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MUD

7

MASTER'S OF URBAN DESIGN

A COLLECTION OF FINAL PROJECTS

BALL STATE UNIVERSITY

MASTER OF URBAN DESIGN

Volume 7
Ball State University | Indianapolis Center
College of Architecture and Planning

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INTRODUCTION: A CITY'S ENTHUSIASTIC REVIVAL

Indianapolis, Indiana is the 14th largest city in the US. Sound progressive vision combined with determination, Midwestern ethics of hard work, and neighborly kindness powered a downtown revival that is about to reach its critical tipping point. Several important and interesting near completion public and private developments are capping decades of planning and visioning that is transforming our city into an exciting, livable, and genuine urban center, welcoming to all ages and cultures. Indianapolis is about to reach the phase of fast, continuous, and robust investment and development. Immersed in this agile context, for the last fifty years, the college of Architecture and Planning (CAP) at Ball State University, working alongside community associations and the city, has offered design assistance when possible to help with the redevelopment of our cities and state. We feel it is our way of giving back to our generous communities. We are now very energized that we are witnessing a very special time for Indianapolis' ongoing effort to drive our downtown's revival. A host of important projects including a new exciting transportation hub, several urban housing structures, and major fortune 500 corporate headquarters, are all in the final stages of construction, and are about to go online in a vibrant, active, and affordable downtown. These projects are combined with countless others implemented just in the past few years, including the French-based Blue Indy electric car share system, the Cultural Trail bikeway network, the White River State Park, and many others that will certainly place Indianapolis among the best places to live and work in the U.S.

Set at the center of this swarm of activity is our Master of Urban Design (MUD) Studio, helping us find good fortune as we participate in this lively experiment, and undertake projects and design problems that are beneficial to both the community and the students. Every year MUD undertakes the examination of a major corridor of the city. This year's selected challenge focuses on the White River and its tributaries as organizing forces and an important development opportunity for the community and the city. As many industrial Midwestern cities, Indianapolis turned its back on its main waterways. They became polluted, almost toxic, however in the past three decades, watchful environmental care and controlling water intake has brought the river back to life, making it a major potential recreation and tourism resource for the city. Our studio focused on eight different sites along the White River that offer substantial and attractive waterfront opportunities for the city, its developers, and citizens.

Our executive style master program uses all three semesters of design studio to study one major urban focus. This book offers our readers the opportunity to review and explore this year's investigation and our graduate students' proposed design opportunities and their urban design proposals along the Indianapolis waterways.

Our studio format embraces public participatory design as we are located in a storefront studio two blocks from the Indianapolis Circle giving us the opportunity to work closely with professionals, city officials, and citizens.

The students and faculty express our gratitude to our professional, civic, and academic partners. Their mentoring and support made a measurable difference in the quality of our MUD program during its fourth year.

Michel

Michel Mounayar, RA
Professor of Architecture, Master of Urban Design Program Director

PREFACE

In his 1984 seminal book, Good City Form, Kevin Lynch proclaimed that the city was a fact of nature. But in the process of stating something so broadly, he began by asking a perplexing question: “What makes a good city?”

Without a definition of the word “good”, he admits in the book’s prologue that there can’t be a rational answer to such a naïve question; there are too many variables, surely too many diverse ideals and values, and subject to too many possibilities to yield something conclusive and bite-sized. But nevertheless the question is an important place to start, and it’s one that this Masters of Urban Design Studio asked constantly. Lynch goes on to say “it is a common feeling that most urban places are unsatisfactory – uncomfortable, ugly or dull – as if they were being measured on an absolute scale. Only fragments of the settled world are generally excepted from this dismal view: an affluent suburb, a fine park, a historic town, the vital center of some great city, an old farming region.” These are the memorable but seemingly disconnected fragments of a city; the things people tend to identify with a “sense of place”. And yet, to somehow fuse such diverse individual places in some integrated framework and to provide the circuitry that connects them together is among the great challenges of the urban designer.

To make things more difficult, urban designers must also draw on an inherited past, and yet be aspirational toward an unknowable future. As the composite and accruing consequence of people coming together over generations to collectively ensure individual survival in practical evolutionary terms, and also as a constructivist and deliberate effort to elevate the overall quality of life for an ecological, economic and social community, the city is a great contemporary challenge indeed.

The 2016 MUD students grappled with this challenge in the following pages. These future-focused students are fighting to change the assumption that Indianapolis is a static environment, and object-oriented economy dominated by individual ideas, and they’re instead pushing a conversation forward about the seemingly fragmented city through a critical examination of perhaps its most important form of economic and ecological circuitry; The White River.

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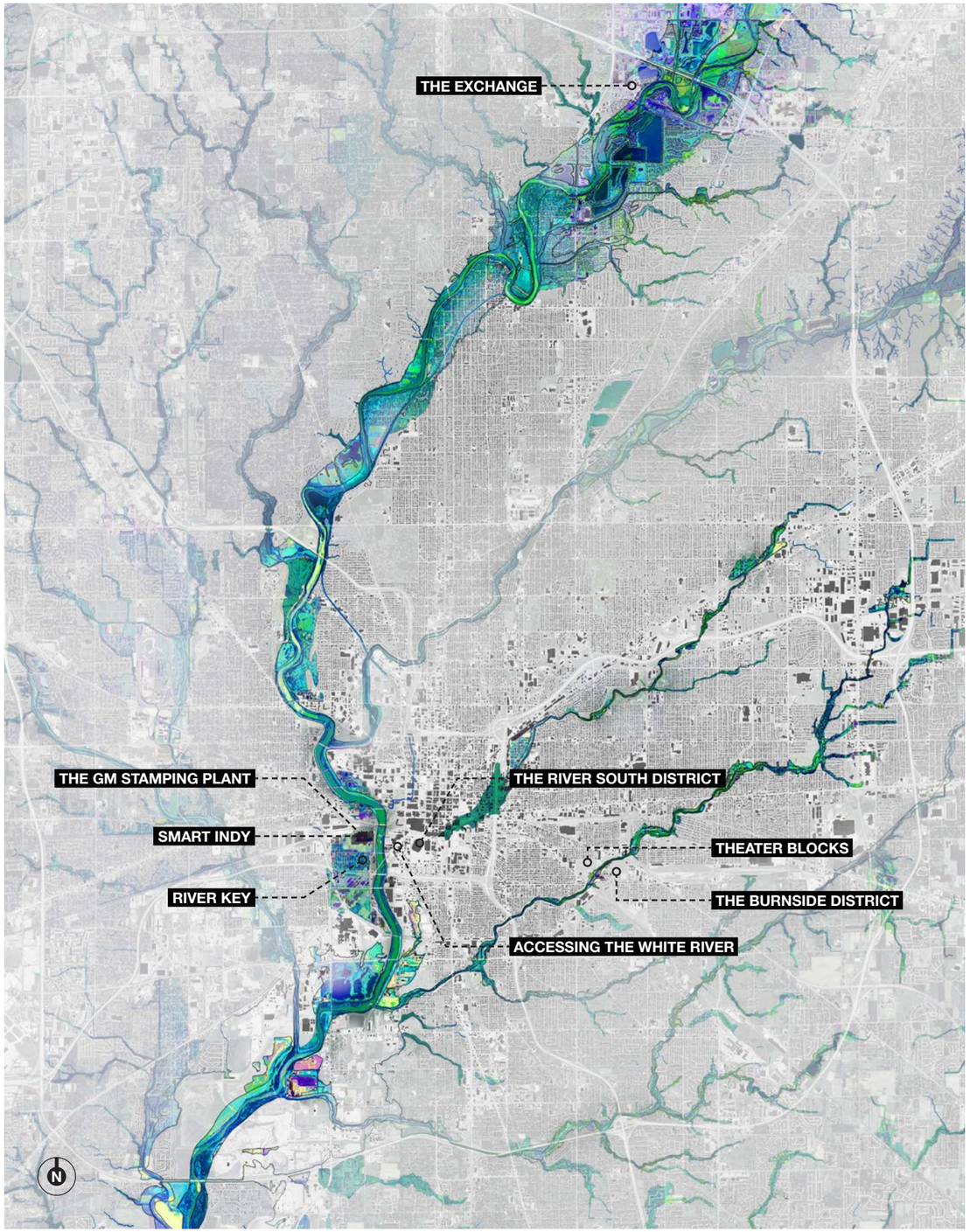
SPECIAL THANKS

The Master of Urban Design (MUD) class would like to thank everyone who played a role in this year’s collective work. For the leadership from the faculty and staff of the College of Architecture and Planning, the guidance from our urban design professional mentors, and the collaboration and inspiration offered by numerous guest lecturers, speakers, and participants in our studio, the 2016 MUD class would like to graciously say *thank you.*



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(LEFT): PROJECT LOCATION MAP

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CLASS OF 2016

VOLUME 7

BALL STATE UNIVERSITY | INDIANAPOLIS CENTER

COLLEGE OF ARCHITECTURE AND PLANNING

THE EXCHANGE AT KEYSTONE

A HOLISTIC APPROACH TO ECONOMICALLY SUCCESSFUL MALLS

JACOB SANDERS, BSLM, MLA (2016)

The mall has long been a key suburban destination and economic driver due to its historic consideration as a place you can hang out, shop for a variety of goods and services, and attend movies. Their stability has wavered in the last 15-20 years as malls have begun losing their customer base due to online shopping increase, cultural and social changes, and an overall feeling that malls do not offer an exciting experience. This study uses Indianapolis's Fashion Mall at Keystone as a case study for redeveloping malls using a holistically sustainable framework. By redesigning and transforming malls to be environmentally sustainable, economically successful, and socially integrative, these sites will be protected from future downfall.

KEYSTONE: THE REALITIES OF MALL DECLINE

There are currently around 1,200 malls in the United States out of which 20% have an unhealthy vacancy rate of higher than 10%. In the last few years the American mall has seen a deep decline in customer base, and therefore revenue and tenant leases, resulting in mall closures that have led to surrounding vacancies[1]. Many of these malls are middle-end retailers but the effects are starting to be noticed in the high-end malls as well. Much of this decline in customer base results from ecommerce and other forms of shopping. As a result, many mall owners are looking for ways to remain viable in the future. Indianapolis has seen several malls start to fail in the past decade most notably Lafayette Square and Washington Square malls. Again, although these are middle end retailers they still show that locally the same loss of interest in malls and customer base is occurring and spreading. Vacant malls eventually become unoccupied, underperforming, unpopulated eyesores that take up valuable real estate and public areas that could be utilized for a more sustainable and productive types of development.

The history of The Fashion Mall at Keystone reflects larger national shifts in prioritizing national chains as anchor and retail stores that eliminate local authenticity. Keystone started out in 1973 as an anchor to The Bazaar, a literal maze of local and family-run businesses that provided "a unique shopping experience" for the surrounding and growing Indianapolis community. According to a video by PK Partners, the Bazaar created an experience different from typical "sterile and cold" shopping centers by including a restaurant and pool hall within the heavily-wooded complex[2]. The building that housed these shops was referred to by an award won by the Bazaar building that "relates to people," and prided itself on capturing the attention of young cosmopolitan professionals. Over the past 33 years, the site on which the current Fashion Mall now stands underwent a series of renovations and demolitions that have led it to what it is today, losing its original identity and goals along the way. Interestingly, the current mall received fewer and fewer local and family-run businesses and currently houses high-end luxury businesses, few of which are located within the state.

The trend of malls in the United States is one of losing customer base and decreasing profits. Due to the rise in online retail, growth in environmental recreation, and rising interest in multi-functional sites of leisure, malls like Keystone are becoming outdated. If the Fashion Mall falls under, it would put environmental, social and

FIGURE 1: THE STRAND The high density, residential towers, wide pedestrian oriented streets, lots of public open space, mixed office and commercial spaces with native plants and hardscape materials enhances the sites holistic sustainability and gives an ultra-modern, active but quiet feel.

[1] BUSINESS INSIDER "SHOPPING MALLS IN CRISIS"

[2] VIDEO BY PK PARTNERS

FIGURE 2: CITY CREEK CENTER BRIDGE City Creek Center in Salt Lake City, Utah is a mixed-use redevelopment of two malls that uses a more holistically sustainable approach.[4]

economic pressure on the surrounding communities and neighborhoods in northwest Indianapolis. This would come in the forms of reduced jobs from retail moving out, health hazards due to an empty, unoccupied building, as well as reduced interaction with each other due to a lack of attractions and event space. Several malls have already utilized a similar approach to try and prevent failure such as City Creek Center in Salt Lake City, Utah (See Figure 2) and others. These sites focused on their ability to reinvent themselves and change to become a much more mixed use community. One of the major assets of the Fashion Mall has been its ability to adapt to changing conditions over time by reinventing itself. The following sections further illustrate and detail the major issues surrounding the site. These issues are broken down into the three major categories of holistically sustainable design which are economic, social, and environmental in order to further lay the groundwork for the proposed objectives and goals.

ECONOMIC ISSUES

Although the Fashion Mall at Keystone is currently economically successful, it still has multiple issues ranging from limited store hours to income disparity that have the potential to a reduce revenue for commercial business owners, employees and the surrounding community in the future. For instance, the mall is only open during certain hours not allowing public access during all times. Having limited public access during all times of the day and as a high end mall it only caters to a certain high income level which acts as a psychological barrier to individuals who make below $70,000 annually.

We live in a 24-hour society where people are working, living and even playing 24 hours a day. Easier access to goods and services is a must in our busy society and as a result people are looking for easier and quicker ways to shop so they can focus on other things. Ecommerce has made it easier for individuals to get home access to goods and services. The mall has become less convenient as a shopping resource as a result of driving, limited hours, and cheaper online options. This provides an opportunity to integrate ecommerce into the site by utilizing new technology such as drones, which could deliver groceries and other goods to residents on and surrounding the site body scanning for fitting of clothing, among other relatable ecommerce advancements allowing the mall to still be a conduit for individuals to take advantage of the quicker forms of ecommerce and its benefits while also remaining a destination for both consumerism and socialization. Also, as many of the goods and services sold online are from name brand chain stores, there is an opportunity to incorporate stores that individuals see as “authentic” and unique into the existing mall without retailers being eliminated. This would attract users to keep shopping at the mall because they would be able to access goods that they could not find online but that are uniquely manufactured. There are multiple examples of this that are currently being done. One such example is that of the online website ETSY. ETSY is an online platform that allows individuals to sell items they have made in exchange for a fee. Nordstroms has taken notice of this successful service and are now selling goods from a few of ETSY’s independent sellers.[5] Another example is Scoutmob another site that allows individuals makers to sell goods. Target has now partnered with five Scoutmob individuals to sell their goods in five different Targets.[6]

As stated earlier, The Fashion Mall at Keystone caters only to those individuals with incomes above $70,000 per year, but the surrounding areas have a high amount of renters with average incomes of $40,000. This income amount does not allow the renters to feel as though the mall is a place they can shop or stay. This creates lack of a sense of community and disjointedness for all residents of the area and surrounding cities. This provides an opportunity for the mall to become a welcoming place for all individuals and users. Creating public space that can be accessed by all individuals as well as integrating other shopping stores that allow lower income users to access the site could be very effective in creating a better sense community and ownership.

SOCIAL ISSUES

As a high-end retail mall, The Fashion Mall at Keystone inherently has several social issues including a lack of attractions separate from shopping to attract individuals from all demographics and incomes as well as the issue created by the cultural shift that has made malls an unpopular and insignificant place for young people to hang out.

A lack of activities outside of shopping, things such as entertainment or other enjoyable distractions that are not related to shopping, has caused the mall to become boring and uninviting to a variety of demographics. People today are looking for social diversions that encompass a wide variety of activities from outdoor recreational space to concerts to art shows to festivals etc. They are looking for open space in sites that allows them to experience a wide variety of activities while meeting individuals from the site and surrounding communities. Malls are traditionally focused on profit. The draw has always been a one-stop variety shopping experience. Since malls have had such a focus on one aspect which is attracting customers to make money their retail space is very “precious” therefore not allowing or making room for events that draw people in. Frankly, there has not been a need to include these until now. Social diversions are such things

[4] CITY CREEK CENTER
[5] FORBES “ETSY PARTNERS WITH NORDSTROM, WEST ELM; MORE MALL STORES IN STORE?”
[6] SCOUTMOB

FIGURE 3: A HIDDEN PARKING STRUCTURE a 30' high, raised, vegetated hill is designed to hold two levels of parking underneath. This remediates the damaging environmental effects of surface parking while adding a beautiful, natrual wooded area for people and wildlife to enjoy.

as multi-purpose event spaces that have concerts, art shows, galleries, markets as well as public open space that has a variety of programmed uses to invite people to feel like they can be at the mall even if their income is out of the “range” of some of the stores. As a result of not designing spaces for these distractions there is an opportunity at the Fashion Mall to integrate them into public open space and pedestrian movement corridors to help attract people during all hours of the day and times of the year.

