2019
volume 16 | issue 1

ENQ
The ARCC Journal for Architectural Research

Rapprochement Urbanism: An Exploration into the Rewilding of Jackson, Mississippi

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Abstract

Rapprochement urbanism addresses how wild environments can be accommodated in urban spaces to create more sustainable and resilient cities. Referring to the dual realities of wilderness and urbanity, this design strategy explores the interaction of their two structures to replace the misconception that cities are built "on" the natural environment, with the assertion that cities are built "in" it. Jackson, Mississippi currently treats adjacent vibrant ecological habitats as forgotten back alleys rather than urban assets. Utilizing interventions within a holistic plan, rapprochement urbanism combats urban sprawl and "back alley" attitudes, mitigates stormwater challenges, and facilitates human and animal spatial needs. Rapprochement urbanism, through the rewilding of Jackson, MS, allows architects to more directly impact and improve the ecological sustainability of this city of 170,000 inhabitants. (Jackson 2018)

Keywords: Environmental Design, Sustainable Design, Resiliency, Re-wilding, Rapprochement Urbanism

Introduction

Within discussions of ecology, mankind and its urban development represent an easy target as antagonists to more natural environments. The modern notion of wilderness often references urbanity as an opposing force. However, more recent historical understanding of wilderness illustrates a different relationship between mankind and the natural environment. This research represents an introduction to a theoretical model for a regional scale approach to more holistically reflect the link between urban and wild environments. It utilizes Jackson, Mississippi as a site for applying and testing the model.

The research first explores the existing theoretical context regarding wilderness and mankind's relationship with it. From this exploration, an alternative definition of wilderness is identified and the notion of "re-wild" is defined. What a rapprochement urbanism could be is explored using these alternative terms as integral to an understanding of a regional urban approach. A literature review of current research, political initiatives and ongoing design work is included to identify current approaches that better inform rapprochement urbanism, and various constraints

Stable URL: https://arcc-journal.org/index.php/arccjournal/article/view/719
DOI 10.17831/enq:arcc.v16i1.719

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regarding the design of spaces for non-human species.

Once these principals are defined, the method of applying these principals will be developed and explained with reference to the context around Jackson, Mississippi. The rapprochement plan for Jackson is illustrated through visual representation and descriptions of the various elements that are included in the plan. Afterwards, the application will be discussed and evaluated based on its ability to address constraints posed by interconnected urban environments and healthy ecological biotopes. The plan's ability to address these constraints in a productive way for both human and non-human species is evaluated with reference to broad questions regarding the wild and the urban, including how cities can be good neighbors to the surrounding ecological context; or how cities, and not just buildings, could become more sustainable and beneficial for humans and the environment.

Re-wilding

An understanding of wilderness needs to be defined historically and culturally to contextualize Rapprochement Urbanism, and the rewilding that it engenders. Many authors have discussed the idea of wilderness in general and the American culture around wilderness specifically. One definition has been enshrined in law and arguably given rise to the inspirational experiences discussed by a number of these authors. Defined by President Lyndon B. Johnson in the Wilderness Act of 1964, wilderness is "land, retaining its primeval character and influence," and we must protect its "original and unchanging beauty."(88th Congress 1964, Section 2.C) This language echoes the prevailing thought at the time and one that continues to persist today: that before Europeans settled here with a Western view of developing land based on economic improvement, the land was considered untouched and "primeval."(88th Congress 1964, Section 2.C)

This notion finds its roots in a medieval idea that persisted through to the 19th century. In fact, the even more historic understanding of wilderness was under attack in the same region in which Jackson sits today. In 1863 General Grant reinvigorated an ancient strategy of war know as *chevauchee* against the city of Vicksburg, just west of Jackson. Chevauchee, or "to ride" was a method of pillaging often used during the Hundred Years War and was primarily utilized against civilians. It involved the attacking army riding through farmland in such a way as to destroy crops and disrupt the agricultural industry that occurred in developing France. Chevauchee was implemented to deplete enemy resources, wreaking havoc that could be compared to natural disasters (Brady 2005). General Grant effectively created a panic for farmers and the confederate army in the region near the Mississippi River, ravaging the landscape and reverting fertile farmland to desolate landscapes, or what the Mississippi farmer would call wilderness (Brady 2005). For the medieval French serf, and the Civil War era southerner, wilderness meant barren wastes and the economic helplessness associated with broken, untamed land - terrifying them into submission.

After the civil war and into the 20th century, American authors and early environmentalists viewed wilderness as an awe-inspiring resource to elevate humanity, its morals and self-governance. However, this notion of wilderness still carried with it the false dichotomy of man as separate from nature. In 1862, Thoreau was dreaming of walking westward and by the west, he meant the wild. He famously wrote "Wilderness is the preservation of the world."(Thoreau, 1862) By this, he meant that wilderness is the support that civilization has always needed and Thoreau, feeling distanced from wilderness, desired to reacquaint himself with that nourishing foundation. In his book *The Maine Woods,* Thoreau describes his ascent up Ktaadn with apocryphal references to Prometheus and Aeschylus, and described it as vast and "Titanic." (1864, 70) He says, "The tops of mountains are among the unfinished parts of the globe, whither it is a slight insult to the gods to climb and pry into their secrets, and try their effect on our humanity." (1864, 70) Later he described it,

Nature was here something savage and awful, though beautiful. I looked with awe at the ground I trod on, to see what the Powers had made there, the form and fashion and material of their work…Man was not to be associated with it. (Thoreau 1864, 77)

These notions find their origin with Edmund Burke and his ideas on the nature of sublimity. (Burke, 2016). Awful and alien – to Thoreau and Burke, what was terrifying to some became a source of inspiration and ultimate reverence.

Aldo Leopold, in his essay, "Thinking Like a Mountain," he broaches the idea of a trophic cascade – an important tool for rewilding generally and rapprochement urbanism specifically:

Since then I have lived to see state after state extirpate its wolves. I have watched the face of many a newly wolfless mountain, and seen the south-facing slopes wrinkle with a maze of new deer trails. I have seen every edible bush and seedling browsed, first to anaemic desuetude, and then to death. I have seen every edible tree defoliated to the height of a saddlehorn… I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer… buck pulled down by wolves can be replaced in two or three years, a range pulled down by too many deer may fail of replacement in as many decades. (Leopold 1989, 130-32)

Leopold echoes Thoreau but his experience found that humans had a direct impact over the development of a landscape simply through the eradication of one predatory species. From that experience and scientific framework, he developed what he called a "land ethic" as a new evolutionary stage in human ethics and behavior. Since human behavior naturally shapes the landscape, whether for good or ill, why not "think like a mountain" and look at the landscape with empathy that could better inform that behavior.

The construction of O'Shaughnessy Dam in Yosemite National Park manifested a battlefront for ecologists. The effort to dam up the Hetch Hetchy river began in 1923 and was finished in 1938. (Hetch hetchy Water and Power System 2018) John Muir, author of *The Yosemite* (1912) couched his appeal in religious terms in order to resist the construction of what would become the O'Shaughnessy Dam, hoping to connect with many people in his day. Muir states, "These temple destroyers, devotees of ravaging commercialism, seem to have a perfect contempt for nature, and instead of lifting their eyes to the God of the mountains, lift them to the almighty dollar."(1912, 83) Muir's argument was that the mountains provided necessary moral character building for Americans in that they were humbling. In his view, to climb a mountain was to get closer to God, and from that mountaintop experience, people were to travel back to their valleys and lowlands and fight to protect the uplifting experience.

Thoreau wanted to reacquaint himself with a place that was holy or totally separate from humans; Muir sought to re-frame the American understanding of wilderness through an appeal to religiosity; and Leopold sought to take advantage of an evolving ethic or value structure. In all of these theoretical frameworks, humankind is positioned as the antagonist. People must not only change but, ideally, remove themselves from the equation completely. In some ways, radical environmentalists have taken these sentiments and created arguments leading to their logical ends. Dave Foreman, co-founder of Earth First!, insists on the link between human population growth and the degradation of the natural environment when he claims:

The only hope for Earth (including humanity) is to withdraw huge areas as inviolate natural sanctuaries from the depredations of modern industry and technology…reintroduce the Grizzly Bear and wolf and prairie grasses, and declare them off limits to modern civilization. (1993, 19)

A similar sentiment, reflected in Foreman's statement, created our National Park System. Foreman, however, takes it beyond conserving site specific beautiful landscapes. In his view, the "only hope" for the earth and humanity is an ecological worldview that creates antagonists out of those people and protagonists out of "nature". In Foreman's view, human culture and its struggles with health, poverty, education, economic disparities, political efficacy or social instability must be cast aside. Because human environments are labeled unnatural by such a worldview, human struggles are invariably labeled less than important. Such a worldview denies the co-existence of humans in nature since they can only be alien invaders and a threat to nature.

While these authors understood human habitation of the world as alien or inherently unwelcome, this relationship is not reflected in history. Before European settlers began developing the Americas, Native Americans had developed sophisticated methods of cultivating huge swaths of the American wilderness. William Denevan, a geographer at the University of Wisconsin, calls this characterization "the pristine myth", asking the same question: Was the land prior to the arrival of European settlers actually untouched? (Denevan 1992)

An account given by an early colonist on the Mayflower recalled the land of the Native Americans as extremely beautiful, almost manicured. The landscape Thoreau understood as alien might have actually been part of a vast management system only a few hundred years earlier. The Native Americans often reshaped entire landscapes, using fire as their primary method of management. They did not maintain domesticated herds of animals only for meat and fur. Rather, they "retooled whole ecosystems to grow bumper crops of elk, deer, and bison". (Mann 2002) In reality, the "natural" environment that President Johnson sought to protect was not untouched or "unchanging" in its beauty. The American landscape that developed over time was rooted in profound human intervention and management.

The bifurcated quality of the American landscape today appears to have never existed previously, at least in human memory. Ecologists must likely revert back hundreds of thousands of years to find what they think of as "pristine" landscapes and true "wilderness." The flora, fauna, and ecological systems that have evolved over the last thousand years are not well equipped to handle either the extremes of complete human absence or the intense agricultural management. This is evidenced in recent natural disasters including wildfires, water scarcity, and changing animal habitats alongside higher rates of animal and plant extinction. The idea that "wilderness" must be protected, when the definition of "wilderness" is whatever remains untouched by human hands, is a preemptive impossibility. As such, we need to find a new definition of wilderness to guide our understanding and development in a shared ecosystem.

Biophilia is often considered a lynchpin in the search for a new environmental ethic. To a casual reader E. O. Wilson, in his work *Biophilia*, might appear to continue the sentiments of the preservationist. However, a close reading reveals he is describing a different phenomenon and could actually be discussing an alternative *definition* of wilderness. Wilson identifies an alternative way humans relate to nature by saying humans are actually *linked* to nature, or to the Other. We are linked in such a way that it is likely a universal fact of human psychology to either abhor (biophobia) or revere (biophilia) the natural world around us. While at first glance Wilson might look like he is describing the affinity of the deep ecologists or the ecological romanticists, he is actually speaking to a third idea. He is observing that the living have an affinity for life in all of its myriad manifestations. Humans are not outside invaders but indigenous consorts with all life. Where other writers and theoreticians see a dichotomous relationship, Wilson sees a symbiotic one.

Wilson develops these ideas into explorations of places for living. He identifies how other species, such as kangaroos, North American Flycatchers, prairie deer, salamanders, and colon bacteria, shape their environments to more ideal living conditions – linking them to the same impulse human beings have to also shape their environments. While humans have been documented to live in almost every biome on the planet, we "must jigger our environment constantly".(Wilson 1984, 108) Therefore human and nature relationships are inherently integrated, where both parties are effected, and both continuously impact the environments of the other. Wilson does not find human and natural environments to be inherently dichotomous, where the parties are mutually exclusive, but intimately connected.

