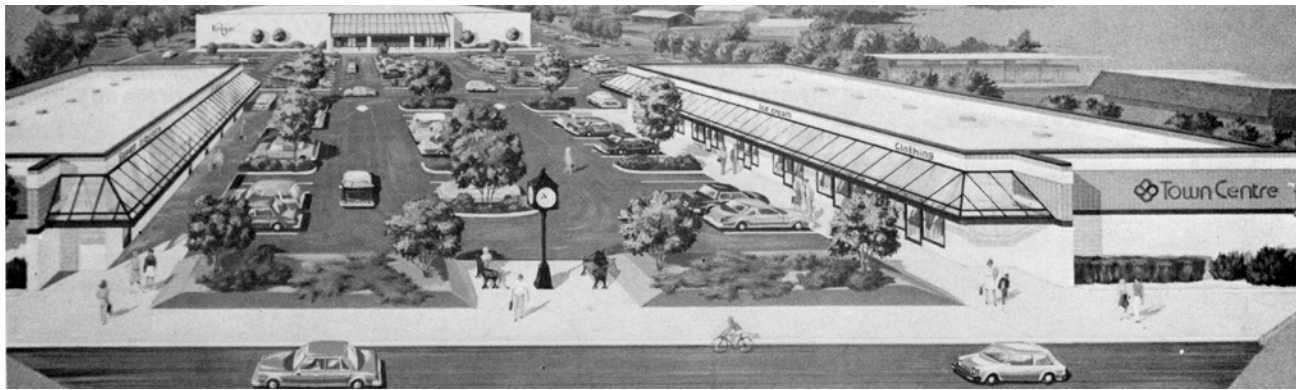


DOWNTOWN EAST PEORIA 2014: REMAINING BUILDINGS SHOWN ON RIGHT





LEFT: HOME OF GEORGE DOERING, BUILT CA. 1922, SON OF A PROMINENT EAST PEORIA FOUNDING FAMILY, BEING DEMOLISHED IN 1979 FOR A NEW PARKING LOT NEAR DOWNTOWN
RIGHT: NEW TOWN CENTRE DEVELOPMENT ILLUSTRATION, 1984 — TO REPLACE THREE OF THE FOUR BLOCKS IN DOWNTOWN EAST PEORIA



A prosperous and exciting future awaits the City of East Peoria. The rebirth of the downtown area into a viable commercial district will bring back fond memories for the senior citizens in the community and instill excitement into the minds of the younger members of the City. When the four quadrants are completely developed downtown it will be an aesthetically pleasing area as well as an active business district. ...the City of East Peoria is a sleeping giant soon to be awakened. It will be a City that all citizens can point to with pride. (LaKemper, 1984)

Today this might seem a bit overly-enthusiastic. The illustration for the East Washington Street development, despite being for a 1980s development, seems like it emerged straight from the 1950s (see above). The interest in creating large parking lots for the many anticipated drivers was a 30-year-old idea by the time this project broke ground. Regardless, East Peoria's economy was suffering in the 1980s, so Mayor Ranney was not without blame for his excitement, convinced that this development would

contribute to a booming economy and population surge—something East Peoria desperately needed.

While Mayor Ranney was not completely correct about the impact the Town Centre development would have on East Peoria, industry in the community did not die. Various manufacturing jobs exist today, though these do not contribute to the economy as they once did. East Peoria now claims to have an economy based on tourism and retail.

In the 1990s, the city reclaimed an old gravel mine and transformed it into a large-scale sports complex which, in addition to local teams, hosts sports teams from around the country for (sometimes week-long) competitions. These events tend to result in completely booked hotels for miles. Says East Peoria Director of Planning and Community Development, Ty Livingston, “The beauty of it is that it brings more than just that individual who is participating in the tournament—it’s their

families ...and so it’s this whole family component that comes and while they’re here, they’re going to restaurants, going shopping—it’s just been a huge tourism draw” (Livingston & Swan, 2013).

A riverboat casino also draws visitors to the city, with profits split equally between Peoria and East Peoria. Another tourism draw is the Festival of Lights, a winter parade which takes place in November every year. Where there are tourists, there is a need for hotels, restaurants, and retail establishments to accommodate them. At least, this seems to be the current trend in East Peoria.

THE “NEW DOWNTOWN”

While the days of recklessly demolishing historic structures for new developments appear to be over, the new developments keep coming to East Peoria. Another thirty years since the Town Centre project,



WALKABLE NEW URBANIST DISTRICT OR BIG-BOX SHOPPING CENTER? THE LEVEE DISTRICT ON THE LEFT AND EAST PEORIA WAL-MART SUPERCENTER ON THE RIGHT.

East Peoria continues to pave its parcels and erect chain stores in the name of progress. Undoubtedly under the guise of TIF districts, the city channels more wealth toward construction of shopping centers complete with big-box ‘anchor tenants’ and hotels. This time, in addition to demolishing old buildings and homes, the city has been taking ownership of former industrial properties which are located mainly on sites farther west from the historic downtown, near East Peoria’s riverfront. These have included a Walmart Supercenter, Lowe’s, and several smaller strip malls—developments typically found on the periphery of cities.

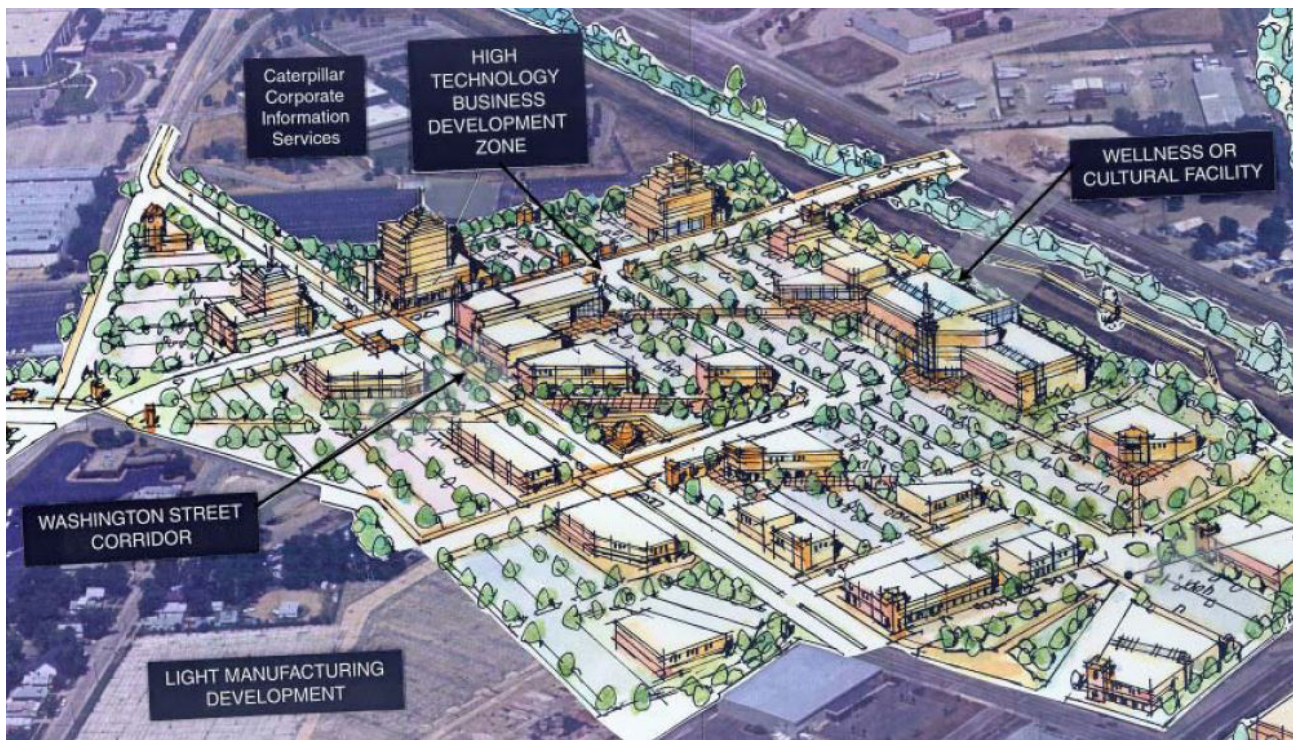
In recent years, similar development activities have crept eastward toward the historic town center, the Four Corners. The most recent project is touted as “East Peoria’s New Downtown,” called the Levee District, and is, in fact, almost adjacent to

the original downtown. Following the same pattern of development styles as its predecessors along the riverfront, the Levee District hosts big-box anchor tenants and surrounds another massive parking lot. The new property includes a long-abandoned, fenced-off, Caterpillar factory site, which was covered in crumbling concrete and declared a brownfield. Additionally, fragments of low-income neighborhoods that abutted the property were purchased and demolished in the process.

While the site looks and functions much better than it did, this development is really no different than the rest except that it calls itself “New Urbanist.” The developers argue that the enormous parking lot was necessary to cover contaminated soils—and it does—however, those contaminated soils were not extensive and were limited to a small area of the site (Livingston & Swan, 2013).

Previously, the City of East Peoria sought the design guidance of Vandewalle & Associates in Madison, Wisconsin to devise a vision for East Peoria’s future development. The Vandewalle Plan expressed opportunity for the Caterpillar brownfield, promoting a version of a technology park in the area and making the riverfront a destination, connecting it to the original downtown. In the plan, Farm Creek was seen as an asset for the town as a waterfront connection and recreation site. The Vandewalle Plan did not advance past the proposal stage, however, and while East Peoria Planning Director Ty Livingston claimed in an interview (2013) that the Levee District is inspired by the Vandewalle Plan, the two appear to be very different plans with very different goals in mind.

Once again, excitement has been stirred up for the brand new development coming to rocket East



ABOVE: VANDEWALLE PLAN TECHNOLOGY PARK (2001), WITH FARM CREEK SHOWN AT THE TOP RIGHT
 BELOW: LEVEE DISTRICT PLAN REPRESENTED AS AN AMALGAMATION OF CHAIN STORES (WITHIN BLUE LINE), FARM CREEK SHOWN ON THE RIGHT (CULLINAN PROPERTIES, LTD DEVELOPMENT, 2012)



Peoria into the future. Incidentally, many city officials are excited about the project, but a few have expressed dissension.

In an article from the Peoria Journal Star newspaper bluntly titled, “Levee District turning out more shopping center, less downtown,” Mayor Dave Mingus among a few others expressed disappointment on the insertion of a Chick-fil-A restaurant into the Levee District, indicating that it did not fit their “vision” of the new downtown. Regarding the city’s mission, Commissioner Gary Densberger stated, “From the beginning, the city’s intent was always for a pedestrian-friendly area with the feel of a downtown and not a shopping center. Have we accomplished that? I think we were hoping for more.” (Hilyard, 2013)

While knowing what popular opinion is regarding the suitability of the Levee District as a ‘downtown’ is difficult to gauge, Scott Hilyard, author of the aforementioned Journal Star article, expressed what some in the area would agree with: “The proliferation of retail and restaurant franchises in the area has created a boundaried district that would fit almost no one’s definition of a city’s downtown. The Levee District has the unmistakable feel of a place to shop and eat... but not much more.”

Regardless of what its purpose may actually have

been, to label the development “East Peoria’s Downtown” is a tacky choice, given the scale and vehicle-oriented nature of the plan. Still, there is excitement for the project from community members. Rick Strong, Executive Director of the East Peoria Chamber of Commerce, mentioned in an interview the high number of phone calls he receives requesting chain stores and franchise restaurants for the Levee District (Livingston & Swan, 2013).

It appears there is a disconnect between vision and reality. Mayor Mingus and Commissioner Densberger seem to have an idea about what they want, but perhaps were unable to achieve it. Reasons for this may be economically-based or that these men do not have a clear idea of what they were opting for before groundbreaking. Perhaps it is a mixture of both of these reasons.

Meanwhile, arguments in favor of the development suggest that it is still young and has the potential to change in the future as needed. Indeed, the ribbon-cutting ceremony only took place in March of 2013. This could mean that parking lots become in-filled with buildings and other uses should the city’s economy support those functions later on.

Despite the criticisms, the Levee District does have the inklings of a community-oriented place, with the existence of a ‘civic plaza’ next to the new library. While the project has not, so far, provided as many amenities as it could have, there is still a desire for more public space that encourages usage on nights and weekends. Additionally, plans appear to be in the works, as per a Peoria Journal Star article from 2015, to implement a mixed-use project on the property near the Holiday Inn. So far, however,

it is unclear if developers are interested in establishing housing in or near the Levee District. Despite this, Commissioner Gary Densberger indicated that multifamily housing is “the missing Levee District component we all hoped for” (Hilyard, 2013). This discussion came as part of a broader discussion about the current state of East Peoria and moving forward.

A major concern with the Levee District so far has been the inability for small business owners to take root there because the rents are too high. Said Commissioner Dan Decker, “There are those that would like to start a new business, but can’t afford to” (Hilyard, 2013). Rent rates are relative to square footage and attributed to not only the building footprint, but also the parking lot associated with it, which means that the larger the parking lot, the higher the rent will be. In places that are denser, there is less parking, but the rents are also lower, allowing small businesses to operate there affordably. This is the case with the old downtown buildings in East Peoria. Commissioner Densberger suggested making that area more attractive to shoppers as a solution to the lack of locally-owned businesses. Economically-speaking, the entrepreneurial spirit exists among the ‘creative youth’ that the city is so interested in attracting and retaining, so presumably a move toward density, affordability, and walkability is the solution.

RENDERING OF THE LEVEE DISTRICT, EAST PEORIA’S NEW DOWNTOWN, INCLUDING THE UNMISTAKABLE “NEW URBANIST” TRAFFIC CIRCLE





FARM CREEK: DENATURED

Flooding has been a constant hazard in East Peoria since the early days of settlement. Much of the early development of the town began on the flat alluvial fan formed by Farm Creek and Cole Creek. In fact, the old downtown lies at the confluence of Cole and Farm Creeks today.

Already familiar with flooding in the valley, many homes in Bluetown had been erected higher than normal or on stilts. Later development of the young East Peoria would continue in spite of the known flooding problem, but not in the way of adaptation to flood as in Bluetown. After a serious flood in 1895, efforts were begun to channelize Farm Creek. The new channel, completed the following year, straightened and increased the capacity of the creek, placing it parallel to the existing railroad between Bluetown and its mouth at the Illinois River. Efforts to contain Farm Creek continued for the next fifty years as flood events continued to be a problem.

Flooding in Central Illinois was not an isolated issue. The Lower Mississippi River Valley was also being settled more heavily, inspiring the need for flood control measures along its banks, straightening of its channel, and digging cut-offs through its meanders (Mathur & da Cunha, 2001). With the

implementation of the Flood Control Act of 1944, the US Army Corps of Engineers became involved in a large-scale flood control project that affected the Mississippi River and its tributaries. Funds were allocated for the Farm Creek Flood Control Project which included new levees, concrete-lined channels, bridges, and two large rolled-earth dams: the Fondulac and Farmdale Reservoirs (LaKemper, 1984).

Since installation of the Farm Creek Flood Control Project, flash flooding has not affected East Peoria. When floods do occur, it is due to the Illinois River overflowing its banks. The two dams, which are massive in size, act as reservoirs when heavy rains fall, preventing flash flooding that had plagued East Peoria's valley for so long.

Not only were the engineered solutions of the Flood Control Acts done to control flooding, they were required in order to improve navigation of the channels. As in the past, the Illinois River was used as a major shipping route. Since the 1840s, it had been altered and fitted with eight sets of locks and dams. The Illinois Waterway—a continuous navigation channel nine feet deep and at least 300 feet wide connecting Lake Michigan to the Mississippi River (*Illinois River Encounter*, 2014). Peoria Lock and Dam is the closest of these navigation improvements to East Peoria. It is located downstream of Lower Peoria Lake.

MURKY WATERS

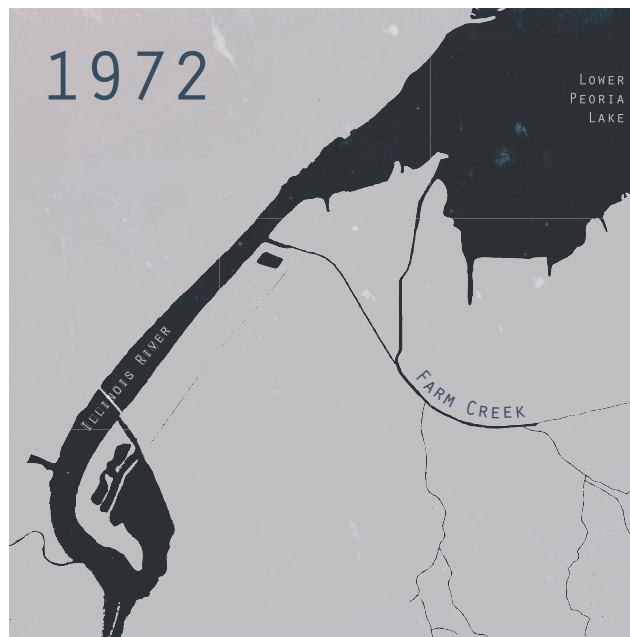
It is now well-known that human interventions in the natural world have serious implications on the environment. We now realize that throughout the course of humanity, we have altered our world to suit our interests and have spent significantly less time letting the natural world influence us. It comes as no surprise, then, that the habitation standards

we have come to rely upon would eventually backfire. Our relationship with waterways in the past has been one great experiment, as we slowly begin to understand the cumulative effects of our interventions from long ago.

Today, the Illinois River, like many Midwestern waterways, suffers from high accumulations of sediment delivered to it by its tributaries. The in-

1939 ILLINOIS STATE GEOLOGICAL SURVEY (ISGS) AERIAL PHOTOGRAPH OF FARM CREEK DIVERSION CHANNEL AND DELTA (POINTING NORTH)





FARM CREEK DIVERSION CHANNEL DEPOSITION 1949 - 1996. AS PART OF USACE IMPROVEMENTS IN 1949, CONCRETE WAS ADDED TO SECTIONS OF THE FARM CREEK CHANNELS, HASTENING THE FLOW OF WATER AND SEDIMENTS INTO THE ILLINOIS RIVER. IMAGES ADAPTED FROM USGS TOPOGRAPHIC MAPS.

creased sedimentation not only affects the health and diversity of the marine habitat in the river and lakes, but also has a negative impact on recreation and transportation. While erosion of the land by waterways is a natural process, human interventions that have both increased the speed and the amount of water traveling through the channels has created a sediment load too great for the slow-moving Illinois River to handle. In 1903, Lower Peoria Lake measured eight feet deep. By 1988, it had shortened to 2.6 feet, and today it is even shallower (*Illinois River Encounter*, 2014).

There are many factors that have led to the drastic changes seen in Lower Peoria Lake. As a major

tributary of the Illinois River, Farm Creek is one of the major culprits in the contribution of sediment. Soft soils in the uplands combined with the rise of agriculture over the last century have been part of the problem. Row crop agriculture, as seen in much of Illinois, affects sediment loads by elimination of natural vegetation and ecosystems along with an increase in erosion of large areas of exposed soil (Brooks et al., 2013). Draining a 60 square mile area, about half of Farm Creek's headwaters originate in agricultural lands separated by a narrow woodland buffer, however, headwaters within East Peoria's city limits mainly originate under tree cover.

More direct alterations to waterways affect sedi-

ment loads as well. Channelizing a waterway means straightening it, which causes water velocity to rise. Adding levees means the water has no way to escape the channel, thus increasing the quantity of water during a high stage event.

This is exactly what is happening in East Peoria, where the channels were not only straight with tall levees, they were also lined with concrete in sections, speeding the water up even more. Fast water speeds combined with increased erosion from headwaters allow for rapid sediment transport because the particles have no ability to settle before being emptied into the Illinois River.

Alterations in the 1920s had added a relief diversion channel* pointing due north, which had already shown visible signs of delta formation in 1939 (see ISGS aerial photo on page 51. With the construction of Interstate 74, the mouth of the diversion channel was relocated several hundred feet east, facing inward into Lower Peoria Lake. Instead of toward the more rapidly moving river, this construction hastened the sediment in Farm Creek toward the lake where a new delta began to form (Bhowmik et al., 2001). This has impacted the river significantly over the years, as the figure on page 52. Not only is the river channel being constricted, but the lake, itself is becoming more shallow as the sediment deposits begin to expand the Farm Creek diversion channel delta.

A study done by Bhowmik et al. in 2001 attempted to estimate sediment deposition amounts by Farm Creek using historic contour maps beginning in 1904. The study compared five tributaries in the Peoria Lakes region and found that of those five, Farm Creek contributed the least amount of sedi-

**It should be noted that today, FEMA considers the diversion channel (pointing north) to now be Farm Creek, and the original channel (pointing northwest) to be the diversion. In this sense, it can be inferred that the main channel of Farm Creek is in fact the channel that flows north into Lower Peoria Lake and which now receives the highest flows.*

ment over the 100 year time span (34 tons per year per square mile). However, as a result of its shifting mouth, several sand mining operations, and urban development on top of former channels, the amount may have been significantly greater (Bhowmik et al., 2001). It is therefore cautioned that this figure is an underestimate of Farm Creek's net potential to deposit sediment and could worsen if the mining is discontinued.

As mentioned previously, flood control measures were also occurring along the banks of the Mississippi River, channelizing it with the goal of hastening the flow of sediments, sewage, and vessels to the Gulf of Mexico. While creating a self-dredging channel in the Mississippi was the goal of the Corps of Engineers, this also had the unintended consequence of releasing massive amounts of high-quality sediments from the uplands into the Mississippi Delta, effectively wasting nutrient-rich soils in a salty bay (Mathur & da Cunha, 2001).

Activities are often undertaken independently with little regard to how they affect other areas. Despite this real world of disaggregated and independent political and economic actions, it remains a fact that water and its constituents flow from higher to lower elevations according to watershed boundaries, regardless of the political boundaries. (Brooks et al., 2013)

Very simply, what happens upstream affects down-

stream. This is true for particulates, but also for flood stages. The more levees along a channel, the greater the resultant water will be at the mouth. This rings especially loudly for residents of New Orleans, who are directly affected by the whims of the Mississippi.

The millions of people who inhabit the plains between the inner slopes of the Rockies and the Appalachians play a part in the flows of the Mississippi. Every shopping center, every drainage improvement, every square foot of new pavement in nearly half of the United States... accelerates runoff toward Louisiana. (Mathur & da Cunha, 2001)

The irony of building a levee to protect one community from flood means that another may suffer from even worse flooding downstream. A study done by L. B. Leopold (1994) following a 1993 Mississippi River flood found that "in several locations the levees caused river stages to be higher than they would have been without levees being in place" (Brooks et al., 2013). Because many of those levees were breached, even more devastation occurred than would have without them.

Unfortunately, it has taken a series of water-related disasters to make people see that status quo engineering standards—the pipes, walls and levees—may not be the only or best way for handling water, whether it be too much or too little. Hurricanes Katrina

and Sandy, the floods in the Midwest and droughts across the southern half of the country have each shown the need for innovative ways to manage water. Cities are looking toward green infrastructure as a means to not only better deal with stormwater, but to also mitigate flooding, increase biological diversity, and provide cleaner water and air.” [Mark Hough “Urbanism and the Landscape Architect (2013)] (Armour, et al., 2014, p. 61)

This illustrates the necessity of floodplains and wetlands during high stage events—a landscape that has been systematically extinguished over the past century.

An interesting example of the emergence of a new ethic within the engineering profession and government agencies is provided by the U.S. Army Corps of

Engineers. This agency, more than any other within the federal bureaucracy, was responsible for projects with devastating impacts on the natural environment. In an interesting change of direction, this agency, which has essentially run out of work in terms of new dam construction, has taken on the work of restoring wetlands habitats and re-creating the former path of the Kissimmee River in Florida, which involves backfilling the canal the Corps channeled over thirty years ago. (Campbell & Ogden, 1999)

While they appear to be softening these days, the Army Corps of Engineers is, nevertheless, a military organization so it is not surprising that their attitude in the past has considered water as the *enemy*—a force to be tamed. Seemingly always on the hunt for new intensive projects, as alluded to in

the above quotation, the Corps is at work again in the Illinois River Valley. Their latest project is the formation of three islands in Lower Peoria Lake created by dredging the silt from the Illinois River and Peoria Lake at a cost of \$20.2 million. These islands are intended to create deepwater habitats in the lake as well as provide recreational benefits (Peoria Illinois, Riverfront Development, 2014).

The initiation of the island project came after a study by the Corps to determine the best available methods for addressing sedimentation issues in the area. As part of the study, a side project on Farm Creek was sought to curb sediment flows to Lower Peoria Lake. Information for this project is located in “Appendix K,” attached to the main document, *Peoria Riverfront Development Study*.

PEORIA ISLAND IN PROGRESS (USACE)



For the Farm Creek project, feasibility studies were conducted for three sites along the tributary but ultimately a site at a headwater location just outside of Washington (east of East Peoria) was chosen because it had the “highest level of interest from public involvement” (USACE, 2002). Because this site is located so far away from the Illinois River, itself, it was determined that any restoration project would not have a significant impact on Peoria Lake, but would contribute to controlling sedimentation of Farm Creek instead—although, the appendix mentioned that “the implementation of additional

similar projects throughout the watershed could ultimately result in reductions in overall sediment delivery to Peoria Lake” (USACE, 2002).

The project proposal that eventually manifested was to transform an abandoned agricultural field into a restored wetland habitat. After two separate studies, however, it was determined that the site had “significant contamination issues” and was dropped from the watershed restoration plan as “consistent with Corps of Engineers policy” (USACE, 2002). More thorough details about those studies can be found in Appendix K, but the contamination is assumed to be from an adjacent salvage yard, concrete batching plant, and former pesticide use.

In a statement from Environmental Engineer, Paul A. Loete, P.E., “laboratory data from the collected samples revealed that five inorganic compounds, the pesticide dieldrin, and the PCB Arochlor 1260 were present on the site in concentrations that exceeded the IEPA residential and commercial Tier I remediation objectives for soil and groundwater” (Loete, 2002).

The Army Corps of Engineers cannot save the world. The Peoria Island Project is an immediate solution to restoring habitats to the lake, but the threat of rapid sediment accumulations still exists with the tributaries remaining untouched. Indeed,



SUE AND WES DIXON WATERFOWL REFUGE AT HENNEPIN & HOPPER LAKES
ALONG THE ILLINOIS RIVER, NORTH OF PEORIA

the numerous projects that have altered the natural processes of the community never seem to be addressed at the source, but instead only address the results once a problem has been identified.

Interest in curbing sediment deposition in the Illinois River must be addressed in other ways—and, indeed, it has. Education about the sediment issue has become more widespread in the area in the past decade, with local schools and organizations alike becoming involved. A massive permanent exhibit at the new Peoria Riverfront Museum is one example of local consciousness-raising, while direct community involvement like the annual Clean Water Celebration focuses more broadly on water quality issues.

In an effort to restore the natural habitats of the Illinois River, large-scale projects have also taken place locally. On either side of Peoria are two massive wetland sanctuaries along the Illinois River: the Sue and Wes Dixon Waterfowl Refuge at Hennepin & Hopper Lakes to the north, and Banner Marsh to the south. These sites were both floodplain wetlands drained for agricultural purposes that have now been restored.

Closer to home, East Peoria has set aside two sites for wetlands near Lower Peoria Lake: Cooper Park wetland is part of an Illinois River trail system and Bennett’s Terraqueous Garden, which has been preserved for its rare Illinois River bluff seep wetland.



6 ANALYSIS

TOPOGRAPHY + HYDROGRAPHY

Like much of Illinois and a large part of the Midwest, the landscape is characterized by flat and gently rolling terrain. Historically, this landscape has been home to vast prairies, wetlands, woodlands, and meandering rivers. Today, the flat and gently rolling land is almost completely utilized for agriculture.

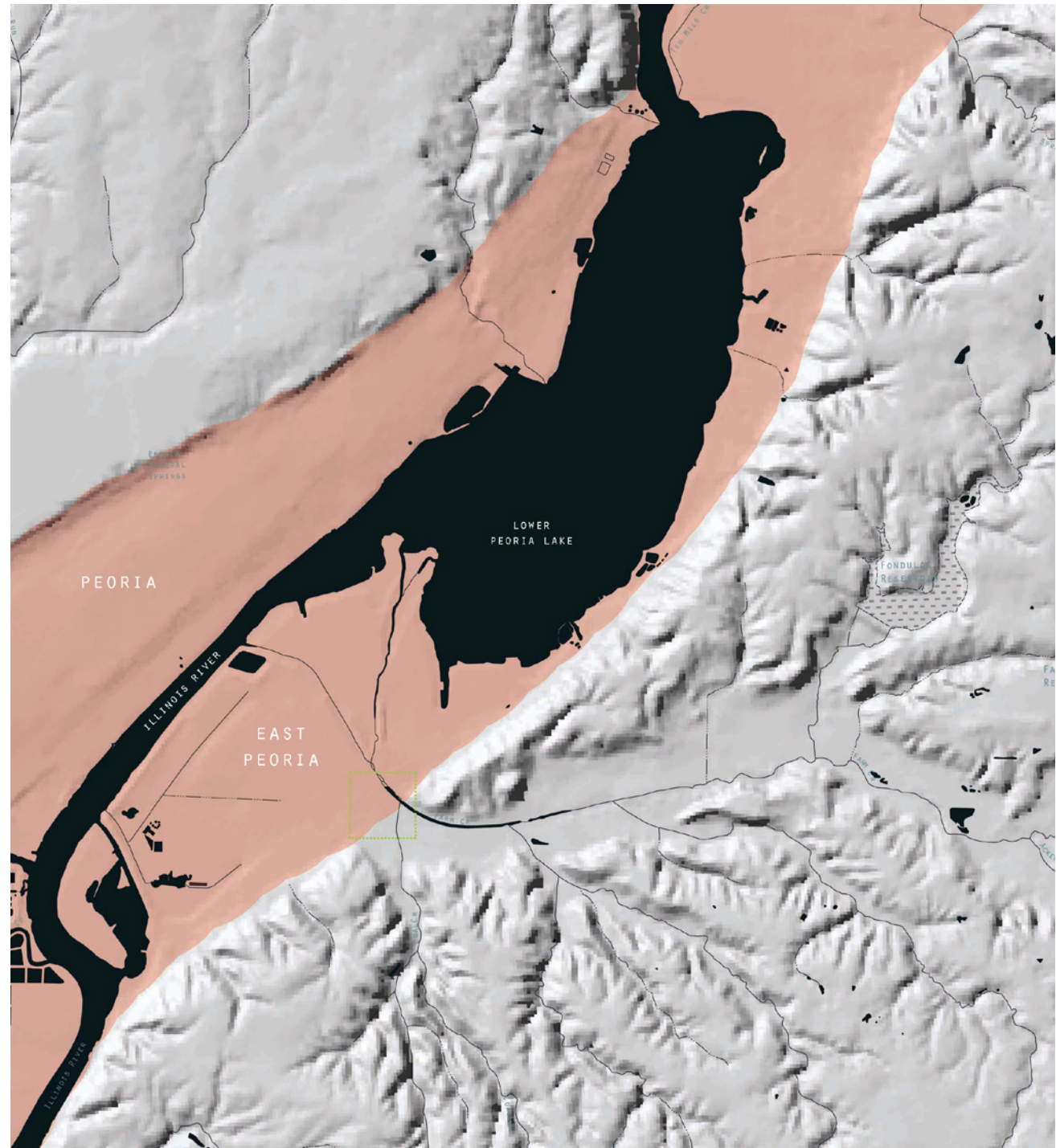
Sandstone and limestone make up much of Illinois soil types, where an ancient seabed existed millions of years ago. Later, the Mississippi River would occupy central Illinois, carving a channel that the Illinois River now occupies. It would later abandon this channel and move to its present location on the western border of Illinois during the Illinois Stage of glaciation (Illinois River Road Geology, 2014). The Wisconsin Episode saw glaciers receding and rapidly melting (eventually forming Lake Michigan and the other Great Lakes). These gla-

ciers formed a series of moraines that pooled the glacial meltwater, forming vast lakes. Eventually, the moraines collapsed and caused a great flood event known as the Kankakee Torrent, which carved out the present-day channel of the Illinois River until it reached the present location of Hennepin (north of Peoria). Here, the flood waters discovered the ancient Mississippi River channel and continued south, thus forming the abnormal ‘bent’ shape of the Illinois River (Illinois’ Terrace Geology, 2014).

The diagram to the right depicts the present-day terrain of the Illinois River at Lower Peoria Lake with the ancient channel of the Mississippi River highlighted in red. The present-day downtowns of Peoria and East Peoria occupy the channel carved out by the ancient Mississippi River, and where the Illinois River now flows. Because the Illinois River is much smaller than the valley in which it occupies, it is referred to by geologists as an ‘underutilized channel.’

The alluvial fan created by Farm Creek can also be seen in this diagram, where the topography of East Peoria becomes quite clear: many crests and valleys containing smaller creeks that all converge into the larger valley of Farm Creek. It is also obvious that this area is the creek’s pre-levee floodplain, which explains the continual threat of flooding during the early days of settlement in the valley. With so many

THE ‘UNDERUTILIZED CHANNEL’ OF THE
ANCIENT MISSISSIPPI RIVER





ABOVE: ILLINOIS RIVER FLOOD OF 2013 AT CAMP STREET AND CLOCKTOWER DRIVE. FARM CREEK MAIN LEVEE CHANNEL ON THE LEFT.

tributaries supplying rainwater, it is no surprise that Farm Creek frequently swelled above its banks.