Malls have become culturally insignificant and are no longer places where young people “hang out”. This is likely due to a lack in understanding and designing spaces for today’s young demographic and their preferences such as use of technology, social media and other such activities. In order to better attract young people the mall has an opportunity to incorporate these together by utilizing things such as social media events, interactive art pieces, and other events that increase chance encounters between people.

ENVIRONMENTAL ISSUES

Currently the Fashion Mall has multiple environmental issues that affect the site including the little consideration that was given to the site in terms of environmental design. The site sits close to the White River but creates no attempt to allow access, and parking dominates the landscape increasing heat island effect, polluting runoff and disrupting environmental edges. The following paragraphs detail each of these issues.

The mall has given little consideration to design for the environment which in turn decreases human and wildlife health and sustainability. People cannot access the health benefits of using and experiencing environmental landscapes and processes as shown by the CDC, “Researchers at the CDC and other places have increasingly been linking suburban development patterns with sedentary lifestyles. Currently, in order to achieve health benefits, such as more energy, less fat, increased metabolism, higher psychological positivity, and other health benefits, individuals who live on the site have to go elsewhere. Areas such as the Monon Trail, Carmel Recreation sites, and other nature zones are highly used by residents of this area and those of the surrounding mall as a result of the lack of environmental integration. This provides the opportunity for the mall to gain amenities that attempt to provide opportunities to individuals and wildlife to become healthier and achieve the aforementioned benefits. Amenities may include things such as trails, relaxation areas, picnic areas, nature walks, educational areas, walking paths, among other interactive nature elements.

As a result of the lack of access to the White River, people have

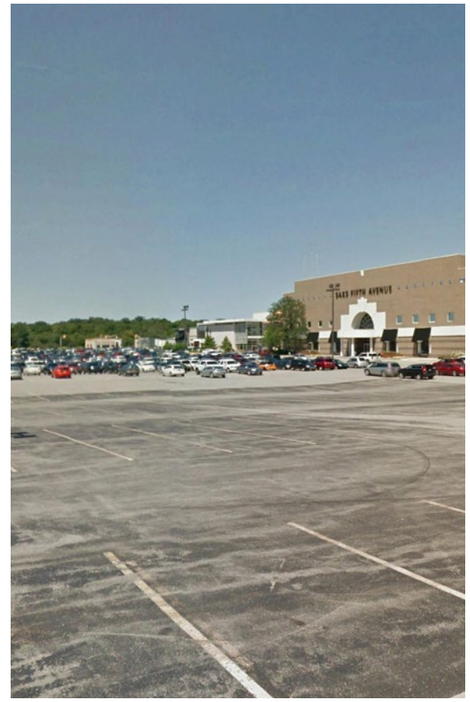

FIGURE 4: SEA OF PARKING The Fashion Mall currently has over 5,000 parking spaces. These parking spaces take up a huge portion of the site which reduces vegetation, increases stormwater runoff, contributes to increases the urban heat island effect and other detrimental environmental impacts (Image from Google Earth).

turned to interact with other sources of waterways further from their home. This is bad for Indianapolis because the White River is one of the most important but overlooked waterways in the city. This reduces the ability for the water to act as a teacher to residents, for the water to act as recreation for the residents and for the water to be respected as an amazing natural resources that has so much of an impact on the city of Indianapolis recreationally, aesthetically and environmentally. Waterways that individuals have currently turned to include private ponds or lakes like Geist Reservoir and other natural waterways such as Fall Creek, leading many to seek water recreation and waterfront housing outside of the city center. This lack of current connection to the water provides an opportunity to create a site that considers the water and its corresponding edges. This is essential to its future success by integrating water into the function and aesthetic of the site and providing access to all individuals accessing the mall now and in the future.

Parking and other hardscapes dominate the landscape, creating a heat island effect around the mall. This heat produced by the pavement cooks and kills surrounding vegetation. This lack of vegetation and connection to vegetated edges, such as along the White River, also does not allow wildlife to travel and connect across the human barrier that the mall and its parking currently impose. The lack of malls in Indianapolis that have incorporated sound environmental cohesion between development and the natural surround site and processes has created very disconnected sites that care nothing for their surroundings. The Fashion Mall is no exception. This poses a large problem for The Fashion Mall and the surrounding environment in the future because detrimental effects that are being seen now from several things such as: parking run off into the water, disconnected edges, increased heat from lack of vegetation, little to no stormwater management plans, ecological blindness, among other related issues. These issues will only increase in intensity and detrimental effects if not appropriately ameliorated. Cost of trying to fix these issues and put “Band-Aids” on them every few years will not fix the problem but rather exacerbate it and increase maintenance cost for the mall. If considered properly the site has tremendous space for vegetation and ecology to be integrated into the design. This would decrease the heat island effect of parking, reconnect vegetated corridors for wildlife, remediate and cleanse stormwater runoff as it works through the site rather than at a concentrated facility, among others.

THE EXCHANGE AT KEYSTONE

In order to maintain the mall, keep and increase its current customer base, create a vibrant urban center, create an inviting environment to the entire community and surrounding areas and an environmentally sensitive area, a holistic urban design approach must be utilized. The site must become adaptable and able to change over time. Change over time and the sites ability to adapt to changing demographics, economics, businesses and a variety of other facets will create a more sustainable urban center. In order to change in the coming decades, the mall must think about is current spaces and all of the amenities they could be used for. Also, new spaces that will be incorporated must be designed in such a way that they could be used for a variety of uses over the years depending on the need for the mall to maintain its holistic sustainability. This means that rather than designing a space to remain retail for its entire existence it would be able to potentially be used for a school, hospital, clinic, event space, office, etc. if needed. A way to do this might be to utilized building design that allows for walls and other infrastructure to be easily adjusted and redesigned. The following principles were created to support the thesis that a holistically sustainable approach will prevent future failure of the mall and surrounding site, as well as create a rich second urban center for Indianapolis. Each principle also has goals and programmatic design elements that are key to establishing success for the Fashion Mall and making into an ultra-modern site with hints of nature.

OBJECTIVE 1: BALANCE ECONOMICS, SOCIAL AND ENVIRONMENTAL DESIGN IN A DENSER, MIXED-USE URBAN CENTER

Currently the site has been designed as a “mixed-use community”. This mixed-use community though is still very much a series of silos where office, residential, commercial, and other services are not integrated together in the same building. In order to create a site that is resilient and holistically sustainable the term mixed-use will connote a much richer and more integrated design which includes environment, social and economic designs into every facet of the building and open space. The first goal, set in order to comply with this principle, is that 100% of the site must integrate the holistically sustainable economic, social and environmental systems together in some way. Second, density of residences will increase

by 60% with 40% being luxury condos and 20% being apartment homes with lower rent. Increasing residential units and integrating higher income and lower income housing together in this above mentioned mix creates a better sense of community for individuals living there and those visiting. Third, public open space will take up at least 60% of the site in order to increase public access and ownership of the site reducing physical and psychological barriers currently established by the mall. Fourth, 100% of the stormwater from the site will be treated on site and eventually either recycled or returned to the White River in order to make the site more environmentally sustainable reduce pressure on the stormwater system. Fifth, 35% of new businesses in the redevelopment will be local and not chain stores in order to enhance the identity of the mall, its authenticity and to keep more money local providing work for local individuals. Sixth, existing office building square footage will remain the same, but each new development and existing development will be retrofitted to maintain a good mixed ratio of business, commercial business, residences, and other land uses.
Adding schools, pharmacies, grocery stores and other key amenities creates a more walkable community enhancing the sense of community while increasing social interaction, economic revenue and environmental sensitivity. These are all held within tight quarters increasing the sense of community. The addition of trails, gardens, neighborhood gathering spaces, multi-use spaces, private space and other open space allows individuals to interact with others on a variety of different levels at all times. While increasing connections to the White River, creating and enhancing vegetation and edges, and integration water into the site creates a relationship between individuals and the environment, materials and techniques such as permeable pavers in more subtle colors with some brighter hints, vegetated swales, systematic stormwater management from all hard surfaces and green roofs reduce the negative impact that currently occurs on local natural resources. By implementing all of these items the site gains a better sense of a community and becomes a place where individuals do not want to leave. The site becomes a place that individuals who live there, and those in surrounding areas, feel a sense of pride and ownership of the site and its character. The design produces the dense rich center that is needed in this area and provide a second urban center to Indianapolis that accents the current downtown area. It also produces a very ultra-

FIGURE 5: THE EXCHANGE The entire site design has a plethora of various projects and districts adding to the unique identity and authenticity of the site. Each of these areas has specific purpose that contributes to a holistic design approach and cultivates a culture of live, work and play.

modern, contemporary feel without sacrificing a somewhat quiet, contemplative atmosphere in the more intimate and private residences (See Figure 3).

OBJECTIVE 2: INTEGRATE TECHNOLOGY AND ECOMMERCE TOGETHER

In order to align the site with this principle the first goal will be to provide free Wi-Fi service for all residents and visitors to the site to enhance the ability of all individuals to access the internet and social media. Second, phasing new types of technology and commerce into the store every 5 years until 2040 will be implemented. These new types of stores may include stores where you feel and try on items but then they get delivered to your door, stores that use technology to measure your body accurately or some other measurement and can immediately put it into their computer system for delivery by the end of the day. By 2040 the site will utilize smart transit technologies for transporting people and goods including smart cars and light rail. These smart transportation services will allow people to access the site without having to worry about parking or driving themselves long distances. The technologies will also allow companies/businesses to reduce inventory which reduces that mount of store deliveries that need to be made, therefore reducing overhead costs for the businesses. The design also increases the ability of makers to utilize flexible selling space to showcase their goods, have people set a specialized order and have the product shipped to their home. Buildings will have built in screen and other interactive pieces that will allow all business owners and makers to advertise as well as to leverage social media and other real time data from smartphones and other mobile devices. Public spaces will allow individuals to purchase tickets to events via there phone when an ad shows up on screen. Social media and the ability for individuals to purchase things on the fly is incorporated heavily into the commercial building facades, art pieces and public sculptures without the site becoming a massive billboard. Technology will also be incorporated into the water with boards showing how much water is currently running through the site and real time data from the natural stormwater cleansing process. There will also be numbers on the screens that show how money is being saved by the stormwater management process. Technology along these waterways will not be overwhelming. It will be more understated hinting at the natural processes occurring on the site. All these pieces contribute to the ultra-modern feel of the site.

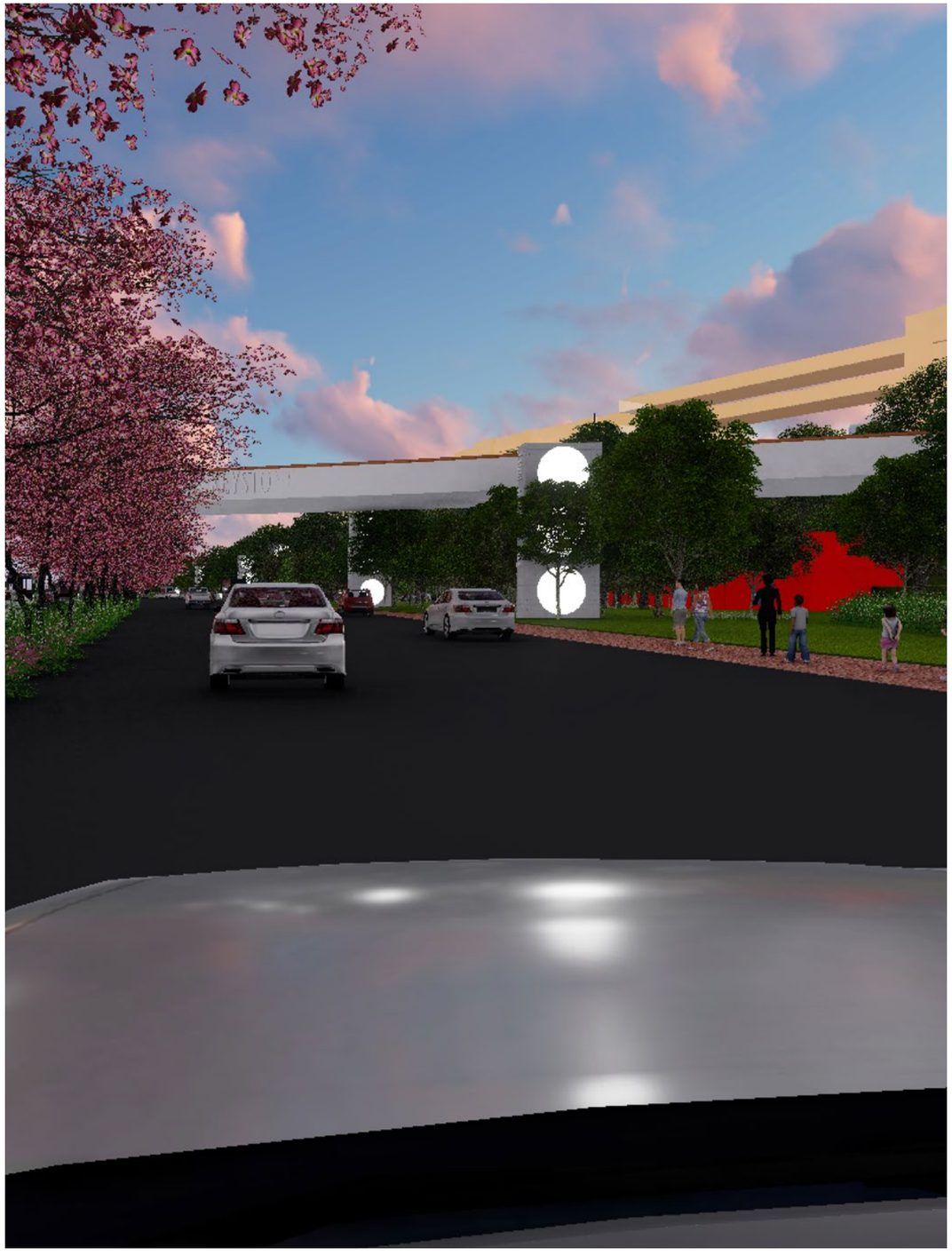

FIGURE 6: THE ENTRANCE The drive along 86th Street provides users with a beautiful view of the residential towers, pedestrian bridge and iconic Keystone Mall signage enticing the viewer to enter the site.

OBJECTIVE 3: INCREASE THE PRESENCE OF LOCAL BUSINESSES WITHOUT TAKING AWAY FROM THE IDENTITY OF THE MALL

One of the major pieces of The Fashion Mall at Keystone is its identity in the community. It currently is a very popular place for those who have high incomes to do their shopping. This identity has been key to the economic success of the mall over the years. In order to maintain this identity while making it more sustainable holistically a careful design approach was considered. First, during the first 10 years of implementation of the design 20% of the existing mall tenant space will be dedicated to local and not chain run businesses. This provides more opportunity for local individuals to gain income while also keeping more revenue locally. It also starts to provide a diverse range of commerce that will attract more customers and users to the space creating a richer experience and environment. Second, 20 years from now that site will have 50% locally owned businesses and 50% chain stores. This ratio is key to making sure that the site continues to develop a rich commercial setting and attract a wide customer base which will add to its unique culture in the region. Also, as adaptability is key to this design, the spaces that commercial retail will be using must be designed in such a way as to provide easy renovation when a new business wants to come in and an old one wants to leave. Shared office spaces, meeting rooms, study halls and areas, and other related types of areas will be incorporated to allow the increasing number of individuals and companies who have or are work at home employees to not have to spend a lot of money for spaces rarely used.

These goals allow the site to become richer in its identity without taking away from the current draw that customers see. The local businesses provide people and their families with jobs, income, and increased happiness by working from home and having walking access to their work.

One of the major pieces that this all accomplishes is that the site remains very posh and modern but encompasses a wider demographic. This again comes from the shared use spaces, use local materials and businesses and keeping more of the money that comes into the site local.