William Cronon, a notable environmental historian, writes very thoughtfully about the cultural ideas of wilderness and how they have changed over millennia. He also searches for a new definition of wilderness that doesn't erroneously bifurcate between the human and the natural. Like Wilson, Cronon finds that humans are inextricably linked to nature. He supports this idea by pointing to the romantic early American authors and their affinities for nature and struggle with westward expansion, as well as the deep ecologists and their affinities and struggles with the profane human touch on their "natural" environments. He cites these fraught relationships as indicators of a deeper reality than what is described by a dualistic framework. Cronon says that when we compare the tree in the wild and the tree in the garden we must realize that, "We are responsible for both, even though we can claim credit for neither."(1995, 19) It is a fallacy then, or hubris, that allows either the deep ecologists or the romantics to label what environments are sacred or profane. Simply looking at the landscape in terms of antagonists and protagonists misses the interconnected reality realized by Denevan, Wilson and Cronon.

Cronon further articulates, "wildness (as opposed to wilderness) can be found anywhere: in the seemingly tame fields and woodlots of Massachusetts, in the

cracks of a Manhattan sidewalk, even in the cells of our own bodies. (1995, 19) By claiming urban centers, suburbs, rural farmland or any piece of the environment touched by human hands are at best void of nature or at worst a blight on the natural environment, deep ecologists and wilderness romantics must deny the broader reality that the earth as a whole is a wild place and will continue to be so whether humans inhabit it or not.

Therefore, while a new environmental ethic is important, equally important is a new definition of wilderness. A definition of wilderness that includes human intervention. A new definition of wilderness that would reflect the psychological and historic realities of mankind's involvement and responsibility over the natural environment. It would reflect E.O. Wilson's observation that the living have an affinity for life. This affinity is expressed whether through fear, alienation, reverence, or affection. Wilderness is *land supporting fully functioning habitat with the requisite balance of species serving the spectrum of flora and fauna through predatory species and ultimately human life.* When this definition is utilized, the only question left, is *how* humanity is to shape and affiliate with the wild world – or re-wilding. If humans are responsible for both the garden and the wilderness, how then should their cities be shaped?

Rapprochement

Wilderness then, is not a "land retaining its primeval influence and character" as President Johnson and the Wilderness Act (88th Congress 1964, Section 2) described but is actually a culturally or politically shaped notion of nature that deeply involves humankind. Any notion of urbanity, therefore, must be predicated on this corollary definition of wilderness. If wilderness includes human intervention, urbanism must also include wilderness and acknowledge human responsibility for it. These ideas are inherently political as human action and relationships with nature manifest themselves through built forms. The political term *rapprochement* lends itself effectively to these alternative views of urbanism and wilderness.

Rapprochement urbanism has been developed to illustrate what the ecologist and writer Michael Rosenzweig calls "reconciliation ecology," an inherently hopeful and moral term (Rosenzweig 2003). The political term rapprochement touches a key historical, as opposed to a moral, misunderstanding of humankind's relationship with the planet - that the two are disparate entities often at odds with each other. Rapprochement, the establishment or resumption of harmonious relations, identifies the correct attitude to developing a more accurate understanding of cities and the environments they reside within.

Rapprochement urbanism is *the re-establishment of harmonious relations between urban and wild and environments for sustainable mutual benefit*. However, it utilizes the new definition of wilderness, and highlights the struggle humans have with nature while playing on their *own* need for preservation. Rapprochement urbanism affords a more achievable, pragmatic and even selfish answer rather than a distant, romantic and subservient one.

Integration

Political Integration

In the United Sates, there is a movement to respond to the growing threats of climate change and the devastating effects of rising sea levels and natural disasters on cities. Rather than defining wilderness as "land, retaining its primeval character and influence," (88th Congress 1964, Section 2.C), the Wildlife Corridors Conservation Act of 2019 simply defines *habitat* as "land, water, and substrate occupied at any time during the life cycle of a native species that is necessary…for spawning, breeding, feeding, growth to maturity, or migration." (Wildlands Network, Section 3.7) The author of the bill, The Wildlands Network, understands that humans must play a role in the creation, management and protection of wild corridors and refrains from defining those corridors as necessarily void of human intervention.

The latest evolution of the 1970's EarthFirst! movement, the Wildlands Network, has developed a necessarily pragmatic disposition to urban environments and how they shape the larger biotopes in which they reside. This bill represents an effort to work with Federal, State and Tribal laws to focus on wild corridors connecting broader habitat networks. By focusing on corridors, the Wildlands Network highlights ecological research that has illustrated animal species' need for broad ranges not just habitat islands. The Network also recognizes the need to work with municipalities and governments to achieve these broad animal ranges and the fact that

habitat networks often occur across political jurisdictional boundaries. Further, by developing this more pragmatic approach, Wildlands Network has found an ally in a more inclusive ecologist. E.O. Wilson says the bill, "would provide the most important step of any single piece of legislation at the present time in enlarging the nation's protected areas and thereby saving large swaths of America's wildlife and other fauna and flora." (Wildlife Corridors Conservation Act 2019)

Other government initiatives have also recently developed like Rebuild by Design. This initiative was begun by the U.S. Department of Housing and Urban Development in partnership with cities and communities around the world in an attempt to respond to issues of coastal water management, urban connectivity, and the management of natural disasters. One of their projects, the Greater New Orleans Urban Water Plan (GNOUWP), is a masterplan for New Orleans conducted by Waggoner and Ball architects, beginning in 2010. The GNOUWP is an example of how a city can utilize broad political support and might develop better relationships with waterways in the southeast region of the United States. The specific plan is divided into districts and neighborhoods where localized interventions could be explored as pieces contributing to the larger plan. There are a number of interventions in the GNOUWP that could have relevance in developing not only better urban water infrastructure but wilderness within the city. Specifically, the Lafitte Blueway is a river daylighting project that provides constructive examples of urban edges for a naturalized waterway at a regional scale. (Architects 2013)

The Blueway runs along a historical portion of Carondelet Canal, which previously allowed for commerce and drainage between the Bayou the French Quarter and public market. Its banks also acted as a promenade for pedestrians leaving the French Quarter. Once the riparian commerce faded along this route and rail lines began to take over between 1927 and 1938, and this portion of the waterway was culverted.

In the GNOUWP, natural light is reintroduced to the Blueway by removing the culvert and allowing the waterway to be open to the daylight above. It is structured with a stepped system of drainage from the higher residential and commercial areas, to the lower area of the Blueway. The waterway encompasses the width of a city block and utilizes that space with naturalized edges. These naturalized edges include grassy areas for open park space, defined recreational areas for ball fields and trails, and some marshland directly related to the waterway. Usually, the edges of the Blueway are further defined by a street before meeting architectural development. However, there are instances in the schematic design where structures inhabit the same block as the Blueway, buffering it from the street. In these instances, the structures begin to exhibit "natural" features like greenroofs and heavier visual filtration with surrounding trees. While these attributes are interesting as an attempt to blend the edge between human oriented space and animal centered environments, the effectiveness at creating space for flora and fauna (as well as people) would need to be assessed if these efforts were to represent a rapprochement between wilderness and urbanity. The resultant design endeavors to utilize the existing framework of urban development to accommodate the overarching constraint of water, to compliment or further inform both. The GNOUWP however, is oriented primarily around water with ecological habitat as only a small part of the conversation and not the focus. Within the plan are ample opportunities for further development of ecological habitat that are unfortunately not capitalized on.

The position of New Orleans metropolitan area within and around the Mississippi River delta requires a scaled response that could address the problems created by flooding in the region holistically. Pocket parks, reservoirs or greenways that are designed without reference to each other would remain ineffectual at addressing the broad reaching effects of flooding and habitat destruction that characterize the urban region. Municipal and even state political support and funding are called on to generate an appropriately scaled response. The GNOUWP represents an emblematic piece that would work alongside initiatives like the Wildlife Corridors Conservation Act, to address urban and environmental problems outside the scope of a single municipality alone.

Infrastructural Integration

Architect and researcher Dr. Ekhart Hahn of Wismar University in northern Germany states that cities represent "the most materialized form of the relations between society and the environment. Thus, in a special sense, cities worldwide have

become a symbol of the environmental crisis, of the transformation of valuable natural resources into waste and pollutants." (Hahn 1997, 99) Yet it is precisely because of the dense concentrations of commercial and residential dwellings within the landscape that they can engender the most immediate positive change. He advocates for a better understanding of these systems and their relationship to the surrounding environment to inform the development of cities. (Hahn 1997)

Dr. Hahn identifies the lynchpin of a wholistic response to the destructive qualities of urban environments. He articulates the power the built environment has on the broader biotopes they reside within, and therefore the impact a change could engender. His work highlights the link between the built environment and wild habitats, exemplifying the effort of rapprochement urbanism to create a generative whole out of the relationship between the parts.

An aspect of industrial societies' urban culture that Dr. Hahn cites as having a negative effect on habitat connectivity and growth are their infrastructural systems. The roads crisscrossing viable habitats between and encompassing cities impede the travel of non-human species. However, the intersection of these different paths of travel are felt by both humans and animals alike in the form of vehicle/animal collisions. The remediation of these collisions has provided incentive for cities to consider the findings of numerous studies on animal travel across human infrastructural barriers. These studies have found that it is possible to design effective routes for animals, even in the presence of human activity.

Bridget M. Donaldson's study of various underpasses and their use by large mammals in Virginia, associate factors affecting the location of these passages through roadway impediments. The overall effectiveness of different proportions of underpasses were assessed with the recommended minimum attributes of structures suggesting culverts used by both deer and bear populations needed to be 11.5 feet wide and 9.8 feet tall, whereas those utilized by deer alone required larger proportions. (Donaldson 2005) [1]

In another study by Bridget M. Donaldson and Dr. Maynard Schaus (2010), focused on the black bear species. Along with other attributes, their study found that overall openness was important. "At the U.S. Highway 17 underpass…deer and bears did not hesitate and were not deterred by the smaller (8 ft) height of the much wider (and thus more open) structure." (Donaldson and Schaus 2010) The addition of fencing along the roadway on either side of the underpass was also very beneficial in mitigating vehicle-animal collisions.

A study by Daniel Joseph Smith outlines the use of underpasses or culverts and bridges in Florida across a broad range of species types (2003). For predatory species, including black bears, Smith found that those most used were almost 8 feet in width, and approximately 3 feet in height. For ungulates, he found that culverts needed to be larger than 4 feet wide and 5 feet in height. In this study, openness was also a large factor, and Smith argues that for future planning of these structures, since length of culverts is often predetermined, height and width need to be adjusted to maintain correct openness ratios. Openness values for predatory species of .23-.41 were ideal, and similarly openness values for ungulate species were .25-.41 were ideal. (Smith 2003)

All of these studies, however, cited Clevenger and Waltho's investigation into underpasses in Banff National Park in Canada. Here a broad range of species were studied in their use of a number of different crossings. Because of its broad range, this study is beneficial in developing minimum structural requirements or preferences for animal species (Table 1, Figure 7). (Clevenger 2000)

These diagrams illustrate findings from a study completed by Clevenger and Waltho (2000) on the responses of different animal species to different types of underpasses beneath highways. The dimensions derived from the study are implemented in both the design of the wild corridor and the protected alcoves themselves (seen in Figures 13 - 16). The alcoves cater to either carnivorous species or

[1] However, the size preferences for black bear seemed to conflict with other research in this area, and Donaldson expressed a need for further investigation in this area.

ungulate species, illustrated by the spatial preferences shown in these diagrams.

By comparing different species across multiple different sizes of crossings, Clevenger and Waltho were able to understand animal preferences for different types of built spaces. They found that larger predatory mammals preferred proportionally smaller underpasses with running water nearby or in the underpass itself. They also found that underpasses with closer adjacent tree cover and greater distances from noisy infrastructure were more often used by these species. For large ungulate mammals, however, larger underpasses were preferred with greater distances to tree cover and closer distances to noisy infrastructure. Underpasses with running water through them were also avoided by large ungulates.