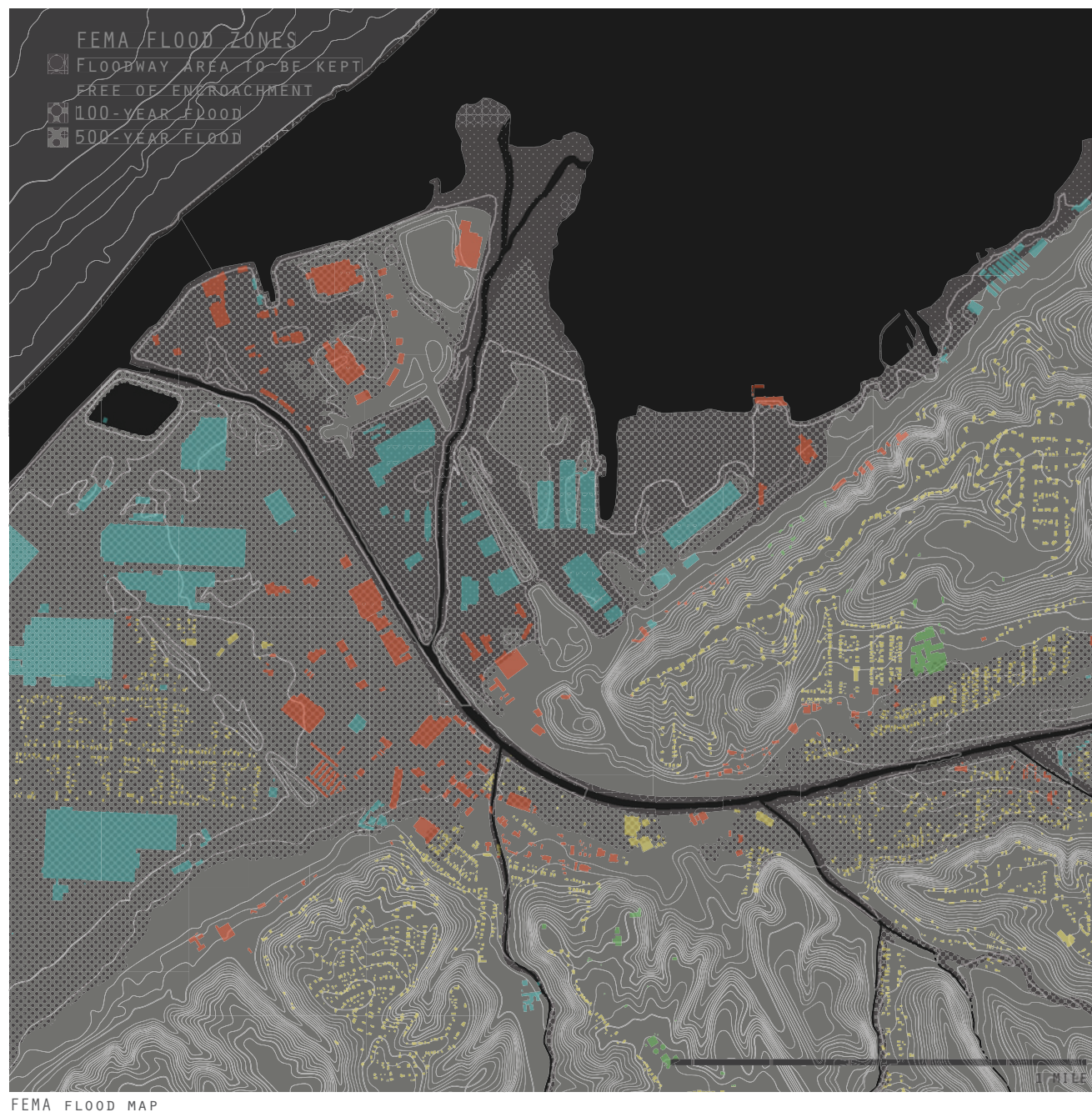
The flow of the ancient Mississippi River that cut into the soft sandstone and limestone soil over thousands of years and the subsequent outburst flooding that occurred from the Kankakee Torrent created what now characterizes much of the Illinois River's channel: steep, towering bluffs, rock formations, and wide, shallow lakes. Peoria and East Peoria are no exception. Each city boasts bluffs with majestic views of the valley (complete with



million-dollar residences). Peoria's Grandview Drive famously hosted President Theodore Roosevelt in 1910, who proclaimed that it is "the world's most beautiful drive" (Grand View Drive and Park, 2014). Opposite this is East Peoria's Highview Road and Fondulac Drive, which offer views of the city of Peoria and the Illinois River. Just past the beauty of the Illinois River valley bluffs, the land flattens out again, returning to agricultural uses and small towns just outside the urbanized areas of Peoria and East Peoria. These lands are several hundred feet higher than the valley and represent the watersheds of the Illinois River's tributaries in the area.

Of note, the flooding pattern has changed drastically since the levees were instated. The FEMA flood map at the right, depicts 100-year flood waters mainly emanating from the Illinois River, as proven by the flood scene of Farm Creek on the previous page: Farm Creek's levees hold water as the Illinois River and Peoria Lake flood East Peoria.

That being said, it is difficult to know where the flood waters might come from should a 500-year event occur, but the FEMA map indicates that a majority of the Farm Creek alluvial plain will be inundated in such an event, including its more inland valley. This means that neighborhoods like Richland Farms and other lower-income valley neighborhoods, the Caterpillar buildings and other



warehouses, and many big box stores by the river will be flooded. Meanwhile, neighborhoods located on hilltops will be free of flooding, though may

experience landslides or excessive erosion due to encroachment on the steep slopes. Highways and other high structures will also be saved.

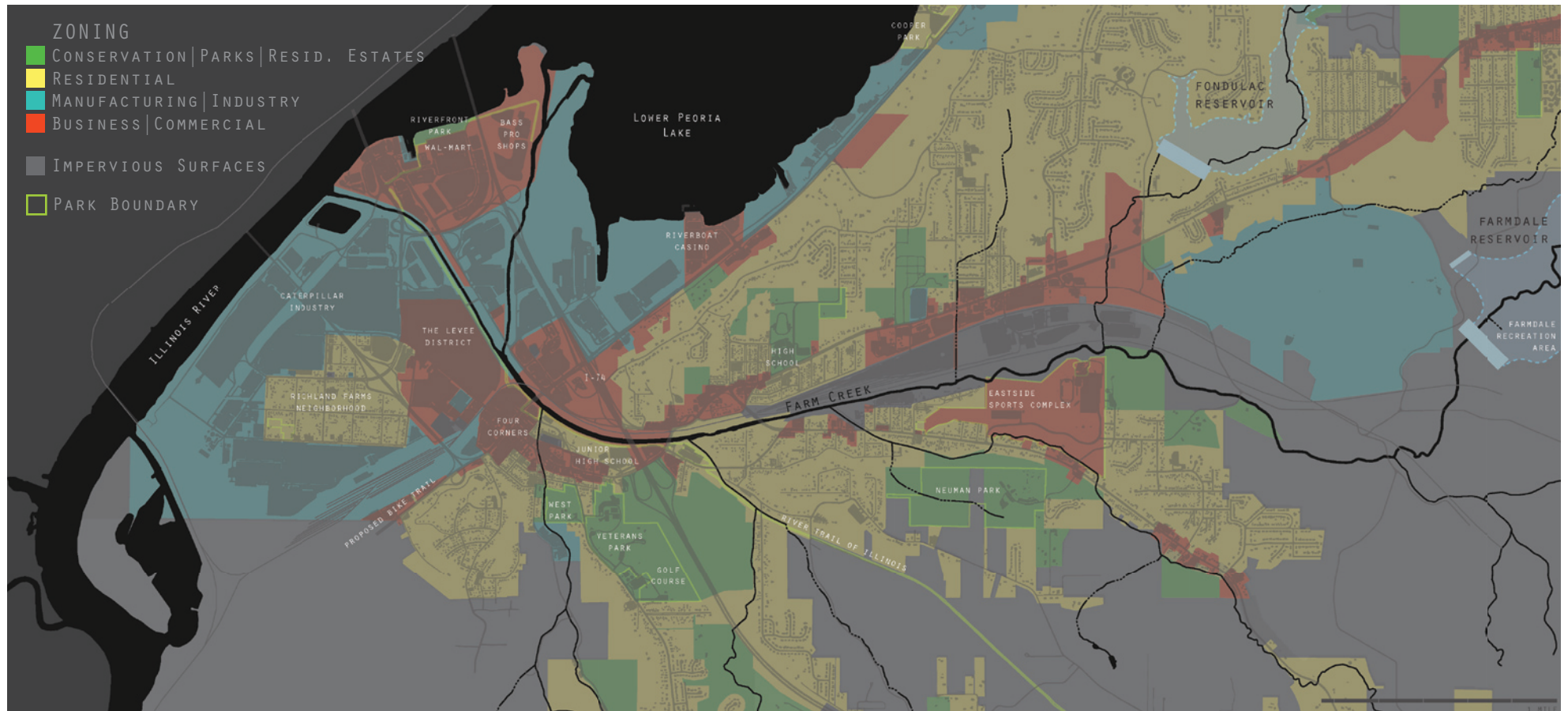
ZONING + LAND USE

On a map, the shape of East Peoria's city border appears fragmented and sprawling. In fact, it is. As land became annexed over time, the city expanded, parcel by parcel. The completion of Interstate 74 and the rise in suburban-style development in the 1960s and '70s led to further residential developments on the hilltops, away from the city center (Vogt, Sage and Pfum Consultants, 1972). This made sense at the time because the city center was

surrounded by industrial land uses. The zoning map below shows fairly sharp divisions between land uses. Much of the industrial (or former industrial) uses were located close to the Illinois River. While many of these properties have begun to change to commercial, many of them are still used today for industrial and manufacturing businesses. Meanwhile, a majority of neighborhoods and residential settlements are located further from the river. These are established primarily on the crests and in the valleys of the hills created by Farm Creek. Be-

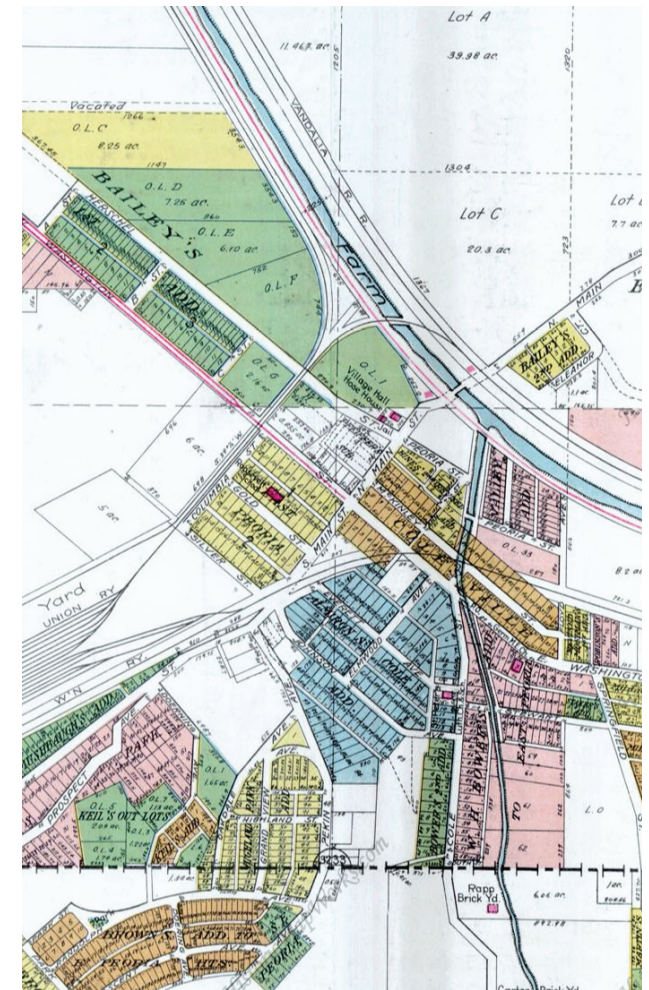
tween these areas are wooded slopes that typically descend for 200 feet. A few of these natural areas are in conservation zones and some are parks, but for the most part, these slopes are not protected at all. Continued suburban sprawl has threatened the stability of the steep hillsides as people build closer and closer to them, causing landslides and erosion.

Most of the early settlements began in the valleys, much closer to downtown. During this time, development of neighborhoods appeared to be





more compact than those that came later. The figure ground diagram above illustrates the density that exists today in East Peoria. Contrast the massive, long warehouses with the tiny neighborhood 1920s-era homes. A map depicting parcel divisions in 1920, above right, illustrates just how dense East Peoria could have become had it continued laying plots the same way, however, many of those parcels have been blended into large lots to accom-



moderate manufacturing needs. When some of these industrial properties left their sites vacant, the large, merged parcels they left behind have been easily transformed into the large-lot big box developments of today.

As more former industrial sites are being reclaimed, zoning overlays have allowed for different programming of the sites. East Peoria Director of Planning

and Community Development, Ty Livingston, sees compactness in the future of East Peoria. He expects there to be a need for walkability with rising gas prices and hopes to get East Peoria to a point where housing and offices can become a part of the city center once again, establishing industrial uses on the periphery of the city along Interstate 74 (Livingston & Swan, 2013).

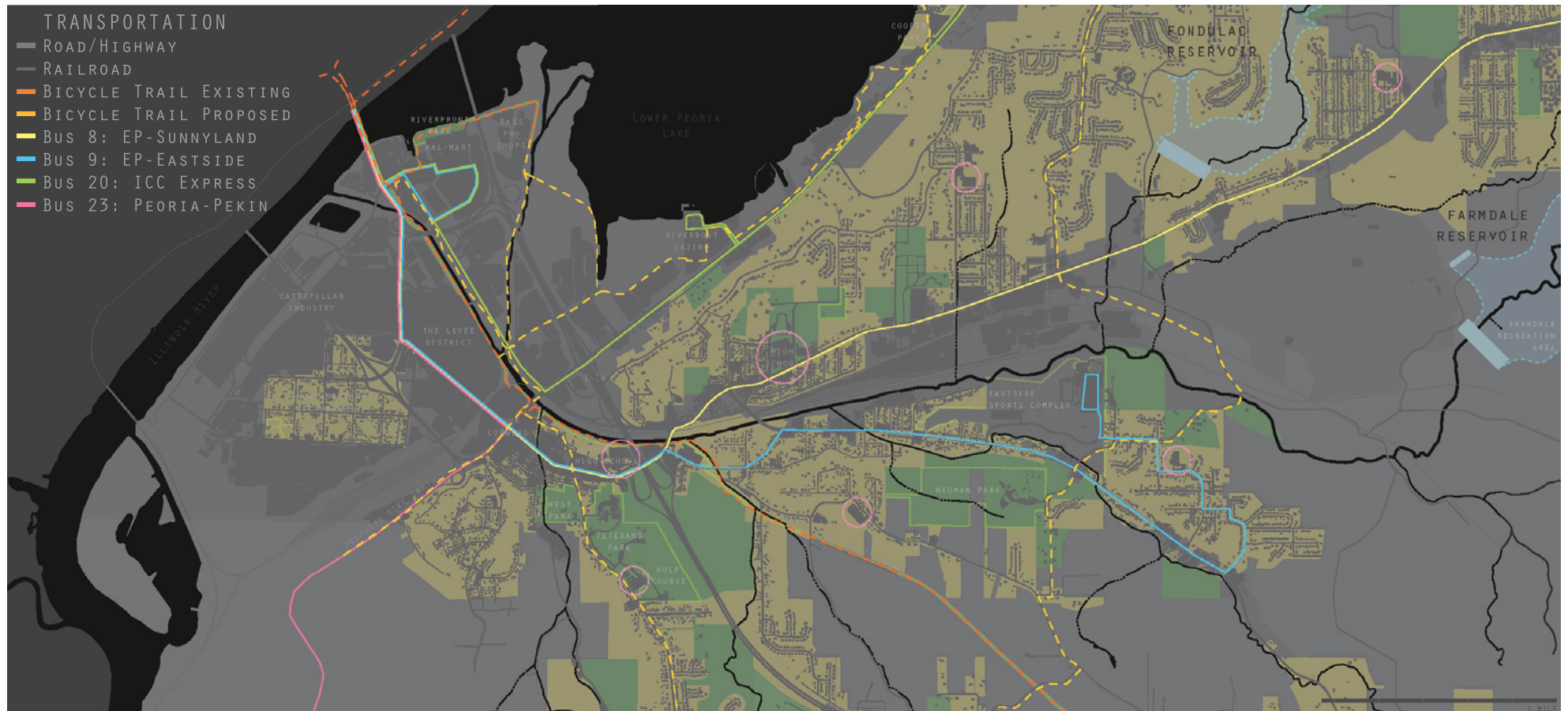
TRANSPORTATION

The main transportation routes in East Peoria are via road and rail—both of which seem to come together in one place. Interstate 74 runs through the middle of East Peoria, with ramps in several locations. Five bridges cross the Illinois River into Peoria, of which, one is rail-only. While there were several rail lines in East Peoria in the past, many have been removed or altered. Today, one freight rail exists running parallel with Farm Creek in the

heart of the city, connecting two large rail yards. On the opposite side of Farm Creek, an old passenger rail has been converted into a rail trail that extends into Peoria on the west and Morton on the east.

Topography has played a major role in shaping not only settlement patterns, but also transportation routes. Roads and railways follow the shape of the hills and valleys, converging on the flat alluvial plain—or spreading out from that central point, to look at it another way. It is no surprise that during

the early years of settlement, the city's dirt roads would easily become muddy. To work around this, the citizens used a form of public transportation of the day: hacks and motor surreys. Soon a petition introduced street cars to a small section of the town, replacing the motorized methods. Passenger trains would later travel through the city, connecting riders to St. Louis, Missouri and Bloomington, Illinois with direct stops in East Peoria. The rise of the automobile, however, ended all passenger train services indefinitely in 1956.



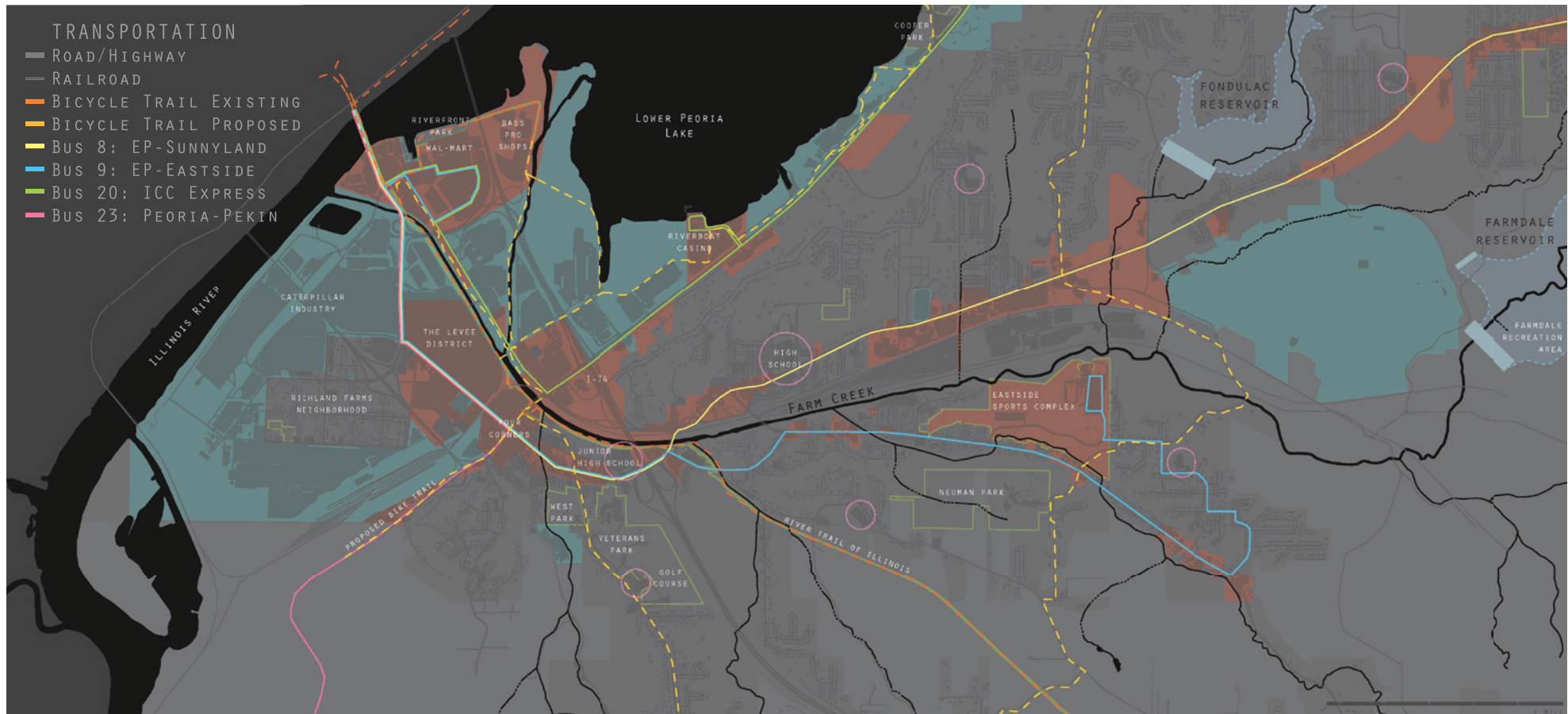
As the population expanded and transportation became easier, those who could afford it, headed for the hills. Not only did these people take advantage of the views from the bluffs, but, more importantly, they avoided living in a floodplain. With the popularity of suburban living and the rise of the automobile, new roadways and housing developments began to appear on the hill crests: single-family homes, each with a driveway on a cul-de-sac street.

Today, the main method of transportation is by

personal vehicle. In fact, traffic congestion is a major problem (Livingston & Swan, 2013) despite the relatively low population density. East Peoria is notoriously not pedestrian- and bicycle-friendly, partly due to the terrain, but more with the development pattern over the years. In a way, it is like a miniature major metropolis: commercial and business districts are centrally-located, while homes are located on the periphery, sprawling outwards. Incidentally, car-dependence results from necessity. It would be inconceivable to walk to town if you

lived in the hills, and it seems as a result, the need for walkable infrastructure never quite manifested, even in neighborhoods.

Most people must commute by car to work, even though they may live only a few miles away. Indeed, median car ownership per household in 2010 was 2.4 (slightly higher than average for both Illinois and the United States at 2.2) with approximately 90 percent of the population commuting to work via a personal vehicle, and often alone (CLRSearch). Pub-





If this looks like your town, cheer up: chances are, relief is on the way.

A RARE COLOR PHOTO OF BUSTLING EAST WASHINGTON STREET IN AN ADVERTISEMENT FROM CATERPILLAR ON BUILDING INTERSTATES (1957)

lic transportation, available in the form of CityLink buses, are used by only about one percent of the population to get to work. While the public transit system needs improvement (mainly with frequency and coverage of trips), there is an additional stigma attached to using it that prevents popular use.

The bus system originates in downtown Peoria at the CityLink transit center. Of the 23 routes, four of them travel into East Peoria via the Bob Michel Bridge. From there, the buses follow a fairly similar route, with some shopping-oriented deviations in

East Peoria's riverfront shopping district, eventually branching outward to make connections to more remote locations. Major connections for these buses link downtown East Peoria with Eastside Centre (sports complex) and shopping areas in the Levee District and riverfront. There is also a bus that routes to Illinois Central College, with stops at Wal-Mart and Par-a-dice Casino along the way.

Each East Peoria route is linear, traveling in both directions, and has frequency of one hour. The buses travel along major corridors, connecting

some residential areas with commercial areas and major points of interest, but not much else. Since all buses re-route at the downtown Peoria transit center every hour, making connections from one bus to another is easy, even if it is slower-paced.

The final, and more fledgling form of transportation options in East Peoria is by bicycle. As mentioned before, bicycle infrastructure is difficult to come by here. The only dedicated trail is the River Trail of Illinois, a transformed rail line. While this trail is great for recreation and long-distance cycling, it lacks in significant connection points to in-town interests. For the most part, the trail bypasses much of the City of East Peoria, despite going through the heart of it. Part of the connection issue is that existing road infrastructure and its prominent location along one edge of Farm Creek restricts it to one route and prevents ease of access.

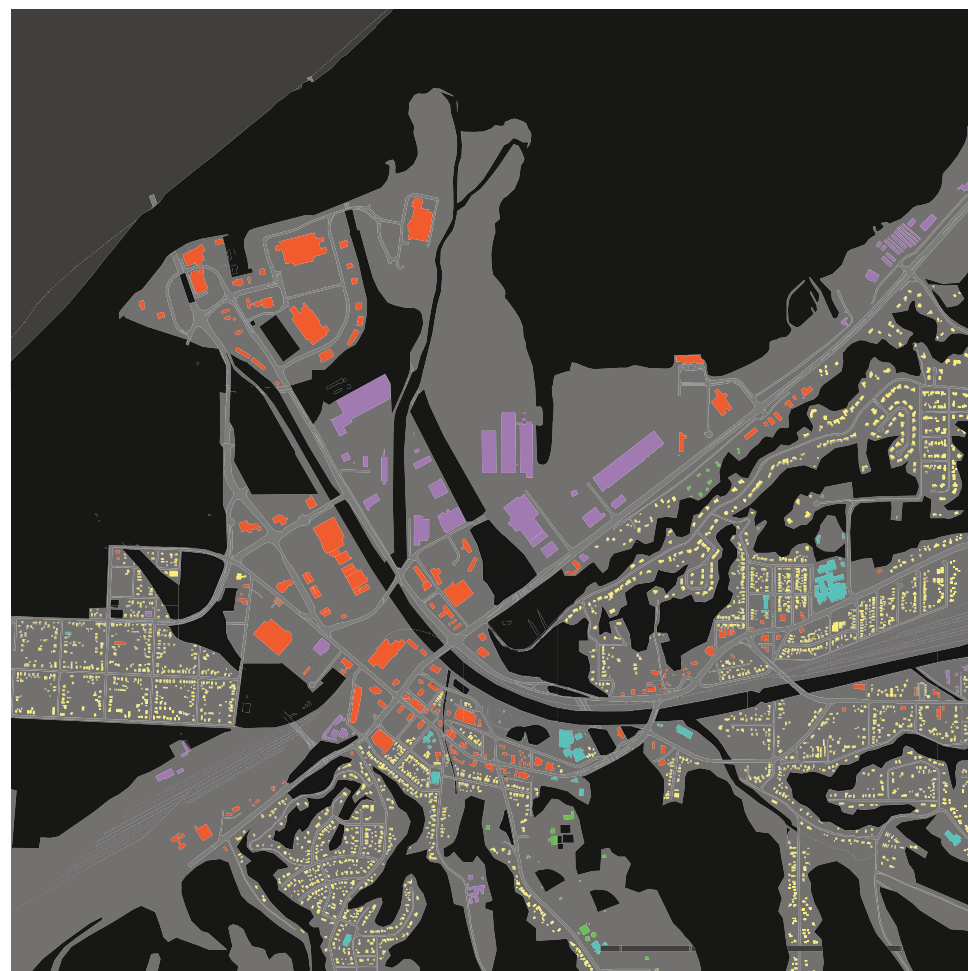
In order to extend the recreational aspect of the trail, the city overlaid an extensive trail network with multiple proposed routes. This new system introduces a route on the opposite levee of Farm Creek as well as more riverfront trails that meander through the hilly neighborhoods in the eastern side of the city. While the proposed trails look good in map form, the topography in those neighborhoods may pose problems for cyclists, as the roads frequently climb up hillsides and are quite steep.

PHYSICAL IMPEDIMENTS

The ability for a person to easily and willingly get from place to place on foot is an important aspect of walkability within a city. Barriers that make walking difficult are what I have termed “physical impediments.” These can be man-made or natural and include fences and private property, thick vegetation, steep topography, major roadways and rail yards, large private or otherwise impermeable

buildings, and waterways. What is typically used to transcend these barriers and exist in the public realm are roadways, sidewalks, bridges, trails, public buildings, and any other pedestrian-friendly structures. Walking distance is not taken into account in this analysis, as people can originate from any one place. Likewise, private properties are only accessible to those who have permission and represent a grey area, which is both a point of origination for some and a barrier for others.

In the diagrams below are first an examination of the physical land that exists in central East Peoria, showing all buildings, waterways, and roads. In the second diagram, much of this land has been blacked out. These are areas that are inaccessible to common travelers and must be avoided by walking along their periphery. The colors of the buildings represent their zoning uses. While many of the large manufacturing buildings are likely inaccessible to common travelers, only those that are fenced



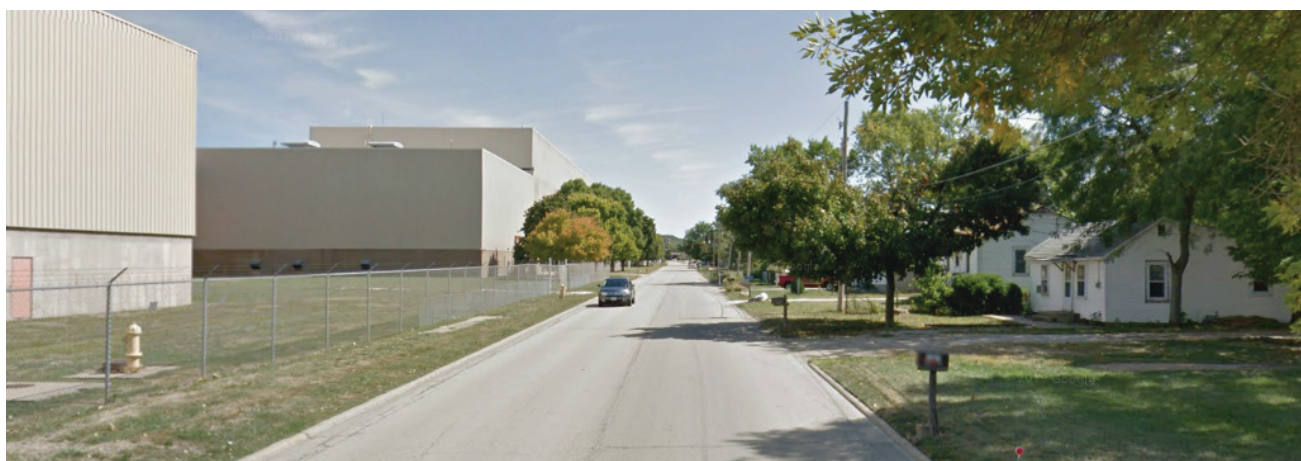
in with gate access have been blacked out. Some of the physical impediments are due to the steep wooded bluffs in which some neighborhoods exist, while two major impediments are represented by the Farm Creek channel and Interstate 74, which is elevated on earthen plateaus 20-30 feet above ground level. Access under the interstate is at a few points where walkers must travel under bridges several lanes in width.

As mentioned before, neighborhoods are a special case, representing private property uses where, depending on the owner's relationship with their neighbors, may be completely accessible or completely closed. In general, however, neighborhoods can be viewed as open places, with a street system that is shared by everyone, and private property boundaries that are usually respected. While the neighborhoods on the hills tend to be bounded by the natural topography of the bluffs, the neigh-

borhoods in the valleys are susceptible to a wider variety of boundary edges.

One example of this is Richland Farms. Sitting quite literally in the middle of an industrial zone on the alluvial plain is a neighborhood of quaint and unique homes that was established in approximately the 1920s. Curiously, the neighborhood, itself, is zoned as industrial according to the City of East Peoria's zoning map, however, I have colored the neighborhood yellow in the zoning diagram for readability, as it is still a residential area.

In an aerial map, Richland Farms is a green spot surrounded by pavement—it is completely isolated. Enclosed by tall fences and walls on three sides, it is bounded by Caterpillar factories, parking lots, and an enormous rail yard. The fourth side is enclosed by Route 116, which was plopped down in the middle of the neighborhood in the 1950s, demolishing several homes and cutting off streets, in order to accommodate Caterpillar traffic. Some of these neighborhood streets lead directly to parking lots (left). The neighborhood streets are heavily used by Caterpillar workers, and in many cases are widened for this purpose. All three roads that connect the neighborhood with the rest of East Peoria must travel under Route 116. The rail yard, while dangerous, is sometimes traversed from a corner in the south end into town center. As might be expected,



RICHLAND FARMS NEIGHBORHOOD: THE SHARP DIVISION BETWEEN NEIGHBORHOOD AND INDUSTRY
ABOVE: EDMUND STREET, LOOKING TOWARD 116 ON-RAMP, CATERPILLAR TO THE LEFT
BELOW: FISHER STREET, CATERPILLAR PARKING LOT ENTRANCE AT THE END OF THE STREET



EAST PEORIA 1939 AND 2014: NOTABLE FEATURES INCLUDE THE INSERTION OF HIGHWAYS, THE ISOLATION OF RICHLAND FARMS (GRIDDED AREA), THE RELOCATION OF FARM CREEK DIVERSION CHANNEL, THE CHANGING PEORIA LAKE AND ILLINOIS RIVER SHORELINES, THE DISAPPEARANCE OF THE CILCO POWER PLANT, AND THE INCREASE IN DEVELOPMENT ACROSS THIS ALLUVIAL PLAIN.



this neighborhood consists of low-income housing and decrepit, fenced-in businesses.