OBJECTIVE 4: INTEGRATE LIVE, WORK, AND PLAY INTO EVERY FACET OF THE REDEVELOPMENT

Our society today is full of silos. Silos subdivide our lives into tiny pieces that never touch. There is a silo for work, a silo for housing, a silo for recreation, a silo for playing and we travel long distances to experience them but rarely are they connected into a cohesive community that is integrated together without having to drive long distances. Live, work, and play is a commonly used phrase in the design field today but when it is stated many people wonder what it really means. The integration of all these activities together into a site that allows individuals to receive all of the necessary things they need to live is what is meant by live, work, and play. Because of the economic and time commitment costs of driving, as well as a shift in cultural design for more walkable communities' individuals are seeking out communities and urban settings that allow them to access all components necessary for living without having to commute. A better use of sites is to integrate all the uses and things we need today into a cohesive site design. In order to do this at The Fashion Mall the first item addressed is that of public open space. Currently the site feels unwelcoming to the general population because it is all privately owned. Unless you have a high income or are otherwise well off you feel as though you cannot enter the site. This takes away from the ability for all individuals to feel they have some ownership of the space which decreases interest and creates a lack of diversity and richness.

By 2050 this site will increase its public open space to 70% of the site. This percentage came from looking at several successful cities, such as Seaside, Florida, that have good ratios of public open space. This public open space will be situated in such a way that all individuals have either a view of it or access to it 24 hours a day. Buildings with retail, residences, and offices will all have views overseeing the open space to help reinforce the connection between working, living and playing. Public open spaces will all include places to sit, play areas for children and adults, community gathering spaces, grass areas for a variety of uses, art and other sculptures, creating lighting throughout the day, access points to water flowing through the site and access to the White River, bike trails and lanes, running paths, walking paths,

FIGURE 7: LIVE, WORK, AND PLAY The proposal brings live work and play to all facets of development. The site puts open space at its core surrounded by residences, business, offices, schools, pharmacies, grocery stores, among many others givine people walkable access to all things necessary for life.

natural materials among other related items. Living spaces will all have some sort of private exterior area and a larger semi-private or community gathering spaces. All of these add to the ultra-modern feel of living, working and playing (See Figure 4).

OBJECTIVE 5: BOOST THE CULTURAL SIGNIFICANCE OF THE MALL

One of the issues that is currently eating at malls is their lack of being culturally significant. Culture is defined by the Australian Natural and Cultural Heritage Theme Report as "…aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups.[7] When thinking about the malls' cultural association it has always been just a place to shop and maybe hangout, but there is no real cultural significance to the communities surrounding malls due to the cold transient and economic nature of the site and structure. Stores in malls generally do not stay forever and as a pure economic driver individuals feel no ownership of the site or space. In order to boost the cultural significance of the mall several things must be accomplished. First, the public space introduced in the last objective is key to allowing individuals to create pop-up events and other activities. As these activities become more popular and regular it gives the users a sense of ownership of the space. Over the years as more events are held regularly cultural significance of the site becomes established in the minds of the surrounding community, region and residents of the site because they have ties to events and activities in the public realm that they love. This public open space (See Figure 5) is key to establishing long lasting personal associations and creating the opportunity for chance encounters. Second, the aesthetic quality of the site must be enhanced. Many times malls are cold because they maintain a very odd and not very appealing mix of storefronts, materials and architecture.

In order to better boost cultural significance the mall will be redesigned with a material palette that is similar throughout the site using more subdued materials including limestone with some highlighted ultra-modern highlights, glass and metal, and more natural hints such as rough cut stone and wood. The design will also have a plant palette that gives a unique feel and aesthetic to the public open space. An overall sense of community, safety and quiet while also seeming busy and active at all times will also be key in the aesthetic design in order to boost cultural significance. This is accomplished by utilizing a wide variety of paths and directions throughout the site to disperse people and make it seem quieter along with plants to help soften the modern facades and hardscape. Public open space will have areas that allow individuals to program them in multiple ways during all times. As these events become more common and the community latches on the culture of the site will continue to be strengthened. Contemplative paths that traverse the site down to the river will also add to the culture and identity of the site.

[7] JAHSONIC DEFINITION OF CULTURAL SIGNIFICANCE

CONCLUSION

There are many other things that could be incorporated into the mall to further strengthen its resilience in the future. As the site gets looked at now and in the future a continuing analysis of the current trends, wants and needs of the residents, visitors, and surrounding neighborhoods regarding the mall should be completed. This analysis will lay out the path for how the site could change and adapt to conditions over time.

FIGURE 8: THE CENTRAL PLAZA The open space throughout the site with its plethora of spaces that allow for a variety of activities, both spontaneous and planned, to occur contributes to the development of culture in the site and surrounding are.

As the Fashion Mall site gets redeveloped according to the principles and objectives above, it will become a highly successful site that is protected from the future pitfalls of so many pure economic developments seen today. The redevelopment will integrate the mall into the community, give residents and surrounding communities a sense of pride and ownership of the site, create a cohesive bond with the environment and become a beautiful second urban center of Indianapolis and the surrounding region. In order to accomplish this resilience the site must be looked at and redeveloped now before it is too late.

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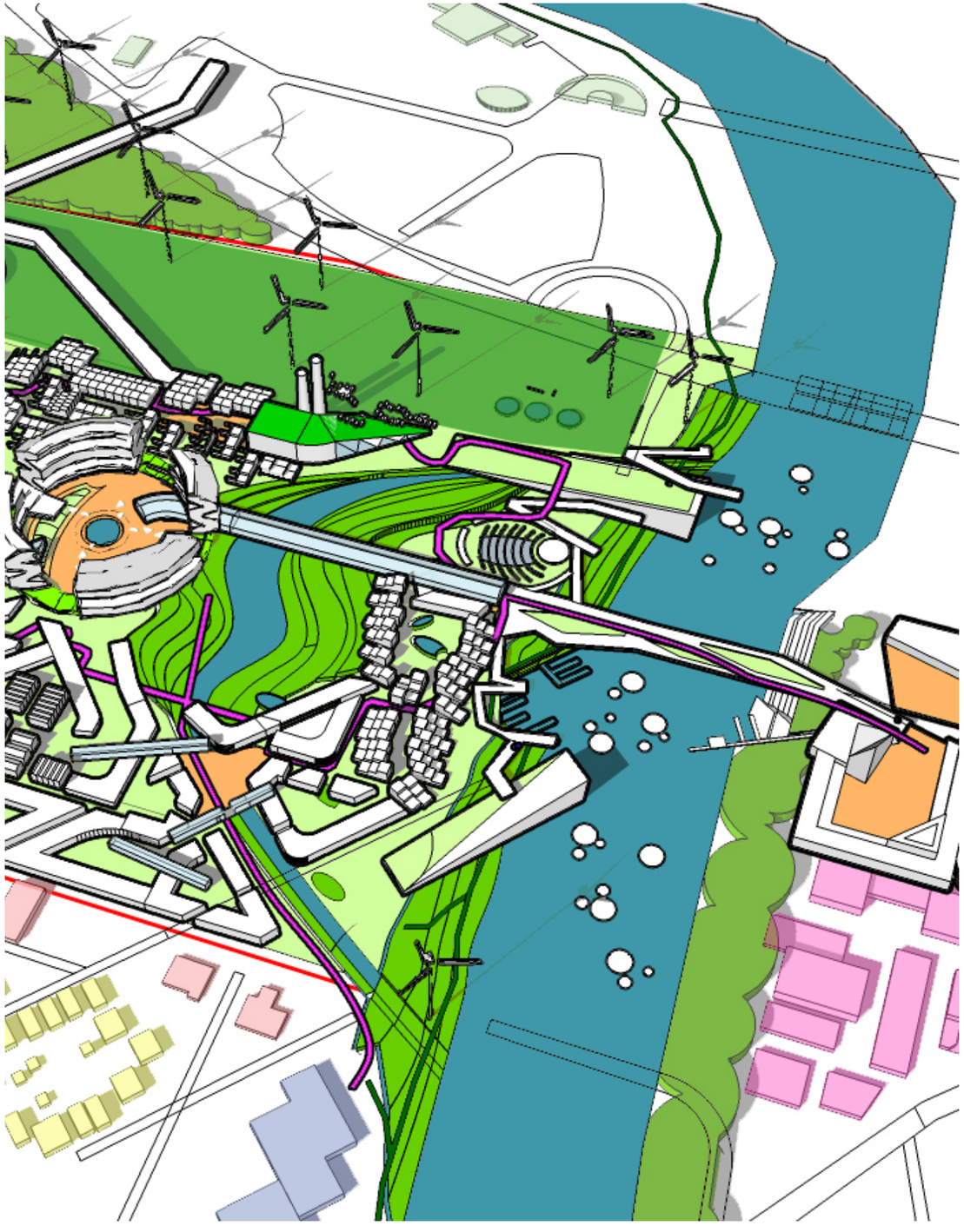


BEYOND GM STAMPING PLANT

A CONCEPTUAL MASTERPLAN TO REDEVELOP POST-INDUSTRIAL WATERFRONTS ON THE WHITE RIVER

LOAEI THABET, M.ARCH.

As many American cities, Indianapolis has turned its back to its waterways. Along with the disengagement and privatization, heavy industrial activities have contaminated the waterfronts while the combined Sewer overflow (CSO) have remarkably degraded the water quality of the White River. In addition to that, current levees capacity fails to contain frequent flooding conditions from reaching to brownfields which factor in degrading quality of water by increasing toxic pollutants levels in the White River. The loss of industry created an opportunity for Indianapolis to rethink its waterfronts by focusing its resources on creating catalyst sites for resilient and successful waterfronts. New sites will include new water-infrastructure to adapt with flooding as well as to build a basis for a unique community and new models of the economy. This multi-layer strategy would not only contribute to improving the water quality of the White River but would transform the future of waterways in Indianapolis.

INTRODUCTION

The White River is one of the longest waterways in Indiana to which several watersheds across the state are connected. Along this waterway, several settlements of indigenous Native Americans once existed. Additionally, George Edward Kessler's plan for the Indianapolis park networks emphasized this importance by envisioning waterways as greenways where leisure and entertainment activities can happen. In 1831, the steamboat, Robert Hanna, proved the fact that the river cannot be used for transportation means, due to its low volume, which diminished any significance of the river. Later in 1913, the levees were constructed to protect the city after a devastative flooding damaged the city and caused the loss of 200 people. The White River was only then used as a source of water for industrial needs that filled the banks of the White River between 1920's and 1950's. Also, the combined sewer system (CSO), as many other American cities, have contributed negatively to the degradation of the White River quality. By the turn of this century, the loss of industries clearly affected the physical landscape of the rivers by creating endless strips of brownfields.

In 1988, new types of developments started to emerge at the White River such as the Indianapolis Zoo and the White River State Park. This proposal argues that the available post-industrial waterfronts, along with the ongoing projects to split storm water management system, provide an invaluable opportunity for the city of Indianapolis to rethink its waterways. Through this paper, one can see how the city of Indianapolis can transform its waterfronts by a system comprised of three steps--focus, fix, and remix. Indianapolis can still invent, using their limited resources, catalyst sites for resilient and successful waterfronts. New sites will include new water-infrastructure that will adapt to river ecology and would turn extreme flooding conditions to an opportunity to build stronger communities and future models of the economy.

FIGURE 1: BACK TO THE RIVER New catalyst sites, including the GM Stamping site will include new water-infrastructure to adapt with flooding as well as to build a basis for a unique community and new models of businesses. This multi-layer strategy would not only contribute to improving the water quality of the White River but would transform the future of waterways in Indianapolis.

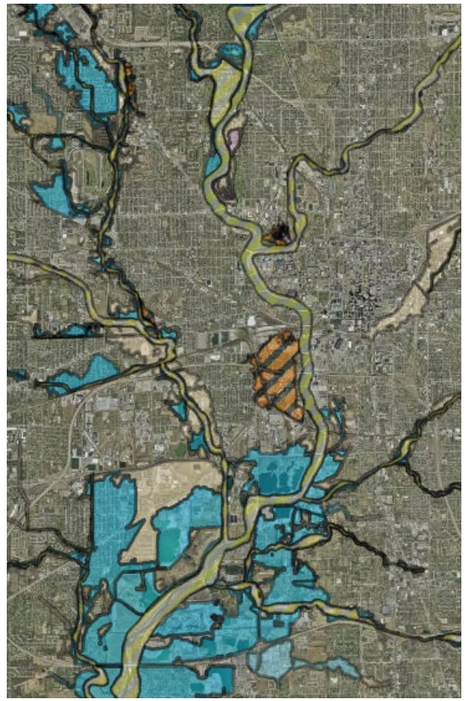
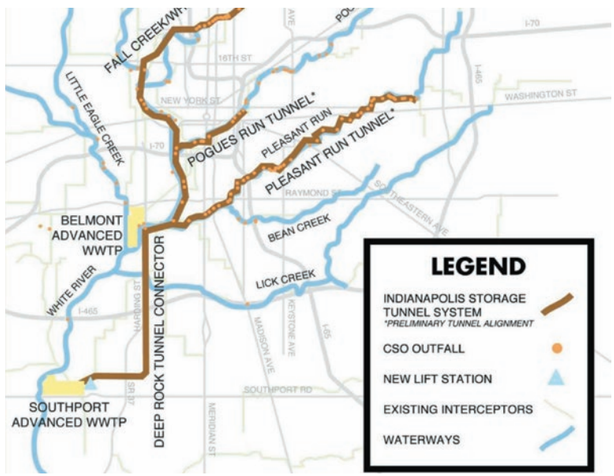


FIGURE 2 (ABOVE): FLOODPLAINS Levees are visually and physically disconnecting the waterfronts from the river while poorly protecting the surrounding areas from the extreme flooding conditions.
(Map Credit: Indiana Floodplain Information Portal)
FIGURE 3 (RIGHT): CSO OVERFLOW Current projects in Indianapolis are underway to reinstall storm water discharge systems separate from existing sewage system to reduce overflow problems.
(Map Credit: Tunelling Journal)

PROBLEM STATEMENT

Decades of industrial activities encroaching the White River has resulted in the accumulation of brownfields contaminated with a variety of toxic materials. The levee, on the eastern side of the river at this site, was constructed to protect the surrounding developments, especially industrials, from extreme flooding conditions. However, the levees are only visually and physically disconnecting the waterfronts from the river while poorly protecting the surrounding areas from the extreme flooding conditions. (See Figure 2) Upon such incidences, unfortunately, toxic materials continue to be introduced into the White River. As environmental awareness and concerns spike, there are cities and states that are increasingly faced with national and international responsibilities to improve the quality of their rivers and develop their waterfronts. For example, as required by the EPA, current projects in Indianapolis are underway to reinstall storm water discharge systems separate from existing sewage system to reduce overflow problems. As a result of all above, the White River is left in a very poor condition which can contribute adversely to the resident's disengagement with the White River and eventually to their depreciation of it as a source of identity and pride. Today the waterfront strips fall in the Kessler's national register and urgently calls for an immediate attention. This paper considers consequences beyond people's inability to use the water for leisure activities such as swimming and fishing. Rather, it explores a practical roadmap on how to effectively guide public and private monetary investments, what the ecological effective design would be, what ideal urban forms would be, how to produce economic models that can replace the previous monopolist industrial models, and above all, how to attract residents and businesses back to the south-west side of downtown Indianapolis.



PROPOSAL

Although Indianapolis could not afford the financial, technical, work capabilities to redevelop the whole strip of brownfield on the both sides of the river, this proposal identifies catalyst sites to redevelop post-industrial waterfront communities that would have the greatest impact on the region. Because these catalyst sites have the greatest connection to the major components of the city (such as entertainment district, downtown, IUPUI, Major mixed use developments, major park infrastructures), their development would create greater potential for future extensions as well as to attract future businesses and residents. Other factors for ideal catalysts could include scale, context program, etc. The city would be able to focus its monetary resources on remediating or creating incentives that attract developers to redevelop the designated sites. Then levees blocking those sites from the river will be cleared to allow for a full physical and visual connection to the new sites. By developing a series of these pre-designated sites in a timely manner, the river would find be able to breath at the extreme flooding events. (See Figure 4) New water-infrastructure would construct rich ecological systems along the river while a series of connected loop inner systems of water on the site will absorb the flooding water, and thoroughly treat the water before allowing the water to return clean to the river. The components of the catalyst development should integrate their functional performances in line with the overall new water system. Finally, as additional value, the series of catalyst sites would make a potential framework to establish future transportation system (such as the trendy light rail systems or even the Tunneled Hoover Pods developed by Tesla). This will provide a new experience of focal points instead of traditional waterfront strips.