Jackson, Mississippi

Geological History and Description

Jackson, Mississippi is located in the southern third of the state, and just east of what is locally called the Mississippi Delta or the northeastern region of the state characterized primarily by alluvial floodplains. Historically Mississippi is a very fertile state. As a result, the City of Jackson, Mississippi is rooted in the diverse ecological environment of the Pearl River basin, a habitat characterized by a broad range of flora and fauna. However, the city has largely neglected its own need for a healthy and functional ecosystem. The city of Jackson's position, and the ecological problems it faces, provide a unique opportunity to develop designs for mediating diverse ecological and urban environments. Some of the problems the city faces are stormwater runoff and the ensuing erosion wreaking havoc on urban waterways and infrastructure, breaking up streets, cracking structural foundations and creating blighted urban areas. Additionally, these crippling urban development issues foster increased environmental and industrial pollution in the adjacent Pearl River. (United States 1988) Parallel issues pose a threat to the larger biotope of the region in the form of species scarcity and extinction, such as the Florida panther and Louisiana black bear. (Mississippi Museum of Natural Sciences, 1994) Other issues include shrinking environmental efficacy due to erosion, eutrophication, and pollution of its waterways and water bodies.

Jackson, Mississippi was developed along a bluff that makes up the west bank of the Pearl River within the ecoregion known as the Mississippi Valley Loess Plains. (FOTG 2018) In addition to the loess soil, clay soil types are found in and around Jackson. The impermeable clay layer encourages the flourishing of the cypress swamp habitat found along much of the Pearl River. The water level of these types of swamps can fluctuate dramatically a few times in a year, exposing the peat floor when dry and increasing the risk of fire. (University of Florida 2018) Due to fire, the number of plant species in a cypress swamp can be reduced for a time and replaced by cypress trees, which are more fire resistant. All of these factors play into the extreme diversity of animal and plant life found in the swamps around Jackson, allowing the habitat to exist as a complex, fluctuating ecosystem. (United States 1988)

These fluctuating habitats have the potential to create a strong ecological environment that produce copious amounts of timber, clean air, fertile soil, and embodied energy to fuel a city - if managed and integrated properly. Currently, Jackson does not encourage the ecoregion's flourishing, instead creating potential devastation through the mismanagement of those waterways. Channelization of streams flowing into the Pearl River create high levels of stream erosion that contribute to heavy sediment loading downstream. Through both channelization and irresponsible damming, the cypress swamp habitat is sacrificed and could easily be eradicated. While the city was being developed, the fertile soil in the Pearl River basin was used for farming and its timber for logging, which contributed to high rates of erosion. Of late, the Loess Plains have largely reverted to a forested landscape, only recently beginning to mitigate the erosion rates. (Ecological Site Description 2018)

Approximately 12 species of birds, 14 species of reptiles, and 6 species of mammals, including the Florida panther and the Louisiana black bear, are listed as endangered by the Mississippi Museum of Natural Science.(Mississippi Museum of Natural Sciences 1994) Habitats like the Pearl River basin are prime environments for these species. Other animals, however, like the white-tailed deer (ungulates), are actually overpopulated. (Mississippi State University Extension Services 2018) Interestingly, deer are the primary prey of the Florida panther. While bears are more easily appeased through scavenging, they also prefer high fat, high protein foods like deer. As a

result, the lack of food source is not the reason for these endangered species' absence. Their primary unmet need is spatial. Florida panther and black bear ranges vary from tens to hundreds of thousands of acres. (Mississippi Museum of Natural Sciences 1994) The sprawling nature of Jackson (adjacent to primary habitat) cuts off the spatial requirements for these animals, forcing them to retreat from plentiful food sources and primary habitat.

The understanding that the absence of large predatory species denigrates the health of habitats and biotopes, is argued by ecologists like Aldo Leopold,(Schullery 2003) Michael Rosenzweig, (2003) R. T. Paine, (1995) William Rippel and Robert Beschta, (2004) or biologists like David Mech. (2003) Other scientists and researchers like Dr. Alan C. Logan, Dr. Eva Selhub in their book Your Brain on Nature, (2014) argue that human biological and economical health are linked to their access to natural environments. Most importantly, Georgia Forestry Foundation, as an example, has endeavored to quantify the services that Georgia's forests provide to cities. (Moore, et al., 2011) The authors of the study find that "natural resources…gas and climate regulation, water quantity and quality, soil formation and stability, pollination" among other services are provided to cities by forests of Georgia.(Moore, et al., 2011) Therefore, it is arguable that the health of cities are linked, if not incumbent on the health of the ecological systems around them. Predatory species and their ranges, therefore, should be accommodated in the planning of the city.

Development of the City of Jackson, Mississippi

The historical development of the city of Jackson provides helpful precedent and contextualizes some of the issues the city of Jackson faces today. Initially the cities grid pattern prepared the groundwork for a language of stitched edges throughout the city. Whether these edges were in the form of natural, pre-existing barriers or constructed infrastructural changes in the city, the urban grid pattern allowed connectivity between neighborhoods or districts. However, in the intervening years, as more infrastructural changes have occurred, many of the stitched edge conditions have been lost.

The city of Jackson was originally founded in 1821, becoming Mississippi's capital in November of that same year. Due to its adjacency to the Pearl River basin, the city possessed easy access to copious amounts of timber and beautiful views over the Pearl River Basin below. Its proximity to the historic Natchez Trace parkway connected the region to the growing city and economic center of Nashville, Tennessee. These factors were largely what first drew inhabitants to Jackson.

The city was planned by Peter Aaron Van Dorn in 1822. He utilized the Jeffersonian model of development (Figure 1).

Van Dorn developed every other block as a park space, forming an urban checkerboard pattern. The open park spaces and blocks have gradually been developed and built upon since their establishment in 1822, yet this planning endeavor is still evident in examples like Smith Park, which was originally gifted to the city by James Smith when Jackson was incorporated in 1821. (Claiborne County 2018)

Originally the city developed along State Street running north/south between the Pearl River to east and the Illinois Central Railroad, or what is now called the viaduct, to the west. The city was framed to the east by the original Capitol Building and to the west by Union Station. Later, it developed with a residential priority and urban sprawl occurred with the construction of I-55 in the 1960's and I-20 in the 1970's (Construction Equipment Guide 2018). At this point, the city expanded beyond the natural features of the region, east of the Pearl River and the west towards Vicksburg.

Jackson, Mississippi Urbanism

Arguably, the checkerboard pattern of development resisted the development of traditional densification patterns and contributed to its eventual growth as urban sprawl. In the same way that single urban blocks contributed to a regional disposition for the city, the precedent set by the capitol building itself, and parks like Jefferson Park, are emblematic of Jackson's relationship to the Pearl River. The original plan, location and orientation of the capitol building illustrates an understanding of the Pearl River as a private asset to the city. The diminutive nature of the original or "Old Capitol" building further illustrates the values of the early founders of Jackson. Its architectural reflection of many Greek revival antebellum estates for the region of Mississippi. It shows that the city was developed from a vernacular of "country estates." These estates would ideally have an appropriate amount of space around them

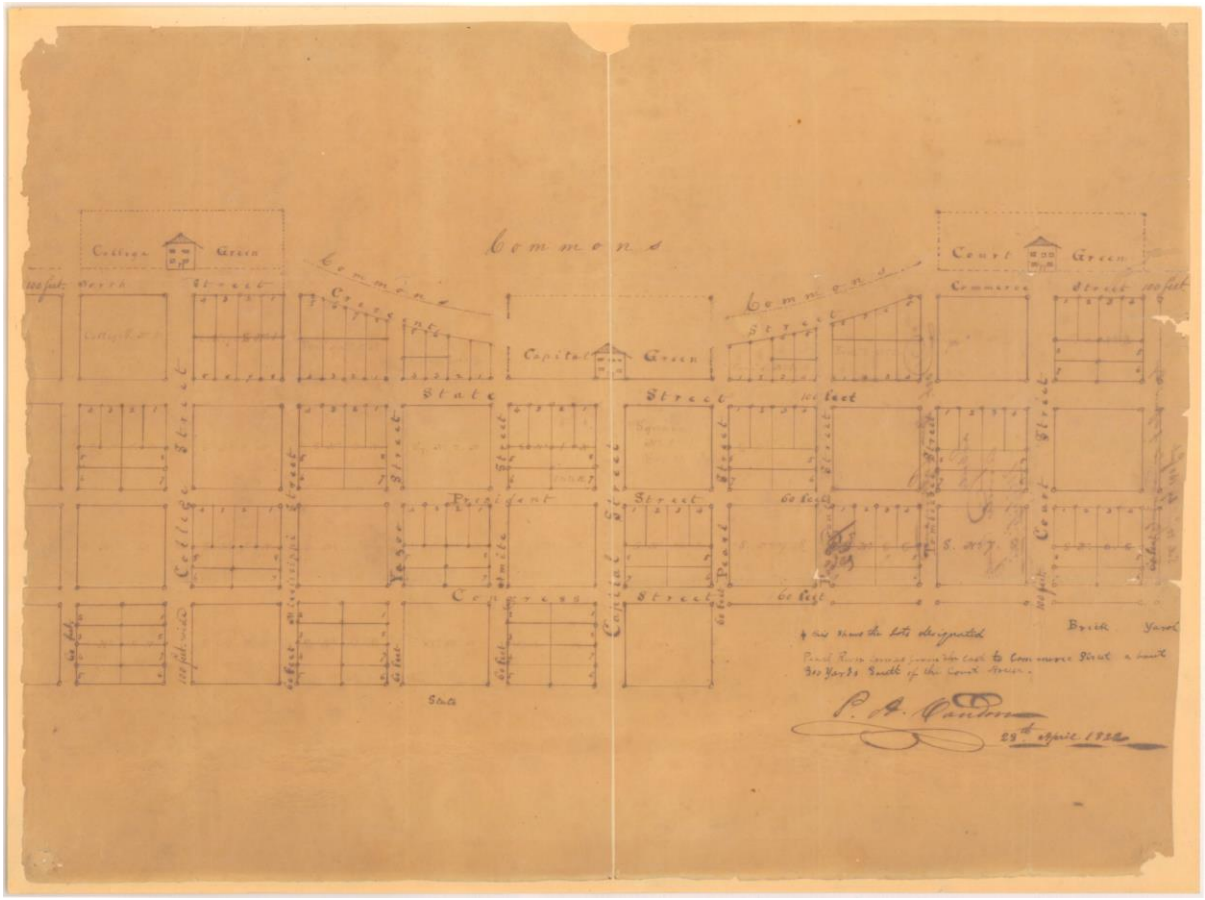

Figure 1: Jackson, Mississippi. Original plan for the city of Jackson by Peter Aaron Van Dorn (Courtesy of the Archives and Records Services Division, Mississippi Department of Archives and History)

and would maintain a pattern of development with front and rear orientations.

Today, the city has continued to develop with its back to the Pearl River. However, it is no longer understood as a valued asset since, along with the construction of Highway 55 in the 70s, came a surge of industrial and vehicle-oriented services along it's corridor. These services did contribute to ongoing pollution and intensify the physical boundaries between the city and the adjacent habitat.

Physical boundaries or edges are crucial for a coherent urban environment. They can intensify the sense of place, help create a coherent patchwork of development throughout the city, and sustain a logical network of connections between both, allowing the city to be read and understood.[2] (Lynch 1960) However, if boundaries manifest as rifts in the urban fabric permanently separating inhabitants and districts or neighborhoods, as opposed to stitched edges, all of these spatial values are lost due to local inaccessibility. The boundaries within Jackson have historically been manifested as stitched edges but no

[2] Kevin Lynch notes that, "Just as this printed page, if it is legible, can be visually grasped as a related pattern of recognizable symbols, so a legible city would be one whose districts or landmarks or pathways are easily identifiable," or "imageable." He describes five different elements that contribute to the imagability of a city, one of them being edges, "Edges are the linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of development, walls… Such edges may be barriers, more or less penetrable, which close one region off from another; or they may be seams, lines along which two regions are related and joined together."

longer accomplish those goals. Jackson is divided between east and west by a railroad locally referred to as the viaduct, cutting off major streets from passing below. Additionally, Highway 55 separates downtown Jackson from the Pearl River basin itself.