The most recent event to impact this neighborhood was the groundbreaking of the Levee District project. Not only did the project encompass the old Caterpillar brownfield, shown in the upper right of the aerial image, but it cleared a remaining fragment of the old Richland Farms neighborhood. This fragment of neighborhood was what remained after construction of Route 116 and had been cut off from the rest of Richland Farms. The tragedy of this decision is that the neighborhood was low-income and while it was a casualty of a TIF grant blotting out “urban blight,” it had residents living there who had been there for many years and was a final extension of Richland Farms into East Peoria. Now the neighborhood sits hidden behind the earthen walls of the highway, where its only gateway, Center Street, includes views of the back side of a Costco store. Incidentally, the Costco property has a fence on this side, so residents must still walk around the building to access it.

So far, no housing has been developed on the Levee District property, however, there are plans to introduce a mixed-use building in the future that would combine apartment spaces above a commercial space. “When (the city) first purchased the property from Caterpillar and got a “No Further Reme-



DEMOLISHED RICHLAND FARMS NEIGHBORHOOD FRAGMENT, EDMUND AND CENTER STREET CIRCA 2007 (LEFT) AND TODAY (RIGHT, WITH COSTCO)

mediation” (necessary) from IEPA, it stipulated that there would be no residential in the development, and we all agreed to that,” says City Administrator Tom Brimberry (Hilyard, 2015). The decision to introduce housing has delayed construction for another year to ensure the former brownfield is safe for residential uses.

With old neighborhoods of East Peoria continually

being destroyed to make room for chain stores and highways, the future of the city’s heritage appears bleak. One glimmer of hope: as Peoria’s Warehouse District becomes more popular, increasing rent prices have pushed out local artists, opening up potential for Richland Farms to host an artist community in the future, indicated Ty Livingston in an interview (2013). It remains to be seen whether this, too will take off.

PARKS

While the unique, hilly terrain of East Peoria may have its disadvantages for efficient infrastructure and density, there remains still quite a bit of untouched land in between developments. Much of this land is wooded ravines between the neighborhoods on top of the hills, with some of it being used as public park space.

The parks in East Peoria are as diverse in function as they are in acreage and location. Maintained by the Fondulac Park District, approximately 30 parks occupy over 1,600 acres of land in East Peoria (Fon-

dulac Park District, 2014). Their functions range from neighborhood open space to playgrounds, scenic drives, nature preserves, camping areas, and various sports and recreational settings including soccer, tennis, baseball, football, golf, cycling, swimming, and skateboarding.

Most of the parks in East Peoria exist as stand-alone amenities. In general, what connects these parks together is the ability to drive to them in a car. The River Trail of Illinois is the exception. A former passenger train railroad, the corridor now serves recreational bicycle traffic between the town of Morton and Peoria. While in downtown East

Peoria, the trail exists parallel to the Farm Creek channel on one elevated levee bank, following the original channel to an intersection where it then splits: one route shares the road with vehicular traffic over a bridge to Peoria while the other leads to East Peoria's Riverfront Park.

The Riverfront Park is a small strip of land along the Illinois River that occupies the former site of the CILCO power plant and makes use of the plant's enormous concrete footings that jut into the river. One side of the park provides views of downtown Peoria and the river, while the other side provides views of the back of a Wal-Mart, which exists just

RIVER TRAIL OF ILLINOIS BIKE TRAIL AT FARM CREEK,
NEAR CENTRAL JUNIOR HIGH SCHOOL



SPINDLER MARINA ON PEORIA LAKE





ABOVE: RIVERFRONT PARK BEFORE BASS PRO DRIVE (LEFT) AND AFTER BASS PRO DRIVE (RIGHT)
 BELOW: RIVERFRONT PARK, SHOWING WAL-MART AND BASS PRO DRIVE ON THE RIGHT, ILLINOIS RIVER TO THE LEFT

on the other side of a berm. The park has gotten even narrower in recent years as part of it became a secondary road leading to a new Bass Pro Shops.

Farmdale Reservoir contains Farm Creek between East Peoria and Washington. The reservoir is dry for most of the year, allowing for recreation in the hills behind the dam. There exist many trails for use in hiking, horse-riding, and mountain biking.

In spite of these impressive efforts, very little of East Peoria's river-edge land is dedicated to parks and open space. In fact, only a fraction of the land is zoned for such uses currently. Between Cooper Park and Spindler Marina along the shoreline of Peoria Lake is the Cooper Park Wetlands preserve. With 1,200-feet of boardwalks, this area is often used for educational purposes on the wetland habitats that once existed in East Peoria and is part of a larger greenway, the Illinois River Road National Scenic Byway. (IllinoisRiverRoad.org)



IMPERVIOUS SURFACES

+ WETLANDS

When the early migrants of East Peoria arrived, they were no doubt greatly impressed by the high-quality soil that surrounded them. The excessive erosion of Farm Creek and its tributaries had produced a broad, flat alluvial fan rich with nutrients. It was also the floodplain of the Illinois River, a landscape that was both wooded and marshy. Not only was it

ideal for farming, the flat land adjacent to multiple shipping routes was also ideal for manufacturing, which eventually overtook the farming operations in the valley and other naturalized areas as large plots of land became industrialized.

The rise of the automobile brought demands for more infrastructure to support it. Caterpillar experienced huge economic growth (in part due to their manufacture of road-building equipment) and had purchased much of the land on the plain to be used

for factories. The increase in employment brought congestion and resulted in the development of highway infrastructure in East Peoria. The roadways, interchanges, and ramps that dominate the landscape today are a result of that booming era.

Since that time, a gradual filling-in of land has occurred. Today, the landscape is largely comprised of vehicular infrastructure: wide, multi-lane roads, and huge parking lots. Meanwhile, expansive, one-storey buildings inhabited by chain stores and factories



make up the rest of the landscape. This large concentration of impervious surfaces so close to the water's edge has implications for increased flooding. Even in a time when local planning authorities create websites dedicated to understanding stormwater issues on a local scale, such as the Tri-County Regional Planning Commission's 'Peoria Lakes Watersheds' website, developments continue to be created that dump water off-site in high volumes.

The Levee District, despite direct city planning involvement, avoids dealing with stormwater alto-

gether and instead uses pumping stations to empty water from the site into the Farm Creek levee channel. East Peoria Director of Planning and Community Development, Ty Livingston comments:

We have two strategically [placed] pump stations where the stormwater runs off to... nowadays you have to make sure there's a stormwater detention [basin] or the developers—which, as excited as we are as planners about it, they're not crazy about having to do a permeable-surface parking lot because "*those*

are too expensive." ...Well, we don't have to worry about those issues. (Livingston & Swan, 2013)

As surprising as those comments are, what is not surprising is that the levees are still being taken for granted. Today, most of the wetlands in East Peoria are extinct because the levees eliminated the need for a floodplain. In fact, FEMA maps depicting 100- and 500-year flood stages show no change to the surrounding valley—only a filled-in levee channel (see page 59). Currently, there are no in-place buffer requirements for wetlands and streams, however a 50-foot recommendation has been made by the Tri-County Regional Planning Commission.

The mile-long lake-front wetland at Cooper Park, mentioned before, and a small rare seep wetland at Bennet's Terraqueous Gardens along Route 116 are the only advertised examples of native Illinois wetland parks in East Peoria.

BELOW: COOPER PARK WETLAND BOARDWALK
RIGHT: BENNETT'S TERRAQUEOUS GARDENS



DOWNTOWN CHARACTER: EAST

WASHINGTON STREET 1950-2013

Major changes in East Peoria took place downtown between 1950 and today. These are documented in the photographs below. The purpose of the montage is to evaluate the character of East Washington Street over a span of sixty years and to compare the quality of design choices. For example, between 1950 and 1971, there is a denseness that does not

exist today. In these two decades, the street was symmetrical on either side. The buildings matched in height and the sidewalks were wide. The buildings were mixed-use, two storeys, and had unique historic character typical of many historic town centers in the United States. Interestingly, it seems that between 1971 and 1979, street trees had been added to the sidewalks. This adds a softness to the buildings and makes the street more inviting. By this time, one strip of the Four Corners had been de-

molished and more demolition was soon to follow. By 1984, only one of these historic strips remained—the others having been demolished for parking lots and shopping centers, including the bank building from the remaining strip (1957 photo, front). The street trees were eliminated and the streets were widened, reducing the width of the sidewalk. Demolition never reached the last corner and that is what exists today, though the character of the street is quite different and, indeed, less inviting.



FARM CREEK IN DETAIL

Because this thesis proposal encompasses Farm Creek, a more detailed study of the creek is depicted in the following section. This diagram below illustrates the changing character of the creek as it travels through East Peoria and does not address the headwaters that are farther east, which are more naturalized already. The diagram can be analyzed from right to left, following the downhill path of the creek and its tributaries. The main body of the

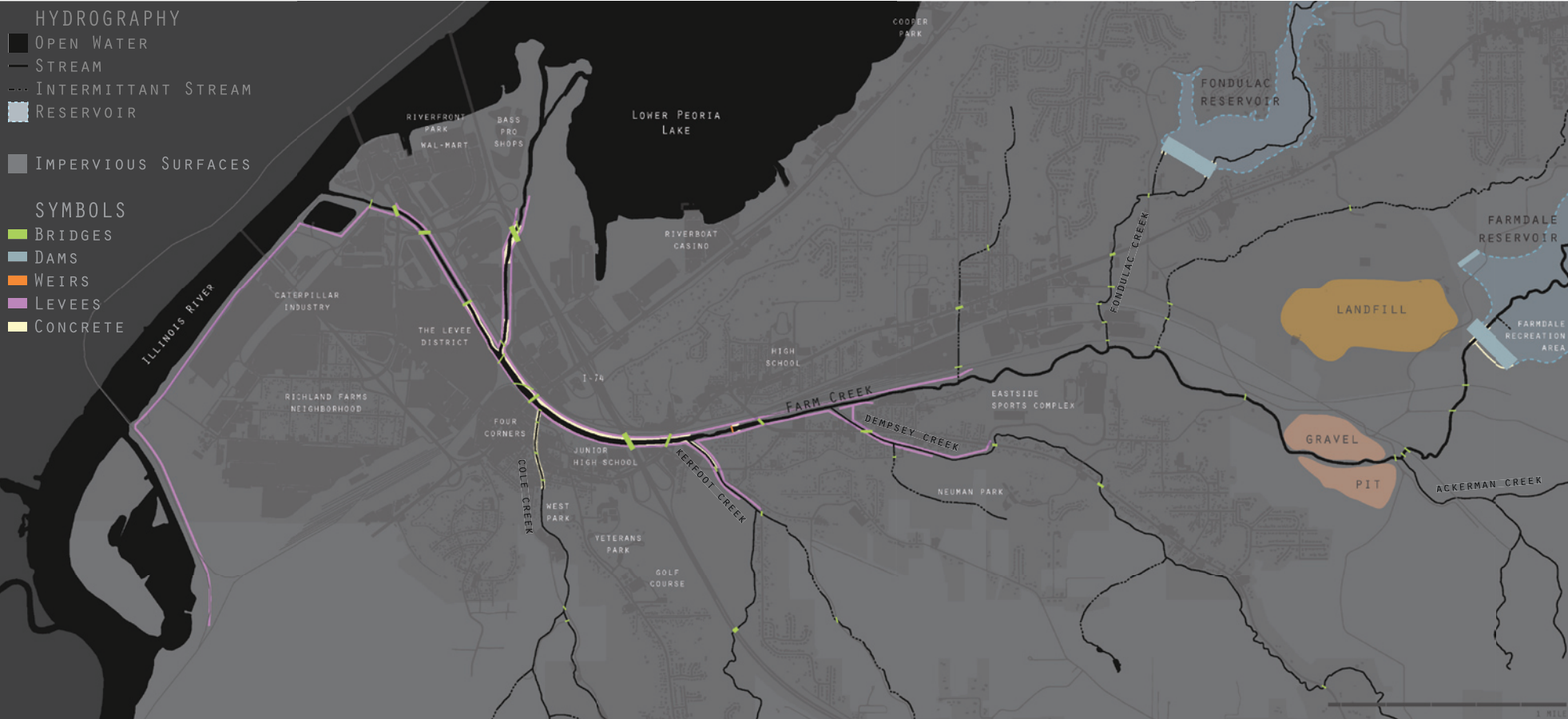
creek is depicted as a bolder line than its tributaries and does not necessarily represent its true width.

Farm Creek is approximately 19 miles long from source to mouth, with an elevation change of 372 feet. Upon entering East Peoria, the Farm Creek will flow through Farmdale Reservoir, where it will encounter the Farmdale Dam, a rolled-earth dam created by the US Army Corps of Engineers in 1944, completed in 1951. This is considered to be a dry reservoir, which will fill up only if the water

level exceeds the capacity of its culvert. Before it reaches the dam, the creek is fairly naturalized. It then enters the culvert which travels under the earth dam for several hundred feet before emerging on the opposite side and continuing its flow, guided by the concrete culvert.

While still fairly naturalized, Farm Creek then travels under several bridges and culverts, encounters one of its tributaries, Ackerman Creek, and then travels through a large gravel mining operation. The

THE CHANGING CHARACTER OF FARM CREEK





FARMDALE RESERVOIR DAM

FARM CREEK PASSING UNDER FARMDALE RESERVOIR DAM



FARMDALE RESERVOIR DAM DOWNSTREAM OUTLET





RAILROAD AND ROADWAY BRIDGES OVER FARM CREEK AT ACKERMAN CREEK (RIGHT, HIDDEN) CONFLUENCE, LOOKING EAST FROM VETERANS ROAD BRIDGE

channel had been diverted slightly in the process of gravel extraction and two large ponds sit in the wake of removal to its south. The creek also passes by a large landfill. While it does not directly interact with the landfill, it does surround its base.

Farm Creek will travel through a mix of wooded and populated areas, being fed by small and unnamed tributaries along the way, before reaching its next major alteration. The second dam of Farm Creek

is at Fondulac Reservoir. This reservoir is smaller than Farmdale, containing a tributary, Fondulac Creek. This creek passes under several bridges and narrow culverts before joining Farm Creek, which begins to be levee-protected and channelized as it approaches the more urbanized center of East Peoria. Here, it will pass by a large rail yard and a neighborhood. With the narrow, V-shaped confluence with Dempsey Creek, additional levee protections were put into place.

Farm Creek is now a straightened and leveed channel as it continues west. Its banks are sculpted slopes covered in thick grass and its bottom covered in gravel and sand as the creek meanders within its leveed boundaries. A few wet-tolerant plant species have begun to take root here and small fish swim in the shallow water. The amount of separation from the city causes the creek to almost become its own environment, with neighborhoods and rail nearby.



FLOOD PROTECTIONS ALONG TRIBUTARY KERFOOT CREEK, TOWARDS FARM CREEK, RIVER TRAIL OF ILLINOIS ON LEFT

Continuing further downstream, the Meadow Avenue bridge crosses the creek. From here, several elements of the creek can be viewed, as shown in the diagram on the next page. Most notably, the channel becomes pinched and a weir blocks the stream. Further down, the Kerfoot Creek levee joins Farm Creek. The River Trail of Illinois—a converted rail trail—and a row of power lines, which had both been following along Kerfoot Creek now begin to follow Farm Creek. It is at this convergence that

the channel becomes completely concrete-lined as it makes its way into the city center. It then passes under the East Washington Street Bridge and Interstate 74.

The straightened channel then begins to curve northward, following the shape of the first railroad in East Peoria. It is still lined entirely by concrete levees and flanked by the bike trail on the south side and the working railroad on the north. Here,

Farm Creek makes its way past Central Junior High School and approaches its confluence with the Cole Creek tributary near the Four Corners. The Cole Creek levee is different than the others in that its edges are vertical concrete walls. It is an open-air tunnel, eight feet deep, and topped by a chain link fence.

Farm Creek then continues under the Main Street bridge followed by a historic 1900s railroad bridge





COLE CREEK PASSING BEHIND HOMES, DOWNTOWN EAST PEORIA (FARM CREEK CONFLUENCE BEHIND)

that briefly splits the channel in half. This bridge is part of the existing railroad, where it crosses over the creek and continues south and east.

With the construction of the Levee District, a new bridge was implemented over the creek: Spinder Drive. Just past this bridge, the channel is diverted. The original channel of Farm Creek, while still straightened, continues northwest. The diversion channel that was added later heads due north. The diversion is a massive area of tall, concrete channel walls and roadway infrastructure, as can be seen in

the photograph on page 81. While it appears the basin is lined with gravel, the waterway has, in fact, been scraped clear of all sediment, which has been pushed aside within the basin, allowing the water to move freely and quickly through the channel.

The northwest diversion channel passes next to the Levee District and includes an unknown (to me) structure made of concrete. The walls are concrete and the bottom is holding standing water, indicating that it could be a retention basin, perhaps leftover from the original industrial uses of Caterpillar on

the Levee District site (page 81).

This northwest channel encounters one more new Levee District bridge, Clock Tower Drive, before the levee walls return to being vegetated. It will then follow its channelized corridor under two highway overpasses and a bridge, adjacent to existing industry, retail, and the River Trail of Illinois, which will divert from the channel before the second overpass bridge and meet the intersection of West Washington Street and River Road. The northwest channel will continue another thousand or so feet after the



ABOVE: FARM CREEK CONCRETE CHANNEL, NEAR EAST PEORIA CENTER. COLE CREEK CONFLUENCE IN FOREGROUND, INTERSTATE 74 BRIDGE IN BACKGROUND, RAIL TRAIL ON RIGHT
 BELOW: FARM CREEK CHANNEL WITH COLE CREEK CONFLUENCE, EAST PEORIA CENTER BEHIND TALL RETIREMENT HOME BUILDING ON RIGHT

last bridge before emptying into the Illinois River in a rather regimented way. The levee continues along the Illinois River downstream.

Following the northern diversion channel, Farm Creek passes under the Camp Street bridge first. It continues briefly with the concrete channel, passing through a mixture of retail and manufacturing land uses, before becoming vegetated again. The power line towers have also followed this diversion of the creek. While the creek becomes more naturalized with the reduction of concrete, it is not over yet.





ABOVE: FARM CREEK DIVERSION CHANNEL FROM LEFT: RIVER TRAIL OF ILLINOIS, NORTHWEST DIVERSION, DIVERSION WALL, NORTH DIVERSION AND CAMP STREET BRIDGE, NEW SPINDER DRIVE BRIDGE OVER FARM CREEK SPLIT (NOTE THE NEW CONCRETE GRAFTED ONTO THE OLDER CONCRETE OF THE LEVEE CHANNEL)
 BELOW LEFT: HISTORIC RAILROAD BRIDGE OVER FARM CREEK, STILL IN USE, DOWNTOWN EAST PEORIA
 BELOW RIGHT: POSSIBLE RETENTION BASIN ALONG FARM CREEK NORTHWEST DIVERSION CHANNEL AND ADJACENT TO THE LEVEE DISTRICT



The north channel bends slightly as it passes under the bridges of Interstate 74, where it used to continue north before the construction of the highway. Here, the concrete returns to stabilize the curve and passes under almost 200 feet of bridges. The power lines cross over Farm Creek and head west. As the northern diversion continues northeast, it passes by an earthen highway on-ramp and a flat, grassy field. It begins to widen and become more naturalized as it passes through a dense woodland behind Bass Pro Shops. Finally, it forks as it empties into the Illinois River. This delta has formed over time from sediment deposits carried by the creek.

It should be noted that the levees that exist in East Peoria are functional, but they are also, for the most part, the original structures from the 1940s and '50s. The levees are generally maintained by the City of East Peoria but must be in accordance with US Army Corps of Engineers standards. Under compliance with the Flood Control Act, these structures must be inspected every five years for safety and stability. The last inspection occurred in August of 2012 for all levees and found all of them to be in 'unacceptable' condition, meaning there were issues with the levees that *could* impair the system. (USACE, 2012) While most issues found were not immediately problematic and were mainly due to age, it remains that the levees are in need of updating should they continue to be relied upon in the future.



ABOVE: FARM CREEK NORTHERN CHANNEL PASSING UNDER INTERSTATE 74, BENT AFTER REPOSITIONING UNDER HIGHWAY
BELOW: THE NORTHERNMOST OUTLET OF FARM CREEK INTO THE ILLINOIS RIVER (IN FRONT), SHOWING THE SEDIMENT DEPOSITS AND WILD BIRDS INHABITING THE SHALLOW WATER. VIEW FROM PEORIA RIVERFRONT.



REFLECTION

A review of the information presented in the previous chapters reveals a complex city in transition. There are several factors influencing the way that East Peoria looks, functions, and feels, translating into a patchwork of assets and liabilities that make for a complicated planning problem.

The city's decision to create a "new downtown" from scratch while abandoning its historic (and compromised) downtown is disconcerting, as so much of the city's character has disappeared over the years already. While the Levee District struggles to attract the small businesses the city originally desired, the historic downtown buildings remain full of tenants. Now, the city is attempting to transform the Four Corners into a transition area leading to the Levee District, with similar franchises. What message this is sending is unclear. Is this the new face of East Peoria?

The overall feeling is that there have been many squandered opportunities over the years which have contributed to East Peoria as we know it today, whether these have stemmed

from economic decline, desperation, creative inhibition, or poor decisions. Vehicle infrastructure dominates the landscape: parking lots, wide lanes, highways—in addition to enormous big-box stores and strip malls—which combine to create a *placeless* place. The character of the city has been reconfigured so many times that it is nearly lost. Charm is a rare find. What is left appears mismatched and accidental. Has the city tried too hard to make everything work at once that they forgot to make it all work together?

Looking past the industry, box stores, and parking lots, one sees a beautiful landscape of steep wooded bluffs, ravines and meandering creeks. Houses are embedded into the trees in almost every neighborhood and parks are numerous. Waterfront views and recreation opportunities make East Peoria a unique place—worthy of its own unique character.

And yet this city is rife with contradictions: It inhabits a unique natural landscape but has filled it with uncharacteristic chain stores and vehicle infrastructure that contribute to

its degradation. Caterpillar industry, responsible for the city's boom and flood-reducing infrastructure, contributed equally to its manipulation of the landscape through its leadership in earth-morphing highway and dam construction. The spring flash flooding continues to occur, regardless of the number of new buildings being erected on its floodplain, and the creeks still attempt to meander naturally within their artificial boundaries. Meanwhile, fish swim in the shallow water of the otherwise lifeless concrete channels while a man and his children trek within them like a pedestrian freeway.

In the end, it is these contradictions—between man and nature, city and stream—are the bare bones of East Peoria's character, having been at odds since it was settled. These contradictions are what will inspire the project.



7 VISION

The previous chapter made an effort to explore the contradictory characteristics found in East Peoria. As the photo to the left implies, the views we often see are composed of confusing juxtapositions. In this case, the hard line between natural and artificial is clearly delineated by the weir, which seems to emphasize these differences. Even more anomalies emerge on either side of the weir: the concrete and vegetated slopes; the untamed flora, sand, and the river stones glued in place by concrete; the placid creek which then rages from behind the weir; the children playing, who seem to be intrigued by the unnatural barrier; the train peeking from behind the levee; and the tall bluffs that feed this creek.

Each of these scenes elicit the same questions. Is this supposed to be a natural place or artificial? Where should the boundary between man and nature end? As mentioned already, this obscurity is what will inform a new, cohesive, symbiotic, and harmonic project.

The overall vision for this project is simple, but how do all of these pieces fit together? The process is summarized below.

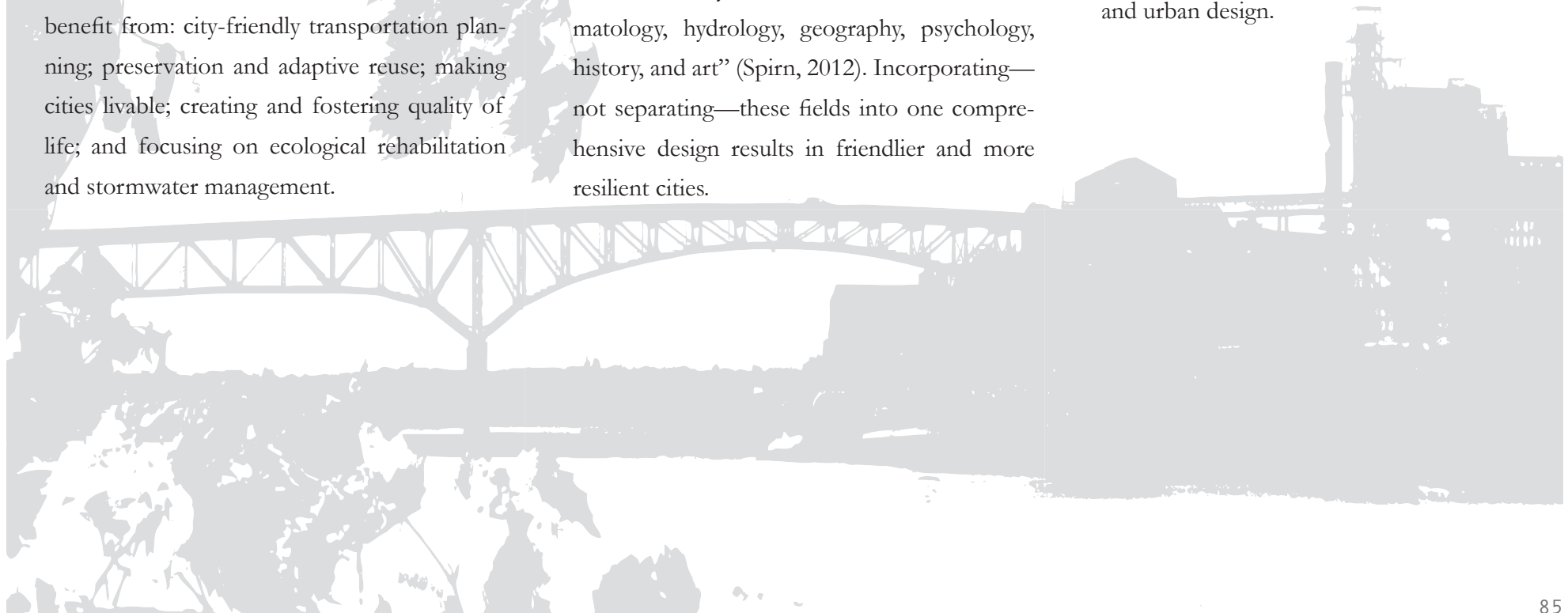
1. We begin with Midwestern post-industrial decline and the effect it has had on individual cities whose economies relied upon manufacturing. We then recognize the impact of decline and the various ways in which these cities have decided to bounce back.
2. We take the best examples of recovery and analyze their successes against similar cities that have taken different approaches. Since these cities have similar characteristics, similar approaches can be used. Overall, these cities can benefit from: city-friendly transportation planning; preservation and adaptive reuse; making cities livable; creating and fostering quality of life; and focusing on ecological rehabilitation and stormwater management.

3. We determine that an emphasis on ecological restoration can catalyze other revitalization efforts, as exemplified in the Milwaukee, Wisconsin case study who approached revitalization efforts through the lens of biophilia (love of life, all life, as in nature). The goal of biophilic design and biophilic cities is to “capture the innate human attachment to nature and increase well-being by honoring it” (Manning, 2014).
4. In Landscape Architecture, we often address urban and ecological dilemmas separately, however, the concept of Ecological Urbanism melds these together. In fact, it is a more than just a hybrid of ecology and urban planning—rather, it is additionally derived from the fields of “climatology, hydrology, geography, psychology, history, and art” (Spirn, 2012). Incorporating—not separating—these fields into one comprehensive design results in friendlier and more resilient cities.

5. Through the lens of biophilic design and ecological urbanism, we resolve that:

- Cities are habitats for humans.
- Successful cities address the specific needs and preferences that humans require to thrive.
- Cities are not isolated human habitats in the natural world.
- Cities are part of the closed system of earthly processes, existing as one fraction of the natural landscape.
- We should be designing our cities to incorporate the world that surrounds them.

6. We reinvent our declining postindustrial cities in a sustainable way by melding local ecology and urban design.



URBAN

ECOLOGY

Small, post-industrial Illinois city ↔ situated on two floodplains: Farm Creek and Illinois River

Shrinking manufacturing economy ↔ that leaves large brownfields abandoned

Current economic revitalization strategy attracts big box stores ↔ with large parking lots on large lot developments

Urban renewal destroyed denser fabric of urban center and destroyed older neighborhoods ↔ adjacent to Farm Creek, which was straightened, leveed, channelized & dammed with urban expansion


Urban expansion continues & more paved areas are being added ↔ as rapid sedimentation of Peoria Lake & downstream flood stages increase

Tension between two conflicting interests

Living, working, existing in a productive, beautiful, & resource-laden valley ↔ Natural floodplain processes: Illinois River flooding, Farm Creek flash floods, unique bluff habitats

In the case of East Peoria, the conflicts discussed previously can be categorized into either urban or ecological interests. As shown in the diagram to the left, these conflicts are distinct and yet related to each other—always intertwined and interrelated. It is these two opposing interests that have been at odds throughout the history of the city, whether immediately apparent or not.

As nature exerts its forces, man fights back with technology and as man tests nature, nature pushes back harder every time in a never-ending circle of destructive events.



This project **CHALLENGES CURRENT DEVELOPMENT PRACTICES** in East Peoria by employing the **ECOLOGICAL REHABILITATION** of **FARM CREEK** as a **CATALYST FOR CHANGE** through the creek's inherent **PHYSICAL NETWORK** in order to help **RECTIFY THE PAST IMPRUDENCE** of land, waterway, and urban fabric alterations, to **CONNECT RESIDENTS** with **LOST HISTORIES**, the **ILLINOIS RIVER REGION**, and **EACH OTHER**, and to offer a **NEW ALTERNATIVE** for the **SUSTAINABILITY** and **RESILIENCY** of the city going forward by ultimately **ESTABLISHING HARMONY** between the **FLOOD-PRONE CREEK** and its **INHABITED FLOODPLAIN**.

PROJECT GOALS

On one hand, this project seeks to address East Peoria as a city, with urban design issues that directly affect those who visit and inhabit it. On the other hand, the project recognizes the importance of healthy waterways within cities and the roles that they once played before settlement occurred. This is the ultimate juxtaposition of man and nature within East Peoria—and the reason that these two entities must work together to survive. To achieve this harmony, the design will respond to the following twelve goals. These goals derive not only from case studies of similar projects and research of common themes, but also from analysis of events and trends in East Peoria. These twelve goals were listed in the introduction. Next, they are described in more detail.

■ Encourage infill, housing, and revitalization of historic downtown:

In order to offer a new alternative to revitalization in East Peoria, this goal seeks to encourage a denser and more walkable historic downtown. Buildings that are similar to the historic structures are at a relatable, human scale and, as mentioned in the previous chapter, density and walkability bring many benefits to a community by achieving equality and sustainability. Focusing infill development that includes housing in the city center not only diminishes the need for car use, but encourages residents and visitors to explore the city on foot. The historic aspect of the city center should not be lost as the city builds anew and landmarks should be emphasized and

celebrated. It is anticipated that infill developments would occur incrementally, as the city requires, in much the same fashion that towns were historically built. Buildings could form to fill in the gaps—a parking lot here, an abandoned lot there—with density beginning at the Four Corners and radiating outward from there. It should be noted that the goal of the project, while focusing on the original town center, does not attempt to hinder or oppose the current Levee District project, which is ongoing and therefore unpredictable. Instead, the Levee District is seen as another development in East Peoria and the design seeks to work with it, in hopes that the historic aspects will not be forgotten in the process.

■ Establish connections between neighborhoods, city center, and open space:

Harkening back to my study on physical impediments in East Peoria, it is clear that many parts of the city are isolated, often only accessible by an underpass or a bridge. It is the goal of any walkable community to make walking easy and enjoyable. With the city's car-centric infrastructure, it can be difficult or unpleasant to get from place to place on foot today. Acknowledging the challenge that the steep terrain of the city presents, it is still important for residents to have easier access to open space and amenities. This also establishes a more cohesive and less segregated community, where accessibility is less of a problem.

■ Create unique community pride and a sense of community:

In a city that has struggled with establishing its identity for decades, there is a need for grounding. While residents may be thrilled that new developments are happening in East Peoria, these developments are not always place-specific. Introduction of big box chain stores and restaurant franchises, while popular, dilute East Peoria's unique brand and create a place that is no different than the countless other chain store developments in the country. To create commu-

nity pride, residents must be attached to something that makes their city different than the others—it's why they chose to live there at all. Community pride results in residents feeling they like they belong to that place. And when they feel like they belong, they take more care at maintaining their community. Meanwhile, a sense of community follows that sense of belonging. Community members need something that they can work together to support, to celebrate, and to show off—something that comes from the heart of the community and can be found nowhere else in the world. Further, this unique characteristic often results in tourism, something that East Peoria claims to desire.

■ Develop in a way that creates a good quality of life that will keep existing and attract new residents to the city:

A good quality of life is an attribute that many people search for in their city. East Peoria's desire to not only retain, but strengthen their number of young professionals in the community relies on providing a good quality of life—good jobs, good environment, attractive amenities, walkability, recreation, community character—to name a few. While many of these aspects are important for deciding to live in a place, some of the biggest factors in moving to a new place are

job prospects. Young professionals are attracted to jobs that interest and challenge them. Where will they find (or create) those jobs when the only businesses hiring are low-skill chains and the only spaces to rent are too expensive?