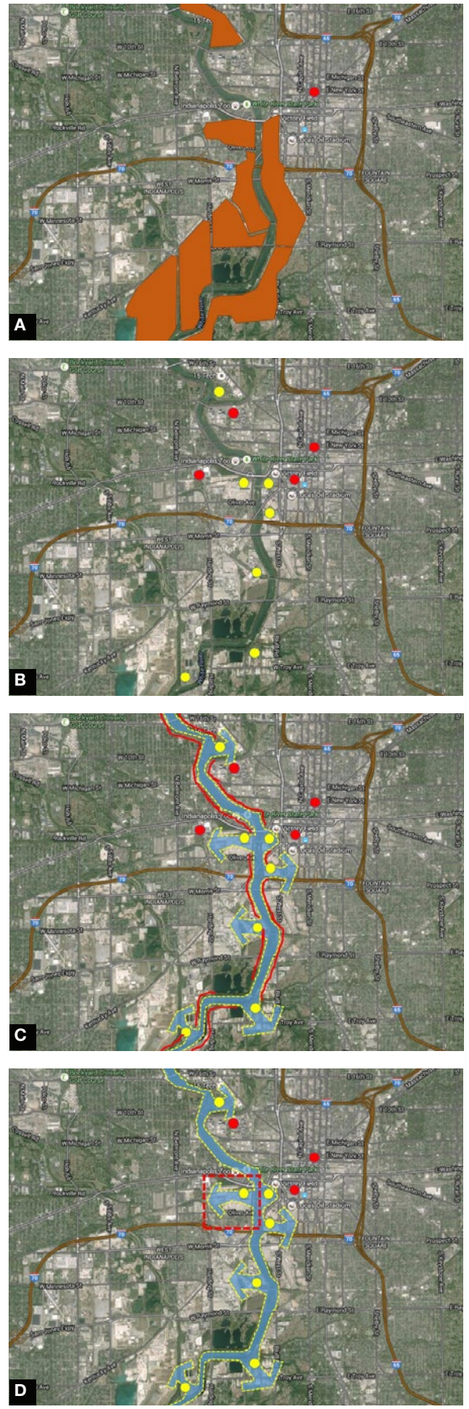
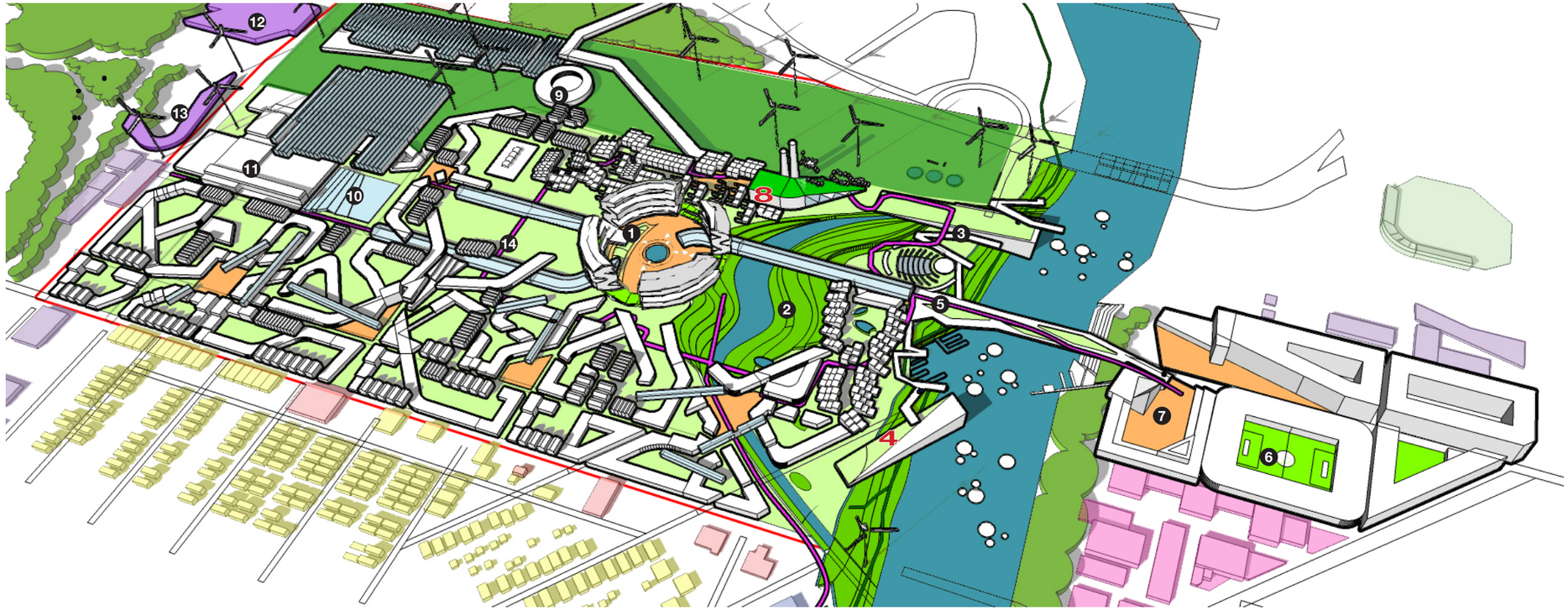


FIGURE 4 (RIGHT): REGIONAL STRATEGY This proposal identifies catalyst sites to redevelop post-industrial waterfront communities that would have the greatest impact on the region. By developing a series of these pre-designated sites in a timely manner, the river would find be able to breath at the extreme flooding events.
KEY:
A. Post-Industrial: Condensed area with brown-fields
B. Identify Catalyst Spots for remediation
C. Clear Levees at the Catalyst Spots
D. Provide a room for river to breath & Guide flooding through water infrastructure while Keep levees as barrier between water and TOXIC brownfields

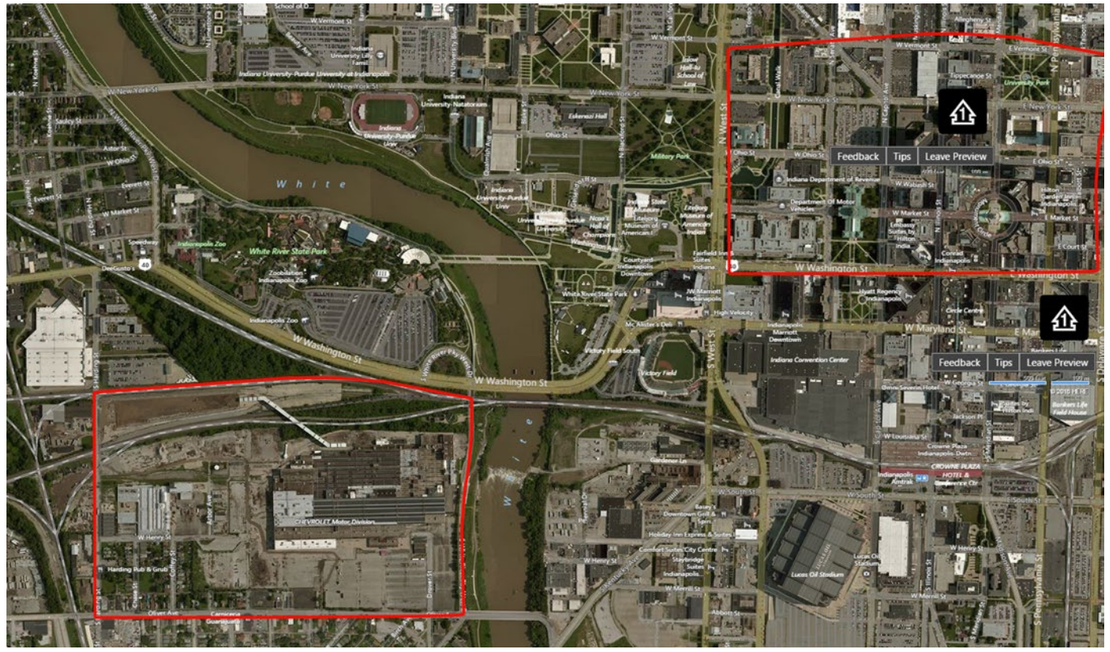


KEY:
1. Market Circle
2. Washing Machine
3. Water Research Center
4. Aquarium
5. Green Bridge
6. IndyEleven Stad.
7. Plaza
8. Energy Plant
9. Train Station
10. Vocational Center
11. Recyling & Algae
12. Chain Diamond
13. Salvage Facility
14. Community Field

FIGURE 5 (LEFT): THE PROPSED MASTERPLAN The GM Stamping site represents one piece in a necklace of catalysts along the White River. By taking advantage of the new water-infrastructure, this site will guide the growth in the west and south side of downtown Indianapolis.
FIGURE 6 (BELOW): BOUNDARIES OF THE SITE The scale of the site is equivalent to 28 blocks of downtown Indianapolis blocks with an overall area of 180 acres approximately, and is located within 2 miles of Monument Circle.

SIGNIFICANCE OF THE SITE

This proposal outlines the redesign of one catalyst site in South West Indianapolis. This site has the potential to be redeveloped on the basis of the water-sensitive urban design due to its proximity to Monument Circle. This site, where the GM Stamping plant once stood for many decades, is rectangular in shape with its shortest side overlooking the white river measuring approximately 2000 ft. while the longest side measures 4000 ft. The scale of the site is equivalent to 28 blocks of downtown Indianapolis blocks with an overall area of 180 acres approximately, and is located within 2 miles of Monument Circle (See Figure 6). Though this scale provides some challenges for any development scheme, it provides enough room for an effective water-infrastructure, ecological water edge and relevant public amenities. The site represents a juxtaposition in relation to the surrounding uses such as residential, parks and of course industrial uses, which provides some context to work with as an inspiration. Because of its possible connection to the entertainment district, this site can become an ideal site, or even a catalyst, for two major emerging projects for the city of Indianapolis. These are the amphitheater at the former GM Stamping plant and the Indy Eleven Stadium. While this site's proximity to entertainment and downtown provides jobs for the intended residents within a walking distance, yet the site provides the opportunity to create productive, green economic models such as the making community and urban farming. This site resembled a perfect subject matter to illustrate ambitious visions and designs that can counteract issues inherited in the post-industrial sites such as water quality, inaccessible waterfronts as a result of design flaws and levees establishments, loss of jobs, dispersion of residents, and blighted neighborhoods. Also, to illustrate how urban design concepts that can capitalize on the existing assets such as existing railroad infrastructure, proximity to the entertainment district, White River state park and eventually to the downtown. It is worth noting that this is one of the few sites where the water of the White River can be accessible, where no levees are blocking the views or acting as a physical barrier as this can be utilized in constructing ecological landscapes, channeling water filtering systems, and creating accessible river amenities.



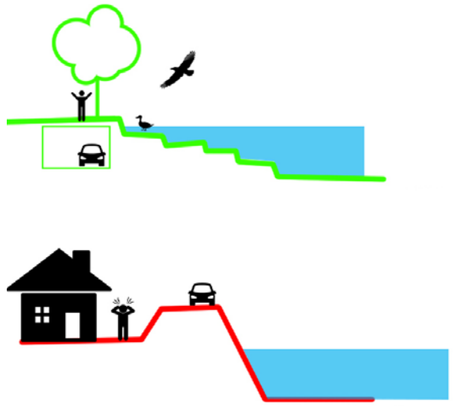
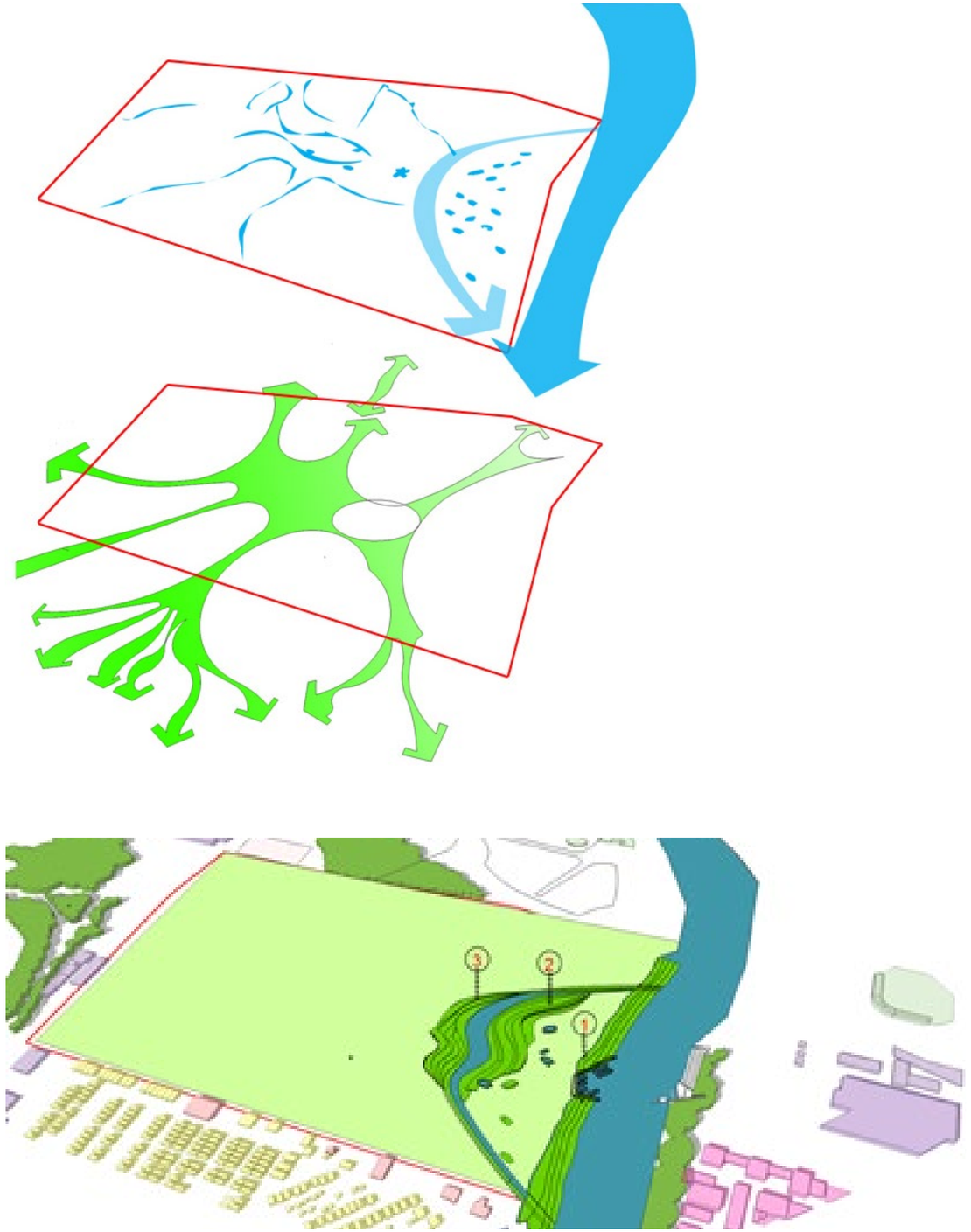


FIGURE 7 (UPPER LEFT): REDESIGN THE LEVEES At the edges of the catalyst sites leveses will be redesigned to allows the river to breath and enhance the ecological quality.
FIGURE 8 (BOTTOM RIGHT): WATERFRONTS New water-infrastructure would allow the water to be channeled through a filtering and retention features which would generate series of waterfronts.
FIGURE 9 (UPPER RIGHT): INTEGRATED SYSTEM OF GREEN & BLUE WATER The remediated sites will feature different integrated looped systems. This will help shape landscape layers, footprints, and views. Also, The scale of the infrastructure will ensure no toxic materials hidden under the soil where industrial activities of the GM Stamping site can be introduced back to the White River.