METHODOLOGY

Current Jackson Plan

Rapprochement urbanism is incumbent on a specific rapprochement plan and primary zones for rapprochement to take place. The plans and zones are unique to their location and the ecological and urban contexts around them. A rapprochement plan includes maps that identify the larger biotope around or adjacent to the city and the connecting pathways through the city that serve the biotope. It includes the relationships of the paths to each other and the elements that give them their shape and function. The rapprochement zones are defined by the specific connecting pathways and edge conditions between human and animal-oriented spaces. These edge conditions do not merely divide the city into urban and animal habitats but deal with diverse constraints and needs by both urban and animal environments. These zones deal with two different scales: the macro level that allows for the management of storm water, adjacent urban development, the growth of non-human species populations, and facilitates the production of ecological resources; and micro level that deals with mitigating and strategically bridging accessibility between animalian and urban habitats.

The rapprochement plan for Jackson takes advantage of the specific constraints posed by the current states of urban and ecological development. These constraints are identified as catalysts for interventions within the city and come in the form of physical boundaries in Jackson, historic Jeffersonian planning and the ecological context of the Pearl River Basin. The urban center of Jackson is bound by the Pearl River basin to the east and the Natchez Trace Highway to the north and northwest. The habitat of the cypress swamp in and around the Pearl River is bound to the west by the city of Jackson, to the east by the Jackson suburbs of Pearl, Brandon, Richland and Florence as well as and rural farmland, and to the north by the Ross Barnette Reservoir.

There have been a number of studies (Downs et al 2014; Donaldson 2005; Clevenger et al 2002; Clevenger and Waltho 2005) conducted in the U.S. that have developed methods for assessing the best locations for wildlife crossings between major habitats. While these methods hold promise for regional explorations of specific habitat connections in rural areas, there are few corollary studies related to urban environments. Therefore, other methods were used for identifying a suitable location in Jackson. In order to explore the idea of rewilding, the proposed rapprochement zone location must be sufficiently urban, and of ecological and infrastructural importance to the city. The city of Jackson itself is crossed by a number of waterways that have either been channelized or completely buried in underground culverts. One waterway in particular - Town Creek - epitomizes these criteria (Figure 2). In addition, the proposed rapprochement plan argues that the same historical disposition held towards the Pearl River should be applied to Town Creek.

Town Creek is sufficiently urban in that it crosses the heart of downtown Jackson, beneath Capitol Street. It was historically an important barrier and through-line in downtown Jackson, so much so that the strict Jeffersonian grid pattern made way for its undulating shape by doubling the urban block along its banks (Figures 3 and 4). (Jackson 1885)

The fact that the creek existed on the interior of the block might seem familiar to a more modern planner. The creek echoes modern urban parks that can span multiple city blocks using a water body as a focal point. For instance, the movement to excavate and expose previously covered urban rivers, resulting in rerouting major pieces of transportation infrastructure, is seen in the designs for the L.A. River in California, the Cheonggyecheon Park in Seoul, South Korea, Madrid Rio project along the banks of the Manzares River in Madrid, or the daylighting of the Sawmill River in Yonkers, New York. In the case of Jackson's early development, the creek's original position at the center of the block allows for a more "back alley" approach rather than a planted boulevard. Historically, cities have been built "on" natural landscapes rather than "in" them, and while Jackson was developed with an appreciative attitude toward the Pearl River basin or a healthy respect towards the river and its tributaries, it simply marched over Town Creek in the end. The rapprochement plan, therefore, references the historic disposition towards Pearl River and reinvigorates Town Creek as an asset to the community rather than disregarding it all together.

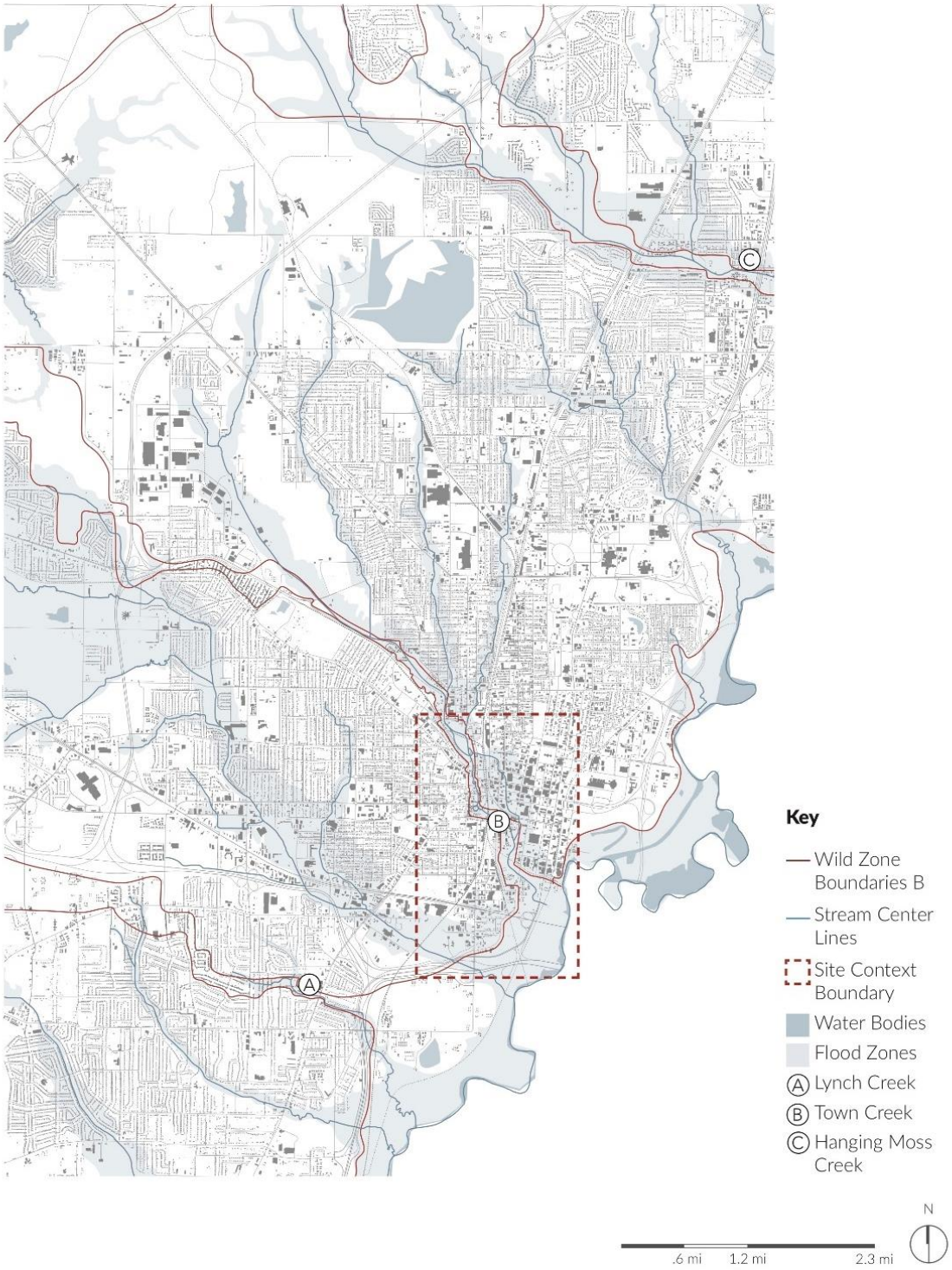

Figure 2: Regional Map (Drawing by West Pierce)

The proposed zone for Jackson's rapprochement between wild and urban is positioned along the length of Town Creek (Figure 5) due to its shared edge condition between urban and natural land types. Town Creek is one of three major creeks that feed into the Pearl River through downtown Jackson. Due to Jackson's high amounts of rainfall (approximately five inches of rain per month (Jackson, Mississippi

2018)), each of these creeks carry a large amount of storm water every month. Town Creek is currently buried within a culvert from where it crosses beneath the viaduct till it is exposed again south of the convention center or where it crosses Pascagoula Street. In Figure 5, it is represented by the dotted blue line that is broken to indicate where the creek passes below grade.

Figure 3: Jackson, 1885, highlighting historic Town Creek and surrounding streets (Drawing by West Pierce. Adapted from 1885 Sanborn map)

Figure 4: Jackson, 1914, highlighting encroachment of streets on Town Creek (Drawing by West Pierce. Adapted from 1914 Sanborn map)

Design Requirements

In Jackson, the proposed rapprochement plan seeks to facilitate enough space for an animalian corridor through the city, re-integrating wild and urban environments. Utilizing an apt description by the authors of the Wildlife Corridors Conservation Act, the animalian corridor must provide adequate space for "land, water, and substrate occupied at any time during the life cycle of a native species that is necessary…for spawning, breeding, feeding, growth to maturity, or migration." (Wilderness Society 2019) In order to achieve this, not only is the current urban grid taken into account but also the spatial requirements of animal and plant species themselves. These spatial requirements are primarily determined through the research of Clevenger and Waltho (2000).

Zoning ordinances and community building codes are described using minimum and maximum adjacencies or heights. These guidelines are geared toward humans as the city's main inhabitant. According to the current Jackson Zoning Map, the Central Business District of Jackson is cut off from the adjacent residential development (General Commercial, Single Family Estate Residential, and Suburban Rural Residential Districts) by the viaduct. (jacksongis.maps.arcgis.com 2018) These relationships are illustrated in Figure 6.

In addition to human centered zoning parameters, rapprochement urbanism must adhere to minimum and maximum requirements *for the animal and plant species moving through the city*. Studies have been conducted across north America tracking the use of various types of underpasses and overpasses related to major highways and how they are utilized by different animal species (Donaldson, 2005; Donaldson and Schaus, 2010; Smith, 2003; Clevenger and Waltho, 2000. These studies have identified many factors effecting the passage of wildlife through a manmade corridor including the dimensions of the space, the surrounding noise level, overall openness, surrounding landscape, adjacent infrastructure, proximity of urban development, and rate of human activity. Interestingly, the differences in the preferred lengths of underpasses varied between species and due to differences in orientation between these underpasses and the wildlife corridor through Jackson, these determined lengths were not included in the resultant design.

Figure 5: Current Urban Paths (Drawing by West Pierce). All maps created were generated using GIS data from Mississippi Automated Resource Information System. "Download Data." Accessed January 24, 2018. http://www.maris.state.ms.us/.)

In this experimental application of rapprochement urbanism, discovered animal preferences were taken into account when developing the wildlife corridor through Jackson and the dimensions were extrapolated between the different species and weighted towards the specific endangered species of Mississippi. For instance, the preferences of wolves were not weighted with the same importance as the preferences for panther or bear. There appears to be crossover found in previous studies (Clevenger and Waltho 2000). In this context, the underpass most frequented by the cougar also appeared to have the most crossover for other relevant species to Jackson. Therefore, differing species might use either underpass and this study and design do not presume to determine which or how many species utilize either type.

RESULTS

Rapprochement Plan for Jackson, Mississippi

The chosen rapprochement zone acts as a wild habitat corridor leading from the Pearl River Basin to the rural farmland beyond the Natchez Trace Highway to the north. It acts as urban amenity that allows for better storm-water drainage of the northern portion of Jackson and provides better definition for the new Central Business District. It also links west Jackson back to the Pearl River basin. (Figure 8). The proposed architectural and infrastructural interventions include bridges, biking and running trails, parks and plazas, oxbow lakes and islands, observation shelters and protected wildlife thoroughfares facilitated by didactic urban edges.