■ Create a distinctive attribute that will encourage tourism and hearken the historic role of Caterpillar earth-moving equipment manufacture in the city:

Not only are East Peoria's natural surroundings distinct and worth celebrating, but the role that Caterpillar has played in East Peoria also makes this city unique. It is no surprise that East Peoria has already taken advantage of this tourism booster by building a Caterpillar Museum in the Levee District, but could the city go a step further? Harnessing the power and influence that a great company can invoke, Caterpillar could not only demonstrate its machinery's abilities, but also acknowledge and advocate for the city that has helped give it its foundation.

■ Build upon the existing valuable park system:

As mentioned before, the parks in East Peoria are well-maintained public assets. They offer a wide variety of recreational functions, venues, and settings. Not only are parks essential parts

of beautiful cities, but they make residents happy. Access to open space is a desirable characteristic in real estate sales in addition to the benefits of naturalized areas for ecological function. In this way, a city can really never have too many parks. This project acknowledges the positive impact the existing parks have on the city and seeks to bolster them while emphasizing the unique natural characteristics found in East Peoria.

■ **Address Farm Creek and Illinois River watershed water quality concerns that pertain to flooding and sedimentation:**

The other aspect of revitalization in East Peoria is to focus on Farm Creek as the city's most precious asset. The creek should be cared for in a way that addresses the larger concerns of sedimentation to the Illinois River and Peoria Lake. Additionally, it should not be forgotten why the levees are in place to begin with: flooding. Flash floods that have historically plagued East Peoria have been met with more and more regimented solutions that have eventually culminated in the levee system that exists today. However, this system has clearly been the cause of increased transport of sediment and floodwater volumes, impacting the local waterways and communities downstream. An effort is therefore made to mitigate the impact this creek has on its environ-

ment outside of city borders, as well as to improve its functionality within the city, itself.

■ **Turn Farm Creek into an asset that is both beautiful and functional:**

The visual appearance of the Farm Creek channel—as well as many of its tributaries—is currently not a point of pride for the city. Additionally, the long-term problems that plague the channel, such as high sediment loads, call into question its viability and effectiveness. The city has relied upon the very regimented and efficient channels designed with only functionality in mind, but in order to make Farm Creek an asset that will instill pride and pleasure for the city, its appearance must improve simultaneously with its functionality.

■ **Reverse current status of levees as deemed in “unacceptable” condition by USACE 5-year inspection:**

Every five years, the US Army Corps of Engineers inspects the levee channels they engineered in the late 1940s. Since their original construction, the levees have been maintained, but have generally not been updated. It is no surprise that the original infrastructure has aged and has become susceptible to various maladies. Overall, the levees are not unsafe and are still reliable,

however, the latest inspection deemed the levees to be “unacceptable” because of small infringements that may lead to problems in the future. These include plants growing too close to concrete structures or between cracks, debris blockages, concrete cracking and spalling, animal burrows, general deterioration, etc. The documents detailing these problems can be downloaded from the USACE website. With the age of these structures, the question becomes whether it is worth the money and effort to repair the old system entirely, or to completely revamp the system for a better alternative. Oftentimes, as seen in the Milwaukee case study, it becomes cheaper and more sustainable to do away with the old engineered systems in favor of a more natural solution of native plants and wetlands. Maintenance costs go down as the system tends to take care of itself. Further, it should not have to be argued that plants are always more visually appealing than concrete, with the added benefit of providing habitat for native animals and insects.

■ **Create and provide common public space that doubles as a sediment and flooding mitigator and a wildlife corridor:**

Related to the previous goal, a natural solution to the creek channels can introduce many other benefits. As illustrated by the L.A. River case

study, making the waterway accessible and inviting to the public creates an amenity for the city and its residents. Additionally, allowing the waterways to behave as they naturally would allows wildlife access to habitat and an unbroken route to the Illinois River. It is easy to distance oneself from nature when in a city, surrounded by man-made structures. There is a feeling that the city exists separately from the natural world and that it is impossible for one to influence the other. This is why bringing nature into the city is so important—not in the form of plants ornamenting the facades of buildings or merely being used as decoration, but by allowing nature to be itself within the city. As an example, wildlife that is visible to residents inspires empathy for the natural environment through education. Empathy translates into compassion, thereby transforming that person's outlook on environmental stewardship as a whole and thereby making green cities successful.

■ **Educate residents and visitors about stormwater management, floodplains, and the unique terrain context of city:**

One way to understand your environment better is by learning about the natural processes that make it the place that it is. Education is an important part of being able to act appropriately in

the face of change and to make the right decisions. For example, the residents of East Peoria have suffered through flash flooding throughout its history and are likely traumatized by their experiences. However, an understanding that flooding is a natural phenomenon can lead to treating floodwaters in a different, more positive way—and not as if it were an enemy. Understanding the geological history and natural processes of the area in which they inhabit can increase confidence in alternative systems better suited to their natural environment that will achieve the same results as current methods, such as the existing levees. This way, residents have a more controlled view of flooding and are able to make informed decisions on what to do with stormwater. This translates into an understanding that adding runoff into the waterways only increases pollution of the waterways and higher flood stages downstream. This may encourage residents to take it upon themselves to demand that stormwater be addressed on-site and to request alternatives to vast parking lots.

■ **Emphasize the relationship of Farm Creek to the larger context of the Illinois and Mississippi River watersheds:**

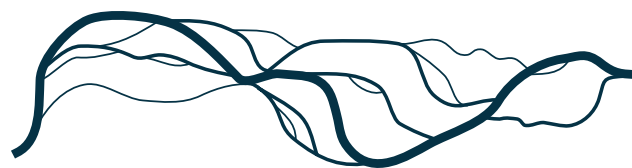
Placing oneself in a national and even global context can be challenging. In fact, it is alto-

gether possible and even necessary to forget about places outside of our own immediate environment. However, this mindset does not change the fact that we are all interconnected on this planet. Reminders of how we are related to each other as human beings, as living things, and how our actions may impact other places and other points in time give us foundation. Not only do we need to adhere ourselves to this awareness vertically through time, but also laterally, through space—how we as individuals relate to our surroundings. Placing ourselves within a larger context allows us to make decisions in a more comprehensive way and helps shape our outlook on the world by relating to it. For example, Farm Creek is but a small contributor of water, one of hundreds, that feeds the Illinois River. Meanwhile, the Illinois River is one of thousands of waterways that contributes to the Mississippi River. Though Farm Creek offers only a fraction of the overall water volume in the Mississippi, it adds up. Placing ourselves in the context of our contributing watersheds is one way to empathize with our neighbors and to prevent disaster downstream. In order for these relationships to be impactful, they must be visible and inspiring.

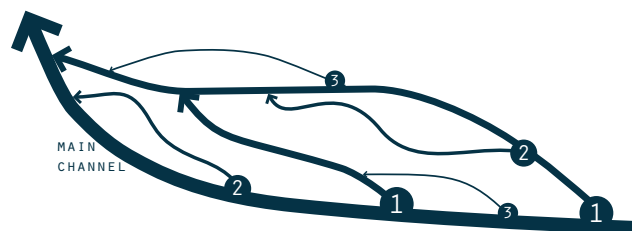
DESIGN CONCEPT

The over-arching intent of this project is to meld urban with wild in a cohesive and symbiotic way. When there is an imbalance of interests, it gives way to conflict. How do we design our city so that it fully accommodates Farm Creek and how do we design Farm Creek so that it can enhance our city? In short: how do we live *with* Farm Creek? To achieve this, the city must alter its form to suit the creek and not the other way around. But alteration of urban form does not translate into a compromised city—rather, the city would greatly benefit from this change. The goals for this project are to connect people together in a fragmented landscape and to bridge the gap between past and present in order to create a brand new story for East Peoria that is about living in harmony with a flooding creek.

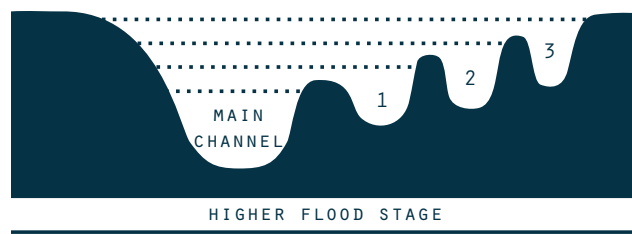
The first step to finding harmony is by giving Farm Creek its basic needs to be the healthy and functional waterway it would naturally be. But in order to make the creek work for the city, we must not just let it return to wild. Instead, we can make the creek work for the city by allowing it to do what it naturally does—in an organized way. The biggest concerns for the creek are flooding and high sediment loads. These are solved with more room for infiltration and wetlands that dissolve sediments—neither of which exist today. The second concern



BRAIDED RIVER



FLOODWAY SYSTEM PLAN

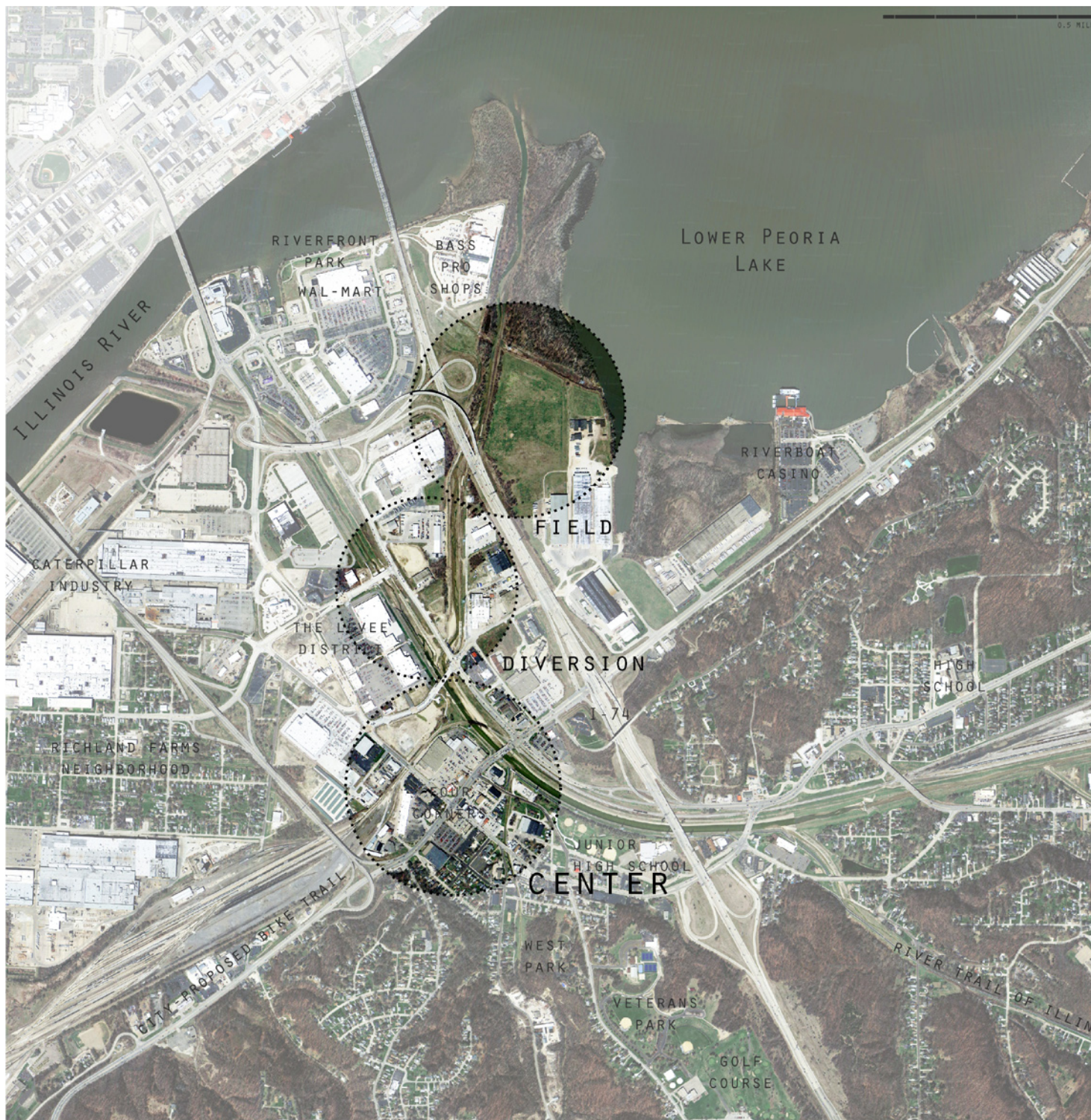


FLOODWAY SYSTEM SECTION

for the creek is a lack of safe or appealing access. This can be solved by making our creek design into a recreational amenity that is accessible to the public. The third concern is that the creek is not aesthetically beautiful and, therefore, not a point of pride for the city. This is resolved by the reintroduction of natural features, which will make the creek not only functional, but beautiful as well. This becomes an asset for the city and creates an opportunity to transform a placeless setting into a unique destina-

tion. The fourth step to finding harmony is by making flooding a celebratory occurrence, rather than a fearful event. This is achieved by making flooding visible and apparent in a safe way, thereby promoting education and confidence.

In this project, the relationship of East Peoria's urban fabric to Farm Creek changes. The concept behind Farm Creek's functionality emphasizes the natural history of the creek by making it apparent that East Peoria was settled in a floodplain. Inspiration for the functionality of Farm Creek is derived from braided creeks often found in the flatter reaches of a river's flow, when water velocities have slowed enough to allow the channel to meander across a plain. These features are found often in areas of high slopes and large sediment loads, similar to conditions found in East Peoria. In order to make flooding apparent, as well as functional, the creek is designed similarly to a braided stream, however, the channels are predetermined and fill in as flood waters rise (for this reason, they are referred to as *floodways*). For this to happen, specific channel bottoms occur at different elevations, as shown in the diagram to the left. These pre-formed channels distribute flood waters over a broader area by filling up and infiltrating into the ground as needed, but otherwise remain dry and function as recreational space. The creek form, otherwise, conforms to its surrounding urban context and historic influences.



SITE SELECTION

+ ANALYSIS

The site selection diagram to the left depicts the chosen site locations in East Peoria and their proximity to nearby points of interest. Since the intended scale of this project cannot address the entirety of Farm Creek, site selection has been limited to an approximately one mile stretch of Farm Creek's channel, with three ancillary intervention points along it: Field, Diversion, and Center. These sites were chosen for their unique existing conditions and future potential. Following an overall vision of these sites is a detailed description and vision of each site.

The consecutive sites of Field, Diversion, and Center were chosen for the following reasons:

THEY ARE:

- Continuous along Farm Creek
- Centrally located within Peoria and East Peoria metro

- Directly related to the Illinois River and Lower Peoria Lake
- Within both 100- and 500-year floodplains
- Highly urbanized but have low density
- Well-connected with bike trails and bus routes

THEY CONTAIN:

- Farm Creek levee and channel
- Cole Creek levee and channel
- Farm Creek diversion point
- Farm Creek northern branch that contributes large amounts of sediment to Lower Peoria Lake
- Both artificial and naturalized segments of Farm Creek
- Connection from urbanized to naturalized area
- Commercial and industrial zones but very little residential
- Remaining original downtown buildings
- Operational railroad and historic bridge
- Existing rail trail, city-proposed trail extension
- A multi-storey retirement home and small original neighborhoods
- Low-density and transitional lots
- An under-utilized parking surface
- An inappropriately-utilized green space

THEY ARE ADJACENT TO:

- Lower Peoria Lake
- The Levee District
- Historic Four Corners
- Junior high school

THEY HAVE RELATIVE PROXIMITY TO:

- Interstate 74
- Richland Farms neighborhood
- Historic Coleville neighborhood
- Jaycee Park, West Park, Veterans Park
- High school and grade schools
- Low-density riverfront shopping district

With these reasons in mind and knowing what we do from the analysis in the previous chapter, we can develop an overall vision for these sites that accomplishes the goals outlined before. The overall vision for these sites seeks to tie together the goals into one cohesive plan. Visions for the individual sites follow, but first, the overall vision:

OVERALL VISION:

- Advance a "Farm Creek Comes First" style of land-use and development practices
- Reclaim land for Farm Creek
- Create a protected transition between urbanized Farm Creek (Center) and naturalized Peoria Lake (Field)
- Introduce better connectivity within Field, Diversion, and Center and between neighborhoods
- Establish a framework for sustainable future development surrounding Farm Creek
- Incorporate smaller lot sizes for denser growth and encourage similar development on adjacent properties in the future
- Promote opportunities for interaction with water bodies and education on water quality, floodplains, stormwater, and local plants and wildlife
- Create a functional and recreational trail system that connects neighborhoods, city center, and natural features
- Preserve existing historic elements
- Reduce car dependency by incorporating housing and density and by making streets more people-, bicycle-, and transit-friendly
- Re-establish residency in city center
- Establish human scale with built forms and outdoor spaces

FIELD

Field is the northernmost site of the three chosen. It primarily encompasses a plot of land that is currently unbuilt but not wild, contains the northern diversion of Farm Creek, and it is one of the last remaining riverfront properties that is undeveloped. This is important because it has the potential to be a flood-mitigating site. Its location near Lower Peoria Lake is ideal for retaining rising river waters as well as helping to trap sediments from Farm Creek before they enter the Lake.

In addition to its usefulness potential, the site is also excellent for recreation. Currently, the City of East Peoria has proposed a future bike trail extension there, which would tie together much of the riverfront. But the ride need not be boring—introducing native flood-mitigating wetlands can be a beautiful and educational experience for visitors, while also providing needed habitat for native wildlife species. With good design, this site can become a destination that also benefits the city and environment.



FIELD VISION

PRESERVE:

- Existing highway infrastructure
- Existing surrounding land uses
- Wooded edge condition on northern border
- Power line rights-of-way
- Farm Creek crossing under highway

RE-ESTABLISH:

- Native wetland, prairie, + woodland plant species
- More-integrated floodplain with lake
- Wildlife habitats
- Naturalized character of Farm Creek diversion channel

RE-WORK:

- Topography from mounded to basin-like
- Shape of Farm Creek diversion channel

INTRODUCE:

- Trails + trail connections
- Place for viewing lake + wildlife
- Place for learning about wetlands/flooding
- Park system extension from Center + Diversion
- Flood protections for existing buildings

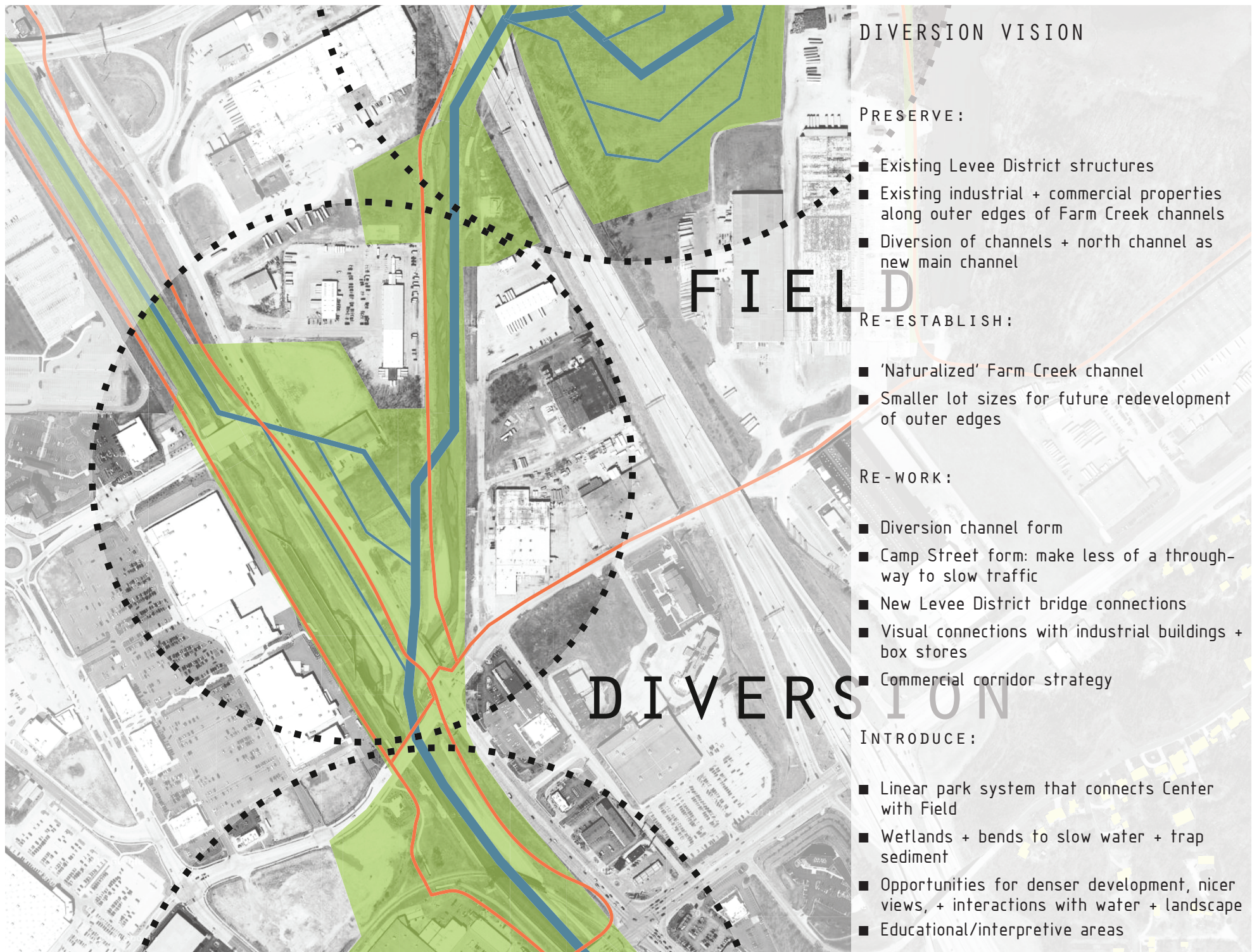


DIVERSION

Diversion is a unique segment of Farm Creek. Located between Field and Center, it is the point at which Farm Creek divides. While the channels are typical of Farm Creek overall, the site of the split is riddled with infrastructure—bridges, roads, and deep, vertical walls—causing the area to be enormous and off-putting. It has been home to businesses, industry, and even a trailer park, but now much of it is in transition and is zoned to become a commercial corridor.

Diversion is an important area because it marks the point at which the flow of the stream changes—sending more water and sediment toward Lower Peoria Lake than ever before in its history. Because of its proximity to the Illinois River, it receives flood waters from the river and also Farm Creek. There is much potential here to make the creek's diversion sequence less harsh and capable of entrapping flood waters from both directions while creating an attractive amenity within a bustling area of the city.



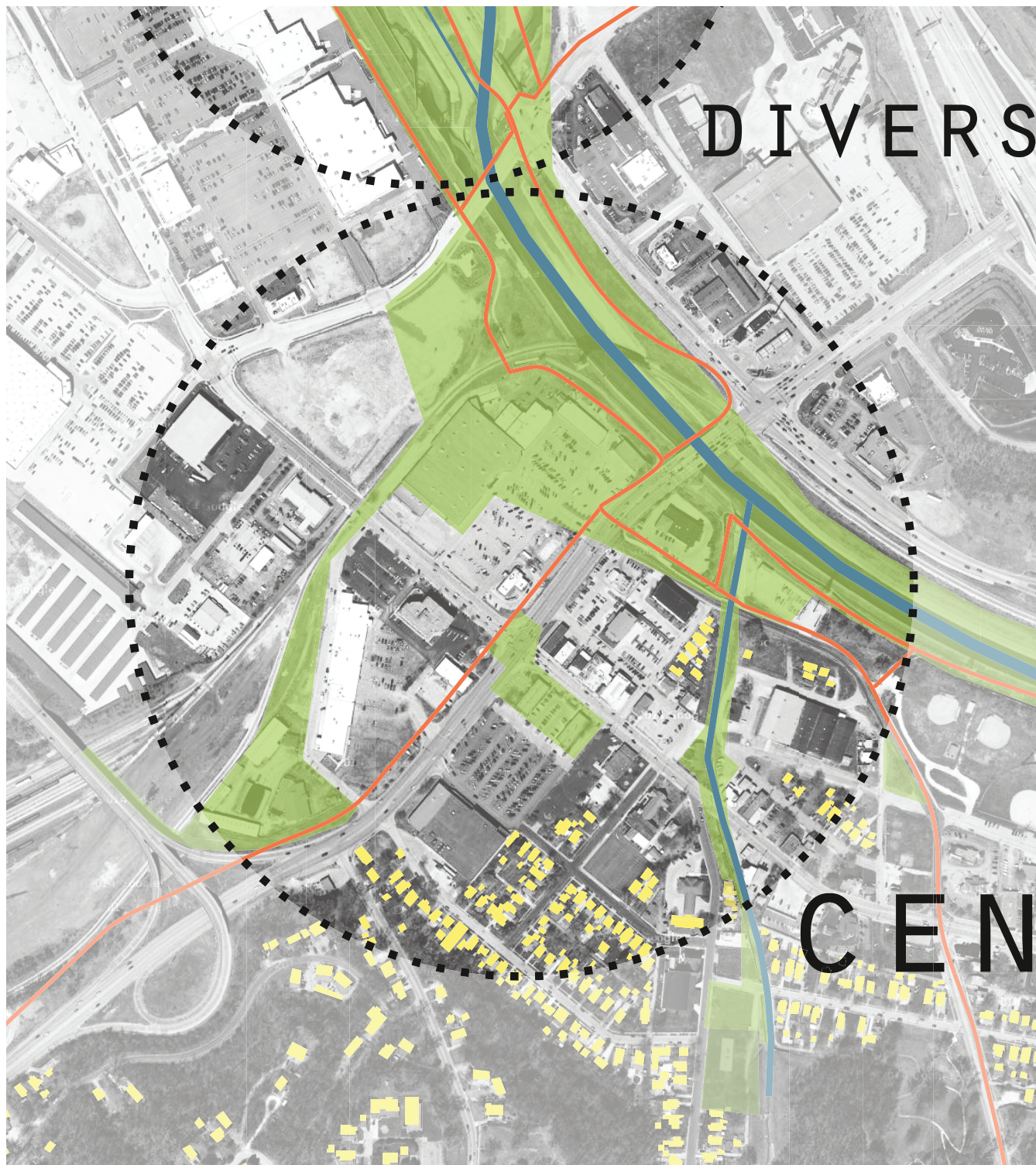


CENTER

Center is the southernmost site of the three selected and also the first site in the flow of Farm Creek. Center encompasses not only Farm Creek, but also the city center of East Peoria—the historic downtown. Many important features pertaining to the city’s history are located here, including the old downtown, neighborhoods, railroad, railroad bridge, Main and Washington Street intersection (the Four Corners), River Trail of Illinois rail trail, and Cole Creek tributary.

Center is the final piece that ties together the importance of Farm Creek to East Peoria. Topographically situated between two towering bluffs, and by virtue of the historic downtown location, the site is quite literally the gateway to the city. This is where there is potential for culture to meet nature in literal proximity and which can truly define the city’s uniqueness. Here, the city has the opportunity to embrace Farm Creek as its lifeblood—joining the city and the creek together in a mutual partnership.





CENTER VISION

PRESERVE:

- Historic downtown strip, existing neighborhoods, existing church
- Location/shape of Four Corners intersection
- Location of railroad + bridge
- Older structures that depict local character
- Characteristic + historic Main Street bend

RE-ESTABLISH:

- Density of structures
- Mixed-use development
- Sense of 'place' and identity/human scale
- Four Corners as original hub/node
- 'Naturalized' Farm + Cole Creeks

RE-WORK:

- Existing rail trail system interaction
- Orientation/form/flow of Farm + Cole Creeks
- Width of streets/sharpness of corners
- Character of architecture

INTRODUCE:

- Relationship between old character of downtown + new shopping centers (i.e. the Levee District)
- Transit-friendly, walkable development
- Connections from rail trail to street cycling
- Park system that links the relationship of East Peoria to its creeks
- Variety of housing types
- Connections between neighborhoods + Center
- Wetlands to encourage sediment/toxin catchment + increased infiltration

PHASING STRATEGY

It is understood that to thoroughly implement the visions outlined previously, extensive time, money, and effort would be required—energies that East Peoria may not have today or at any point in the future. Therefore, it would be in the city's best interest to attack these visions incrementally, over time, as funds allow. The overall vision has been outlined in three phases that can take place today, in the short term, and in the long term with the goal eventually being completion of the overall vision.

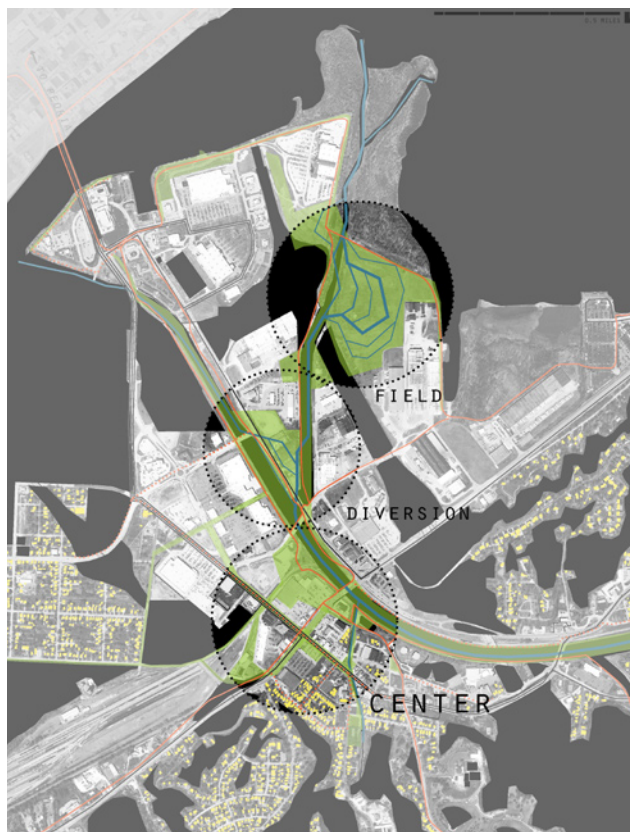
However, as the city may never have the resources to implement the full strategy, the phases have been devised to produce the maximum feasible benefit in the earliest phases. These are designed to be quick and easy solutions that can take place in the near term with very little expense. This phasing strategy starts by looking inward: Protect and Enhance Existing Assets. The resources that the city currently has should be maintained and improved upon in ways that will benefit the city in the long term. These are the foundation of the overall plan and carry a lot of weight. Next, Link Existing Residents

focuses on making life easier for those who live in the city today, while making the city more attractive to outsiders—improving overall quality of life and enhancing the readability of the city. Finally, the eventual goal of the strategy is to Balance Open Space with Infill Development. This goal seeks to transform East Peoria into an urban place far different than what exists today. By making room for the creek in the urbanized center, there is an opportunity to densify the city and transform it into a more urban, walkable place with direct access to functional open space.