FIRST GOAL: IMPROVE THE WATER QUALITY OF THE WHITE RIVER

The GM Stamping site has an ideal scale to establish a system of channeled waterway on the site with series of retention ponds, detention ponds, and constructed wetlands. The edges will be designed to ecologically embrace the fluctuating level of the river, create habitats for species, and also infiltrate storm water on the site before reaching the White River. (See Figure 7 & 8) Now with the available brownfields along the White River, this model can be repeated, which will remarkably impact the quality of the water and quality of place. Future post-industrial waterfront developments can contribute to cleaning the White River in Indianapolis. Keep in mind that cities are on obligatory schedule to split their combined sewage system in order to solve sewage overflow problems to rivers and to improve the quality of their waterways. Similarly, remaining industrial activities are under heavy pressure to responsibly manage and process their solid and liquid wastes away from the waterways. All these efforts are controlling point pollutants and are promising a much healthier condition of the waterways. With that comes an opportunity to utilize the available brownfields along the White River, on the south-west side of Indianapolis, to generate a repeatable model of an ecological passive system using landscapes edges to help distil solid wastes and infiltrate chemical and liquid wastes. In regards to mitigating non-point pollutants, the same ecological systems can be further used to increase the waterfront capacity to embrace seasonal and extreme flooding, a fifty-year flooding and a hundred-year flooding, while offering accessible and resilient landscape in both dry and wet conditions. This is important as flooding can also be a significant factor in reintroducing toxic materials under the brownfields soils to the White River. (See Figure 8)

The new water-infrastructure would ensure that any newly-constructed developments along the waterfront will endure any seasonal or extreme flooding. The new water channels on-site will help the river breathe and expand when necessary during the flooding events. Also, the site new landscape is designed to attract leisure activities during dry conditions and wet conditions. It well help capture most of its storm water while slowly filtering any excess water into the river. Thus, the new water-infrastructure and ecological design of the landscape edges will help contribute to the water quality and place quality. (See Figure 9)



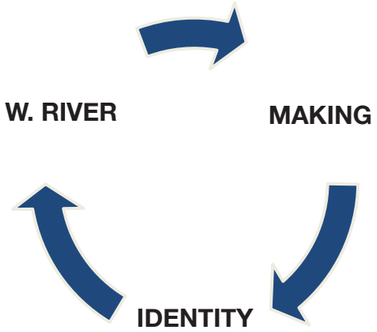


FIGURE 10: MAKING IDENTITY Loss of industry left most of the communities along the White River with no unique identity. White River has been always defined by the type of activities occuring on its waterfronts. This project reintroduces hands-on based businesses that would reinvent a new unique identitiy for the community as well as the White River.

SECOND GOAL: CREATE NEW MODELS OF ECONOMY

Developing the waterfront will help reconnect the Southwest side of downtown Indianapolis to the downtown through the entertainment district such as Lucas Oil and Victoria Field. The new water-infrastructure can attract a sudden attention to the amenities it will offer, such as the amphitheater and the aquarium. Across the river, new sites would emerge as new ideal sites to expand the entertainment district with projects currently on the discussion table, such as the Indy Eleven Stadium for Indiana soccer amateurs. With new businesses coming to downtown Indianapolis from out of state, such as Cumins, an increased demand for housing will be more likely to occur. Unless this need would be sensibly served using the potential sites with close proximity. Such demands, without a ready supply of housing unites nearby jobs, would be likely to contribute to the urban sprawl problem with all related negative consequences, environmentally, economically and socially.

Post-industrial waterfront development will help create future models of economy. The site is still surrounded and includes smaller portions of active industrial activities that can be carefully considered in thinking about the new business models. On this particular site, several industrial businesses are still active. Similarly, several other factories are active randomly dispersed. By developing the waterfronts, we can rethink the spatial organization of the existing industries. The Spatial organization can provoke new creative ideas of new lines of productions or integration. For example, salvage yards around the site can be reorganized to form as units to collect, process, and supply recycled materials. With the availability of all kinds of materials, making community can serve as a designing unit for new products or parts as per required. Therefore, existing factories on and around the site can partner with the making communities to develop new designs and produce more customized products (See Figure 11).

New water-infrastructure can help provide a healthy food source for the low-income communities on and around the post-industrial sites. By taking advantage of the new water-infrastructure, excess storm water can be recycled to irrigate gardens and greenhouses where urban farming can thrive. Most agricultural lands in Indiana produce corn where a major part of it is utilized for biofuel purposes. On the contrary, urban farming on this project would focus on producing organic foods such as vegetables and fruits. The post-industrial sites provide an adequate source of salvaged materials to build the structural frames of the new greenhouses. Greenhouses would be publicly accessible with a variety of activities for residents of all ages. Greenhouses would primarily be concentrated in the northern part of the site nearby the existing rail tracks. However, greenhouses were planned to be located within a walking distance of every public space. The community members can easily volunteer to work in such greenhouses as well as rent spaces to grow their own food. The greenhouses will provide most of the residential annual needs of the basic food substances while excess production can be sold to local restaurants to generate income for the residents. Any food waste will be composted to produce natural fertilizers. In addition to the several economic benefits that post-industrial mixed-income communities would enjoy, these new models of economy would greatly reduce the industrial and farming wastes which can affect the soil quality and eventually the water quality. (See Figure 12)

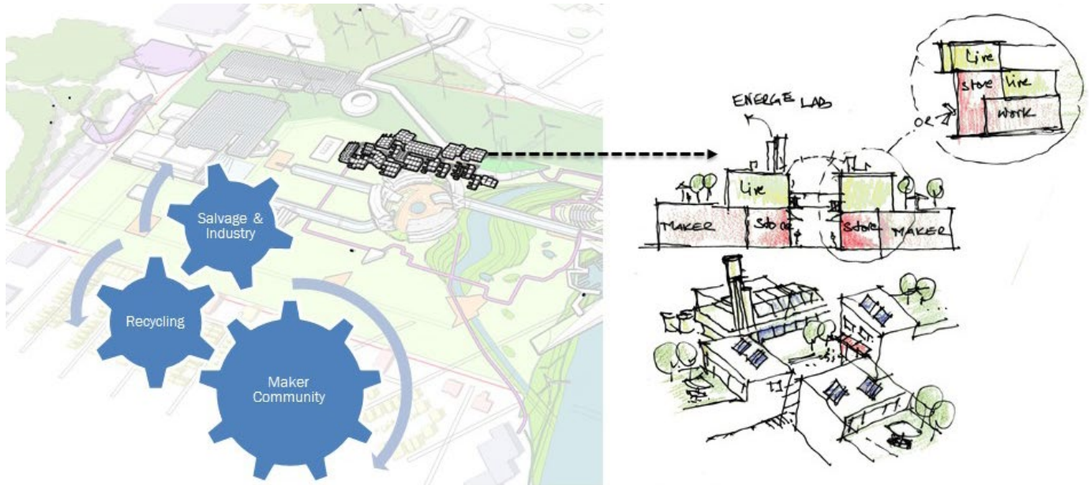


FIGURE 11 (ABOVE): MAKING ECONOMY Making community can serve as a designing unit for new products or parts as per required. Therefore, existing factories on and around the site can partner with the making communities to develop new designs and produce more customized products.
FIGURE 12 (LEFT): FARMING ECONOMY Urban Farmingwould close the supply chain loop by reclaiming industrial and farming wastes and therefore improving economic conditions and water quality.

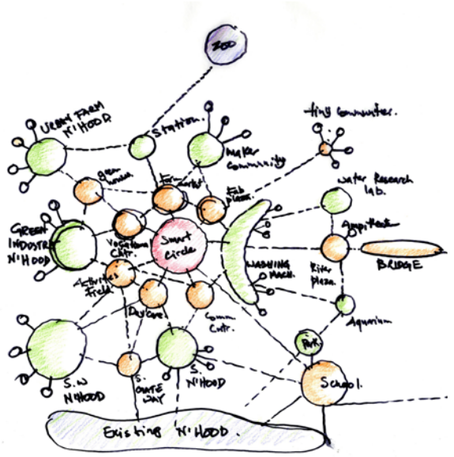


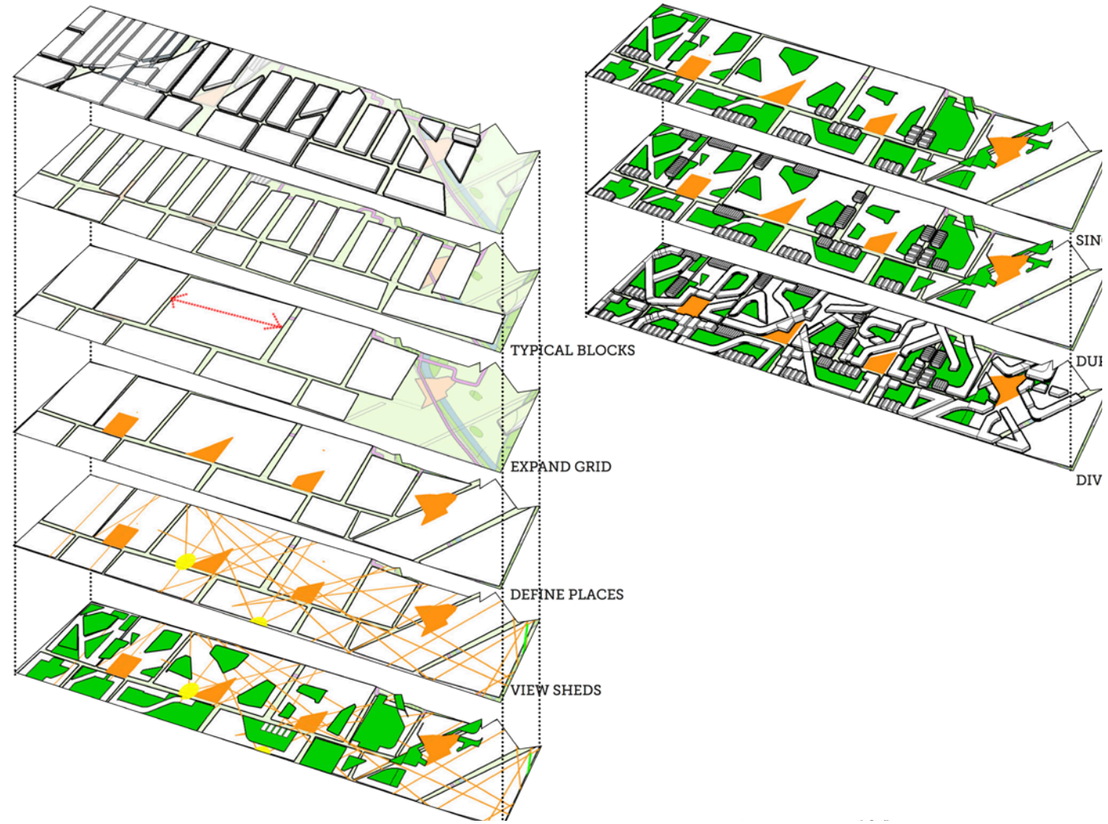
FIGURE 13 (RIGHT): DESIGN PROCESS Housing in this development was carefully planned to solve the problem of rightsizing density in such shrinking sites.
FIGURE 14 (ABOVE LEFT): WATERFRONT COMMUNITY Housing in this development was carefully planned to solve the problem of rightsizing density in such shrinking sites.
FIGURE 15 (BELOW LEFT): COMMUNITY SOCIOGRAM The new water-infrastructure will support and encourage creating several urban amenities which are spatially and programmatically designed in convenience to the southern community and the context program.

THIRD GOAL: BUILDING URBAN COMMUNITY

By taking advantage of this site's river accessibility as a basis for creating a new water-infrastructure, this project aims to attract new residents by rebranding Indianapolis as a community strengthened by its landscape and new energy technologies. Since the site has no specific grid pattern established, there is greater flexibility in reconfiguring block sizes as well as the spatial organization community assets, and amenities. (See Figure 13) Thus, water management system parts, constructed wetland systems, and other water features will act as a framework for shaping, programming, and connecting the collective components for the long term development. To enhance the identity and sense of community, open spaces, community assets, and connections within, were carefully designed, as essential parts, for building the urban community in this project. Considering those elements as integrated layers will encourage shared activities, ensure social equity, foster community interactions, and increase the sense of belonging and pride among the residents. (See Figure 14 &15)

Most of the residents around industrial areas were mostly blue-color labors dependent on the factories as a main source of income. As a result of industry loss, most of the residents had no good reason to stay in such communities especially when those places offer no emotional connection or unique quality of place. With that dispersion, a lot of residential units became empty and communities suffered from steep loss of density and low sense of safety. These factors, among others, contributed to the constant decline of real estate values. To reverse that, the new water-infrastructure will create several urban amenities which are programmatically designed in convenience to the southern community and to the context program. (See figure 15) Also this project places the proposed residential units in adjacent to the existing housing communities. Respecting existing housing typologies and heights in the design of the new types will help vanish boundaries between existing and new development. The variety of businesses to be created as a result of the new water-infrastructure catalyst will support the current residents as well as most of the new residents.

The vacant sites on and around the site would provide an opportunity to develop affordable units. 20% or more should be considered as affordable housing based on the median market indicators. 5% should also be dedicated as housing for people under the poverty line with options of housing that are both affordable and desirable, but still approvable under the current zonings and regulations and reasonably fundable by mortgage providing institutions.



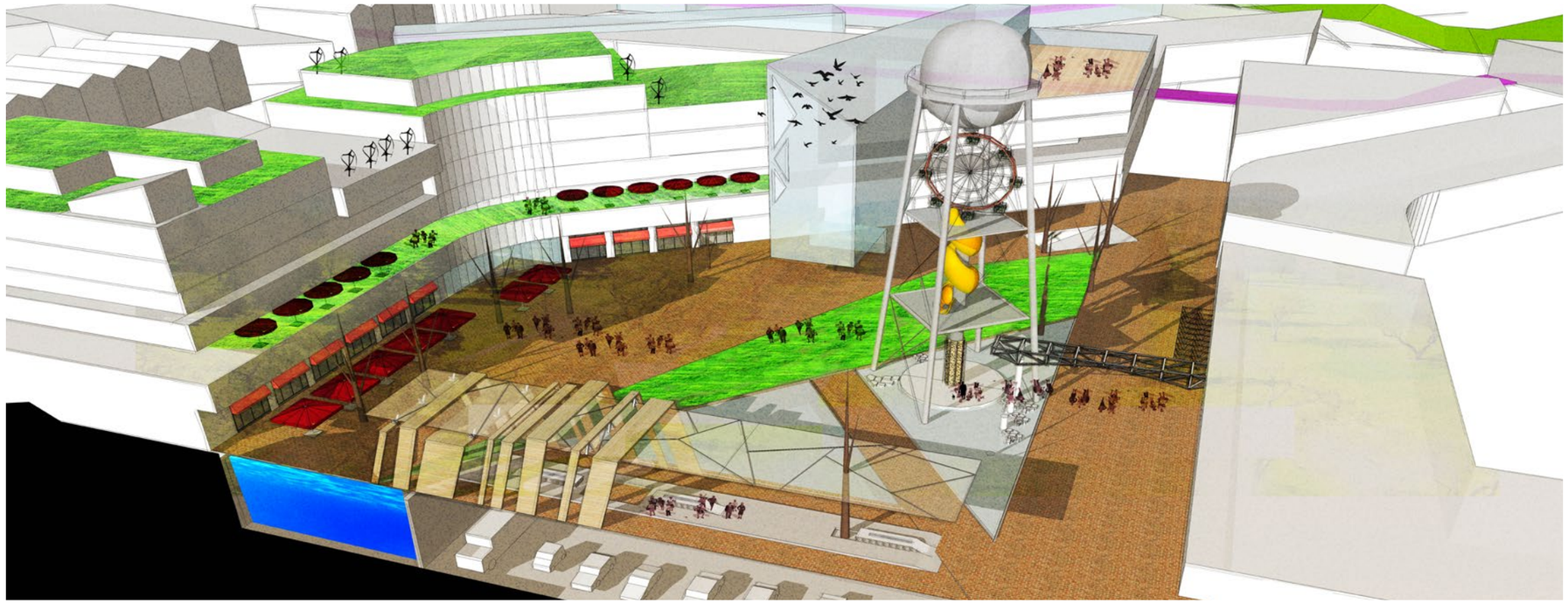
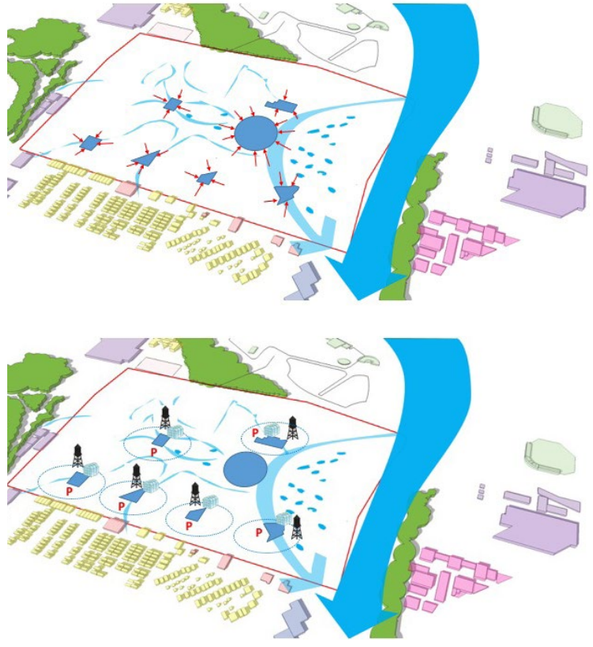


FIGURE 16 (MIDDLE RIGHT): PUBLIC SPACES AS INFRASTRUCTURE The capacity of such infrastructure would be insufficient if it is not aligned with a compatible capacity of the public spaces.
FIGURE 17 (BOTTOM RIGHT): WATER TOWERS The water-tower and the greenhouse will feature a unique identity for each community.