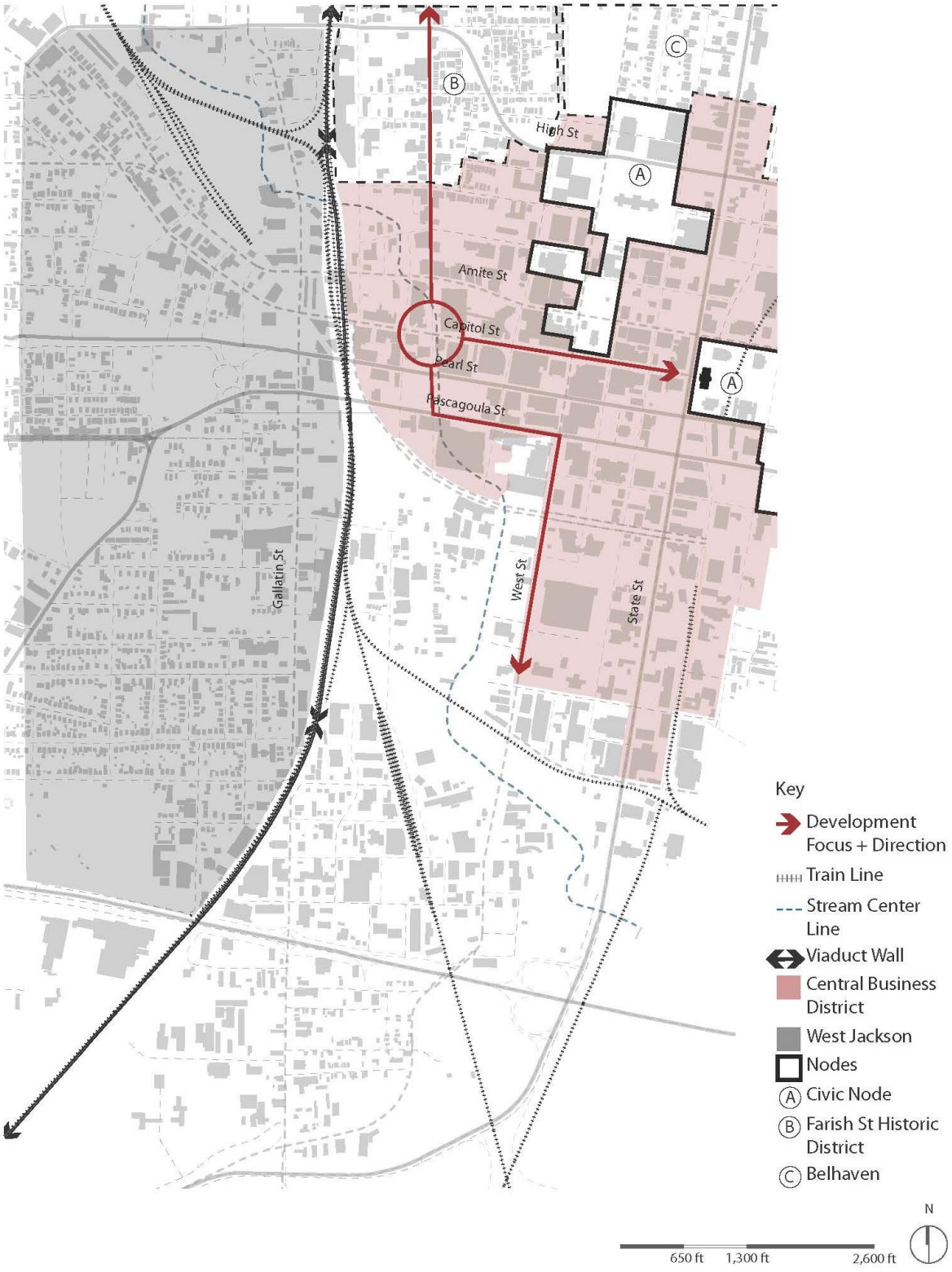

Figure 6: Current Development Diagram (Drawing by West Pierce)

Habitat Corridor Design Guidelines

Endangered Species of Mississippi	Species Studied	Distance between Rail Line or Infrastructure and Underpass	Width of Underpass	Height of Underpass	Length of Underpass	Distance from Underpass to Nearest Tree Cover
Deer	Elk	820.2 ft	32.81 ft	9.8 ft	88.9 ft	117 ft
	Deer	1,640.4 ft	32.15 ft	9.1 ft	206.69 ft	73 ft
Louisiana Black Bear	Black Bear	2,634.6 ft	13.78 ft	8.2 ft	315.29 ft	39 ft
Florida Panther	Cougar	65.6 ft	32.15 ft	9.5 ft	131.23 ft	49 ft
	Wolf	2,460.6 ft	29.53 ft	13.1 ft	183.72 ft	78 ft
Carnivorous Underpass			29 ft	9 ft	Not Applicable	15 ft
Ungulate Underpass			32 ft	12 ft	Not Applicable	75 ft

Table 1: Compiled from data collected by Clevenger and Waltho (2000) on the responses of different animal species to different types of underpasses beneath highways, and data from Mississippi Museum of Natural Science list of endangered species in Mississippi. (Mississippi Museum of natural Science 1994)

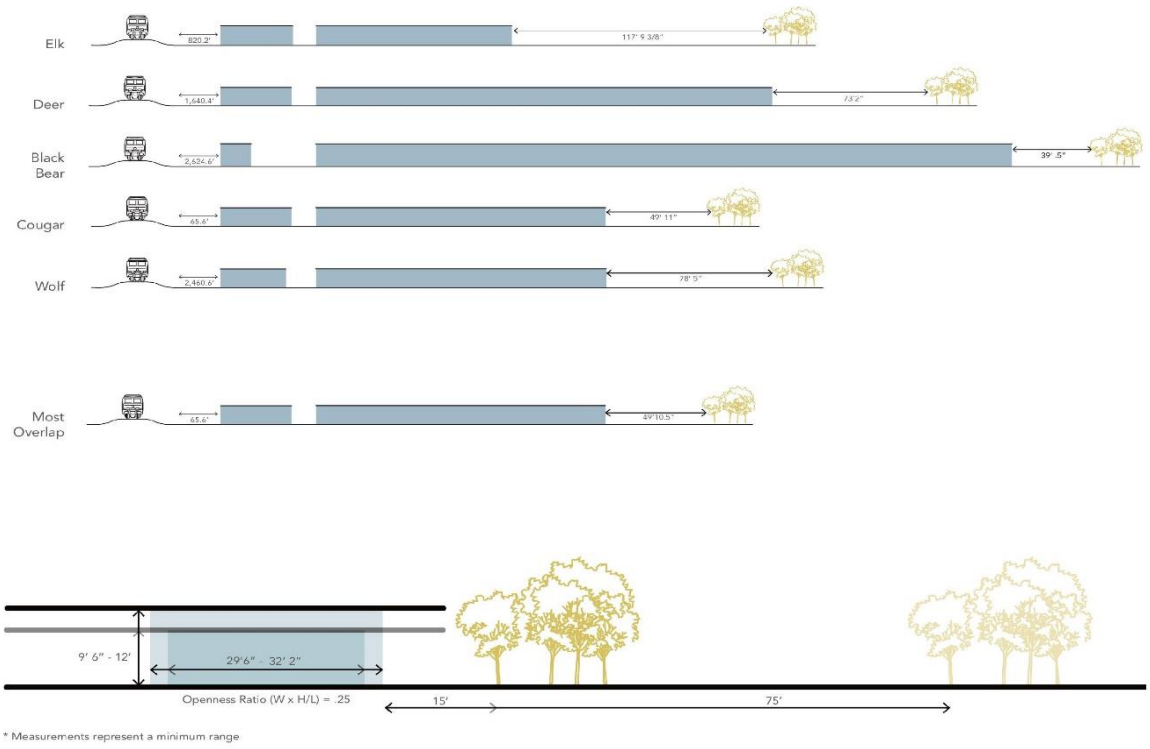

Figure 7: Animal Underpass Spatial Dimensions + Habitat Corridor Design Guidelines. (Drawing by West Pierce)

Combating Urban Sprawl

The proposed rapprochement zone is generated by a combination of new urban planning strategies (both in terms of use zoning and spatial needs) and existing urban elements that are either maintained or modified to accommodate the new wild corridor (Figures 8 and 9). Currently, Town Creek is buried beneath downtown Jackson. In order to create an animalian corridor through the city, the rapprochement plan for Jackson includes both the

Figure 8: Proposed Site Context Map, Map indicates current and proposed locations for Town Creek as well as current and proposed structures. (Drawing by West Pierce)

daylighting and relocation of Town Creek to serve both the human and animal environments. Variations for the Town creek relocation, in relation to the viaduct and the adjacent primary streets, are explored in the series of diagrams in Figure 9. The final design includes Gallatin Street, running north / south. Gallatin currently is the only major thoroughfare connecting north and south Jackson (Figure 5) west of the viaduct, and therefore it greatly benefits the human environment to maintain it. Rerouting rather than interrupting Gallatin Street, however, creates a space equivalent to an urban block, to allow for the new animalian corridor to pass adjacent to the viaduct. Buildings frame both sides of Gallatin and adjacent Clifton streets, decreasing noise pollution in the wild corridor.

Where the viaduct, Capitol Street, and Gallatin street intersect, the proposed rapprochement zone is framed by two "knuckles" - an "Urban Knuckle" to the north characterized by a dense urban fabric and the viaduct, and a "Wild Knuckle" to the south characterized by a broad open space and highlighted with the oxbow island (seen in Figure 13). Knuckle is the term used to describe a density of development, where one type of development transitions into another type, or where a joint occurs. The proposed rapprochement plan links the Central Business District with the residential development in west Jackson, with an Urban Knuckle zoned as an Urban Village Mixed Use Overlay District (UV). (City of Jackson Zoning 2018) In addition to these Urban and Wild Knuckles the plan includes a neighborhood node on the far west end of Capitol Street, opposite the existing civic node, and a southern boundary opposite the neighborhood nodes of Farish Street Historic District and Belhaven (Figure 10). This node further connects the urban environments of east and west Jackson via Capitol and Amite street, where none exists currently (Figures 10 and 11).

The proposed route of Town Creek is used in an effort to mitigate the effective barrier of the viaduct with an ecological reserve and urban amenity, immediately west of it. The rapprochement zone is constructed through a series of infrastructural, architectural, and urban planning interventions that both mitigate and strategically bridge accessibility between animal and human habitants.

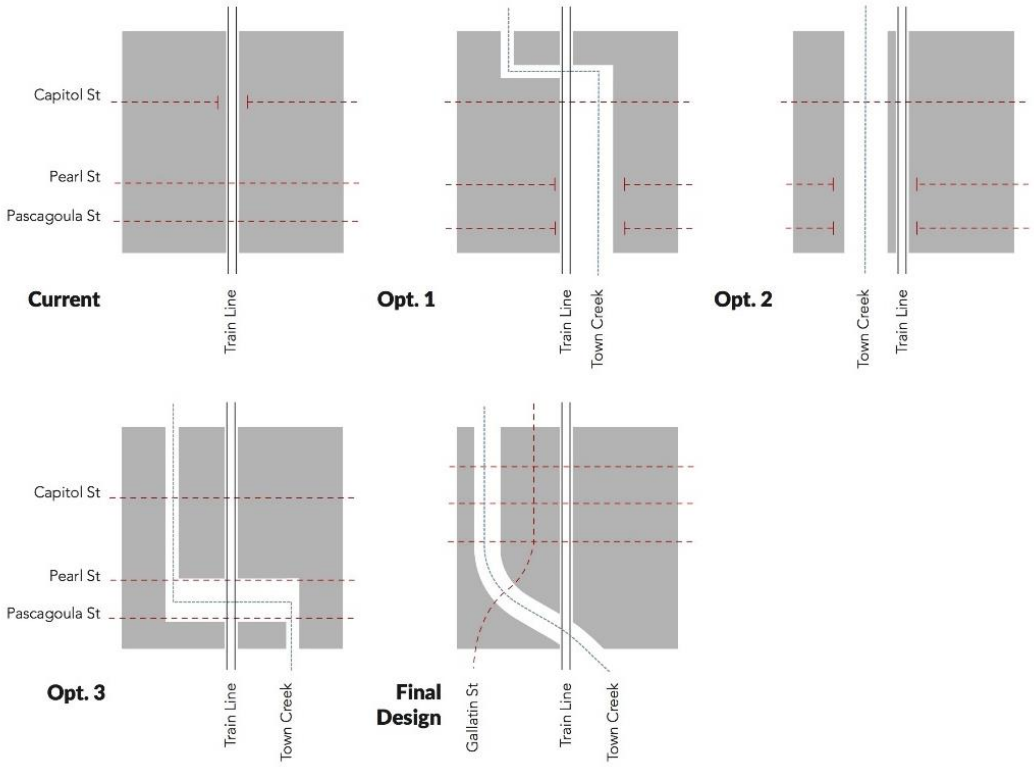

Figure 9: Urban Form Diagram / Rerouting Gallatin Street. (Drawing by West Pierce)

Addressing the "Back Alley" Attitude

A cue that rapprochement urbanism takes from the historical precedent of Town Creek is the approach that allowed for the creek's changing courses and flooding. Widening the urban block and allowing width to accommodate the shifting line of the river responds to the loess plain soil type and weather patterns in Jackson and the region. The result is a respectful offset of one block or approximately 350 feet (Figure 12) between urban development and bodies of water. In contrast, the approach seen in the historic Sandborn Maps is illustrated in the progression of maps through the years. Historic development around the creek shows a pattern of building progressively closer to it and finally on top of it. Therefore, the more ambivalent attitude towards town creek originated in a lack of knowledge about the soil type to rely, instead, on construction techniques and the use of concrete to manage the water. The proposed rapprochement plan reverses the historical ambivalence towards Town Creek and turns it into a healthy respect for the movement of water through a dynamic and shifting soil type.