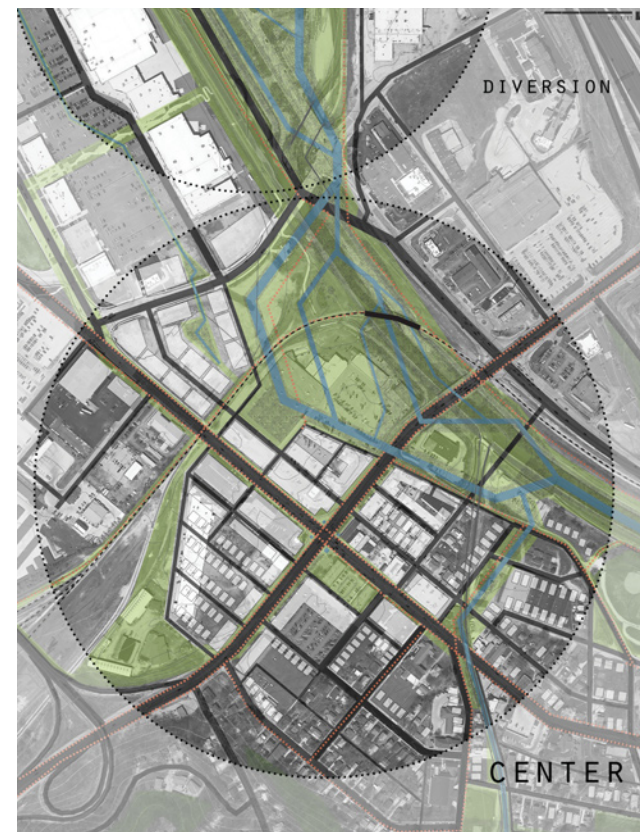
1: PROTECT + ENHANCE EXISTING ASSETS

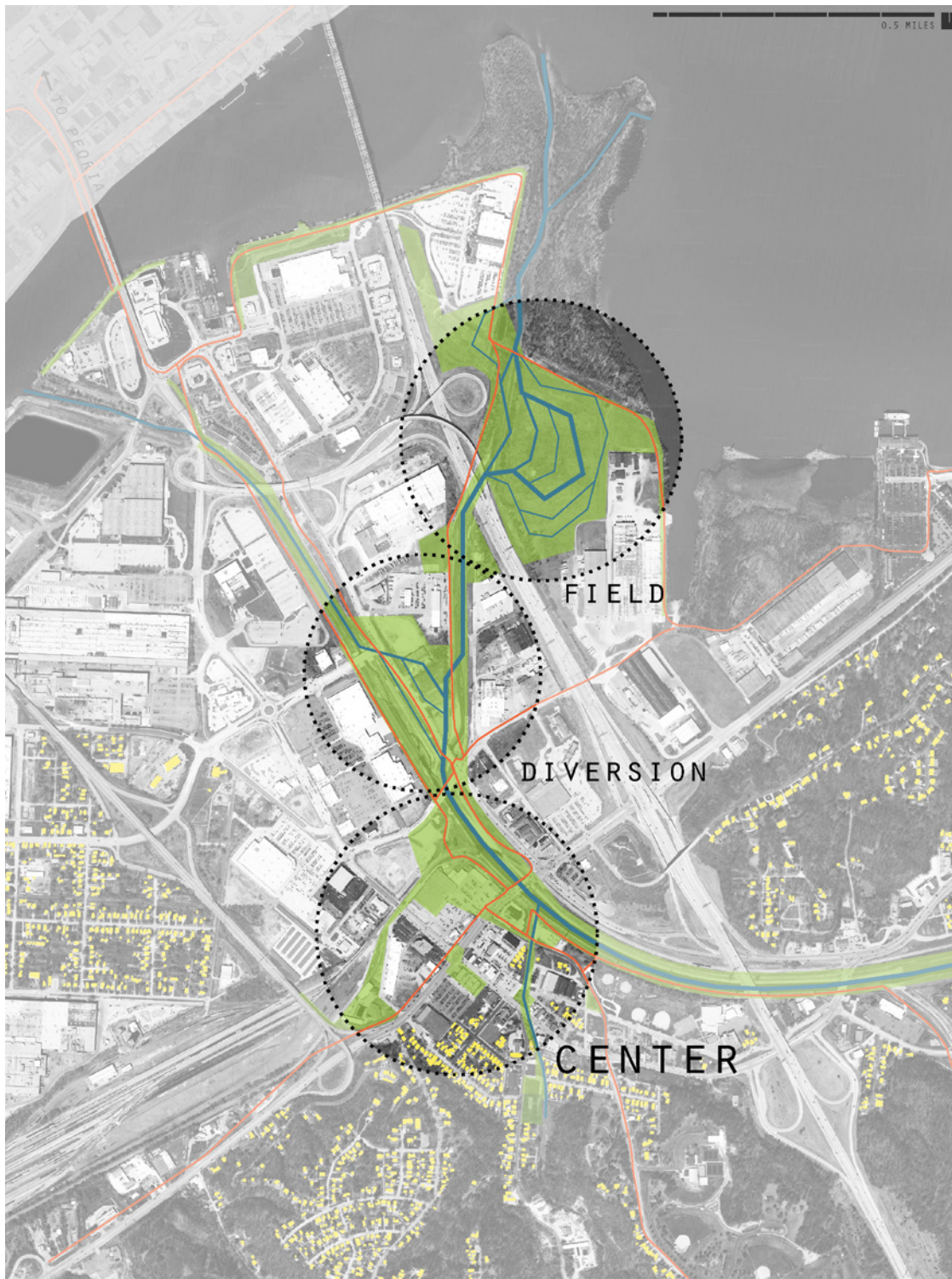


2: LINK EXISTING RESIDENTS



3: BALANCE OPEN SPACE WITH INFILL DEVELOPMENT

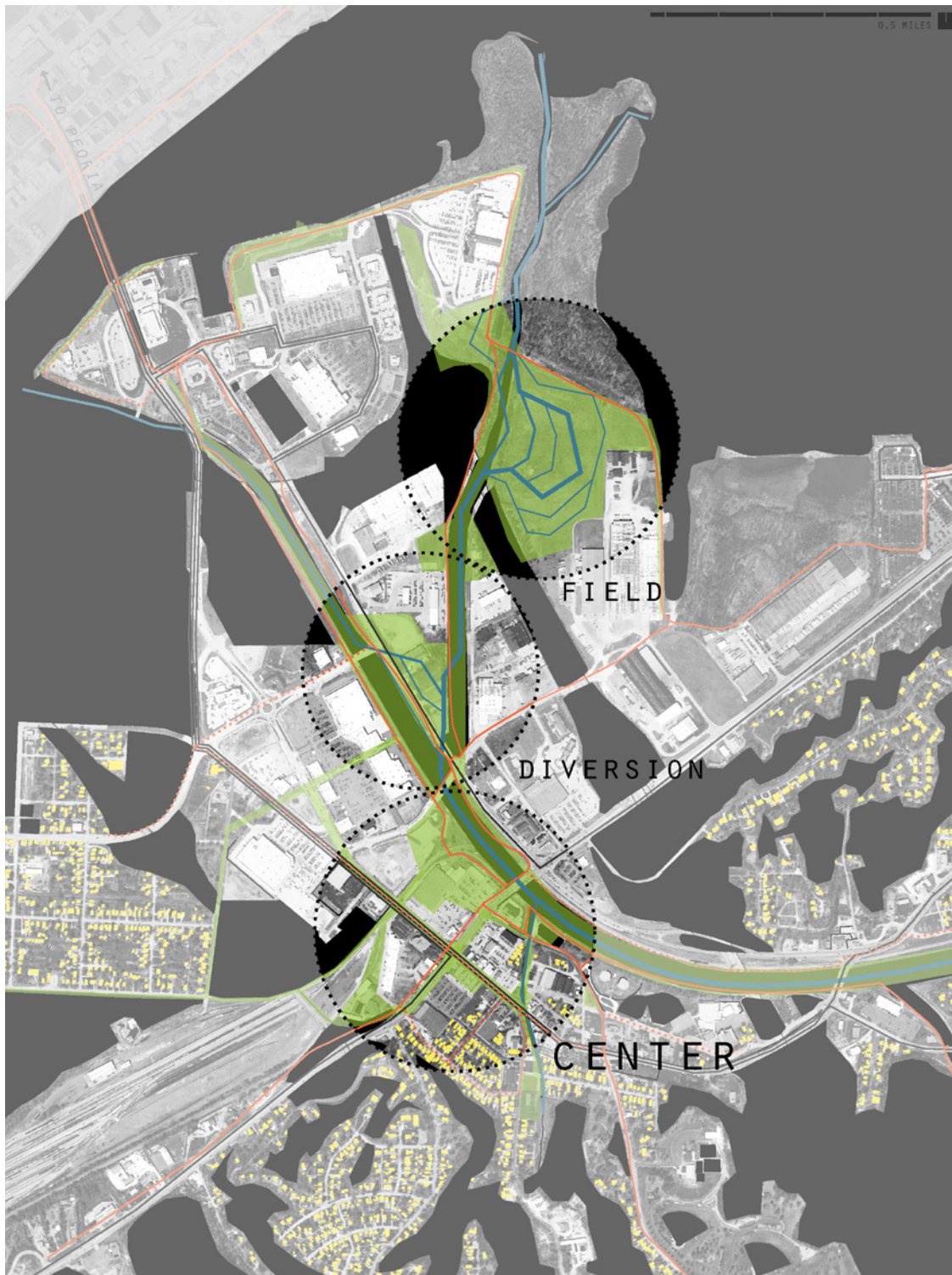




PHASE 1: PROTECT + ENHANCE

EXISTING ASSETS

- Establish areas for designated permanent open space to be used for parks, recreation, and naturalized floodways pertaining and adjacent to Farm Creek (green areas)
- Disengage levee protections and establish wetland floodway systems in Field and Diversion sites while enhancing levee protections for nearby buildings
- Maintain existing historic structures on Washington Street and railroad bridge over Farm Creek
- Retain remaining early neighborhoods in vicinity of Center as an expression of the city's character
- Rezone Center to allow for dense, mixed-use development and limit per-building parking requirements
- Extend and connect greenways between existing parks, neighborhoods, Center, and new open space areas



PHASE 2: LINK EXISTING RESIDENTS

- Implement Complete Streets, traffic calming, and green infrastructure strategies on busy roadways, especially Main and Washington Streets and large parking lots
- Identify physical impediments and create non-roadway connections between neighborhoods and Center via bikeways and landscaped pedestrian corridors
- Establish a transit hub in a strategic location on Washington Street for bus use today with possible expansion to rail/streetcar in the future that makes it possible to visit downtown conveniently without a personal vehicle
- Create signage for green infrastructure strategies such as bioswales and rain gardens to educate locals on stormwater management



PHASE 3: BALANCE OPEN SPACE WITH INFILL DEVELOPMENT

- Create a new identity for East Peoria's Four Corners intersection by raising it to sidewalk level and placing artistic monuments at each corner, representative of the buildings that were demolished in the past
- Replace low-density buildings on southern corner with public park [Four Corners Park]
- Build new Farm Creek channels in Center with associated parks and greenways [Farm Creek Mounds]
- Assign new development projects as mixed-use and residential infill, working outward from Four Corners and establish the new street grid as necessary
- Encourage similar strategies for the remainder of Farm Creek and East Peoria development

DESIGN PRECEDENTS

It is important that implementation of the design conforms with the goals previously laid out. Among these goals is to provide the City of East Peoria with a new, unique character derived from its relationship with Farm Creek. We have laid out *what* we would like to happen—but how will it *look*? For this, we derive imagery that is place-specific, whether it is drawn directly from East Peoria, the broader Mississippi Valley region, local history, or concept. In this way, the design choices can never be out of context and will always have a deeper meaning that is relevant to the overall goal. While the first two phases contain minor changes, for the brevity of this project, only Phase 3 (Center) has been designed in great detail. This was done in order to depict how the overall vision would eventually materialize by the final stage.

Within these precedents, comparisons have been drawn from historic maps that depict three separate eras of East Peoria's history. These maps are from 1891, 1949, and 2012. The historic pieces of East Peoria's history are important to study and incorporate because the city has changed character so many times during its short lifespan. Some of these changes were for the better and some were not. It is important to understand which elements were beneficial and which were destructive in order

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EAST PEORIA MAP, 1891

to determine which pieces of history are best to retain or revive.

The 1891 map depicts East Peoria many years into settlement, but still young. The very basics of East Peoria's origins are represented in this map, from Farm Creek to the Four Corners. This map was chosen to represent early East Peoria (instead of an earlier map) because Farm Creek is still in its natural state, and yet it has been altered slightly. These alterations are not flood mitigating constructions, rather, they are diversions from the main stream

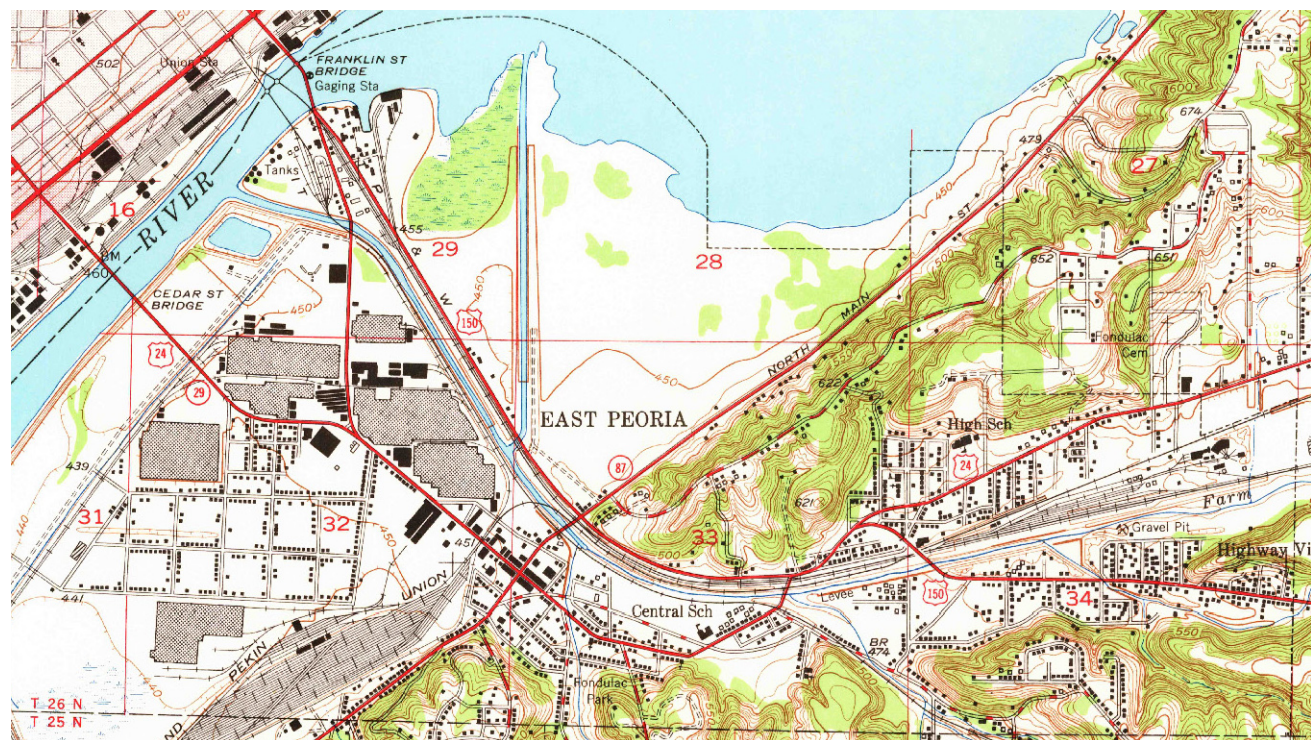
that are used to feed mills. This is representative of a cooperative act, where the creek was useful and beneficial to those settling in the new town. Shortly after, the early inhabitants would realize they were settling in a floodplain and decide to alter the creek against flood.

The 1949 map depicts East Peoria in the midst of transition. It shows a thriving and bustling East Peoria, just before major infrastructure changes take place that alter the fabric of the city significantly. This era illustrates the rise of Caterpillar as a

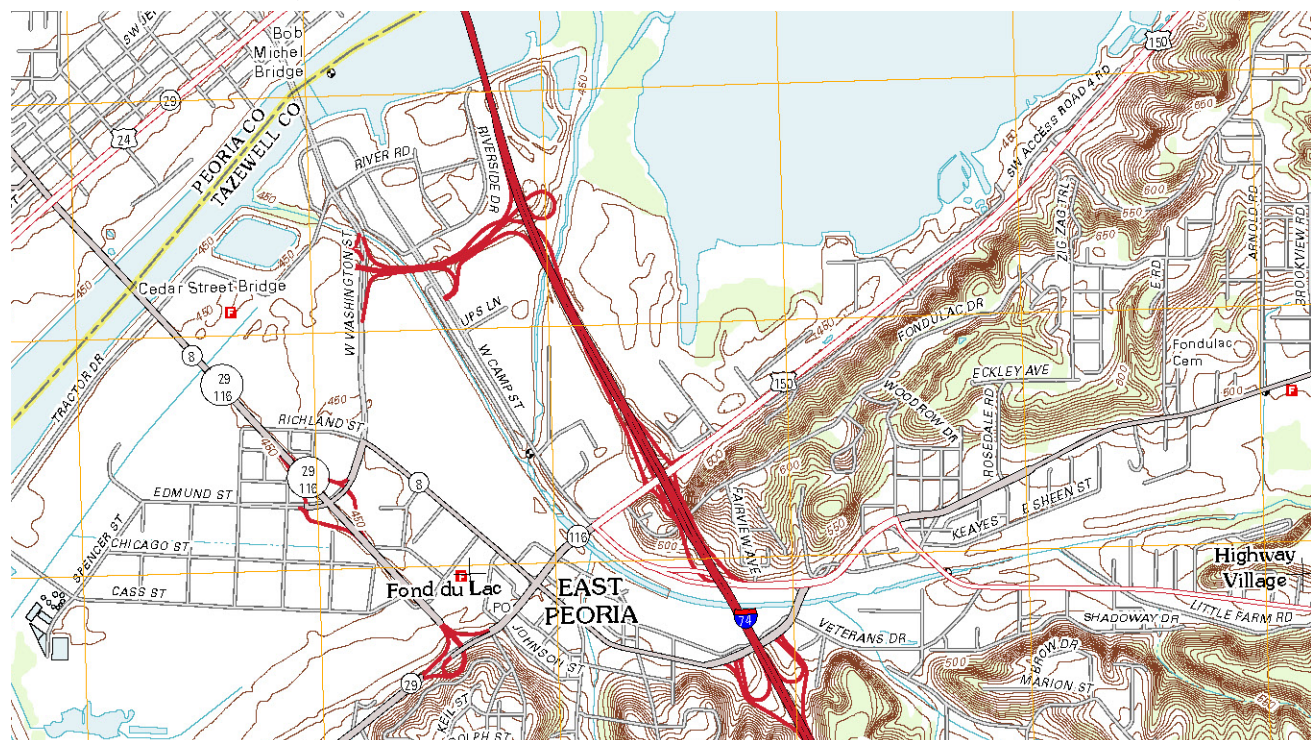
major economic force for the city. The map depicts density in the city center and cohesive, complete neighborhoods with industry booming around them. Meanwhile, the map also portrays Farm Creek with recent levee improvements and a diversion channel that points due north. The land in which the diversion channel runs was still a marshland and had yet to be developed. Not shown on the map is Fondulac Reservoir, the first dam that was constructed to retain the flood waters of Fondulac Creek. Shortly after its construction, Farm Creek Reservoir, a much larger dam, was constructed to retain the flood waters of Farm Creek.

The 1949 map represents East Peoria in both a positive and dubious situation. On one hand, industry is growing, providing the city with income, and the urban fabric is still at human scale, with neighborhoods, parks, and schools within walking distance of the Four Corners. On the other hand, popularity of the automobile is rising and causing congestion, the creek is subdued and highly regulated, and the infrastructure is unorganized, with railroad tracks and streets intersecting in numerous places. Meanwhile, a coal-burning power plant operates on the riverfront and dumps its waste into the water.

Finally, the 2012 map is representative of present day. The landscape is dominated by car-based infrastructure, rather than rail, and several roadways that



ABOVE: EAST PEORIA MAP, 1949



were once connected have been severed. The Farm Creek northern diversion has been altered to make way for the highway and its delta has increased in size. Today, much of the land surrounding the highway in the former marsh contains large-lot developments, either industrial or commercial zones.

Overall, this is a highly altered landscape. With the construction of the highways, a few bluffs were modified and the lanes were elevated 20 feet above grade, atop man-made earthen pedestals (they are quite literally *high-ways*). The urban fabric of the city has been changed again and again, seemingly with no goal in sight, as old structures are razed and replaced by car-friendly buildings and infrastructure. By now, both dams and the levees have been serving East Peoria for decades without relenting and

the city appears to be approaching a less and less natural state as it continues to drain, compact, and build upon former marshlands.

Many changes are made to East Peoria's urban form by the time we complete Phase 3. Where did these changes come from? What inspired them? The following precedents reveal the origin of these design choices and how they relate to the overall project.

STREET GRID + STRUCTURES

Inspiration for the altered street grid comes from a blending of street patterns found in historic maps of East Peoria as well as basic urban design principles. The goal was to create a new street grid

that improved connections and eliminated dead-end streets. A study of the urban grain and street grids from 1891, 1949, and 2012 revealed different characters of East Peoria that all became useful for the final layout. Many infrastructure changes have taken place in the city's history, but the element that remains the same throughout has been the shape and orientation of Washington and Main Streets and the location of the Four Corners intersection. This formed the foundation for the street pattern that surrounds it. Of particular interest is the level of connectivity among streets in 1949 (before the implementation of highways) which inspired much of the new design's street grid (pages 110-111). Additionally, it is clear in the diagrams below how the high density of the city center in 1949 was gutted—and which, I found, was important to restore.

EAST PEORIA DOWNTOWN, 1891



EAST PEORIA DOWNTOWN, 1949



EAST PEORIA DOWNTOWN, 2012





EAST PEORIA AERIAL IMAGE, 1939





EAST PEORIA AERIAL IMAGE, 2014



110 EAST PEORIA STREET GRID, 1949



EAST PEORIA STREET GRID, 2012



EAST PEORIA URBAN GRAIN, 1949



EAST PEORIA URBAN GRAIN, 2012

FARM CREEK FLOODWAYS

The floodways are the heart of the design. In addition to braided rivers, they are inspired by historic maps of East Peoria that depict Farm Creek and the physical changes it has undergone since settlement. For much of East Peoria's history, the creek has existed in an altered state, which has eliminated the natural functions that the creek was once able to carry out. For this reason, I found it important to revisit Farm Creek in its mostly unaltered form

in the 1891 map. Here, the creek is naturalized, with some offshoots being used for mills. The creek's floodplain is undisturbed or is being farmed, but most of it is a marshland, capable of filtering sediments and retaining flood waters while providing habitat. It is not possible for a city to exist in close proximity to a creek while at the same time allowing it to be completely natural—just as this creek cannot healthfully perform its basic functions in a completely urbanized setting. The two must find a balance if they are to cohabit this floodplain.

While it can be argued that the creek would naturally be undergoing changes and alterations regardless of human intervention, I believe that the 1891 Farm Creek is the one we should extract from history. It is this moment in time that Farm Creek and early East Peoria inhabitants were living together peacefully (for the most part). Additionally, as part of the goals of this project, it is important to recall historic moments in history in order to create a sense of belonging and foundation for community members. Reminding residents of the early days of settlement



can provide that. The city was officially named the Village of East Peoria in 1889, just two years before the creation of this map. Therefore, this is also the Farm Creek that has the most historic significance for the city.

Because of these factors, the position, shape, and location of the Farm Creek Floodways were inspired by the 1891 Farm Creek. Overlaying the 1891 map on present-day East Peoria reveals its original placement in the city as well as its relationship to any historic features that remain today. Through this method, it was discovered that the original creek existed very near where its channelized version exists today—even the approximate location of the Cole Creek tributary. Important to note is the path of the historic main channel and its proximity to the Four Corners. This closeness implies the creek's inherent importance for the city. The shape of the Floodways derives from three factors: the historic path of Farm Creek in 1891, the creek's need for more floodable land, and the challenge of making the new creek channel work with existing and proposed surrounding infrastructure.

The next two pages depict the existing conditions versus the proposed design of both the street grid and the Farm Creek Floodways. Shown for reference is the 1891 Farm Creek channel in dark blue, with the bolder line representing the main channel.







<NORTH | CENTER PROPOSED CHANGES, WITH 1891 FARM CREEK IN DARK BLUE FOR REFERENCE

FARM CREEK MOUNDS

As detailed in the design concept section, the Farm Creek Floodways consist of a series of hills and valleys that are dry for most of the year, but fill with water when a major rain event causes the creek stage to rise. The hills—referred to as *mounds*—essentially consist of fill extracted from the valleys that have been carved into the existing grade. The valleys are the floodways outlined in the previous section. In order to give Farm Creek more room to breathe and to create a unique recreational setting, the new creek is designed as a system of mounds and floodways that behave similarly to a braided river channel. Braid bars are temporary piles of sediment that form between the braided channels like islands. In this design, the piles of earth that form Farm Creek Mounds behave as braid bars, except they are permanent islands.

When Farm Creek flows at its base elevation, only the main channel contains water. The remainder of the Farm Creek Floodways is dry and can be used for recreation and natural habitat. As the water stage rises and the floodways begin to fill in, the mounds become islands and create a brand new recreational experience. Depending on the water height, some mounds may only be accessible via bridges, while others might be inaccessible or even completely submerged.

Because of the uniqueness of these design features, it became important to relate them directly to East Peoria's context. Not just any shape would do—inspiration for the Mounds was derived both locally and regionally, and across time, in order to logically determine their form.

A History of Earth-Moving

Emphasis on East Peoria's uniqueness while relating the city to its larger context is achieved by Farm Creek Mounds. The name *Mounds* is no accident. Because they are man-made earthworks, inspiration for the Mounds' form comes from the relationship

between East Peoria and the Native American earth-moving cultures of the Mississippian Era, who were building earthen mounds hundreds of years before Europeans discovered the New World.

The Mississippian Era refers to the time period when these native cultures reigned in North America, building large earthworks in ceremonial and cultural fashion. This also describes these cultures' location on the North American continent—relating to the Great Mississippi Valley region (Illinois State Museum, 2014). During this time period, the natives had established chiefdoms in which mound-building played a major role. The mounds were used

MONK'S MOUND, CAHOKIA MOUNDS, COLLINSVILLE, ILLINOIS





ABOVE: MONK'S MOUND ILLUSTRATION, CAHOKIA MOUNDS, COLLINSVILLE, ILLINOIS

BELOW LEFT: PLATFORM MOUND, AZTALAN, WISCONSIN

BELOW RIGHT: DICKSON BURIAL MOUNDS NEAR LEWISTOWN, ILLINOIS

for many civic activities, from elevating their houses to burying the dead. The most famous, and largest, mound archaeological site is found along the Mississippi River in Collinsville, Illinois: Cahokia Mounds. Meanwhile, closer to home, Dickson Mounds is a mound site along the Illinois River. Research on the

spatial arrangement of mound forms proves relevant to this project: mounds of the Mississippian culture were often arranged around a central civic plaza and were almost universally located next to a body of water, which means they were often sited in or near swampy lowlands, typical of the prehis-

toric Mississippi River valley (Illinois State Museum, 2014). Furthermore, wetland animal species often appeared in artworks of the Mississippian culture, indicating the cultural importance of wetlands and aquatic environments. For this reason, it is possible to infer the close relationship between Mississippian natives, their cities, and their wetland surroundings. Finally, the mound forms typical of the Mississip-





ABOVE: EAST PEORIA BLUFFS RISING UP LIKE GIANT MOUNDS IN THE BACKGROUND
 BELOW LEFT: STAIRS ON THE SIDE OF FARMDALE DAM
 BELOW RIGHT: FONDULAC ROLLED-EARTH DAM SLOPED EDGE

pian Era were platform mounds, that is, mounds that were built as pyramids with flat tops, as shown in the images on the previous page.

How do these ancient Native American earthworks relate to modern-day East Peoria? To begin with, the project takes place in a river valley, near two bodies of water, and incorporates wetland areas

near mounded earthen structures and a civic center. Next, East Peoria has its own history of earthmoving that is strikingly similar in appearance to the Mississippian earth forms. First, note the example of East Peoria's own great earthen structures: Fondulac and Farmdale Dams. These are very similar

in appearance to Mississippian platform mounds, although they serve a different purpose. Second, general imagery often seen in East Peoria: its steep bluffs. These are already natural mounds on which people live, and which have sloped sides. Third, there are many examples in East Peoria where man-





ABOVE: EAST PEORIA TAPERED BLUFFS ALONG ROUTE 24 OFF-RAMP

BELOW LEFT: TAPERED BLUFF EDGE AT GEM TERRACE

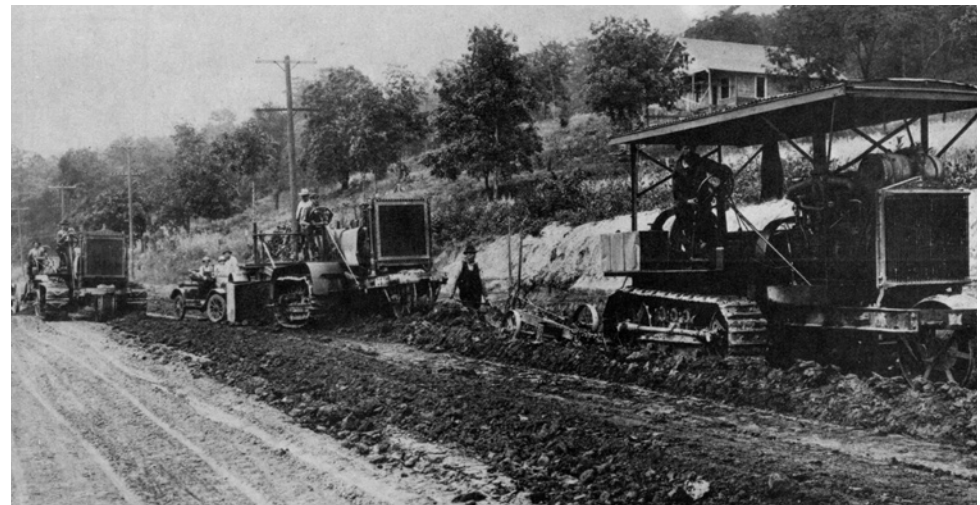
BELOW RIGHT: HOLT (EARLY CATERPILLAR) TRACTORS BEING USED TO BUILD ROUTE 116 (N. MAIN ST.) IN 1917

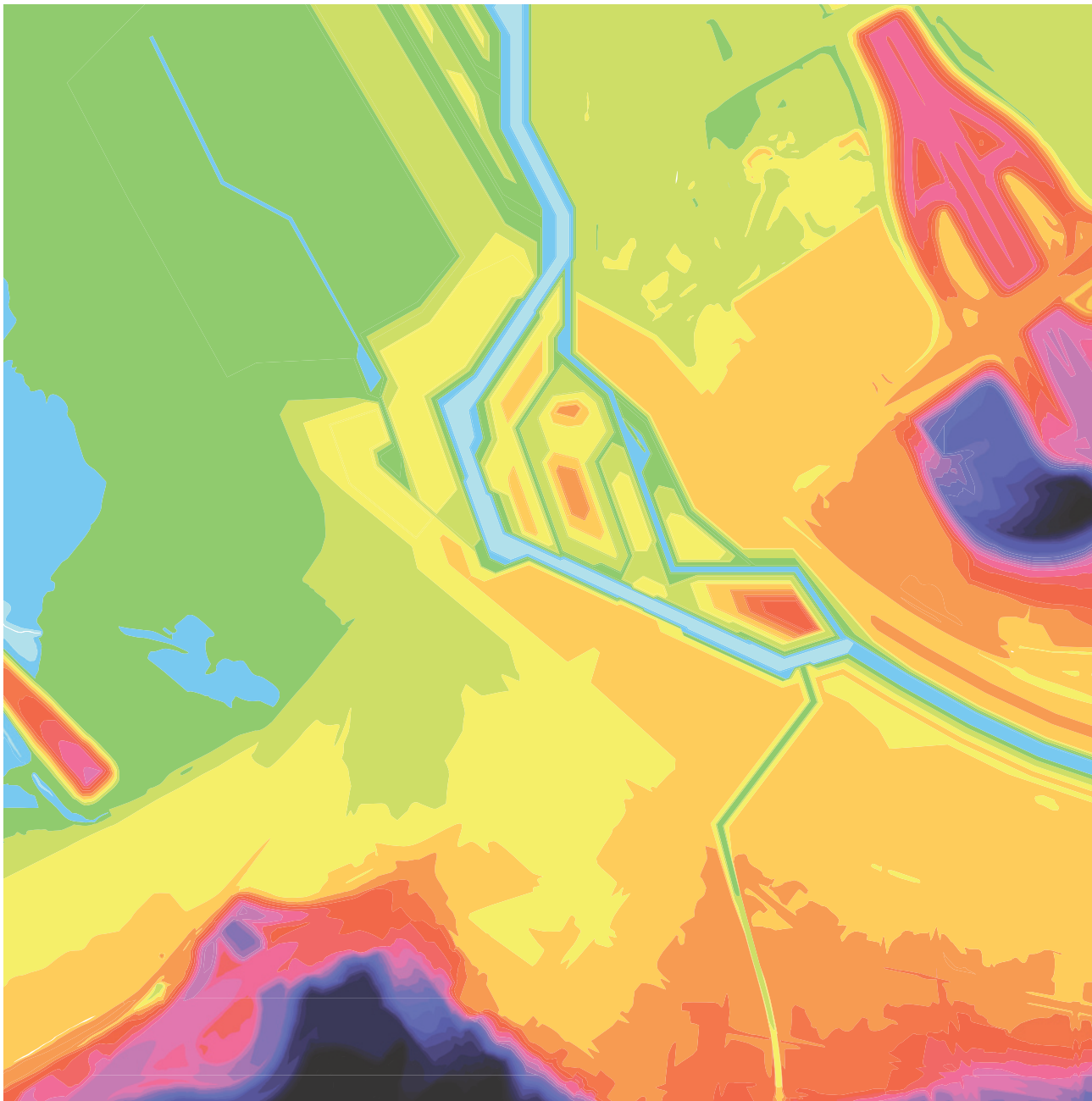
aging the steep bluff faces has resulted in a tapered solution, where there is a flat area and a sloped edge. Finally, East Peoria's earth-moving history would not be complete without mentioning their modern-day earth-moving machine manufacturer, Caterpillar, Inc., who helped the city grow.

All of these factors add up to influence Farm Creek

Mounds with the intent of creating an identity in Farm Creek that is East Peoria-specific, but has a broader regional context. An East Peoria-specific identity gives the city a focal point and makes it a unique destination. A regional identity grounds East Peoria inside a larger culture, emphasizing that it is not alone on the Illinois River, and that it has an obligation to its neighbors downstream.

The form of the Farm Creek Mounds and Floodways is geometric with tapered sides, recalling the platform mounds of the Mississippian culture, and referencing its own local earthwork solution of tapering bluff edges. Not only do these tapered channel walls allow for many levels of flood mitigation, but they also provide steps on which activities can occur. At only four feet in height, these tapered edges are more accessible and create an interesting aesthetic quality that changes with the weather.





THE DIAGRAM TO THE LEFT DEPICTS ELEVATION CHANGES IN FOUR-FOOT INCREMENTS, AS PROPOSED IN THE DESIGN. THE LOWEST ELEVATIONS ARE SHOWN IN LIGHT BLUE, WHILE THE HIGHER ELEVATIONS ARE REPRESENTED BY RED AND PURPLE, WITH BLACK BEING THE HIGHEST. SURROUNDING ELEVATIONS ARE EXISTING EXCEPT FOR THE SHAPE OF THE INTERSTATE 74 RAMPS, WHICH HAVE BEEN UPDATED.