FOCUS AREA: NEIGHBORHOOD WATER-SENSITIVE PLAZA DESIGN

By taking advantage of the new framework of catalyst waterfront sites, the White River water as well as storm water will influence and shape the components in the new developments of the proposed catalyst sites, thus achieve resiliency and sustainability. Though this would create great opportunities, it will result in tremendous stress on the man-made built-environment elements, in particular, “open spaces”. Although new landscape water-infrastructure would boost the storm water management, the capacity of such infrastructure would be insufficient if it is not aligned with a compatible capacity of the public spaces, and other built environment acts per se (See Figure 16). Costly damages can impact the infrastructure and structures if resiliency was not essential in the design of the public spaces. Also, the fluctuating temperature degrees would result in uncomfortable conditions for users of the public spaces.

New water-infrastructure will help form water-sensitive urban design. This simply means that each element contributes collectively to collect, store, and recycle water. We intended to design integrated and connected layers of the urban physical components. Open spaces constitute one important component in our scheme from different aspects, creating open spaces as big cisterns of rainwater. Greenhouses can help catch rainwater and store it in open spaces cisterns. Stored water can be used for non-drinking purposes such as toilets and irrigation purposes. (See Figure 17 & 19) Open spaces in the proposed development would pump the collected water up to water towers. Such water towers can act as landmarks to increase the sense of place. Water towers would be designed differently for each open space. Thus, a unique identity can be created for each community (See Figure 18 & 20). Open spaces will feature several components that celebrate water such as fountains. Open spaces will atop parking rooms underground that can be used to manage storm water.

The design concept reviewed the special character of the monument circle and other public squares in Indianapolis, it also drew inspiration from the historical clues such as the industrial and agricultural activities. The design attempted to reintroduce the nature and the asset of the river to the public space. The public space will merge the character and activities of both of the plaza and park. Some of the guiding principles are to reconnect people to each other and to their community, reintroduce the nature to the public spaces, rethink the shading in the public spaces, and reprogram the public space that ensures the vibrant and adequate use of public space all year long.

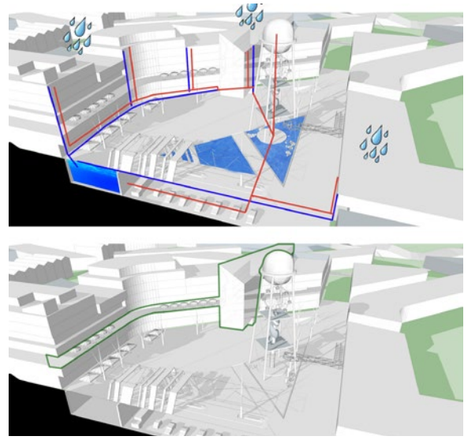


FIGURE 18 (TOP): CHARACTER Water towers can act as landmarks to increase the sense of place. Water towers would be designed differently for each open space. Thus, a unique identity can be created for each community.
FIGURE 19 (BELOW RIGHT): WATER & FOOD SYSTEMS Water stored in the cisterns would be pumped up to the water tower to feed the non-drinking and irrigation needs for the surrounding residents and greenhouses farming. Greenhouses (food tower) are providing local resutrants with fresh organic crops. This economically supports the locals residents.

FIGURE 20: CHARACTER Water towers can act as landmarks to increase the sense of place. Water towers would be designed differently for each open space. Thus, a unique identity can be created for each community.

CONCLUSION

In light of this paper, current conditions of the post-industrial waterways of Indianapolis, in particular, the White River, amount to a valuable opportunity to invent catalyst sites for resilient and successful waterfronts. One site can't solve the problem of water quality, but the series of catalyst sites implementing the same water-infrastructure strategies can. This necklace of catalysts would form a backbone for a more successful environmental, social, and economical city of Indianapolis. By focusing redevelopment of post-industrial waterfront on selected catalyst sites on the White River, the city of Indianapolis would be able to initiate remediation and invest in new water-infrastructure that will help contribute to the quality of the White River. Also, the current mindset of replacing single-use by another single-use proved to fail. This paper encourages to create mixed-use communities that will forge greater places on the White River that the residents and visitors of Indianapolis deserve. The new water-infrastructure would help build stronger and connected communities and inspire non-traditional models of the economy. Likewise, the new urban built components, for instance public places, would be crucial parts for more efficient water-infrastructure. Even on this smaller scale, water is celebrated as a building material, building technology, landmarks, nodes, and linking parts. Residents and visitors would find inspiration, self-actualization, and above all pleasant social interaction.

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FIGURE 1: ENERGY GARDEN Smart Indy uses green energy productions, such as power generated by wind, to meet the demand for net zero energy performance.

SMART INDY

USING A NET ZERO ENERGY APPROACH TO MINIMIZE CARBON FOOTPRINT AT THE INDIANAPOLIS GM STAMPING PLANT

MOHAMMAD ALABBASI, B.A. ARCHITECTURE

In today's world, questions abound about how to generate energy and how to use energy. Whether one refers to the problem as global warming or climate change, the challenge has become how to remove fossil fuels from our society and use clean energy. Although fossil fuels have served humanity for hundreds of years, case studies show that if people continue using fossil fuels, such as coal, oil, and natural gas, the result will be more harmful to our planet than beneficial. Put simply, climate change can threaten life as we know it, and already is. Indeed, there has been an increase of greenhouse gas emissions in urban areas of more than 70 percent due to the burning of fossil fuels to generate electricity.[1] Even more to the point, research shows that climate change has the potential to significantly alter Indianapolis's urban landscape; for example, it is projected that flooding resulting from climate change will impact Indianapolis's near West side, an area that includes the site discussed in this paper.[2] To combat such disaster and alleviate systemic problems in Indianapolis's post-industrial neighborhoods, this creative project seeks to develop the General Motors Stamping Plant into a net zero energy district called "Smart Indy." This site would make a smooth transition between downtown Indianapolis and the West Indianapolis community, and between the site and the White River, by activating the water edge. As part of the current smart city movement, as defined by the use of technologies to improve the efficiency of services and creating cities that produce energy rather than just consume energy, Smart Indy seeks to minimize Indianapolis's carbon footprint through an urban design perspective, which includes a focus on architecture, infrastructure, and the use of renewable energy productions. The goals of Smart Indy are: 1) To provide technologies that make the development area a local and global destination, 2) To reduce the annual consumption of fossil fuels by using green energy production, and 3) To make the development area a smarter place for people to visit, live, work, and play. The implications of being smarter will include utilizing new concepts of sharing, such as Airbnb and Uber, using prototypes like the Google self-driving car, and recycling, in addition to the main concept of taking advantage of green energy productions. This site will be close to downtown Indianapolis, as well as accessible, via monorail (to be constructed as part of Smart Indy's development), to those traveling from the Indianapolis International Airport, which is important for increasing the accessibility of the site, and people will not have to use cars as often.

A BRIEF INTRODUCTION TO AN IN-DEPTH DEVELOPMENT

The project to be discussed in this paper is a contemporary mixed-use development of the General Motors Stamping Plant in Indianapolis, Indiana. This dynamic district, centered on innovation and driven by a net zero energy design, will include energy efficient buildings and low-carbon transportation options, and it will install renewable energy production on-site to create a self-sufficient net zero energy community. In short, the primary goal of this development is to minimize the carbon footprint expended by the city of Indianapolis at the old stamping plant site (See Figure 1). In doing so, this project will benefit the people of Indianapolis, humanity at large, and the environment.

The GM Stamping Plant is located a few miles from downtown Indianapolis—more specifically, 6 minutes driving, 10 minutes biking, and 30 minutes walking. Major points of interest surround the site, such as the Indianapolis Zoo to the north, the White River and Lucas Oil Stadium to the east, and I-70 to the south. Despite the strong proximity to key downtown destinations, this neighborhood has suffered extensive vacancies since the GM factory shut down and laborers left the city. Currently, this area of Indianapolis is suffering from economic and cultural depressions and it is not a desirable location for

FIGURE 2: WATERFRONT PARK The river edge will house a waterfront park that will work to connect the development with the White River, and people can interact with the river by taking pictures from the bridge, biking, or kayaking.

visiting and recreating. To alleviate these problems and implement new sustainable development techniques, Smart Indy aims to create new jobs and opportunities to attract people of different ages to live in Indianapolis and facilitate economic growth for the site.

GLOBAL WARMING AND THE GM STAMPING PLANT

Understanding the environmental issues in cities is a complicated, but important, topic. Several cities are suffering from the huge amount of greenhouse gas emissions in the atmosphere, which is the essential cause of global warming, because of burning fossil fuels to generate energy. Many scientists have made the alarming discovery that the average temperature on the Earth's surface is slowly rising—that is called global warming.[3] Global warming is indeed one of the most threatening enemies to the planet at the present time. Examples of fossil fuels currently used are oil, gas, and coal. Reasons for burning fossil fuels include to power factories and cars, and produce electricity. Today, cities, people, animals, and other organisms are suffering from environmental pollution; they cannot live in a healthy way if this situation continues. Therefore, a "smart" development—that is, a development based on green energy efficiency—is an essential solution for people to live in a healthy environment. According to the Indianapolis Flux Experiment (INFLUX), the greenhouse gas emissions in urban areas represent 70 percent of the global carbon emissions.[4] Indiana is one of the states burning the most coal to generate electricity, and it is ranked at the top among others for emitting carbon dioxide.[5] And this reality has not gone unnoticed by lawmakers. As stated in an Indy Star article from 2015, a new national regulation required that: "Indiana's power plants must reduce the amount of carbon dioxide produced per unit of electricity 38.5 percent from 2012 levels by 2030."[6] With that in mind, Smart Indy will exceed these goals through an intense and consistent focus on solar and wind-powered energy production, as well as infrastructure supporting energy-efficient transportation.

"ENERGY EFFICIENCY IS A TACTIC FOR SLOWING THE PROCESS OF OVERSHOOTING ENVIRONMENTAL LIMITS, BUT THE URGENT WORK FACING OUR CIVILIZATION IS TO USE THE TIME WE GAIN TO BUILD RICHER, MORE RESILIENT KINDS OF BUILDINGS THAT SERVE THE COMMON GOOD." - WILLIAM W. BRAHAM[8]

Smart Indy's design plans for the future by anticipating needs and possibilities. These initiatives make sense especially considering the context of what Indianapolis is already doing to promote sustainability. Among other things, the city supports bike sharing, car sharing, and walking for transportation (e.g., via the Indianapolis Cultural Trail and other pedestrian trails), rather than using a car.[7] So, in essence, Smart Indy is helping to take Indianapolis another step—and a big one, at that—in the right direction.

WHAT DOES "SMART INDY" REALLY MEAN?

Smart Indy is an innovative urban design project that seeks to optimize the use of energy in the development of the GM Stamping Plant site by reducing the annual energy consumption. This will be done through architectural design, as well as installing renewable energy production on-site and off to generate green energy. This will achieve the core principle of this project, which is net zero energy

FIGURE 3: HOUSING TYPOLOGY This view from a duplex unit facing the waterfront park shows the space facilitating visual and physical connection between public and private domains.

performance. The meaning of Smart Indy implies providing smart infrastructure, smart transportation, and smart buildings. For example, when it comes to mobility, the idea of having "smart" mobility is moving people, not cars. This is accomplished by making a pedestrian- and cycling-oriented plan. The Smart Indy concept also benefits from new transportation prototypes that do not burn fossil fuels, such as the Google Car. Also important, Smart Indy has intelligent infrastructure, like "smart" lighting and streets, which have sensors to collect data and provide a safe environment for people. Smart infrastructure also assists public officials in making decisions based on the received data.

Smart for its green and sustainable design, Smart Indy is also "smart" for its community orientation and focus, and utilizing the White River waterfront. The development of the site will integrate people socially, visually, and economically with their communities, as well as activate the White River to meet the demands for people to visit, live, work, and play—and it will do so by 2050. The waterfront will be a great amenity for people to use. People will enjoy walking, biking, or even dining along the waterfront. Likewise, people can interact more directly with the river by kayaking, canoeing, and taking nice pictures from the waterfront park or the bridge (See Figure 2). The waterfront park will be bridged with the Cultural Trail and Lucas Oil Stadium. Significantly, there are also water turbines that will be installed in the river to generate electricity for the district to work in parallel with solar and wind energy productions to achieve the demand of net zero energy. What is more, living in the kind of housing developed in Smart Indy would be beneficial not just for the environment, but also for people, by saving them money, and for the city, by creating a new identity by providing new urban living experiences along the White River (See Figure 3).

A SMART—AND DETAILED—DESCRIPTION OF SMART INDY'S DESIGN

Again, the primary goal of the Smart Indy design plan is developing the site as a net zero energy district, which would reduce the city's carbon footprint. Likewise, using the concept of net zero energy would reduce the phenomenon of urban heat island. Another advantage of this concept would be creating economic benefits, because people could save money when paying utility bills. There will not be any waste of energy on this site. The design elements of this district will play a massive role in making the area more efficient by implementing a sustainable urban design, which includes passive ventilation, daylighting, micro-turbines, solar control and passive cooling and heating techniques, and green roofs. The implementation strategies of this project further include using high-density buildings and connecting the project with others locally and regionally. In detail, the Smart Indy proposal includes the following elements, delineated here in a topical fashion (Refer to Figure 4 throughout the following section for reference).

DESCRIPTION OF BUILT AND COMMUNITY SPACES

In Smart Indy, the built environment will heighten the community's interest in a contemporary lifestyle, including: diversity and functionality, education-focused and sustainability, and collective recreation.

COMMUNITY LIFE IN SMART INDY AS DIVERSE AND FUNCTIONAL

To begin with, one of Smart Indy's most basic, but essential and overarching, design goals is to establish the development space as a diverse and high-functioning community. This will be accomplished by providing a range of activities and land uses that enable residents of different ages and income levels to work, live, and play, with convenient walking, cycling, and transit opportunities. Functionality and diversity are also promoted through housing, as this development provides a variety of housing forms and sizes while also affording rental options through different ownership to encourage a range of various ages as well as different incomes.

Additionally, the Smart Indy design plan emphasizes and facilitates the flow of people with a multi-faceted and functional transportation system. It does so with the inclusion of a monorail, which will connect Smart Indy with the Indianapolis International Airport and downtown Indianapolis, and a bus rapid transit (BRT) route, which will connect Smart Indy with other areas. Furthermore, the site's pedestrian paths and bikeways seek to change the concept of moving cars to moving people, in line with the development's overarching concentration on sustainable energy and lifestyles. Lastly here, the development's bridge will connect the Smart Indy district with Lucas Oil Stadium and the Cultural Trail on the east side of the White River.

COMMUNITY LIFE AS EDUCATION FOCUSED AND SUSTAINABLE

Life in Smart Indy incorporates education and a focus on sustainability as well. To promote education—both at the individual and communal levels—the site includes a library, makerspace, and childcare center. The library is a place to gather and learn, and it will help revitalize people and neighborhoods that are struggling and depressed from an educational and cultural standpoint. The library will also attract large numbers of people, creating economic opportunities for a myriad of businesses and organizations in the surrounding area. It works as a focal point for community education and plays a major role in making Smart Indy a livable, educationally-conscious district. For its part, the makerspace offers community members the opportunity to design, prototype, and create manufactured works that would be much more difficult to produce on an individual basis—that is, not in the context of this makerspace. It does so by combining access to manufacturing equipment, community collaboration, and educational resources, all in one location. And to make use of the library, participation at the makerspace, and in other activities more generally speaking more accessible, the site includes a childcare center, providing daily childcare for those in need of it. Lastly here, and pertaining to sustainable design and function, the development features greenhouses, with the purpose of providing fresh vegetables all year round. So, instead of harvesting vegetables only in the fall, people can extend their harvest potential throughout the year. They will also save money because this food will cost less than that bought at grocery stores and know that their food is free of harmful pesticides.