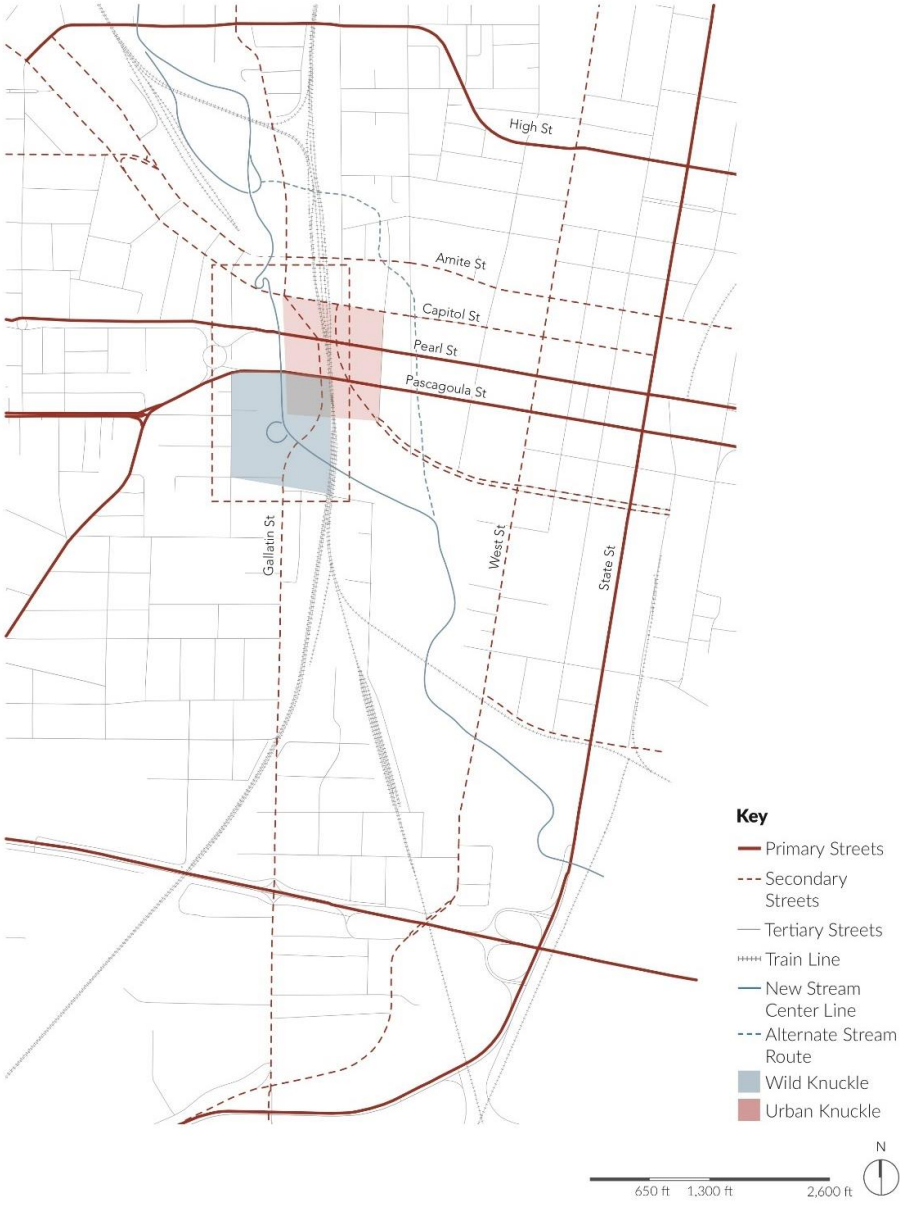

Figure 10: Rapprochement Context Diagram. (Drawing by West Pierce)

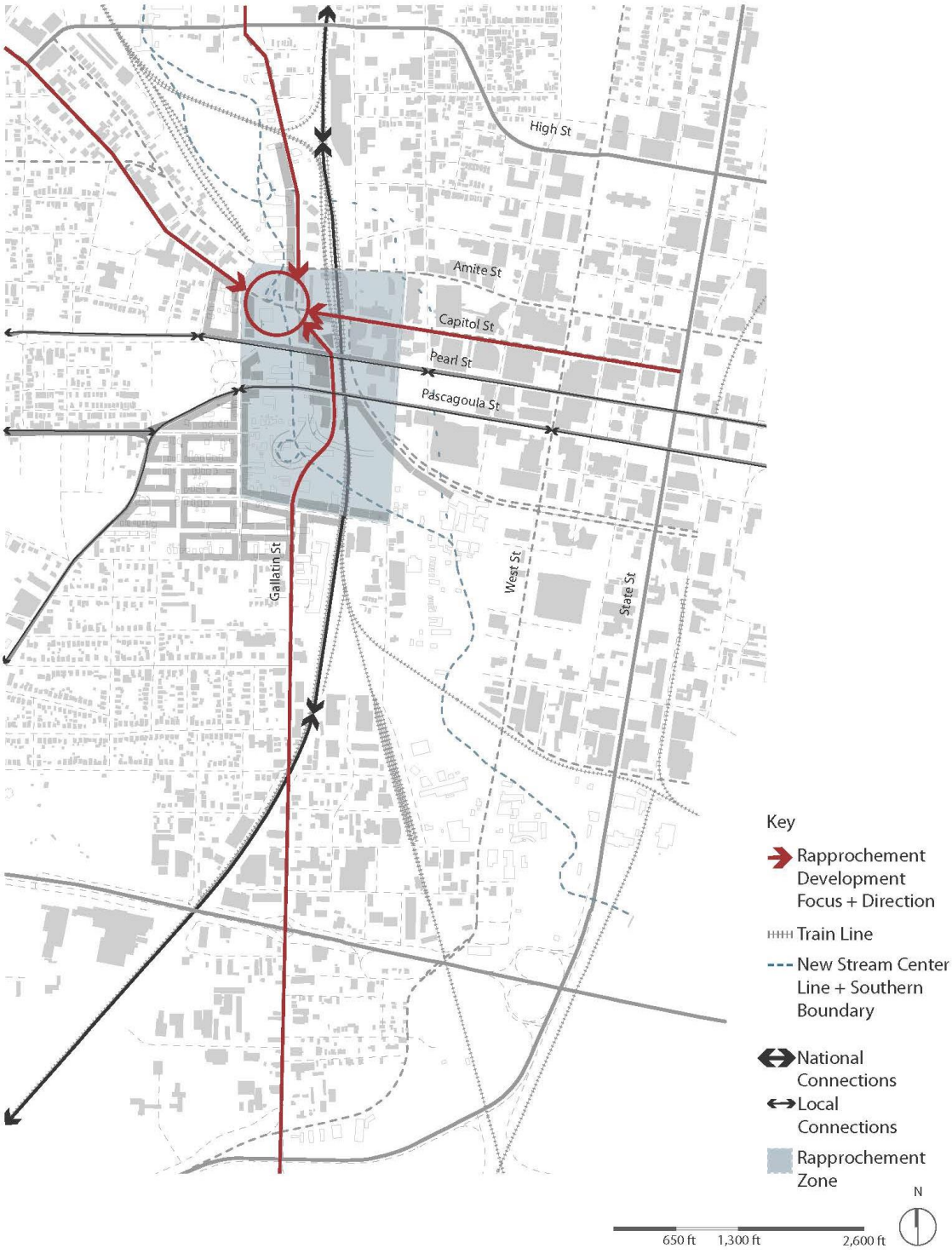

Figure 11: Proposed Rapprochement Development Diagram (Drawing by West Pierce)

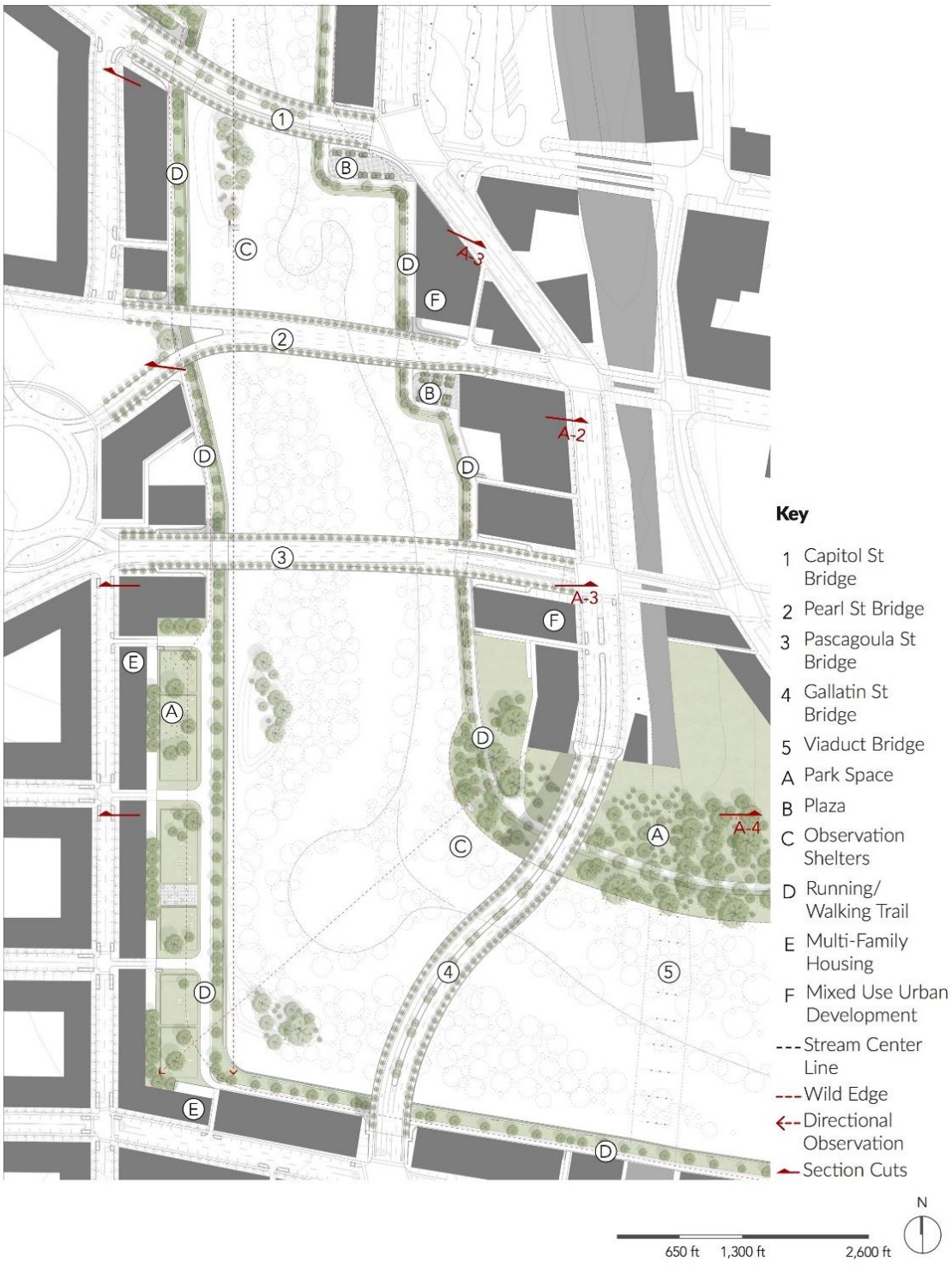

Figure 12: Proposed Rapprochement Zone: Human Oriented Level (Drawing by West Pierce)

Figure 13: Rapprochement Zone: Animalian Level. (Drawing by West Pierce)

Storm Water Mitigation

Storm water management represents a major infrastructural challenge that existing waterways could help relieve. (Federal Emergency Management Agency 2009) The proposed rapprochement plan addresses these challenges to create a more efficient system that adequately accounts for the increased load of new urban development, and addresses the needs of the habitat around those waterways to encourage their flourishing.