THE SITE SECTION BELOW EXPRESSES THE TYPICAL TERRACED CONDITION OF THE FARM CREEK MOUNDS AND FLOODWAYS. EACH TERRACE IS FOUR FEET IN HEIGHT.

THE IMAGE ON THE NEXT PAGE SHOWS THE COMPLETE PHASE 3 CENTER PROPOSAL. THIS IS DESCRIBED IN MORE DETAIL IN THE FOLLOWING PAGES.





DESIGN DETAILS

FOUR CORNERS INTERSECTION

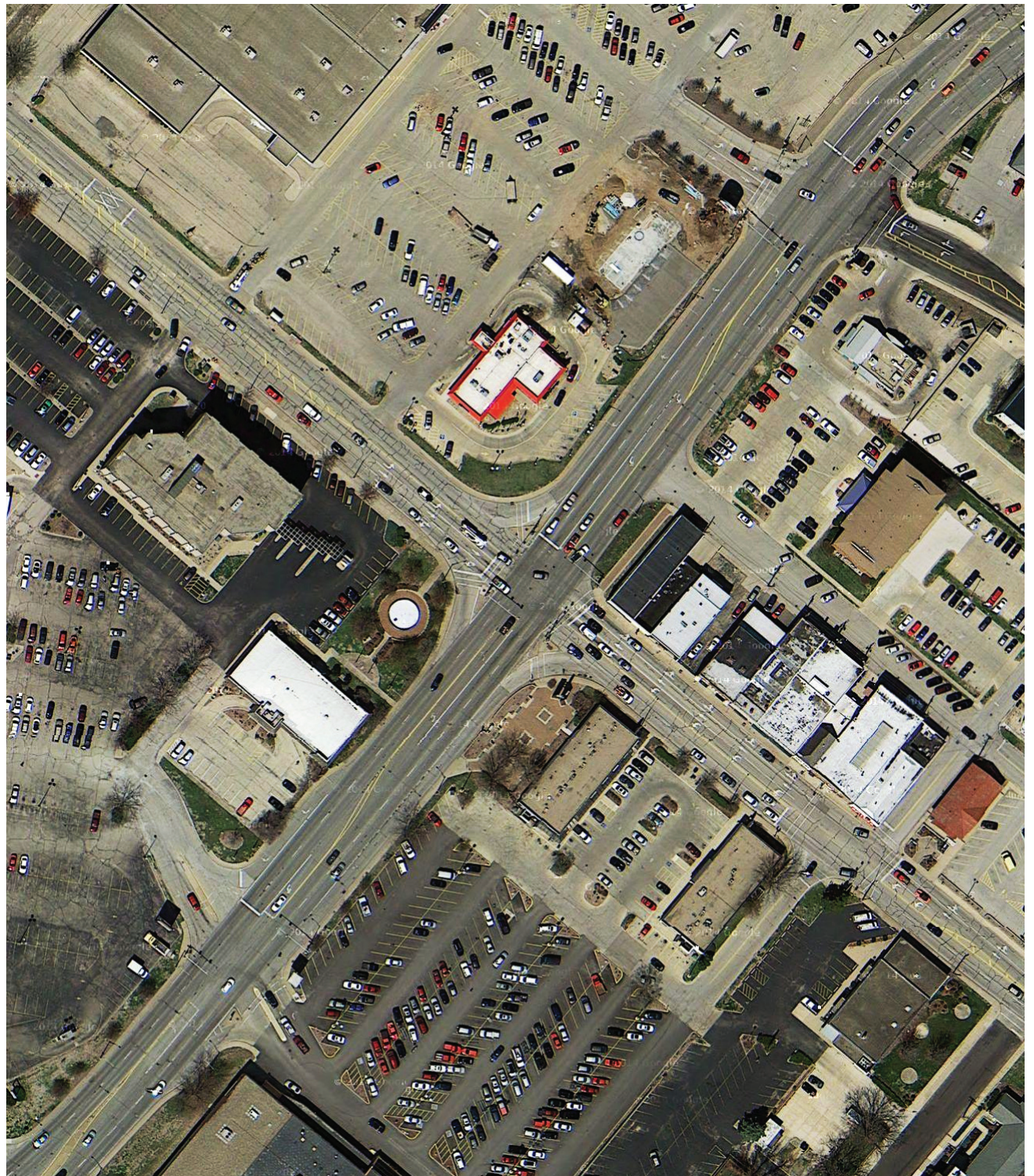
+ FOUR CORNERS PARK

The intersection of Main and Washington Streets is a historic crossing that has been dubbed the “Four Corners” due to the historic locations of downtown buildings at each corner. Today, as roads have been widened, buildings demolished, and traffic congesting the streets, the Four Corners has lost its definition and character.

For East Peoria, moving forward means reestablishing this historic node and transforming it into a place of pride and historic experience. The mission for East Peoria Center is to enhance the Four Corners Intersection, transforming it into a welcoming environment of contemplation and activity.

■ Raised Intersection:

This proposal transforms the existing intersection into an easily walkable environment. Today, the intersection is designed to accommodate motorists more than pedestrians and cyclists with its large-radius turns and widened lanes. Raising the intersection to curb-level creates a pedestrian-friendly zone where vehicles must slow down.



^NORTH | EXISTING CONDITIONS AT FOUR CORNERS INTERSECTION + PROPOSED FOUR CORNERS PARK





WEST BLOCK: FOUR CORNERS INTERSECTION + HISTORIC STRIP, FACING EAST



NORTH BLOCK: TOWN CENTRE II SHOPPING CENTER, FACING NORTH



SOUTH BLOCK, FACING SOUTHWEST; TOWN CENTRE I SHOPPING CENTER



WEST BLOCK: COMMUNITY PLAZA SHOPPING CENTER, FACING NORTH



EAST BLOCK: HISTORIC STRIP ALONG E. WASHINGTON STREET, FACING NORTHWEST



EAST BLOCK: FOUR CORNERS INTERSECTION, MAIN ST. ON RIGHT, FACING SOUTHWEST



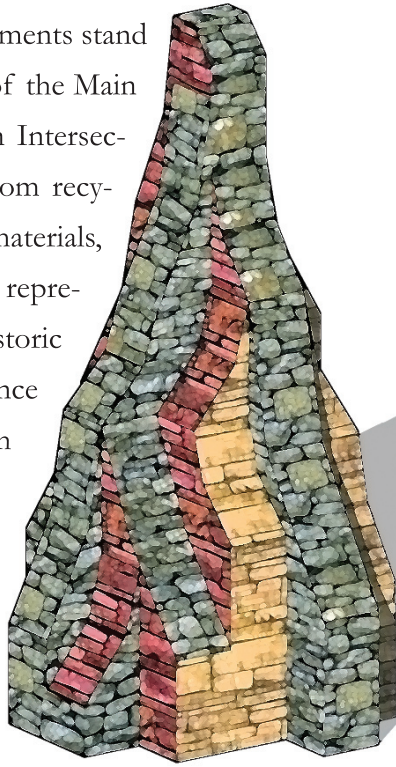
SOUTH BLOCK: PUBLIC PLAZA AT INTERSECTION, FACING NORTH



NORTH BLOCK: ALONG MAIN STREET, FACING SOUTHWEST

■ Four Corners Monuments:

Four monuments stand at each corner of the Main and Washington Intersection. Created from recycled building materials, each monument represents the historic buildings that once stood at each corner. These monuments serve as a reminder of East Peoria's history and also create unique points of interest in the city center.



■ Street Trees + Bioswales:

It is no secret that street trees improve the quality of roadways. They add beauty to the street and also create a relatable sense of scale for pedestrians. Meanwhile, they also slow traffic and provide shade during hot months.

Bioswales are proposed to run parallel with the lanes of the street. These are deep trenches dug into the earth and filled with trees and moisture-loving plants intended to capture stormwater runoff from the streets. The plants filter out toxins from the roads before they enter the

groundwater. This system eliminates the need for sewers that may dump roadway runoff into nearby bodies of water like Farm Creek and the Illinois River.

■ Mid-Block Crossings:

East Peoria's original block designs were very elongated and narrow. This created long blocks between intersections, making it difficult for pedestrians to move across the street. Introducing mid-block crosswalks allows pedestrians to cross the street safely and more frequently while also creating traffic calming in the city center.

■ Dense, Small-Lot Buildings:

Buildings that are closer together, with their entrances at the sidewalk provide street-side interest and create human scale. Not only does their easy access promote walking, but also window shopping. Buildings such as these have been proposed to replace the large-lot structures that exist today. The overlaid street grid replaces vast, empty parking lots with useful functions such as businesses, housing and mixed-use buildings. The lot sizes are based on the original 25'x100' lots laid out in original East Peoria plats.

■ Four Corners Park:

Four Corners Park is a proposed urban park that is located on the lot directly across from the existing historic row. This park replaces the ex-

isting strip mall buildings which had replaced another historic row. By replacing the existing buildings with a public park, Washington Street is opened up for recreation and gathering. This park is simple—not much more than trees and plantings—but it provides an appealing public necessity in the heart of the city. Four Corners Park also includes a building that can be an information center for activities to do around East Peoria, including visiting historic locations and public celebrations, but also for learning about East Peoria's unique geological and hydrological context. The educational component therefore becomes East Peoria-specific and can educate residents and visitors alike about how East Peoria is managing its hydrological systems and how they can contribute.

■ A note about Normal, IL:

In researching precedents for this project, I traveled to Normal, Illinois—just a few miles from East Peoria—to research and experience their recently-upgraded downtown. When considering revitalizing their downtown, the city opted to go in a walkable and transit-oriented direction, revamping their old city center in New Urbanist fashion. Not only did the city make sure to retain their existing traditional buildings, but they filled in the gaps between them with buildings of similar character, height, and function. Further-



STREET TREES, BENCHES, AND OUTDOOR SEATING CREATE INTIMACY ON THIS STREET.



A MIXTURE OF OLD AND NEW BUILDINGS DOES NOT SEEM OUT OF PLACE.



A CVS PHARMACY INHABITS A TRADITIONAL-STYLE STRUCTURE.



TRAIN STOP AND STATION AND A CYCLING PATH IN THE HEART OF THE CITY.



EAST PEORIA CENTER'S LOCATION IN THE FARM CREEK VALLEY BETWEEN TOWERING BLUFFS IS APPARENT AS WE SEE THE HISTORIC ROW OF BUILDINGS FROM BEHIND.

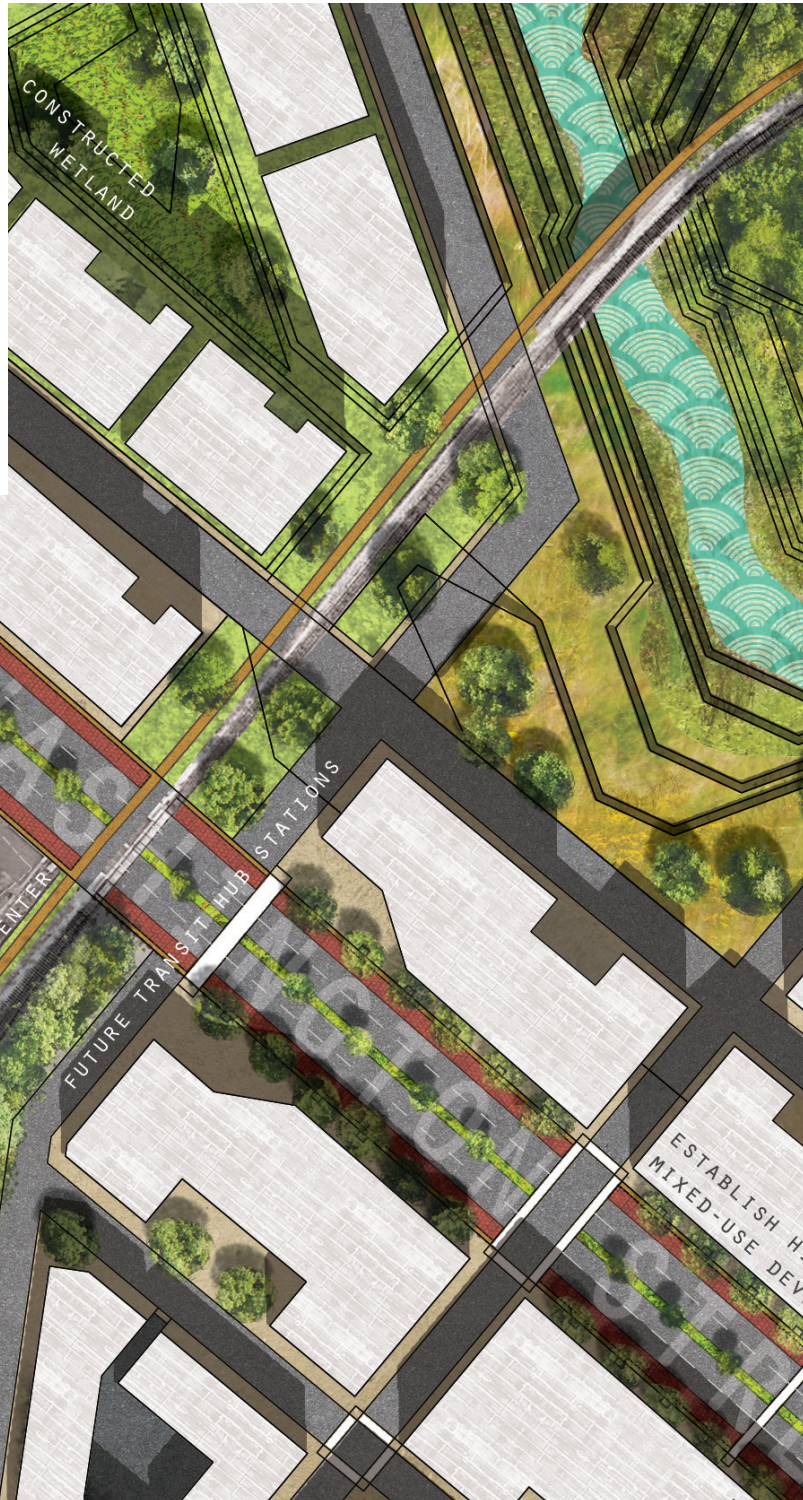
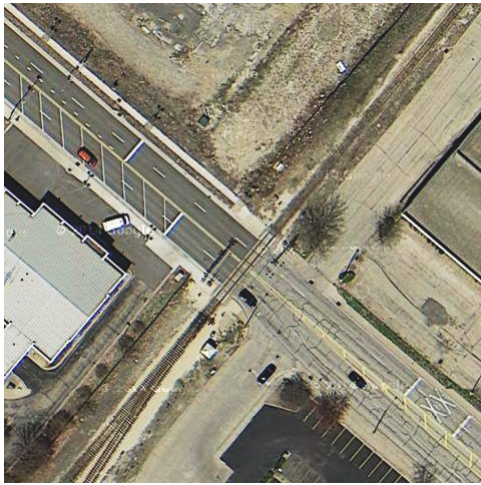
more, they greened-up the city center by adding street trees and green infrastructure that deals with stormwater runoff while providing beauty in the city. Bicycle paths, wide sidewalks, on-street parking, bus services, and even a train station, all serve this small city and attract visitors. The most important aspect to note when comparing East Peoria to Normal is that they are truly not very different—it all comes down to how to design the city so that people feel comfortable there. For example, when Normal had the option to bring a CVS Pharmacy downtown, they chose to place it in a building that mimics

the character of the surrounding buildings. In contrast, the CVS in East Peoria's downtown is set back from the street and surrounded by a parking lot, with the typical generic architectural style. This example proves that the character of a city can be defined by that city and not by the businesses it attracts.

■ Transit Hub Stations:

Included in this proposal is the option to incorporate infrastructure that can be translated into a transit hub in the future. Historically, passenger trains did travel through East Peoria, linking pas-

sengers to major destinations via train. Today, that service no longer exists, however, that is not to say it can't in the future. Preparing for the need for mass transit is an important part of city development. Once a place begins to become more populated, infrastructure demands increase as well. Today, these buildings may serve as bus stations, providing an East Peoria alternative to Peoria's transit system, or just a better place to rest while waiting for the Peoria-run busses. Regardless, the buildings' proximity to the existing railroad is important should rail become reestablished as a travel option in the city.



EXISTING RAILROAD/WASHINGTON ST, FACING SOUTHWEST



TRAIN CROSSING WASHINGTON ST, FACING NORTHWEST

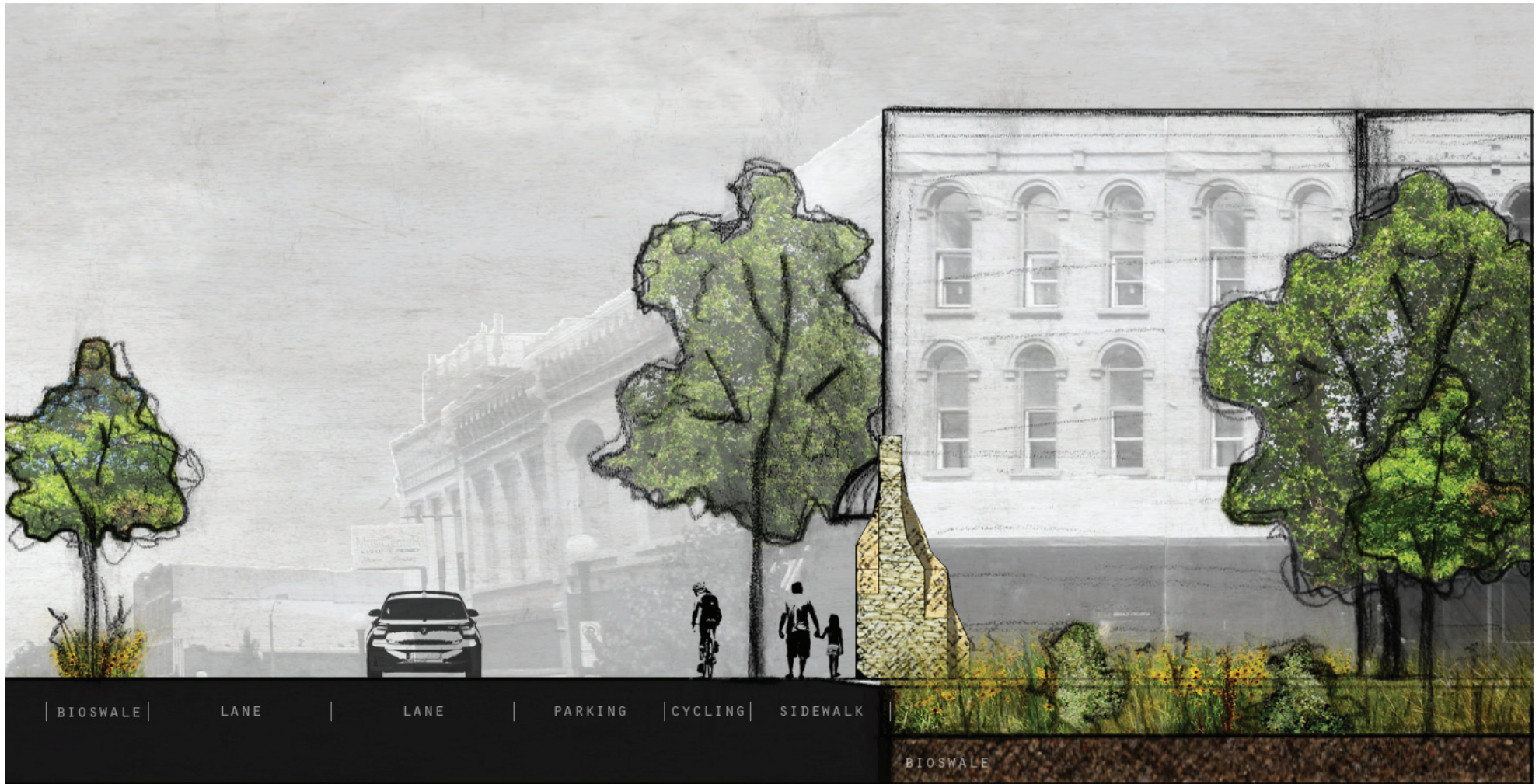


RAILROAD, WITH LEVEE DISTRICT + PEORIA SKYLINE IN BACKGROUND, FACING NORTH

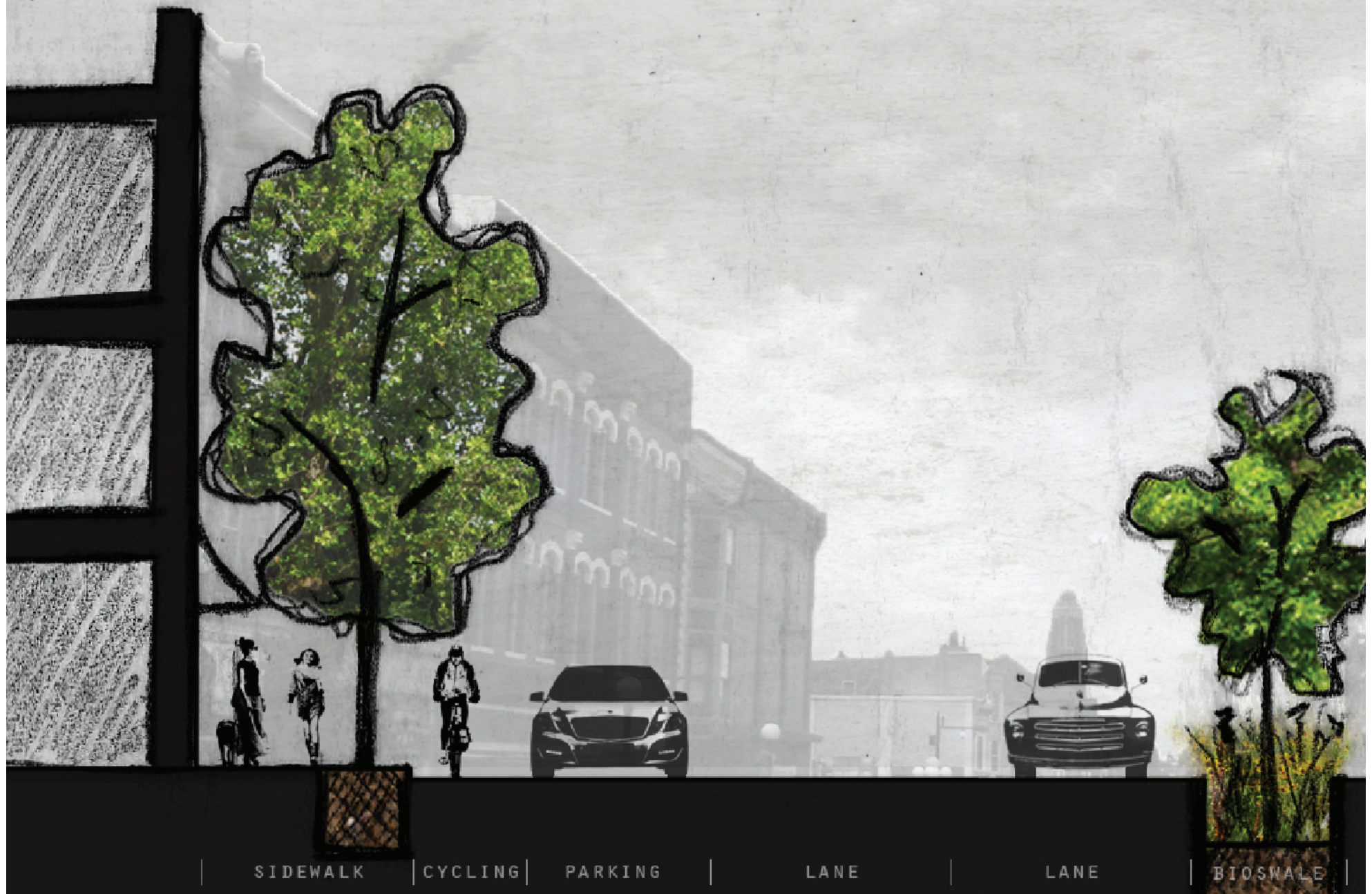
RIGHT: EXISTING CONDITIONS AT THE
FOUR CORNERS, FACING NORTHWEST
ALONG WASHINGTON STREET.

BELOW: SECTION OF PROPOSED
RAISED INTERSECTION AT
WASHINGTON AND MAIN STREETS
(THE FOUR CORNERS)—DEPICTING
NEW BUILDINGS, BIOSWALES,
BIKEWAYS, ON-STREET PARKING,
STREET TREES, AND MONUMENTS.





typ. street section.
Main + Washington



SIDEWALK

CYCLING

PARKING

LANE

LANE

BIOSWALE



ABOVE: EXISTING CONDITIONS ALONG WEST WASHINGTON STREET.



LEFT: SECTION OF PROPOSED TYPICAL STREET IN CENTER BOUNDARIES—DEPICTING NEW BUILDINGS, BIOSWALES, BIKEWAYS, ON-STREET PARKING, AND STREET TREES.





LEFT: PROPOSED RAISED INTERSECTION OF MAIN AND WASHINGTON STREETS (FOUR CORNERS)—DEPICTING NEW BUILDINGS, BIOSWALES, BIKEWAYS, ON-STREET PARKING, TREES, MONUMENTS, AND FOUR CORNERS PARK IN THE CENTER. (EXISTING HISTORIC BUILDING ROW SHOWN ON LEFT, BEYOND MONUMENTS)

BELOW: EXISTING CONDITIONS AT MAIN AND WASHINGTON STREET INTERSECTION (EXISTING HISTORIC BUILDING ROW SHOWN ON LEFT).



FARM CREEK MOUNDS: LOOKOUT POINT

Farm Creek Mounds is a substantially-sized recreation area that includes bicycle and walking trails, hiking, views, and educational opportunities. The Mounds double as a baffle to slow down flows of Farm Creek during a storm event when flood waters tend to rise rapidly. In addition to its visual beauty, the Mounds create a spectacle within the city as large earthforms rise up above valleys that will fill in with water during high flows.

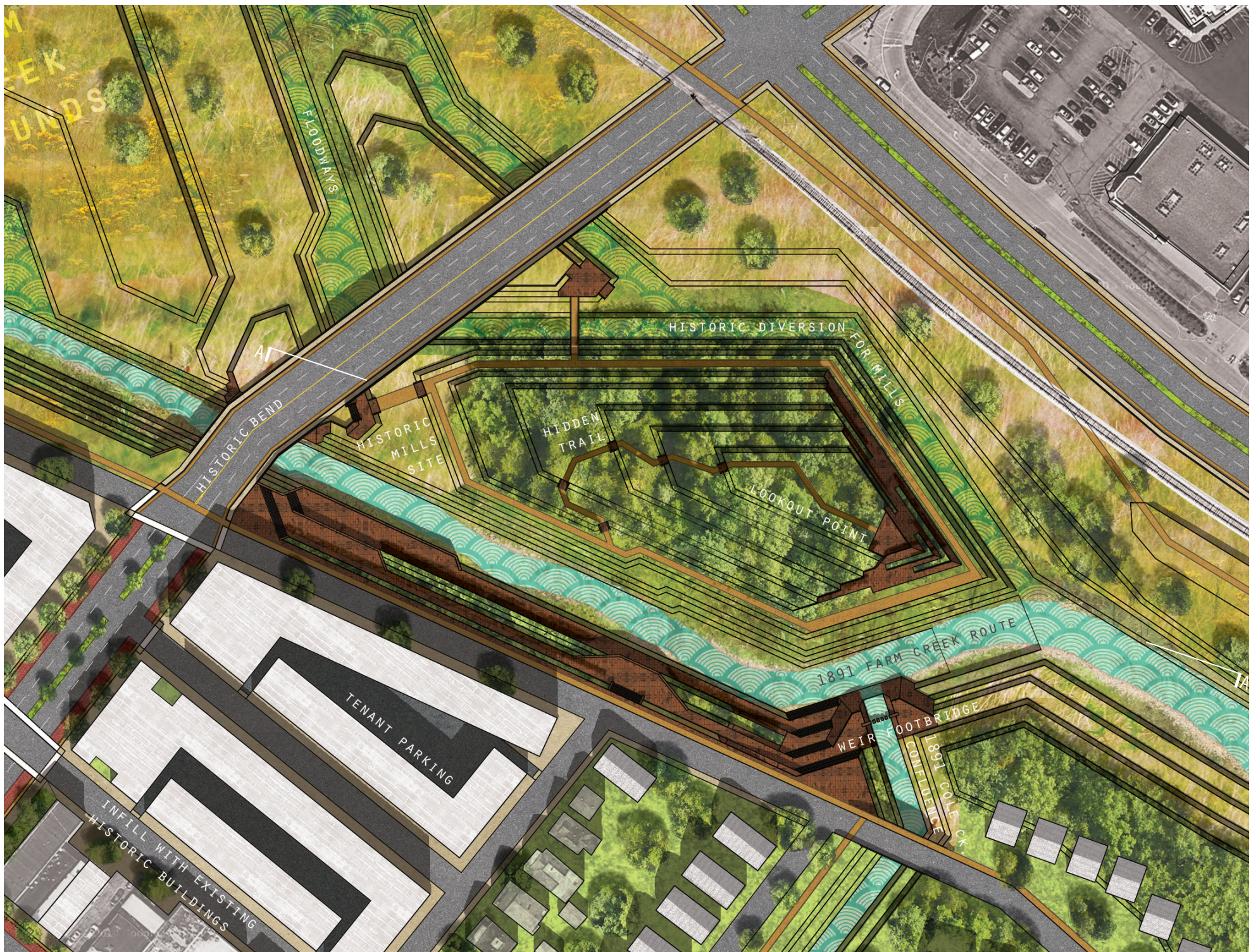
The existing channel of Farm Creek is relocated in this proposal and now meanders along the southern edge of the Mounds, then travels north, while its floodplain remains open for recreation. Three types of native Illinois landscapes are represented in the Mounds: Woodland, Prairie, and Wetland. These are found throughout the park system and serve functionally as flood mitigators, but also as educational examples and as habitat for native species, making Farm Creek a wildlife corridor that connects to the Illinois River and Lower Peoria Lake.

■ Lookout Point:

Lookout Point is the highest point of Farm Creek Mounds and the most structural. Earth is mounded to create the Point, but edged in brick and plantings where floodwaters would be fastest approaching the Mounds. It is intended to be



^NORTH | EXISTING CONDITIONS IN LOCATION OF PROPOSED FARM CREEK MOUNDS LOOKOUT POINT



park-like, with access via a hidden trail, terminating in a grand view of Farm Creek as it approaches. Lookout Point can be accessed via Main Street and also footbridges that disappear if floodwaters become high enough.

■ Farm Creek Terraces:

Along the urban edge of Farm Creek is a series of hardscaped terraces interspersed with plantings that allow for recreation at the water's edge during low flows.

■ Neighborhood Street Grid:

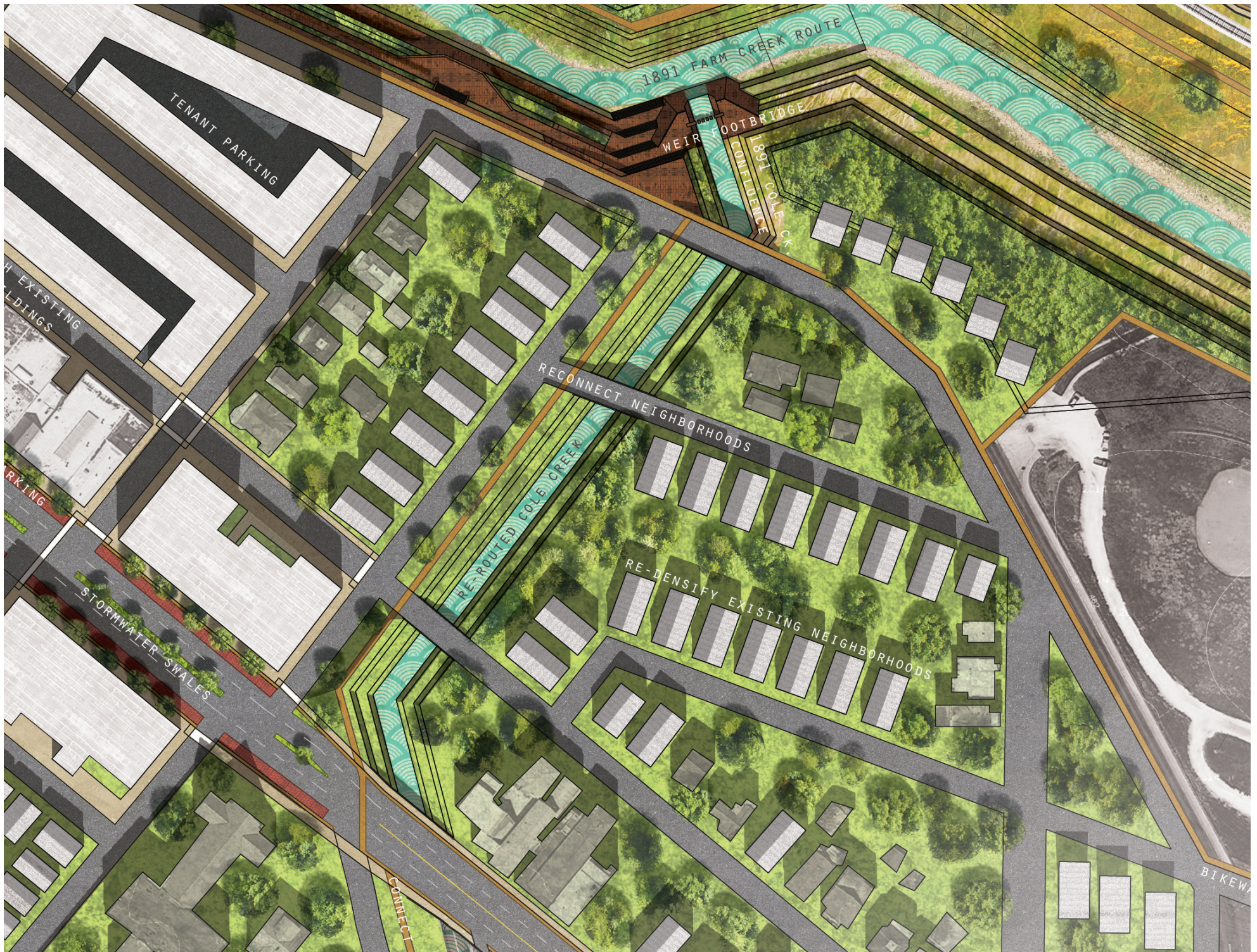
Neighborhoods in East Peoria Center have undergone several changes over the years, which has resulted in a haphazard and disconnected street grid, often terminating in dead-end streets and inter-mixed with vacant buildings. In this proposal, a more functional and well-connected street grid is created, reconnecting fragmented neighborhoods and opening up access to Cole Creek for residents.