COMMUNITY LIFE AS CENTERED ON GATHERING AND RECREATING

Life spaces in Smart Indy are intended to be welcoming and fun, too. Public realm spaces and entertainment-based structures are designed intentionally to stimulate interpersonal interaction, athletic activity, and yes, fun. For one, the site has a park, Waterfront Park, that is both intriguing and functional. The design of this park used

FIGURE 4: MASTER PLAN This master plan of the Smart Indy development shows different points of interest, design layouts, and affords a macro, bird's-eye view of the site.

KEY:
1. Food Market
2. Mixed-Use Housing
3. Library
4. Mixed-Use Housing
5. Live Work Housing
6. Maker's Space
7. Outdoor Karting
8. Amphitheater
9. Community Park
10. Waterfront Park
11. Smart Square
12. Tennis Courts
13. Football Field
14. Child Care
15. Children's Playground
16. Local Restaurant
17. Greenhouses
18. Energy Garden
P. Parking

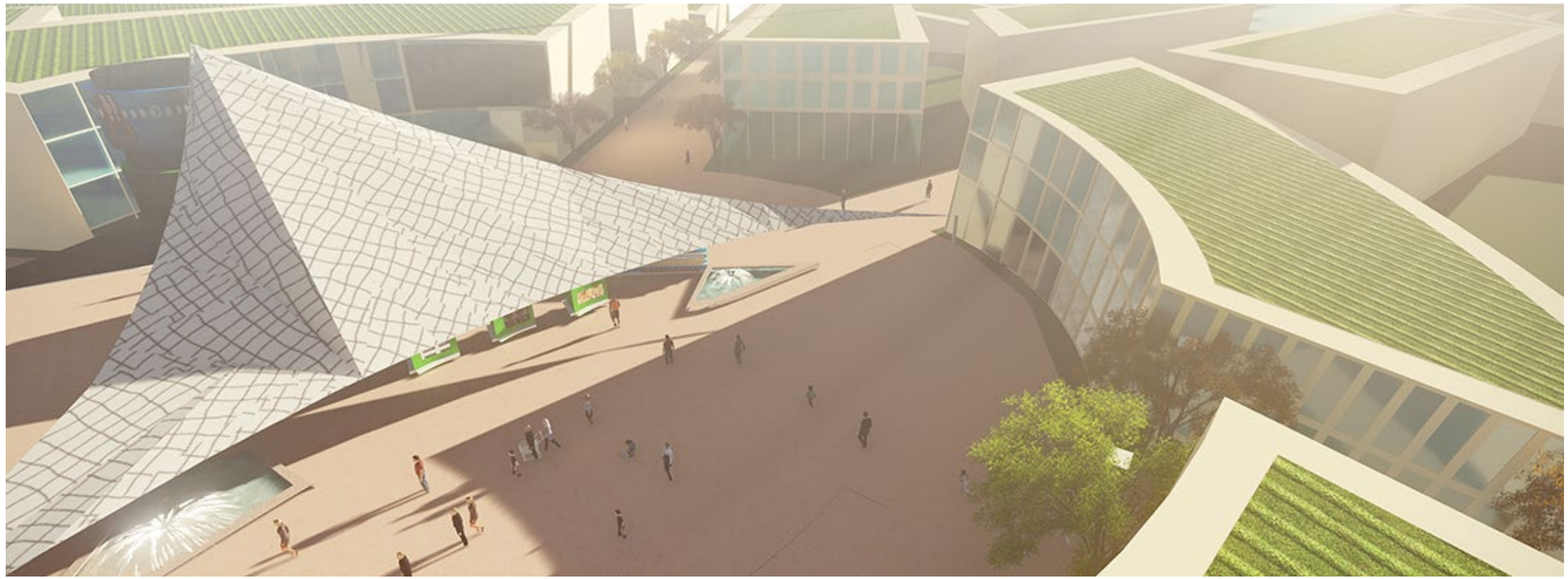
FIGURE 5: WALKWAYS AND BIKEWAYS The view of Waterfront Park seen here exemplifies how its design plan offers new experiences through outdoor restaurants and cafes, and opportunities to walk and bike along the river.

the Detroit Riverfront as a precedent, which is apparent in the opportunities available here for people of all ages to visit and play (See Figure 2 and Figure 5). Indeed, visitors will not soon forget the way the river's breeze touches them as they take a stroll through the park, or the good smells coming from the park's eateries. Another central—meant both literally and figuratively—public space is Smart Square. Indianapolis is well known as the Circle City; for that reason the design concept of Smart Indy started with the idea of it being circular in nature. The circular area that is called Smart Square is intended to be the focal point of the project. Smart Square is located in the center of the development, and all other spaces emanate from there (See Figure 6). For the sake of continuity and accessibility, it was important to connect the square with the surrounding contexts, such as the White River, Indianapolis Zoo, Lucas Oil Stadium, and the community to the south. This was achieved through a curvilinear circulation system. The main path connects the White River to Smart Square by making an urban green corridor. This path is an integral part of the design because it facilitates travel from the Cultural Trail on the east side of the river all the way to Smart Square. Smart Square could house an outdoor exhibit or a food market to sell harvested products from on- or off-site greenhouses. Moreover, the Square will house a screen and related equipment to be used for entertainment and educational purposes. Further encouraging activity, the site's fitness studio provides resources for different kinds of sporting activities for Smart Indy citizens. More in the way of entertainment, the site also offers outdoor karting. Indianapolis is well known for hosting the Indy 500, and Smart Indy used to be the GM Stamping Plant—therefore, creating an outdoor karting venue is an ideal way to preserve the history of the site and incorporate local culture. Finally, the site houses an amphitheater (See Figure 7). It faces the White River and has a unique sculpture to be seen from Waterfront Park.

DESCRIPTION OF ENERGY EFFICIENCY INITIATIVES

Essential also, and in accordance with the development's net zero energy objective, is its focus on renewable energy production—specifically in the form of solar, wind, and water power. This concept will be achieved through passive solar design and an energy garden, green roofs, and carbon neutrality.

FIGURE 6: SMART SQUARE Here one sees people gathered in Smart Square, with its ample space and functionality, for an outdoor exhibit. The site's serious and useful employment of green roofs is also apparent.



PASSIVE SOLAR DESIGN AND ENERGY GARDEN

For one, the development incorporates passive solar design. This sort of strategy refers to the design techniques that reduce or eliminate the use of fossil fuels to cool or heat buildings during the day. Passive solar design would be less costly than active solar design, which includes aluminum rooftop collectors and a large number of fans, in addition to pumps and controls to heat and cool a space. The objective of passive solar design is to integrate sunlight and a natural ventilation arrangement into the basic design of buildings to minimize the need for mechanical systems as much as possible.[9] Also, the project will house an energy garden northeast of the development. The energy garden will be at the industrial zone, and will include greenhouses, wind turbines, and solar panel arrays.

GREEN ROOFS

Another push for energy efficiency and sustainability comes in the way of green roofs. Green roofs are one of the most visible and impactful sustainability commitments that Smart Indy buildings can make (See Figure 6). Green roofs do more than provide a habitat for plants; they also assist with storm water management, and provide additional and natural insulation to reduce the demand of heating buildings during wintertime, and the demand of cooling during the summer. The benefits offered by green roofs are: reducing carbon dioxide in the atmosphere and producing oxygen; reducing the heat island effect, which is the main cause of global warming; and providing greater thermal performance and roof insulation for the buildings they are laid on. Worth noting, this can vary depending on the time of year and the amount of water held within the system.[10]

CARBON NEUTRALITY

Smart Indy also seeks to achieve carbon neutrality. To do so, it will neutralize carbon by requiring people to support the development's main concept of living "smarter." Smart Indy will provide facilities for people to purchase hybrid vehicles; subsidize public transportation for employees; and offer opportunities to rent BlueIndy (cars meant for sharing) by the hour, for short trips and local meetings. This development used as its precedent for carbon neutrality green offices in Portland, Oregon, and San Francisco, California, with Silver LEED certification. Applying the concept of carbon neutrality may, for all its benefits, still be problematic for Smart Indy, due to the high costs of creating the necessary infrastructure. Therefore, while the push for carbon neutrality will always be part of Smart Indy's design plan, it will most likely take full effect only during the last phase of the project.[11]

ADDRESSING AND MEETING CHALLENGES

Admittedly, there are several problems related to creating a net zero energy district. For this site, the most obvious challenge is to create an accurate energy model. That is, it would be difficult to estimate the annual amount of energy consumption for the site before people start using the buildings. Even so, energy calculations and simulations for this site will assume a safety factor of nearly 20 percent to prevent problems stemming from unexpected conditions. Worth noting, the energy use would fluctuate for different buildings, depending on the function of the building, operating hours, and the height of the building. For example, food service buildings and grocery stores consume a great deal of electricity, while retail stores and education facilities are less energy dependent.

Also, finding an adequate area to mount photovoltaic (PV) panels—which consist of semiconducting elements operating under the photovoltaic effect to generate electricity—is a common challenge for net zero energy buildings. The challenge could, in fact, be even greater than usual for Smart Indy. The urban location of this site makes it difficult to find space for ground-mounted panels that will supplement the roof-mounted panel arrays. The search for adequate space for panels pertains to the design of mid-rise buildings too, because the roof area is typically too small in proportion to the building's overall volume to produce the necessary amount of solar energy. Put differently, in that case, there would simply not be enough roof space to allow for the requisite number of solar panels to power the building as desired. For example, in some buildings, the floor areas are five times larger than the roof, which makes it much harder to generate enough solar power for these buildings to meet their net zero goals. Ideally, the photovoltaic systems array should have a greater area than the roof.

The adaptation process, due to limited roof space, necessitated the extension of PV solar panels beyond the buildings' perimeters to reach some of the public realms. In other words, the public realms will play a role in achieving net zero energy by housing solar panels that will double as canopies, thus maximizing the usage of space and opportunity. The adaptation process, due to limited roof space, necessitated the extension of PV solar panels beyond the buildings' perimeters to reach some of the public realms. In other words, the public realms will play a role in achieving net zero energy by housing solar panels that will double as canopies, thus maximizing the usage of space and opportunity. Because the canopy design requires minimal use of space, it facilitates the inclusion of solar panels in areas that would otherwise not permit their presence. Plus, the design of this space maximizes energy production in the following ways to meet the performance goal of net zero energy. Photovoltaic panels

FIGURE 7: SITE CONTENTS With downtown Indianapolis on the horizon, one sees the site's outdoor karting course in the foreground, and monorail (left) and amphitheater (center) in the background.

at the southern end of buildings will capitalize on collecting sunlight throughout the day, while more discreet solar panels placed in Waterfront Park, courtyards, and the amphitheater will both enhance energy production and allow people to use public spaces while benefiting from the shade provided from canopies.

CONCLUSION

All told, Smart Indy is not just a typical mixed-use development for the General Motors Stamping Plant site in Indianapolis, Indiana. The project has deep meaning: It will solve environmental problems and it will also solve the vacancy problem of this significant area in the center of Indianapolis. The development will accomplish its goals by providing technologies, such as smart buildings, smart infrastructures, and smart transportation prototypes. Significantly, these design elements and strategies are consistent with the green direction Indianapolis is going in, and will meet current and future demands. The project will minimize the carbon footprint expended by this area of Indianapolis. Furthermore, the project will work in parallel with the concept of "smart sharing." In this way, it will include options for home sharing, through Airbnb; transportation sharing, via Monorail, BlueIndy, and Uber; business space sharing, by having rentable business spaces; and recreation space sharing, with community soccer fields and courtyards. This project will benefit Indianapolis's citizens in particular, and humanity in general, by helping to solve one of the greatest environmental issues that our planet is suffering from—global warming.

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FIGURE 1: CAPITOL AVE. LOOKING NORTH The main component of the River South District is a daylit Pogue's Run that winds through the site below street-grade, allowing both the connective and ecological systems to work together.

THE RIVER SOUTH DISTRICT

BUILDING IDENTITY BY DAYLIGHTING POGUE'S RUN

ELLEN FORTHOFER, BUPD

The area just south of the Wholesale District in downtown Indianapolis has been underperforming for decades. What was once home to the strong Babe Denny neighborhood (a neighborhood named for a Parks Department employee and longtime resident of that area) and a vital piece of the White River watershed now contains rampant vacancy, inaccessible public space, decades of housing and job loss, and a fractured water system. This proposal to transform this site into the River South District aims to create a new and lasting identity for downtown Indianapolis through the daylighting of a currently buried stream, Pogue's Run. Daylighting, a relatively new practice, refers to the act of exposing a portion or the entirety of the flow of a previously covered waterway, usually in the form of removing a stream from an underground pipe and restoring the waterway to open air. Converting Indianapolis' buried stream into an above-ground promenade and restored habitat will incorporate a correctly scaled community design focused on ecologically sensitive practices, balanced with housing, employment, and activities to attract a diverse range of users to the site. This River South District proposal accommodates a range of activities and uses through its gradient of destinations: an entertainment district, a revived Pogue's Run habitat, and a vibrant residential neighborhood. By creating places to live, work, and play around Pogue's Run, the River South District will create a highly integrated and unique site protected from further disinvestment and disconnection.

AN INVESTMENT IN NEIGHBORHOOD AND CITY

When walking through downtown Indianapolis, Union Station and the rail lines that once bustled with activity serve as a staunch divider between two cities: one Indianapolis north of the tracks that has seen near constant investment and redevelopment, especially in the last two decades; and another Indianapolis south of the tracks which has faced years of disinvestment after once being a thriving neighborhood and important ecological piece of the White River watershed. This second Indianapolis is the area just south of the Wholesale District, containing Lucas Oil Stadium and several industrial buildings, both vacant and occupied. The disinvestment in this area began, ironically, with investments in the area's infrastructure: the first being the 1914-1915 project to tunnel Pogue's Run ; the second, the 1960s construction of Interstate 70 that ripped the fabric of a once thriving neighborhood and created a southern boundary which stranded and strangled the area to its current conditions.

Chronic disinvestment from the city has plagued this area for decades, leading to a project site lacking in identity, several vacant and undervalued properties, and no cohesive plan or method for how it connects to its surroundings. Due to the nature of the prior disinvestment in the site along with its capacity for successful new development due to its location and low property values, the land represents a huge development opportunity. Located just south of downtown and within walking distance to major attractions, this site has only just recently been developed in any public capacity through the construction of Lucas Oil Stadium from 2006-2008. This, however, has been a mixed blessing. While the very nature of the stadium is to bring large amounts of people to the area, it is not successful at retaining the people or dollars they spend in the neighborhood. It also encourages surface parking lots in the area, which serve Lucas Oil Stadium well on game-days but sit empty and desolate for a majority of the year (See Figure 2). With downtown now becoming one of the most desirable areas in which to live and work in Indianapolis, the River South District's proximity to downtown and its relative undeveloped state give this site significant potential for financial profit and future development. Additionally, more investment dollars can be leveraged from the initial development capital, catalyzing immediate growth in the area.

FIGURE 2 (ABOVE): CURRENT CONDITIONS This picture exhibits one of the large parking lots that surround Lucas Oil Stadium. Reimagining this space as a lively entertainment district could help to not only revitalize the neighborhood, but also create a safer and more productive use of this land near downtown.