In terms of infrastructure, Town Creek remains the primary catchment for storm water from the northwest portion of the city. Ecologically, it represents an opportunity to filter and diffuse the high volumes of water during heavy rain events before emptying into the Pearl River, which would mitigate the large amounts of pollution that currently infiltrate the river.

Town Creek meanders along a path that optimizes the ground water infiltration of storm-water runoff and its path responds to the regional soil type (Figures 12 and 13). The oxbow island is a key feature of the creek system in Jackson. It allows the creek to move slowly around the island during typical rain events, encouraging water filtration and ground water infiltration. A weir is positioned adjacent to the island, and during heavy rain events, large amounts of water have a more direct route to the Pearl River, alleviating flooding (Figure 13).

The re-exposed Town Creek mimics the type of geomorphology that occurs along the Pearl River and would likely shape-shift from this design over time due to intermittent flooding and dry seasons.

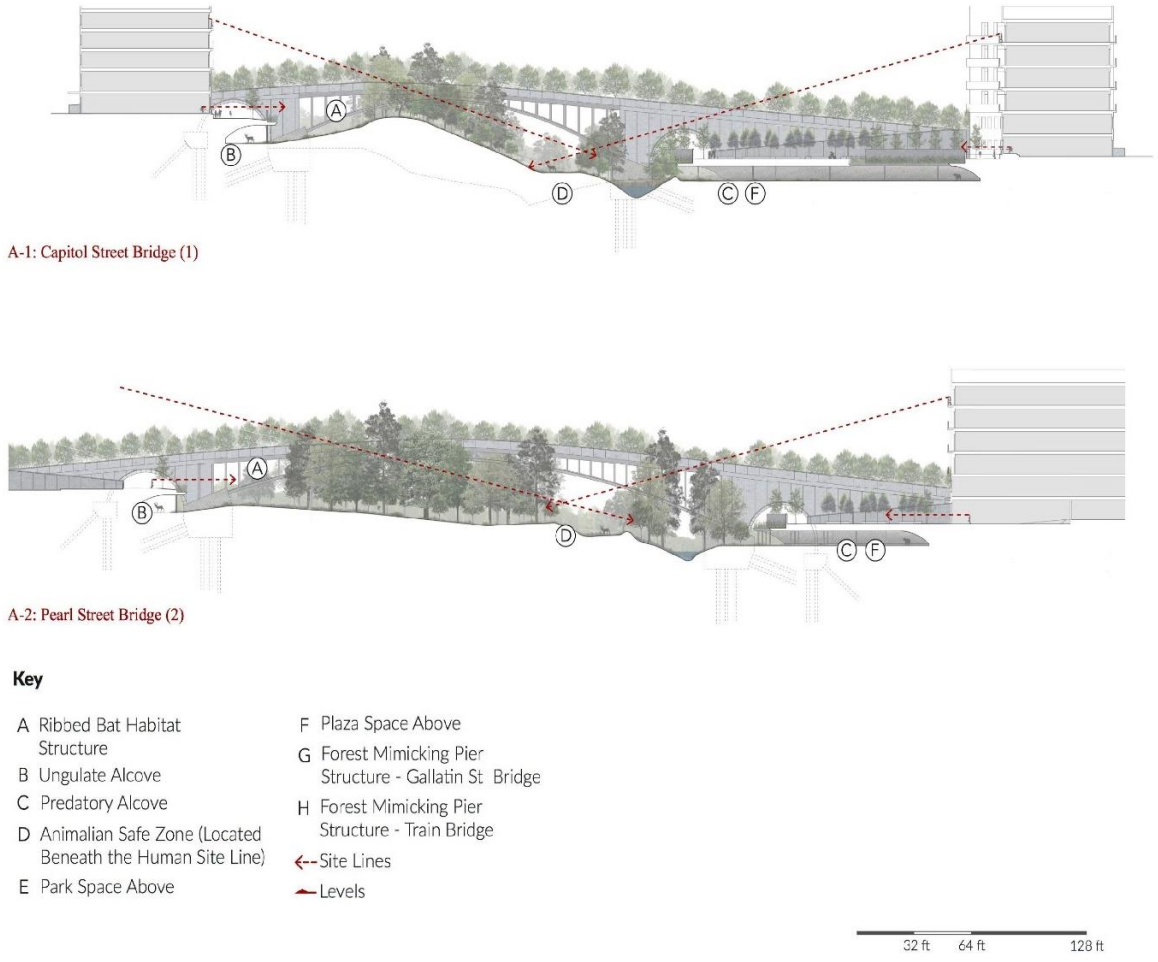

Figure 14: Bridge Section Elevations (Drawing by West Pierce)

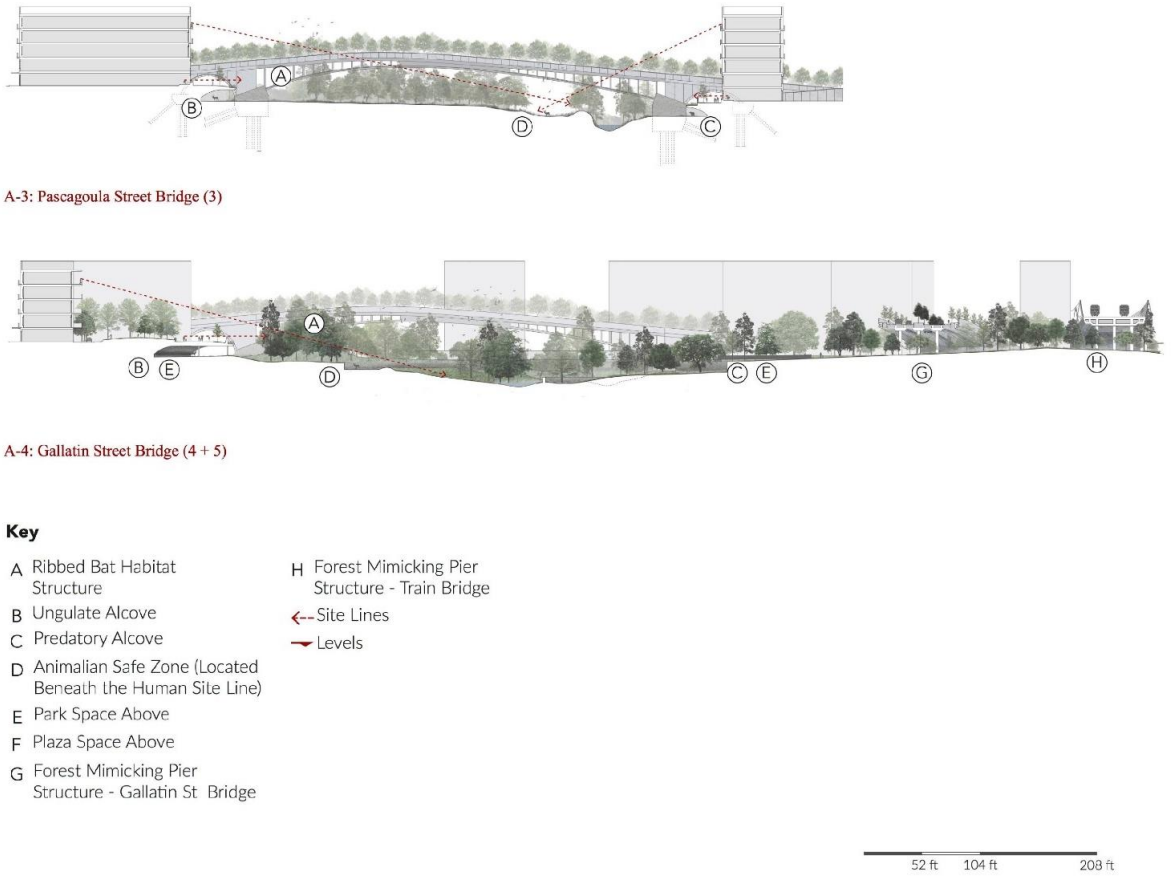

Figure 15: Bridge Section Elevations (Drawing by West Pierce)

Mitigating the Viaduct

Due to the dense urban environment, five bridges are needed to allow access to the animal habitat corridor without impeding the flow of vehicular traffic above. The importance of these five streets and the location of the bridges can be seen in Figures 5 and 9. Figure 5 illustrates the connectivity across the viaduct that could be accomplished by accommodating the through traffic on Amite, Capitol, Pearl and Pascagoula streets, in both directions. The fifth street, Gallatin street, must also be maintained as the only connecting street running north/south, west of the viaduct. The five bridges are designed with a low physical profile, vegetation, and an efficient structural system, to blend into the surrounding urban environment and facilitate vehicular and pedestrian traffic, while maintaining enough space below to allow unimpeded flow of wildlife through the wild corridor along Town Creek (Figures 14 and 15).

The four vehicular bridges (Figure 12) crossing the rapprochement zone are designed to allow trees to grow along their edges to minimize noise pollution into the animalian space below. The viaduct bridge is designed with a sound barrier along its edges when extending beyond the urban structures.

In accordance with the studies of animal movement through underpasses (Donaldson, 2005; Donaldson and Schaus, 2010), Town Creek is positioned on the east of the animalian corridor, along with the intended space for predatory animal traffic. The spatial accommodation for ungulate species or primarily deer, is separated from the creek with substantial open space that includes a “safe zone” sheltered with berms and tree canopy where they can

pass through the animalian corridor without seeing or being seen by humans.

Human and Animal

The urban spatial interventions include a continuous biking and running trail on both sides of the animalian corridor. This trail allows for views through the corridor while shielding visibility of urban development from within the lower animalian corridor. It uses a didactic urban edge condition that changes dimension, form and construction along its length. These urban edges respond to the adjacent animal and human environments, and while in some instances they physically and visually separate the two, their form illustrates the adjacent animal versus human spatial requirements and informs the pedestrian or animal about their intended use. As a result, humans do not have direct access to the animalian corridor in the most densely urban areas. These restraints become more relaxed as the animalian corridor approaches the rural areas outside