■ Cole Creek Confluence:

The path of Cole Creek has been updated to align with the new neighborhood street grid. A bike path runs along the creek, connecting Jaycee and West Parks to Farm Creek Mounds, Center, and the new neighborhoods. Cole Creek Confluence terminates in a grand cascade at Cole Creek Falls, where a weir footbridge also exists.



^NORTH | EXISTING CONDITIONS OF NEIGHBORHOOD STREET GRID IN EAST PEORIA CENTER

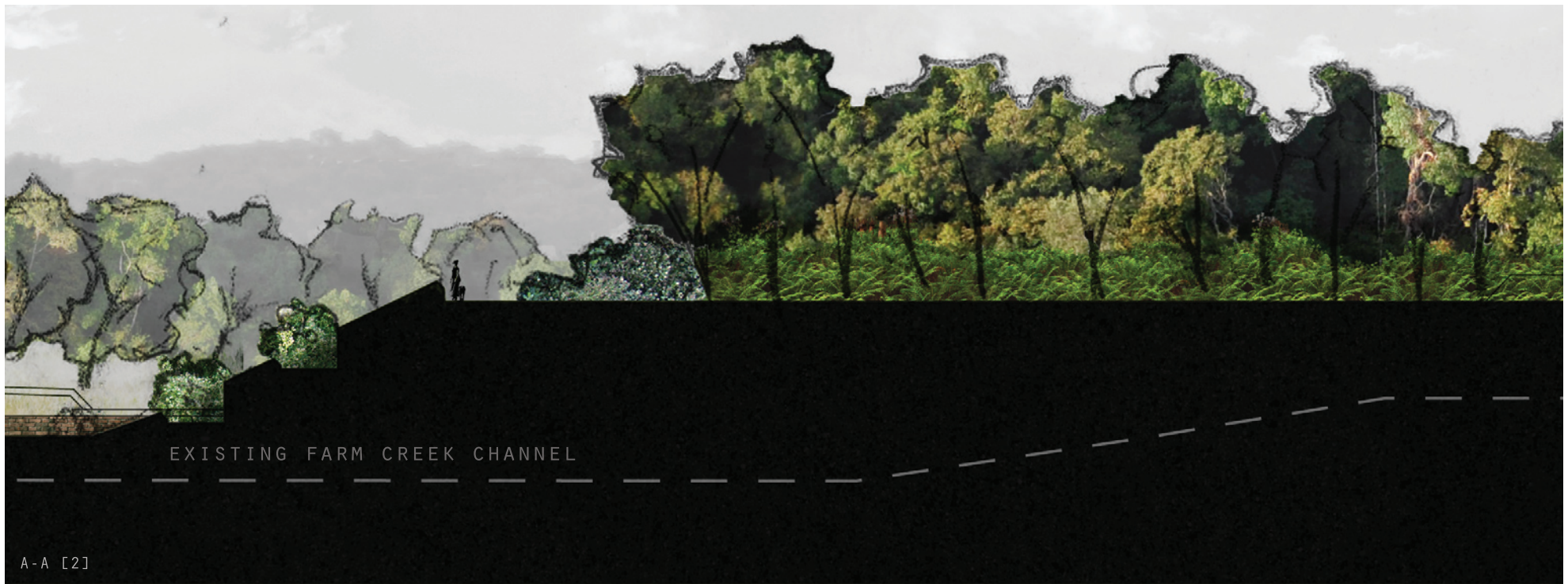




FARM CREEK CHANNEL WITH COLE CREEK CONFLUENCE ON RIGHT, FACING SOUTHEAST



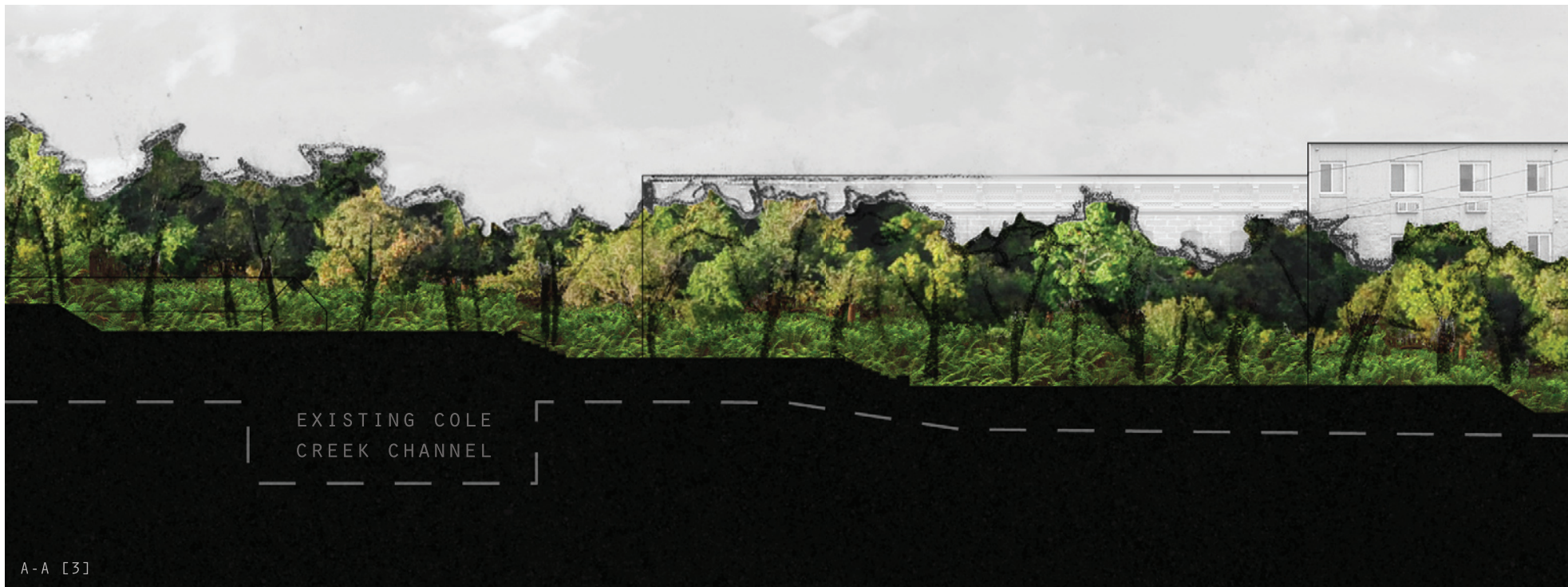
FARM CREEK CHANNEL AND COLE CREEK CONFLUENCE, FACING SOUTH



COLE CREEK CHANNEL WITH RAIL TRAIL BRIDGE CROSSING OVER, FACING SOUTH



RAIL TRAIL ON RIGHT, COLE CREEK ON LEFT, FACING SOUTH



COLE CREEK CHANNEL WITH SPRINGFIELD ROAD BRIDGE CROSSING OVER, FACING SOUTH



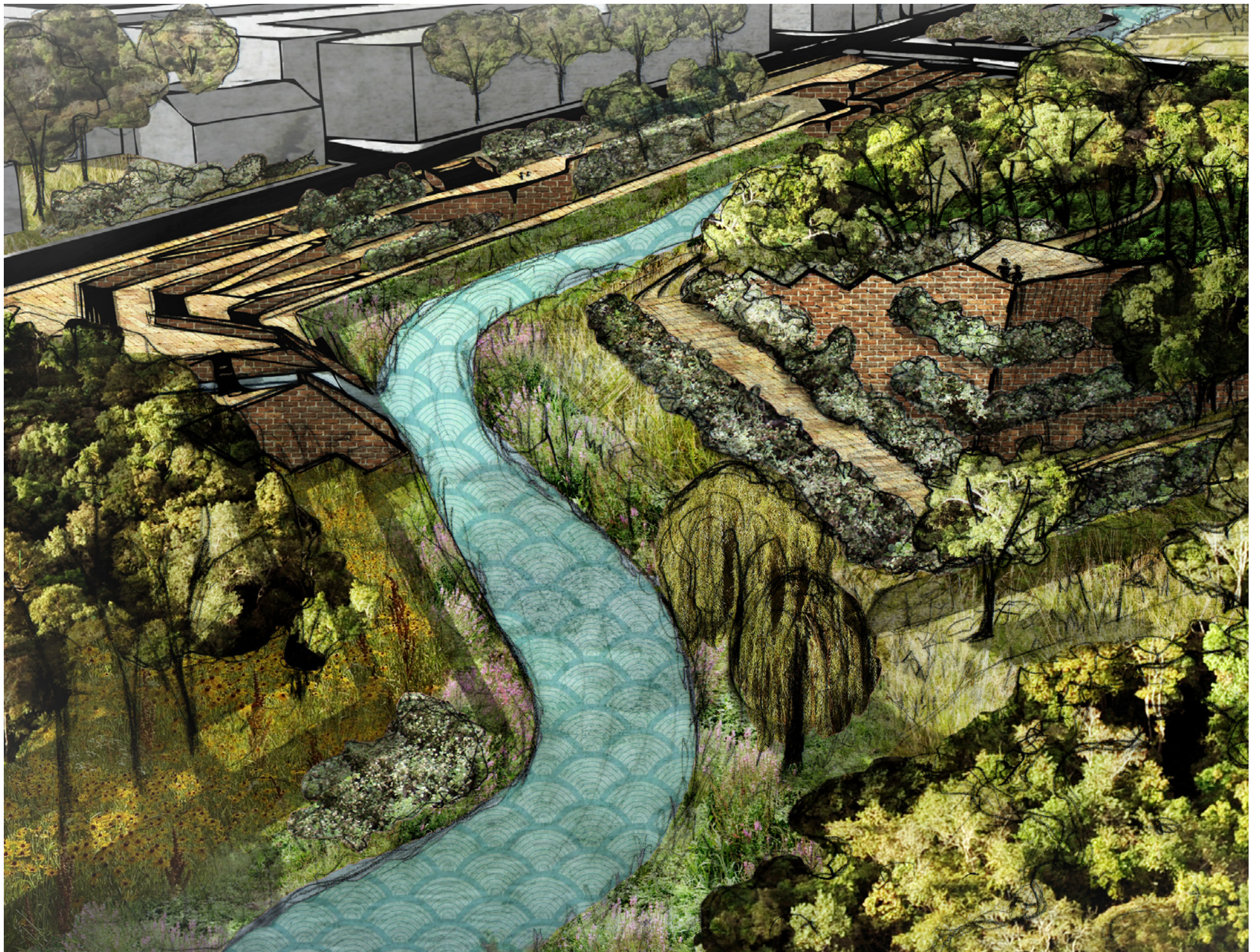
NEIGHBORHOOD + RETIREMENT HOME, VIEWED FROM SPRINGFIELD ROAD, FACING SOUTH



RETIREMENT HOME, SPRINGFIELD ROAD, FACING NORTHWEST TOWARD MAIN STREET



MAIN STREET BRIDGE + SEDIMENT IN FARM CREEK CHANNEL, FACING SOUTHEAST





LEFT: PROPOSED FARM CREEK MOUNDS LOOKOUT POINT WITH COLE CREEK FALLS CONFLUENCE.

ALSO VIEWED FROM THIS POINT IS THE SPECTACLE OF COLE CREEK TRIBUTARY, MEETING FARM CREEK AS A CASCADE. MEANWHILE, THE URBAN EDGE OF FARM CREEK CONSISTS OF A SERIES OF HARDESCAPED TERRACES INTERTWINED WITH NATURAL PLANTINGS. THIS AREA IS ABLE TO CAPTURE WATER IN THE CASE OF RISING FLOODWATERS.

BELOW: EXISTING CONDITIONS BIRD'S EYE VIEW OF FARM CREEK AND COLE CREEK CONFLUENCE. VIEW IS ROTATED CLOCKWISE FROM RENDERING.



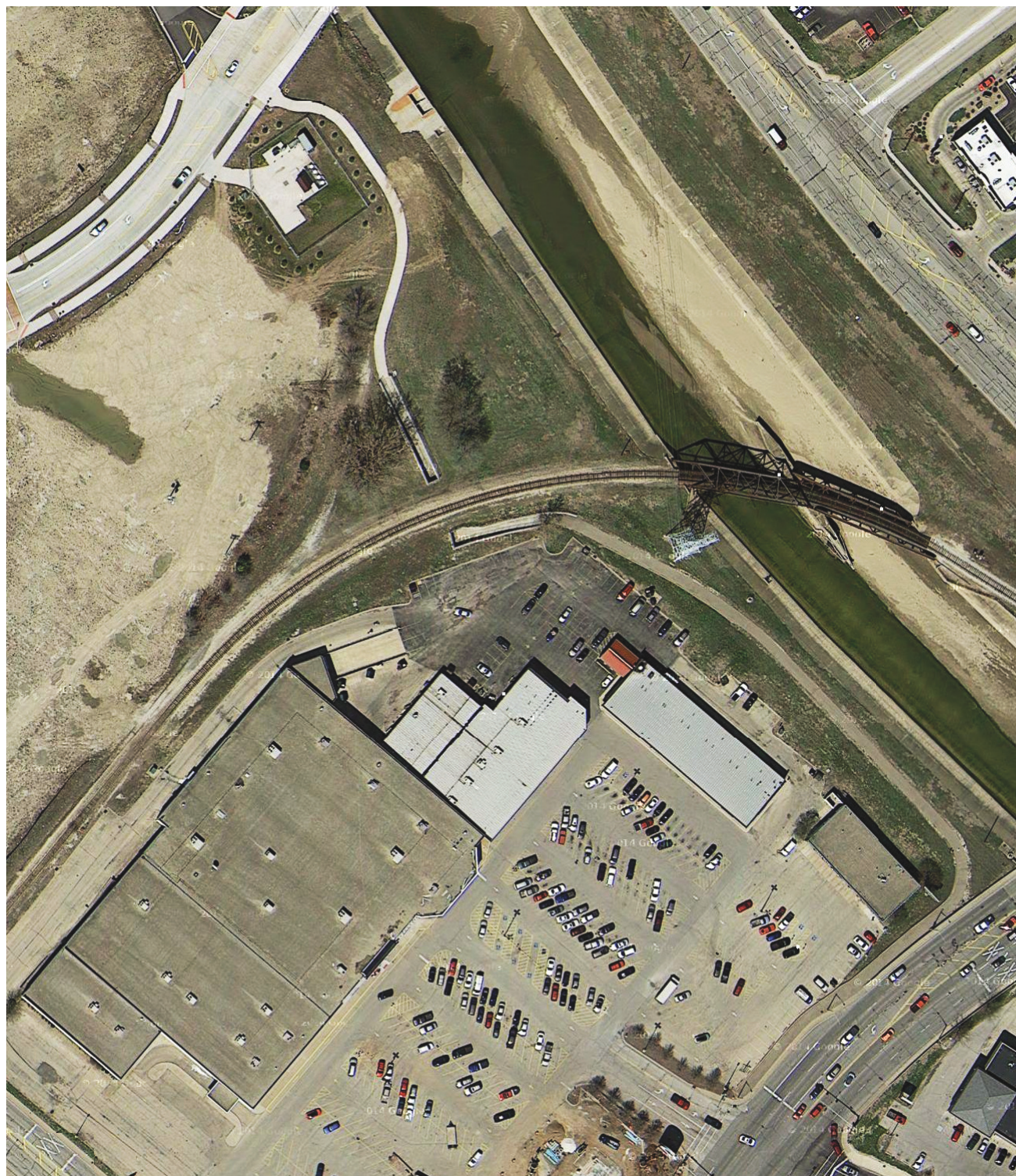
FARM CREEK MOUNDS: FLOODWAYS

In addition to being a vast and beautiful recreation area, the Floodways are proposed to retain the bulk of Farm Creek floodwaters. The Floodways extend from Center to Field and perform approximately the same function throughout, however, within Center, they are considered to be more urbanized and therefore must retain some human accessibility. The proposed location for the Floodways includes underutilized and inappropriately-utilized land area. It retains historic structures such as the railroad and railroad bridge, but otherwise the proposal completely changes the existing conditions.

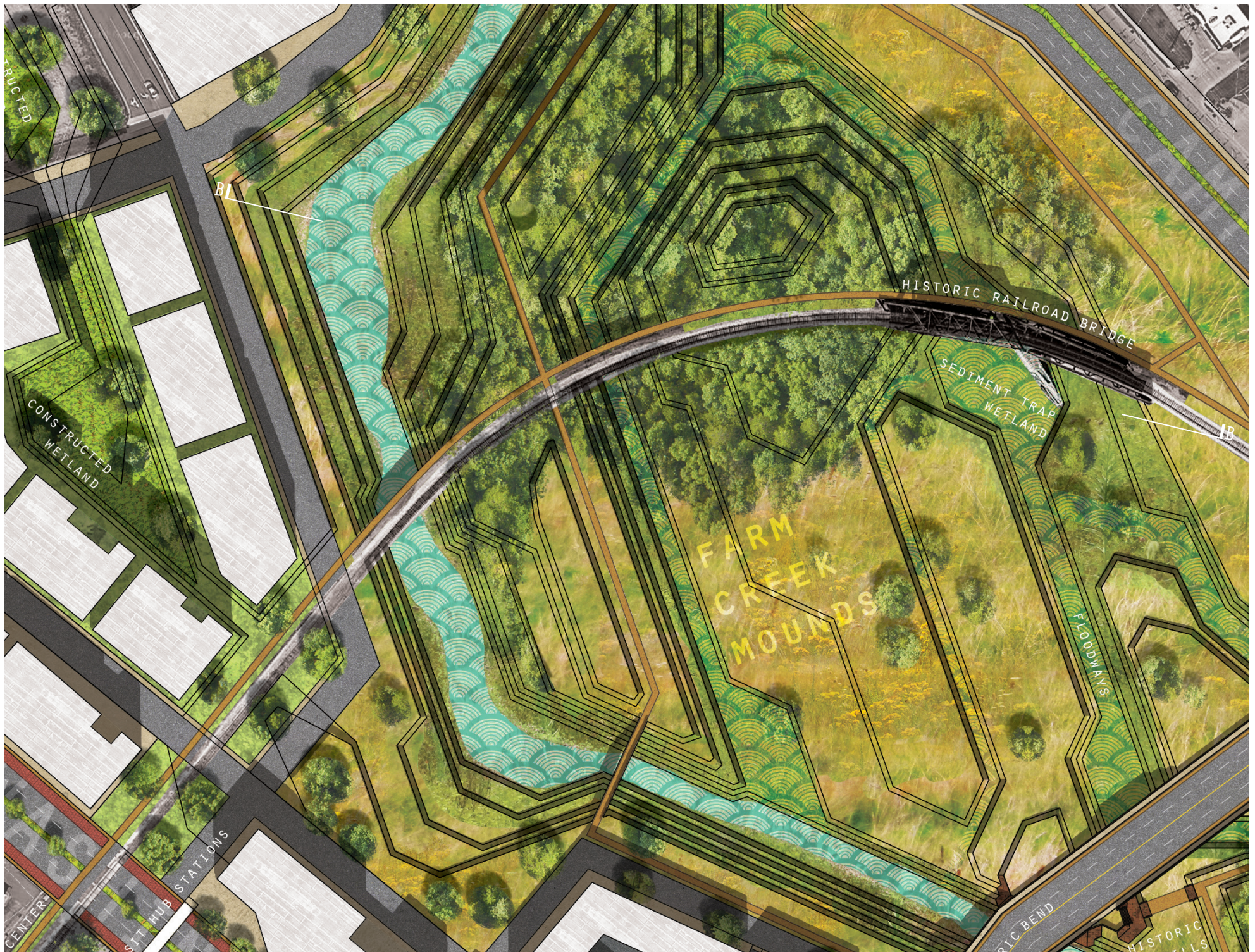
In this location, Farm Creek has been diverted already and is now making a bend toward the north. Between the two ends of this bend exist the Floodways, which are more or less natural areas. The Floodways consist of very low valleys and very high valleys and will become submerged depending on the stage of the creek.

■ Recreational Trails:

In keeping with the recreational function of Farm Creek Mounds, recreational trails have been proposed that allow for bicycling and walking through the Mounds. While not comprehensively outlined, the rendering gives a taste of what some of the major trails might look like.



^NORTH | EXISTING CONDITIONS IN LOCATION OF PROPOSED FARM CREEK MOUNDS FLOODWAYS



These trails cross over valleys on bridges or follow along the ridges of mounds to remain functional, even during a high stage. One trail has also been added to run alongside the existing railroad. Traveling along these trails offers a journey through different natural settings and interesting views along the way.

■ Wetlands:

The main purpose of the Floodways is to slow down and infiltrate excess stormwater. This is achieved using wetlands, which can pond the water momentarily, then collect and filter sediments and other debris that the stormwater carries with it. Several Floodways have been widened so that they are more than just channels, but are wide low spots that can achieve these functions.

■ Levee District Alterations:

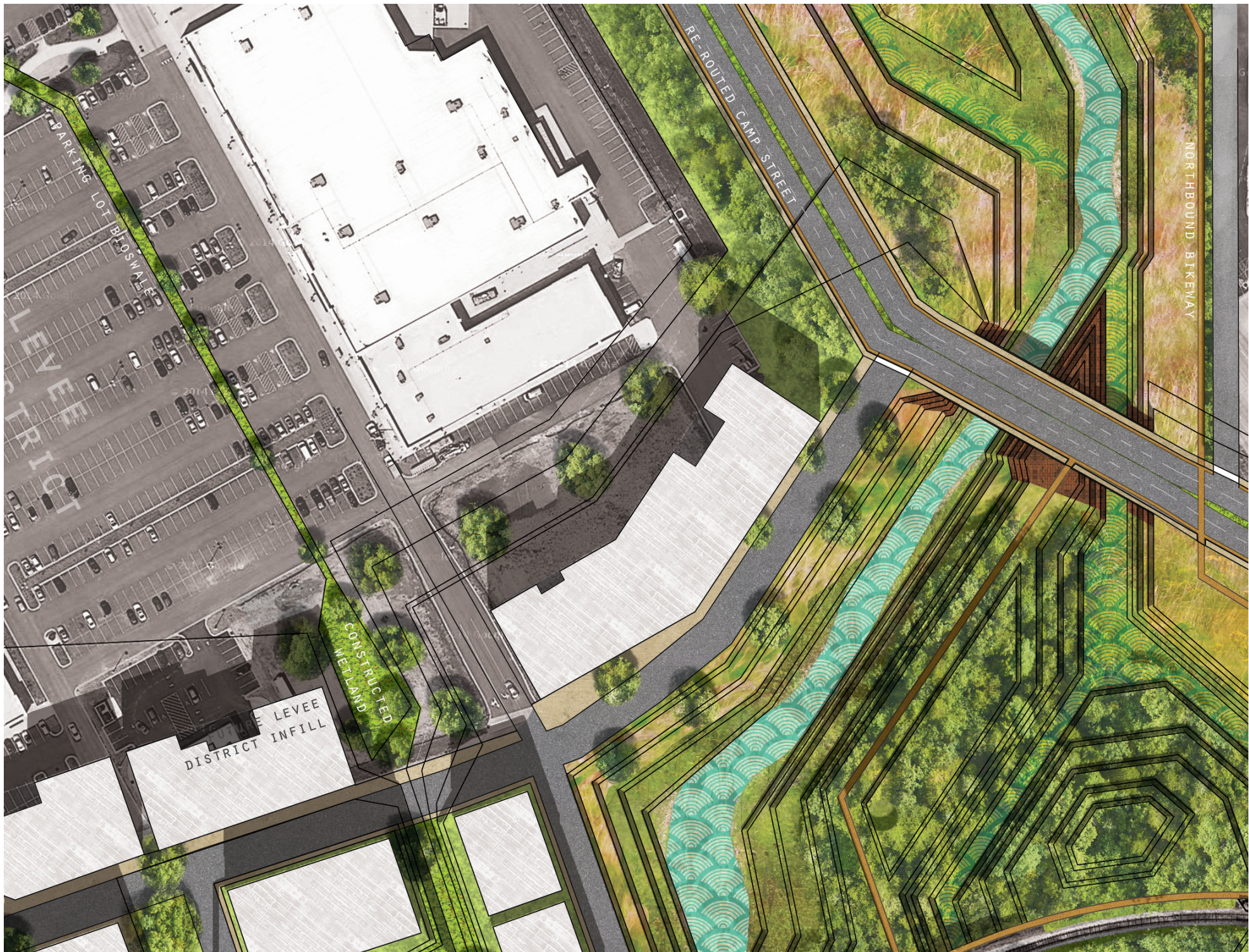
The Levee District has generally been left untouched in this proposal, however a few suggestions have been made. Buildings have been proposed to help complete the appearance of streets and a long bioswale has been proposed to capture runoff from the parking lot.

■ Camp Street Alteration:

Camp Street as it exists today behaves much like a high-speed thoroughfare. By re-routing it slightly, the street can be made slower and more safe for cyclists and pedestrians.



^NORTH | EXISTING CONDITIONS IN LOCATION OF PROPOSED FARM CREEK MOUNDS FLOODWAYS

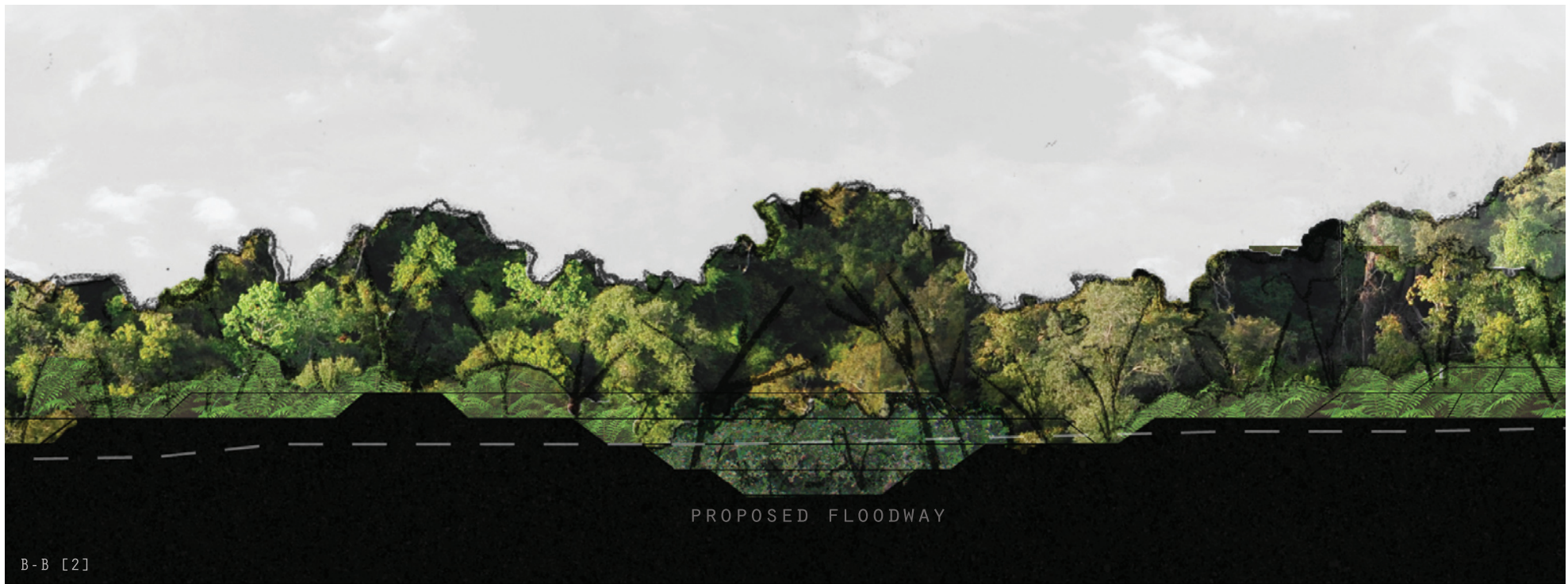




PARKING LOT + STRIP MALL AT PROPOSED FARM CREEK CHANNEL, FACING NORTH



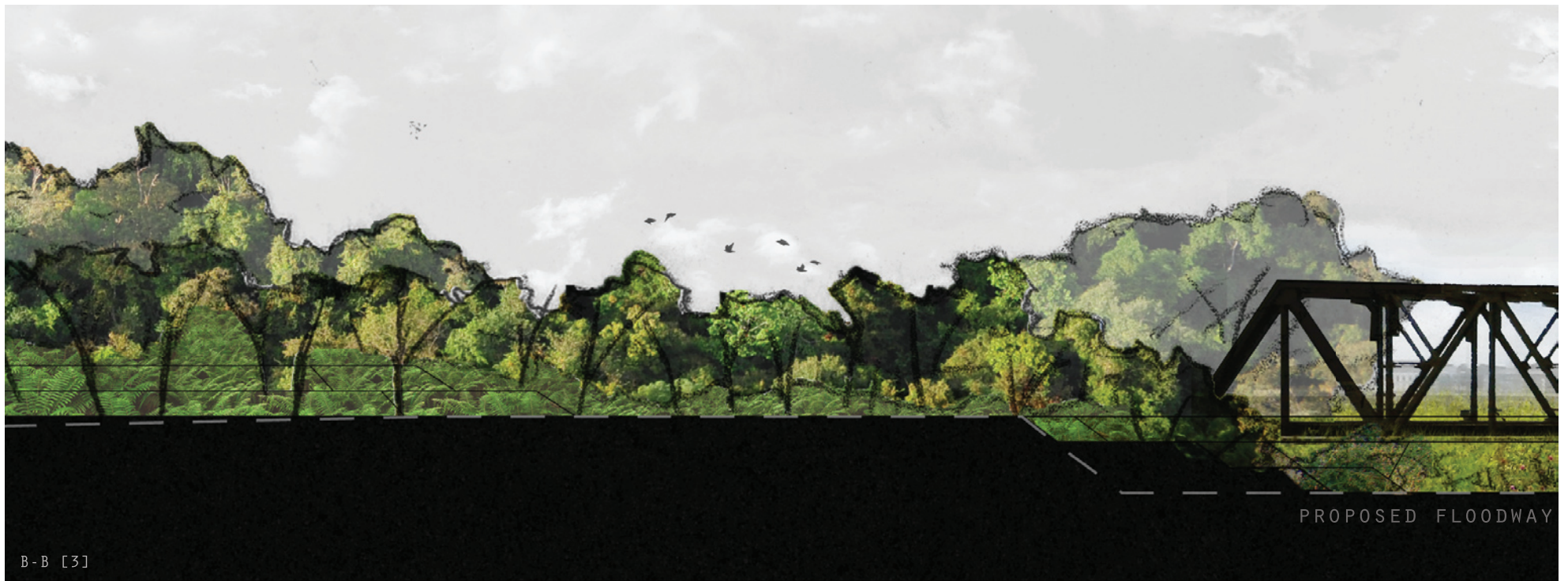
EMPTY LOT NEAR LEVEE DISTRICT, FACING WEST