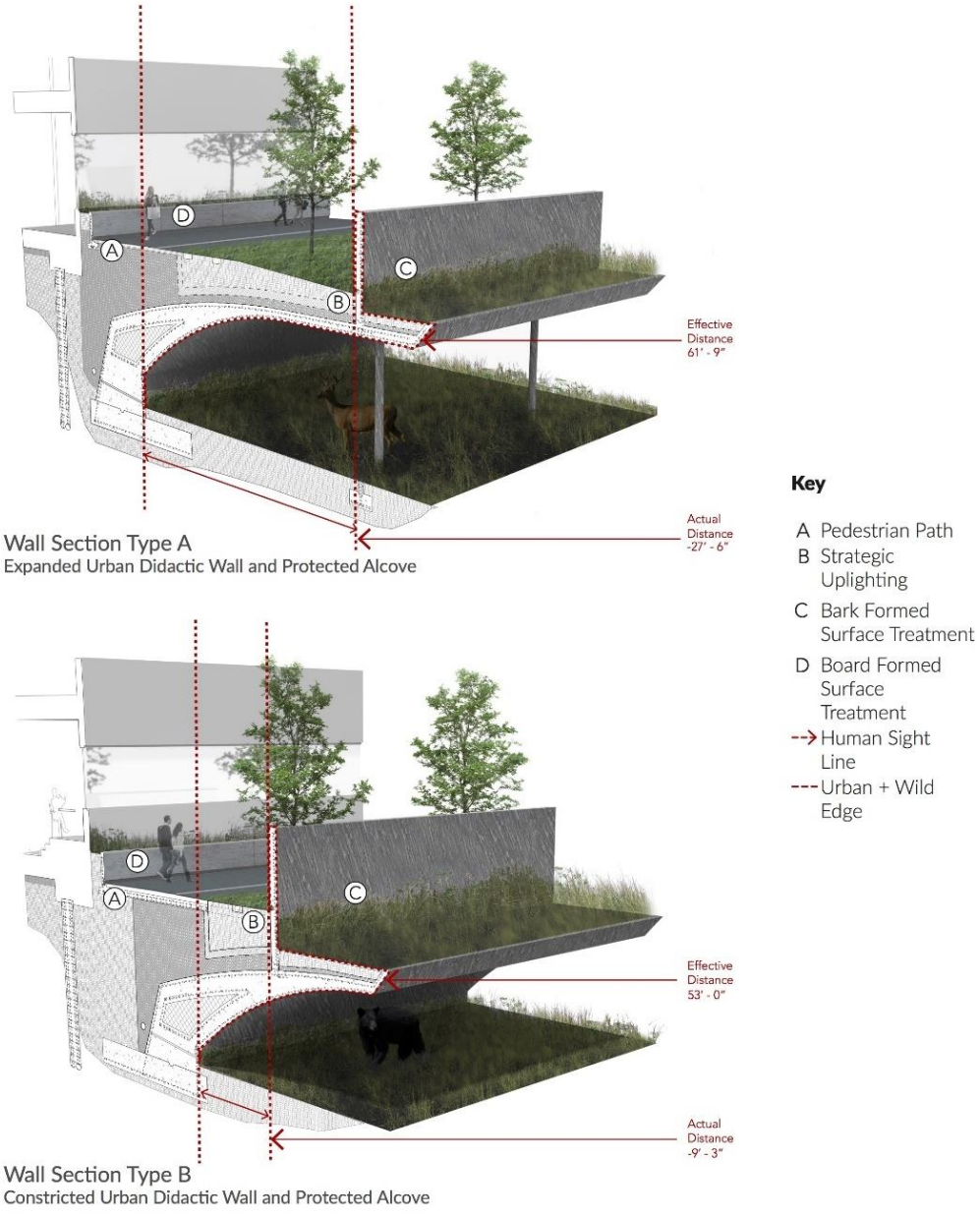

Figure 16: Expanded and Constricted Urban Didactic Wall Sections. (Drawing by West Pierce)

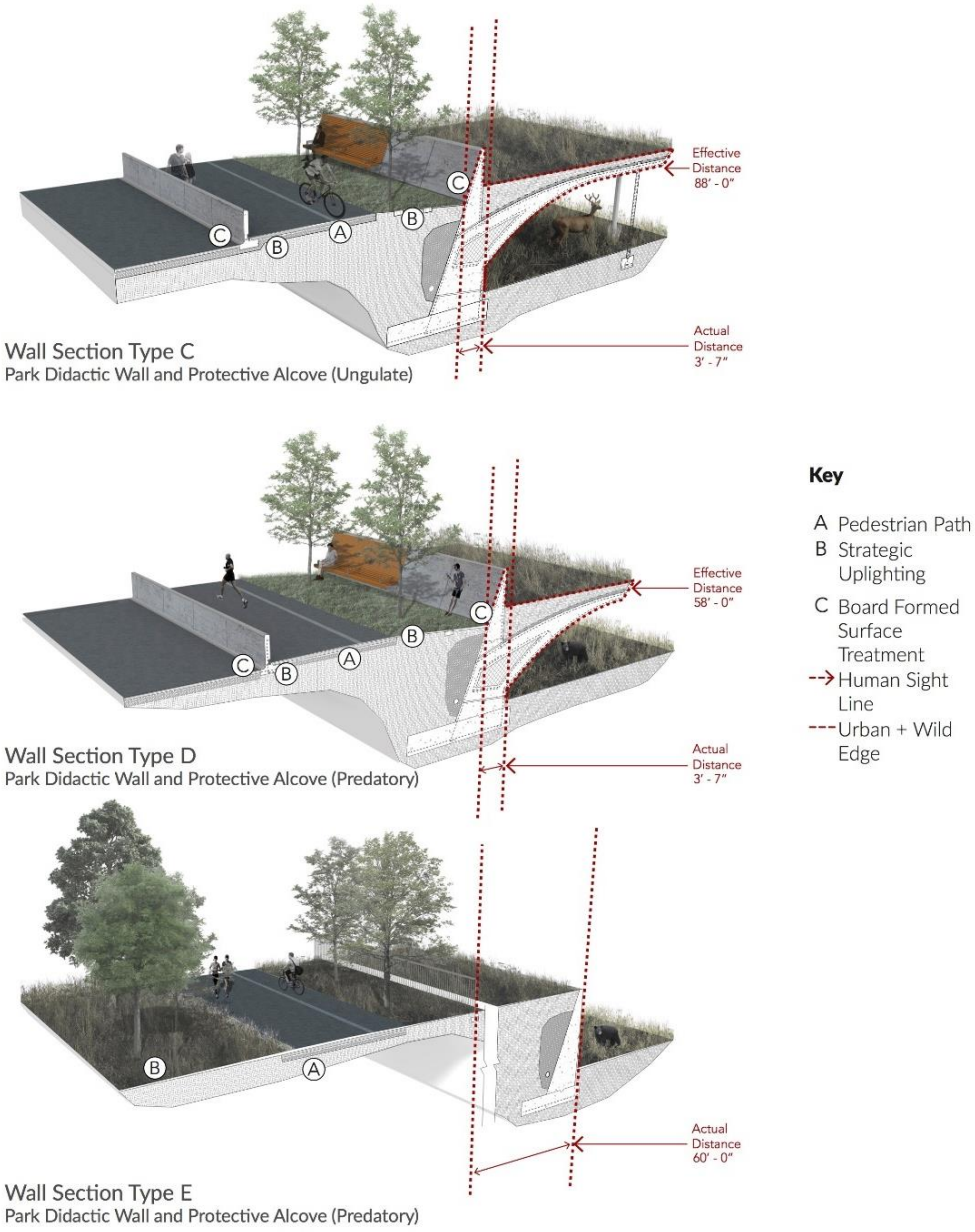

Figure 17: Park Didactic Wall Sections. (Drawing by West Pierce)

of the city. The differing conditions are illustrated by the difference between Wall Sections Type A-D, and Wall Section Type E where the physical concrete wall is replaced with a minimal railing (see Figures 16-17).

The didactic urban edges are maintained with a series of walls and railings that indirectly correspond to the protective wildlife alcove and adjacent types of urban development around them (Figures 16 and 17). The didactic edge bridges the human and animal species in ways that are appropriate to the surrounding urban and animalian contexts. Their foundations are constructed with secant pilings which can allow for the construction of adjacent buildings next to the retaining wall and protected alcoves. The surface treatment of the concrete wall in the animalian level

is bark formed concrete to allow for plant growth and color variation. The human level surface treatment is board formed concrete to reflect the seating mounted to the didactic edge. The park didactic edge condition is afforded the greatest amount of visual connectivity and more physical space both at the human level and within the protected alcove at the animalian level and does not necessarily include secant pilings in its foundation.

Tracing the physical edge of the wall and alcove together, the "effective" distance between human and non-human species is maximized, while the "actual" spatial separation is minimized. When animals approach the edge of the wild corridor, they are not met with increased human activity but with an increasingly protected space for their movement.

In the animal corridor itself, the spatial accommodations allow for deer and other non-predatory species on one side and predatory species on the other (Figure 13).

DISCUSSION

The success of the rapprochement plan for Jackson, Mississippi will largely be determined through its ability to address constraints in a productive way for both human and non-human species.

This project would be incomplete without evaluating the architectural, planning, and ecological design features that make up the rapprochement plan. There are a number of issues that arise that could impact this design and possibly hinder its implementation. The design itself was carried out with these issues in mind; although the political, social, and economic repercussions were not taken into account. In the Jackson region, two additional zones are developed in a similar way to the Town Creek rapprochement zone (Figure 2). Within these three zones there are a number of roads and buildings that would be demolished to accommodate the wild space being integrated into the city. New bridges will also need to be built in each zone. Rapprochement zone A encompasses approximately 6.89 miles of roads and 518 structures that would be demolished, with 10 bridges proposed for construction. In rapprochement zone B approximately 4.9 miles of roads and 582 structures would need to be demolished, and 17 bridges are proposed for construction. And rapprochement zone C includes approximately 6.3 miles of roads and 217 structures to be demolished, and 7 bridges are proposed for construction. In total:

Demolished Roads: ~18.09 mi

Demolished Structures: ~1,31

Needed Bridges: ~34

The number of constructed bridges is gathered from a brief assessment of the primary, secondary, and tertiary streets in these zones, with the goal of consolidating traffic to the primary streets and proposed bridges.

The rapprochement zone itself risks creating the perception of an urban wall by erecting a boundary prior to urban nodes. However, if the rapprochement zone is implemented as an ecological asset to the community, the boundary itself could become a stitched edge and enrich any subsequent development on either side.

The location of the wild development also poses a challenge since access through the Pearl River basin itself is interrupted to the north by a large dam and the residential developments along its banks, and appropriate rural land exists to the northwest of Jackson, and southeast of the Pearl River basin. The rich habitat immediately adjacent to Jackson is cut off from these large rural areas, habitat that is needed to maintain the appropriate spatial requirements for the animal species that access the Pearl River basin. Specific to Jackson, the wild habitat along its creeks must move along a different axis from the Pearl River, although in a similar typology to the river.

CONCLUSION

Urban resiliency initiatives like Rebuild by Design or the ecological efficacy groups like the Rewilding Institute are asking new questions about the natural character of places humans live and work. These questions include whether cities actually exist in a landscape that is often hostile to urban environments; how cities could be good neighbors to the surrounding ecological context; or how cities, and not just buildings, could become more sustainable and beneficial for humans and the environment. These questions, while broad, are not outside the purview of urban planners, architects, and landscape architects. Therefore, they should be addressed as cities become more densely populated and their use of natural resources increases. Construction

specifically accounts for the use of more natural resources than almost any other industry (Matos and Wagner 1998), therefore architects could arguably be held accountable for how and why those resources are used. Rapprochement urbanism, in this context, is an exploration into the ideas of resilient cities where coastlines are replaced with urban waterways, and the vast incoming sea is replaced with unrelenting urban sprawl. Whereas coastal cities will be shaped by natural forces, (National Research Council 2002) *landlocked* cities often shape the biotopes they reside in. This proposition for Jackson, MS is a presentation of rapprochement urbanism as a conceptual strategy that could be adapted across other landlocked cities and the diverse biotopes they reside within and shape.

Cities can foster and nurture ecological systems that exist within them by accounting for the functional and spatial needs of wilderness and non-human species. Along its length, the rapprochement zone is defined by boundaries that serve the respective adjacent environments. They do not represent mere divisions within the city, but present stitched edges that, at the macro level, allow for the management of storm water, adjacent urban development, the growth of non-human species populations, and facilitate the production of ecological resources. At the micro level, these edges mitigate and strategically bridge accessibility between animalian and urban habitats. Even when physical connections are not appropriate (i.e. at the dense neighborhood node) visual/spatial connections through the wild space are encouraged. These edges are unlike a condition at a zoo where human accessibility and inspection are given priority, or like a wilderness reserve where human safety and accessibility are sacrificed for animal needs. Rather, they facilitate a constant interplay of human and animal spatial priorities allowing for new experiences within them. Looking through the forest to the city on the other side contrasts against the common experience of looking through the city to the rural areas surrounding it. People can experience the structural interval and volume of a forest in comparison to the surrounding urban development within the rapprochement zone. These spaces typify what could be possible if cities were built within their larger environments rather than simply over them and illustrate how they could support the spatial and functional needs of both.

The architectural elements in the rapprochement plan for Jackson encourage a balance and cohesion between the wild and urban environments as they conjoin. Through their interaction, a healthier and more sustainable city can emerge. Additionally, increased viability for the wild habitats around and in it can be encouraged. Rapprochement between wild and urban environments is viable in the dense urban center of Jackson, Mississippi through this exploration of building “within” rather than “on” the ecological environment.

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