BEND IN RAILROAD, POLICE STATION AHEAD, FACING SOUTHWEST



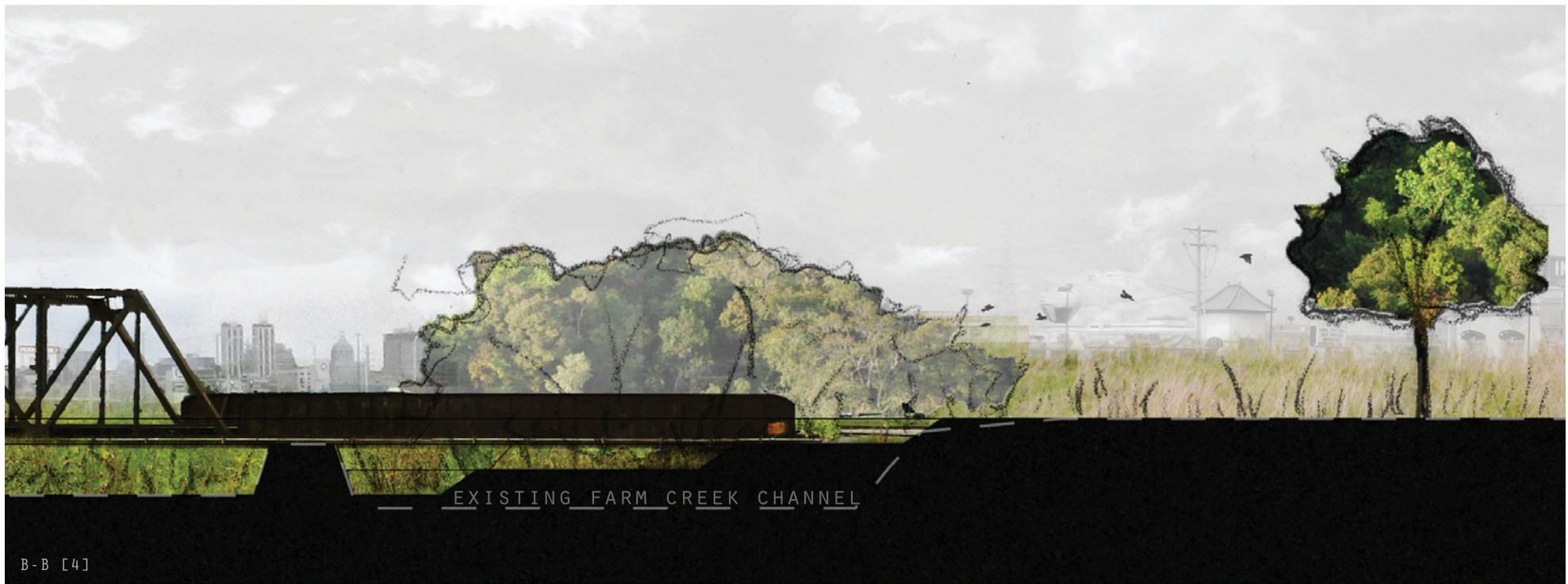
RAILROAD BEHIND BOX BUILDING, LEVEE DISTRICT ON LEFT, FACING NORTHEAST



FARM CREEK CHANNEL + RAILROAD BRIDGE, FACING NORTHWEST



RAILROAD BRIDGE AND CONCRETE SUPPORT IN DETAIL, FACING SOUTHEAST



UNPROGRAMMED VEGETATED STRIP ALONG FARM CREEK, FACING NORTHWEST



STRIP MALLS, STORES, + CAMP STREET AS SEEN ACROSS FARM CREEK, FACING EAST





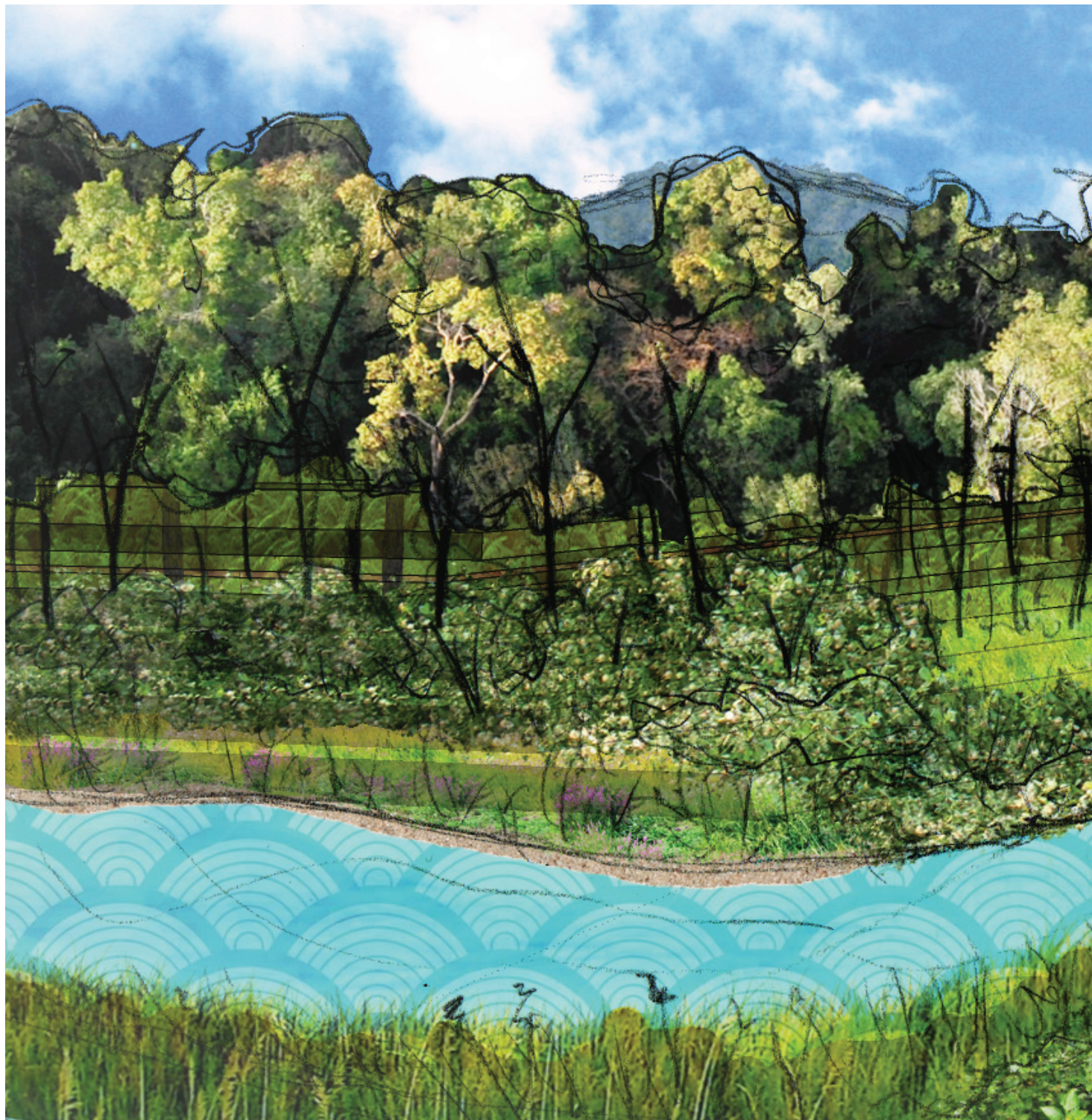
LEFT: PROPOSED FARM CREEK FLOODWAY UNDER HISTORIC RAILROAD BRIDGE. IN THIS PROPOSAL, THIS AREA NO LONGER HOLDS THE MAIN CHANNEL OF FARM CREEK, INSTEAD IT HAS BECOME A FLOODWAY WETLAND THAT CAPTURES FLOODWATERS, ACCOMPANYING SEDIMENTS, AND OTHER WASTES.



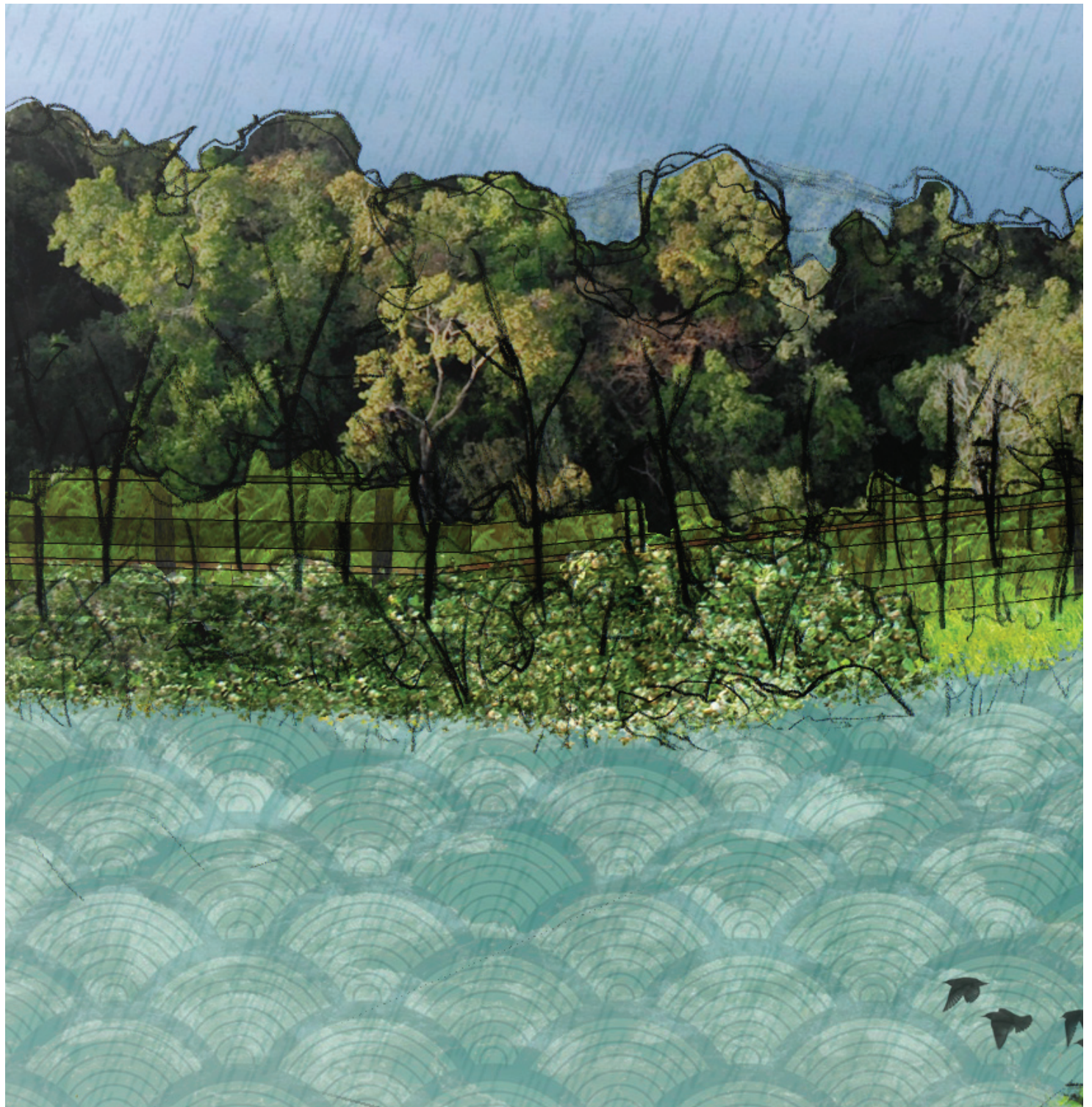
BELOW: EXISTING CONDITIONS OF FARM CREEK CHANNEL FLOWING UNDER HISTORIC RAILROAD BRIDGE. NOTE IN THIS PHOTOGRAPH THE SEDIMENTS THAT HAVE BEEN PILED ON THE RIGHT SIDE OF THE CHANNEL.



LOW STAGE:
VIEW FROM AN APARTMENT
WINDOW, OBSERVING
FARM CREEK AT LOW
FLOW, OR BASE STAGE.
BRIDGE SHOWN IN THE
FOREGROUND CONTAINS
THE EXISTING RAILROAD
AND A FOOTBRIDGE.







HIGH STAGE:
VIEW FROM AN APARTMENT
WINDOW, OBSERVING
FARM CREEK AT HIGH
FLOW DURING A STORM
EVENT. THIS RENDERING
ILLUSTRATES HOW THE
CREEK WOULD APPEAR WHILE
FLOODED AS COMPARED TO
ITS USUAL APPEARANCE
DEPICTED PREVIOUSLY.



FARM CREEK DIVERSION LOWLANDS

While not designed in great detail here, this rendering gives a glimpse of what Diversion might look like. Here, infrastructure abounds, with the creek becoming strictly regimented. This proposal balances road and creek priorities with the rerouting of Camp Street. The main Farm Creek channel has been defined as the northern branch, with diversion into the existing northwestern channel allowed to take place via Floodways. This area is called the Lowlands because it is mainly lower in elevation, intended to fill up and slow the flow of stormwater at this critical diversion point.

The Diversion proposal establishes the area that belongs to Farm Creek with recognition of future development. The proposal includes the addition of a vegetated buffer between the Levee District and Camp Street to mask the backs of the buildings for now, with the possibility of building structures along should future expansion be required. Meanwhile, levee protections have been created for existing surrounding buildings.

Trails follow along Farm Creek in to the north and the original rail trail has been merged with Camp Street. From here, Farm Creek flows into Field and enters a third set of Floodways before finally emptying into Lower Peoria Lake at its existing mouth.





DESIGN FUNCTIONALITY

You might be wondering how well this system works. The answer is that it is impossible to say without further study of this exact design. As shown in the diagrams on the following pages, there are four floodway systems: the typical creek channel (base flow), the 10-year flood stage, 50-year flood stage, and the 100-year flood stage. These are depicted in white, while blue indicates the existing channel of Farm Creek. The corresponding water stages have been determined based upon FEMA data for the existing channel and may not correspond accurately to the proposed channels. For this reason, and for a number of other factors that include water speed and infiltration rates, it is impossible to compare the differences in volume between existing conditions and proposed conditions.

The most information these diagrams can indicate is an approximation of the flood stage during a particular storm event and where water will be at that particular stage. This diagram is used for illustrative purposes that compares areas—not volumes—at certain points in time. Further and more rigorous studies should be done in order to determine the exact differences. However, that is not to say that the myriad of other benefits in this proposal are invalid and, if anything, should be considered due to their net benefit.



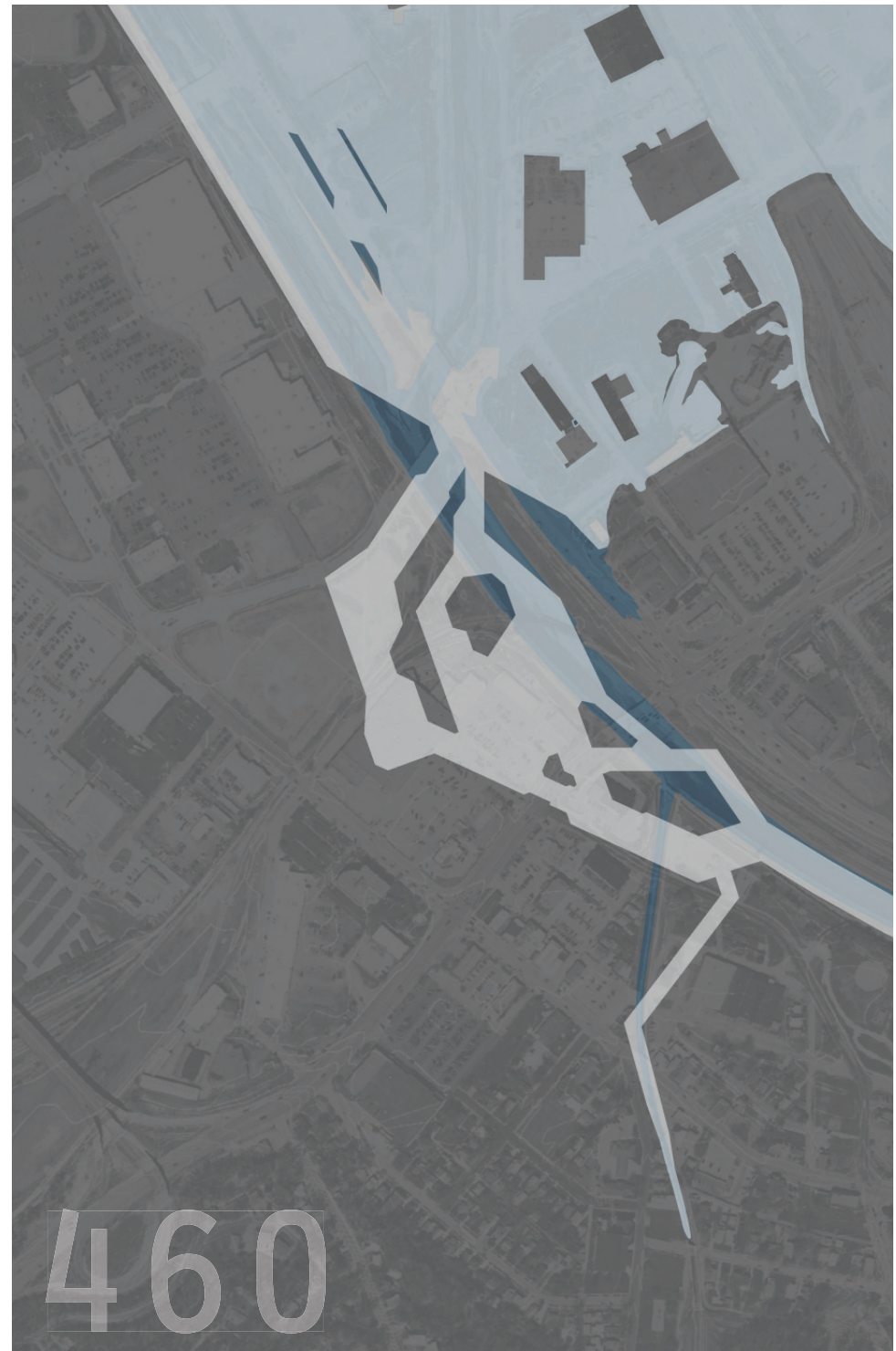
BASE FLOW [STAGE 448']



10-YEAR [STAGE 452']



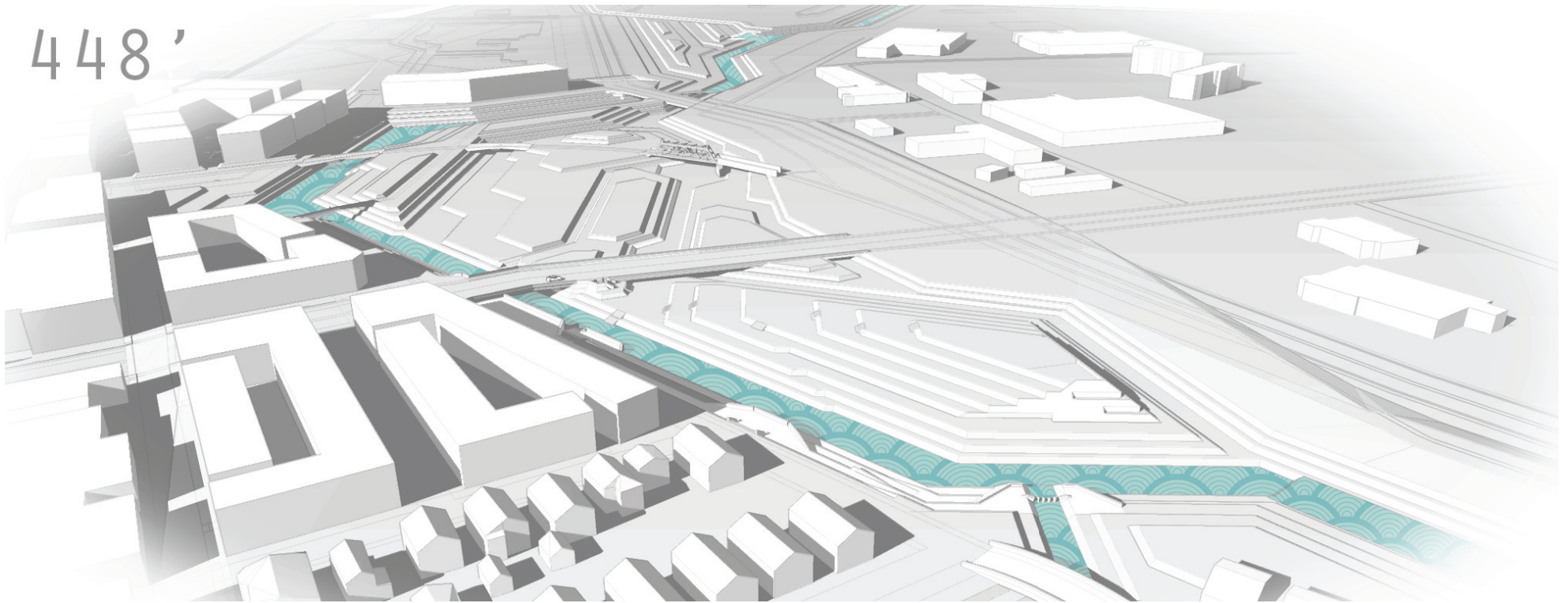
50-YEAR [STAGE 456']



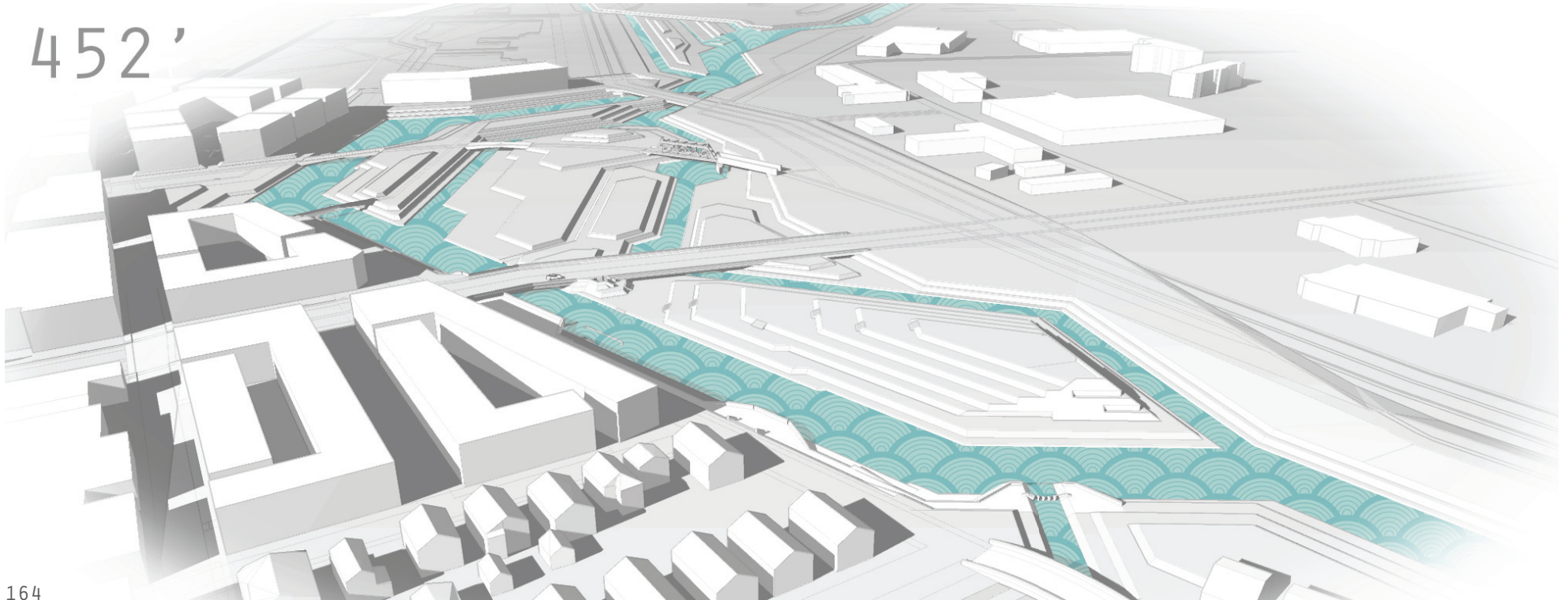
100-YEAR [STAGE 460']

*NOTE: THE FLOODING SHOWN IN THE NORTH END OF THIS DIAGRAM IS FROM THE ILLINOIS RIVER AND OCCURS WITH THE EXISTING LEVEE SYSTEM.

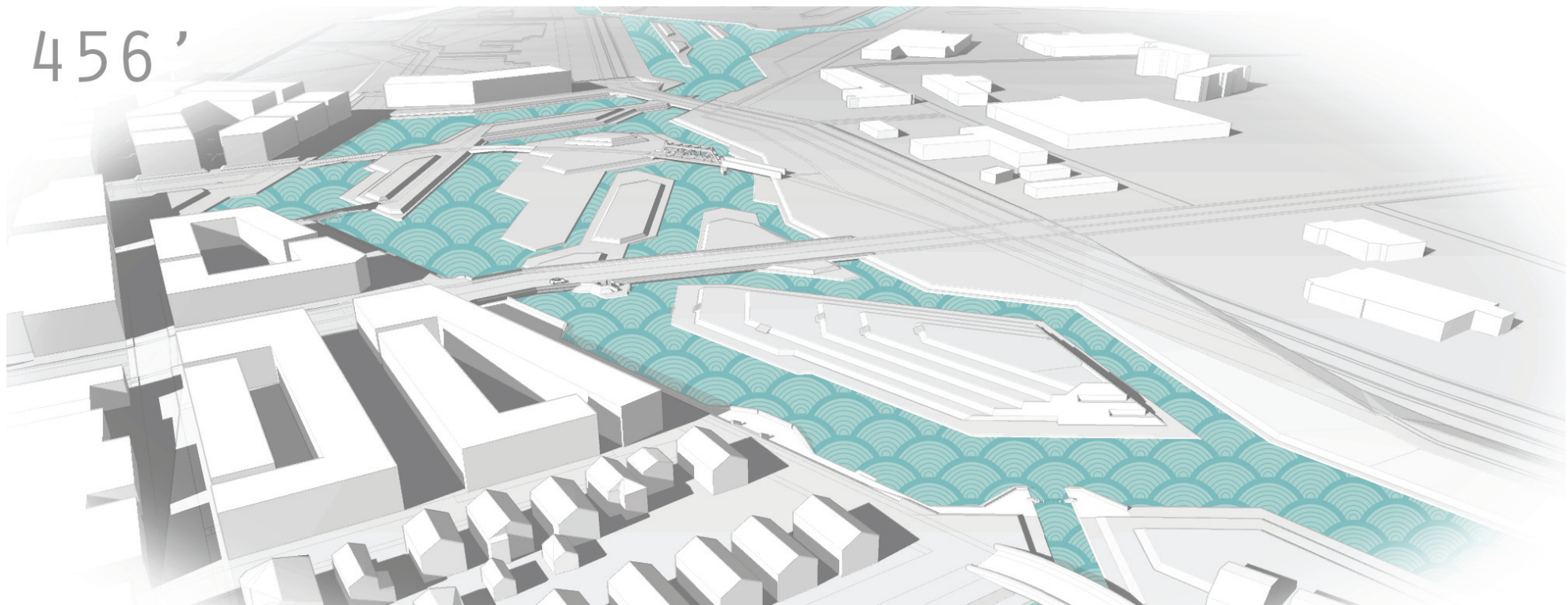
448'



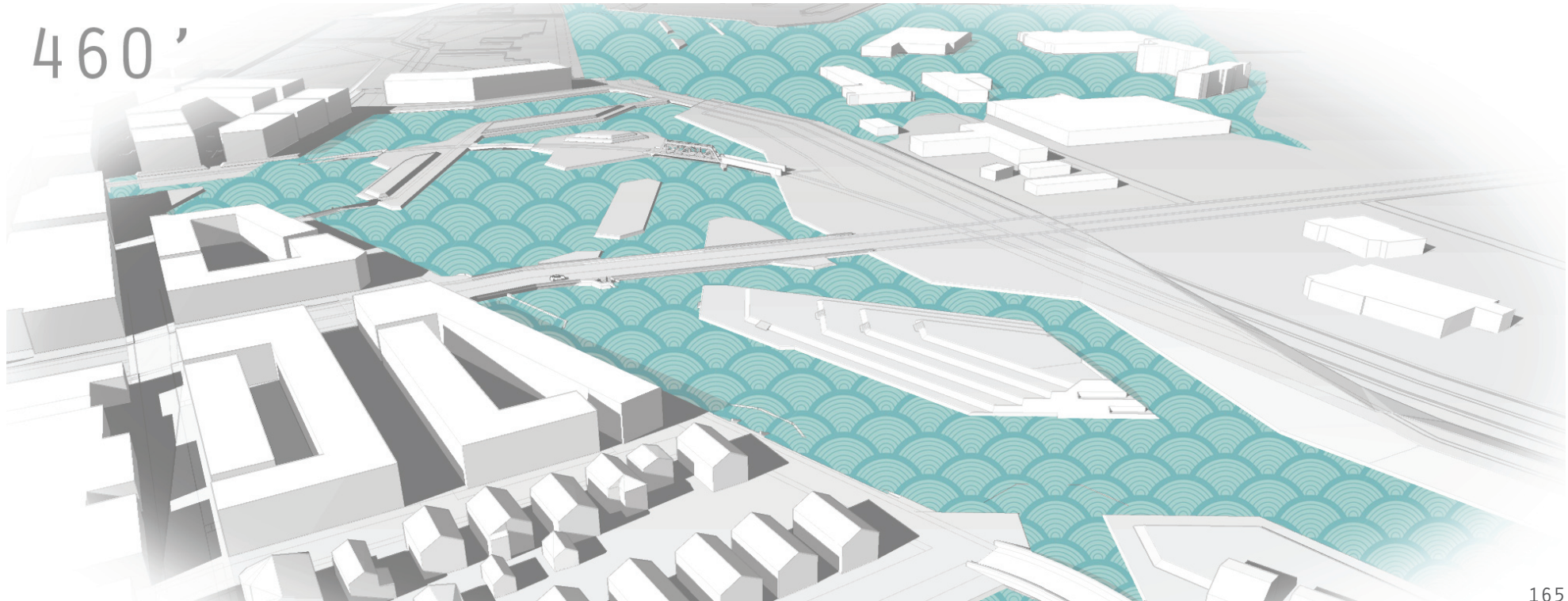
452'



456'



460'





8 CONCLUSION

The City of East Peoria occupies a complex and unique site, with an even more complex and unique history. Though the city has had its share of economic ups and downs, has had several identity crises, and seems to have no clear developmental direction at present, there are also many assets that make it a place worth fighting for. While not grand in scale as much larger cities, East Peoria still faces—and contributes to—the same issues that are solely related to waterway impairments, but these can be reversed if acted upon today.

As East Peoria continues to expand and develop remaining parcels, it is important that care is taken to minimize further detriment to the community and its natural resources. The patchwork, opportunistic development patterns of the alluvial floodplain have so far only burdened Farm Creek even more through encroachment and increased water loads. Standards for addressing stormwater runoff are not being effectively implemented, if at all. Neighborhoods are

continuing to be isolated and fragmented as zoning patterns shift from integrated to divided. Automobile dependence is becoming excessively high as distances between living, working, and recreating become farther apart. Even the park system, which is fairly comprehensive, is fragmented. Too few natural landscapes are left in East Peoria, and even fewer remain that teach residents and their children the importance of floodplains and water management. Meanwhile, East Peoria's economic development strategy has become homogenous, causing its landscape to follow suit. Just as organisms require genetic diversity to thrive, so too does a community. Long-term goals of progress cannot be sustained if the unique elements of a place are ignored, diminished, or eliminated.

Potential exists to address these issues with each new development but have so far been disregarded. Just as the detrimental effects of polluting waterways can be reversed and improved overtime, so can a community—if seized promptly. The time for reversal of past transgressions is long overdue but not passed yet. The assets of the valley must be preserved and expanded upon to ensure they are not lost in the shuffle of expanding development. The restoration of Farm Creek, East Peoria's one great, overlooked asset—the “Great Connector” of

East Peoria—just might be the catalyst.

The beauty and vitality once revered by French explorers is now hanging in the balance as restoration efforts compete and falter to development pressures. As comes industrialization, so too comes a violation of the landscape. If East Peoria is to conduct itself as a viable and sustainable community in the future, it must make peace with its landscape, which has given it so much bounty for over a century. The way forward must be reconciliation with the land. The way forward must be harmony between city and creek.

.....

This account has offered proposals for improvements to the City of East Peoria's master plan. While ambitious in scope, the final proposal aims to demonstrate what the future of East Peoria not only could, but *should* become. These proposals, while ideal, will take significant backing—and, indeed, verified research—to come to fruition. Though laid out in phases, it is acknowledged that even the simplest of actions may not garner enough support in today's climate, regardless of the need or desire of the city's residents.

That being said, simple design decisions can make a world of difference and have very real consequences that impact the overall *feel* of a city and how its residents *feel* while being in it. For example, choosing to site buildings at the edge of the sidewalk versus forty feet away and across a parking lot; choosing to widen streets for more traffic versus widening sidewalks for more street trees; choosing to build a park instead of a parking lot; choosing to ignore a compromised waterway versus finding a way to improve it; etc. Design decisions like the ones proposed in this project are not unheard-of, nor are they complete failures. These are simple decisions that cities all over the world have made and which have improved quality of life for their residents. Meanwhile, cities that have begun to implement these ideas more recently are seeing positive results.

It is hoped that through my findings, some changes can happen, whether in the thoughts and opinions of residents, or through policy and design. My proposal serves as a postcard from the future that can only become a reality if the right decisions are made. Putting East Peorians and Farm Creek first will take us there.



BLACK SWALLOWTAIL BUTTERFLY ENJOYS PURPLE
LOOSESTRIPE AT COOPER PARK WETLAND

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- Bottom Right: *Holt Tractors Are Used to Build Caterpillar Trail*, 1917. Caterpillar Tractor Company, East Peoria, IL. *Centennial History of East Peoria*. N.p.: n.p., 1984. 64. Print.
- P. 120** Top: Elevation Changes of Proposal. Image created by author using data from Tri-County Planning Commission. 2015.
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