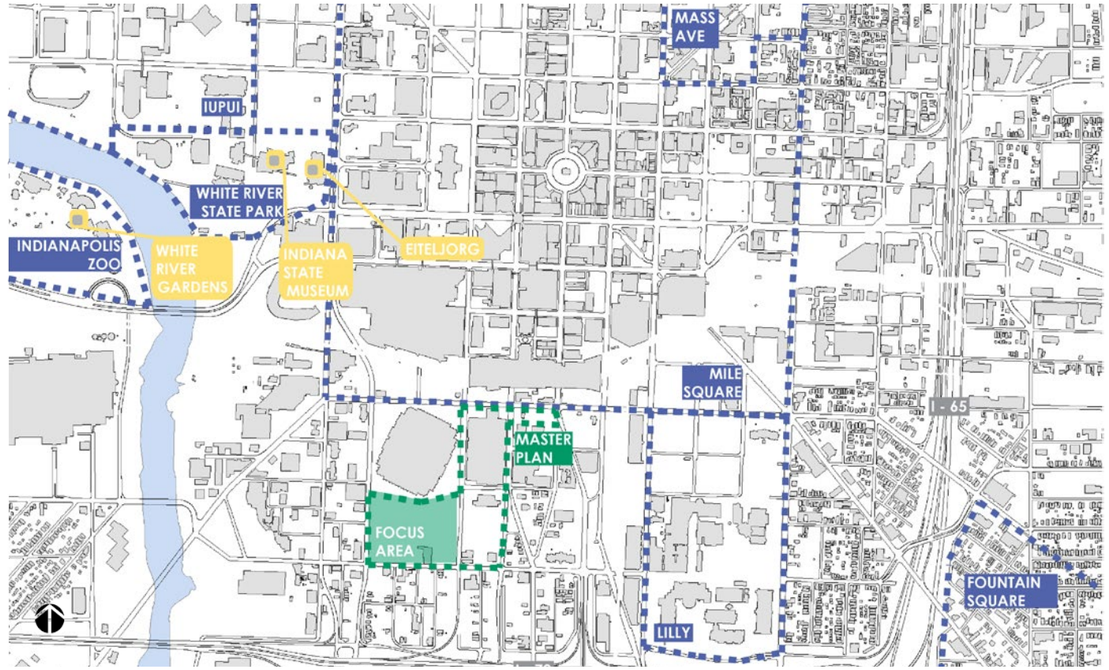
FIGURE 3 (ABOVE RIGHT): SITE BOUNDARIES The larger site, marked by the dashed green line, contains the entire master plan for the River South District proposal. The smaller site, indicated by the green square, represents a focus area where additional detail was added to express the character of the project proposal.

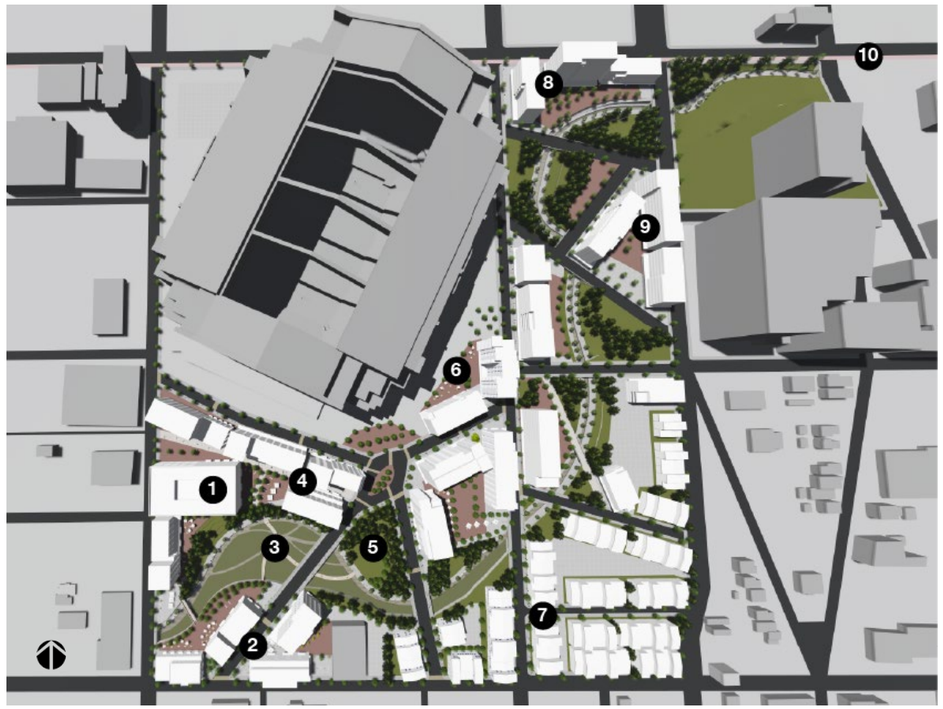
FIGURE 4 (LOWER RIGHT): MASTER PLAN The proposed master plan for the dayligting of Pogue's Run is highlighted above. The master plan includes a daylit Pogue's Run which extends for the entire 150 acre site, just under 1 million SF of development, and a parking garage with over 450 spaces.

The site's urgent problems of vacant and underused properties, inaccessibility, a lack of community and social services, and a tunneled tributary stream are all based in larger conceptual problems that plague many cities, including disconnection, disinvestment, lack of identity or authenticity, and uncommunicative urban and natural systems. The new River South District will solve these problems by creating long-term positive impacts in the community and city of Indianapolis by embedding nature and shared-use typologies within a contemporary live-work-play urban environment. This project capitalizes on the site's proximity to water and emphasizes the development of new forms of use and ownership while expanding upon the site's fledgling but already unique identity as a sports destination by connecting Lucas Oil Stadium, Victory Field, and Bankers Life Fieldhouse to create an entertainment district. Blurring the lines between publicly and privately owned space through innovative new use typologies, the River South District will attract entrepreneurs and young professionals through shared-resources office complexes and smaller private dwelling units with a focus on shared and public space. By developing these lots and creating a new community identity through a fusion between the natural and urban environments, Indianapolis stands to gain hundreds of thousands if not millions of dollars in property taxes as land values rise, a new asset to the downtown market and identity, and a more connected and integrated city core.

THE RIVER SOUTH DISTRICT: AN INNOVATIVE DESIGN

The River South District proposal will address the site's disconnection and uncommunicative manmade and natural systems while forging a new identity that incorporates modern-day design and usage of the area, as well as environmentally sustainable practices. Project boundaries have been identified for two sites that are affected by the bulk of this proposal: one, a larger site, contains a master plan for the area to catalyze future growth in the larger community, and two, a smaller, focus area site which gives detail to a portion of the master plan (Refer to Figure 3 for a visual display of boundaries for both sites). The larger site boundaries include the blocks immediately adjacent to Lucas Oil Stadium and are bounded by Missouri St. to the west, McCarty St. to the south, Illinois St. to the east, and South St. to the north, also including a portion of the northern block of the Rolls Royce campus. These boundaries were chosen in order to encompass a large enough area of the community to create significant change through the implementation of the master plan and to leverage additional development on sites outside of the boundaries as defined for this project (See Figure 4 for the proposed master plan). The second, smaller site contains the block just south of Lucas Oil





KEY:
1. Parking garage/retail
2. Low density neighborhood center
3. Daylit Pogue's Run/restored wetland
4. Entertainment District
5. Horseshoe Park
6. Manning Plaza
7. Townhomes
8. North Entertainment District
9. Corporate office space
10. South Street Cultural Trail extension

Stadium, bounded by Missouri St. to the west, McCarty St. to the south, and Capitol Ave. to the east. This smaller site was chosen as a focus area because it contains elements of the proposal that are integral to the success of the entire master plan. These components represent the largest investment in the overall master plan and will provide strong destinations and nodes of activity once constructed, supporting more development to follow in later phases.

The overall goals of the proposal are to better integrate this site with downtown Indianapolis, catalyze future development in the areas adjacent to the site, and create a model practice for water systems management through the daylighting of Pogue's Run as it drains into the White River. To accomplish these ambitions, the new River South District will incorporate a correctly scaled community design focused on ecologically sensitive practices and balanced with housing, employment, and activities to attract a diverse range of users to the site. In order to combat both the disconnection and the disinvestment that have too long characterized the area, the proposal includes five strategic design elements: 1) daylighting Pogue's Run, 2) dismantling "mega blocks" on site, 3) providing avenues for multiple modes of transportation, 4) capitalizing on the site's current site assets in order to forge a unique identity for the site, and 5) introducing new forms of use and ownership which correlate with the modern economy (See Figure 5 for examples of each element). The character of this development varies by location; the behemoth 42-acre site lends itself to segmentation and delineation, thus as users move through the site their experience will morph and change. Most of these changes in experience follow along the new pedestrian waterfront, however, some changes respond to other site components involved in each of the five design elements, such as streets, levels of density, and the contexts of adjacent areas. Each of the proposal's objectives that center around main design elements is described in greater detail below.

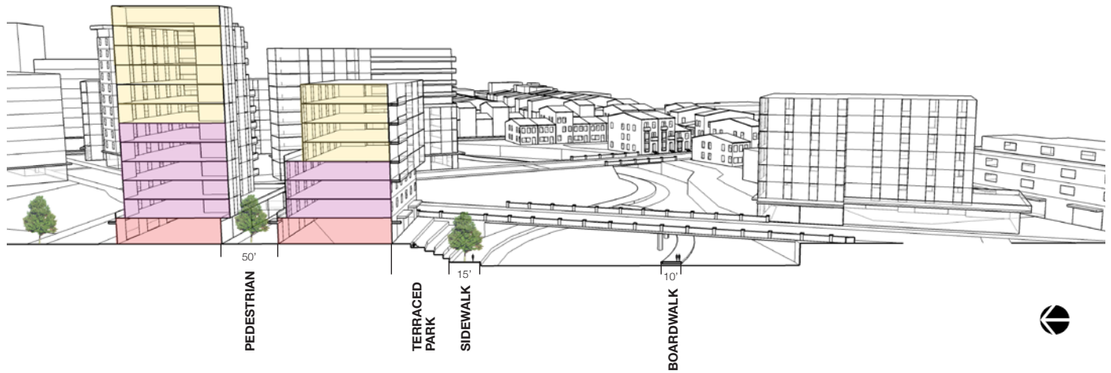
OBJECTIVE 1: REINSTATING POGUE'S RUN

Restoring buried streams to open-air through the daylighting process is one strategy used by communities to reduce polluted runoff, address flash flooding concerns, and improve the livability and quality of life of the urban environment. Daylighting provides economic benefits through a more cost effective alternative to ongoing culvert and tunnel maintenance. The process also removes large amounts of water from combined sewer systems, which reduces water treatment expenses. Other benefits of stream daylighting include improved habitat environment and natural flood resiliency. These ecological benefits are realized mainly through stormwater and flood management. By restoring

FIGURE 5 (TOP LEFT): MASTER PLAN DESIGN ELEMENTS The focus area site just south of Lucas Oil Stadium and north of McCarty St. contains design elements which address major problems on site: a daylighted Pogue's Run, mid-block streets and pedestrian access pathways, and mixed-use development.\

FIGURE 6 (ABOVE): POGUE'S RUN PATH A pedestrian pathway follows the northern edge of Pogue's Run as it travels through the site, sometimes accompanied by a pathway on the southern edge as well. the pathway pictured above follows Pogue's Run wetland and shows water at its high level.

FIGURE 7 (BOTTOM LEFT): POGUE'S RUN WETLAND In the River South District proposal, Pogue's Run has been daylit in a way that allows it to return to its natural role and function within the White River watershed. By allowing water to expand and contract as necessary in a wetland habitat, flooding concerns are naturally mitigated, habitat in the area is preserved, and a unique public park is brought to downtown Indianapolis. This picture shows water at its low level.



floodplains that increase the amount of natural storage area for water during flooding events, channelization, or the practice of limiting a waterway's domain to a narrow passageway, is reduced, which slows the flow of water and thereby decreases flooding potential. Choke points, areas that often back up with large amounts of water in flood conditions—such as culverts—are also eliminated, decreasing the threat of localized flooding.

Daylighting is often justified on the basis of ecological benefits as a function of green infrastructure. However, daylighting projects are also supported by the beneficial effects reintroduced streams can have on society's attitude toward nature in an urban environment. Today, urban living has become the dominant lifestyle for a majority of the world's population. While urban areas have long been associated with industry, paved streets, and other hyper-manmade environments, scholars note that "nature has recently begun to be understood as an asset indispensable to the city, and streams have been revalued for their benefits to urban society through their ecosystem functions and social benefits."

Daylighting Pogue's Run will provide pedestrian, cyclist, motorist, transit, and recreational paths that connect downtown Indianapolis, sporting venues, the White River, and the Cultural Trail, while bridging the current perceived barrier and termination of downtown at Union Station. It will also connect and return the White River watershed to a more natural operation by increasing habitat and ecological measures of flood resiliency. The daylighting of Pogue's Run will be innovative in that it is not a proposal to simply move the stream from one tunnel underground to another tunnel-like canal above ground. Rather, this design creates a continuous public path along the north

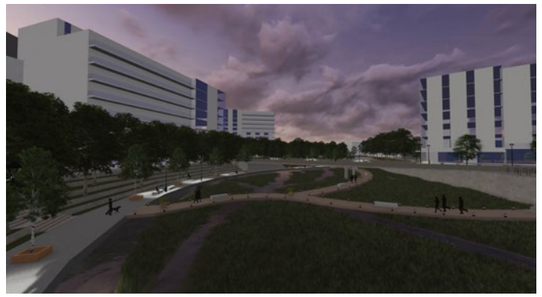


FIGURE 8 (TOP): POGUE'S RUN WETLAND SECTION Pogue's Run is daylit at 10 ft. below street grade throughout the site. The experience along the daylit stream shifts as its environment changes; in the eastern part of the site, Pogue's Run resembles an urban stream with built walls on either side. In the western part of the site, pictured here, Pogue's Run is allowed to flow naturally in a wetland setting.
FIGURE 9 (MIDDLE): POGUE'S RUN BOARDWALK The boardwalk which crosses the restored wetland habitat is an essential piece of the connective system which provides paths for pedestrians throughout the site. Pictured at night, this boardwalk is designed to connect 24 hours of the day.
FIGURE 10 (BOTTOM): PLAZA SPACE While many of the experiences along Pogue's Run directly involve water, many are separated vertically but still connect visually. These plazas are distributed throughout the master plan, providing destinations and centers of confluence.

side of the stream and allows Pogue's Run to expand and retract in a natural floodplain environment as needed at its southern edge on the western portion of the site (See Figures 6-11 for details and character of the stream's daylighting). This creates several different experiences along Pogue's Run as it moves through the site, one extreme being more urban and constructed, and the other resembling more of a wetland than a stream. Although this project will be a massive undertaking in cost and implementation, its size and scope create an investment in the area substantial enough to spur additional change and investment.

Additional investment of this kind has been recorded in several case studies of daylit waterways, but notably in two examples in Michigan: Arcadia Creek Festival Place in Kalamazoo, and Grand River Cap Removal in Jackson. Each project involved the restoration of buried urban streams. Since their completion, each project has spurred additional investment in the area immediately surrounding the daylit stream. Arcadia Creek completely mitigated flooding concerns, allowing for downtown businesses to no longer pay flood insurance, and generates approximately $12 million annually in festival and concert fees. Grand River Cap is a relatively short stretch of daylit stream (about 300 feet), but has already garnered undocumented amounts of commercial and business development along its newly designated 'waterfront' district near downtown Jackson, MI.

OBJECTIVE 2: CREATING MORE MANAGEABLE CITY BLOCKS

Another cause for the disjointed and disconnected nature of the site are large "mega blocks" in the area which are three to five times the size of a normal Indianapolis city block. These "mega blocks" are a stark contrast from the small, tightly woven Babe Denny blocks that once resided in the same space, but a different community. The current-day monolithic blocks create few safe crossings for pedestrians and cyclists, and limit the amount of connections between the site and adjacent destinations such as downtown Indianapolis, Fountain Square, and the White River. Creating more manageable city blocks out of these "mega blocks" by introducing new roads and paths to dissect the large areas allows for more access, more developable lots, and more connectivity within the River South District. These roads do not follow a strict gridiron pattern, rather, they react to Pogue's Run and other major design elements throughout the site (See Figure 12). They focus equally on the movement of cars, transit, cyclists, and pedestrians; this is a stark contrast to the current right-of-ways, which do not safely accommodate any other mode of transportation besides automobiles.

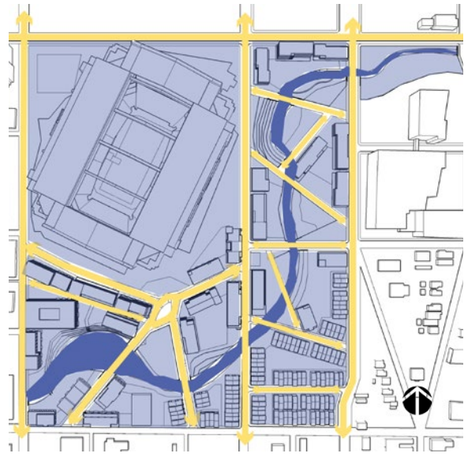
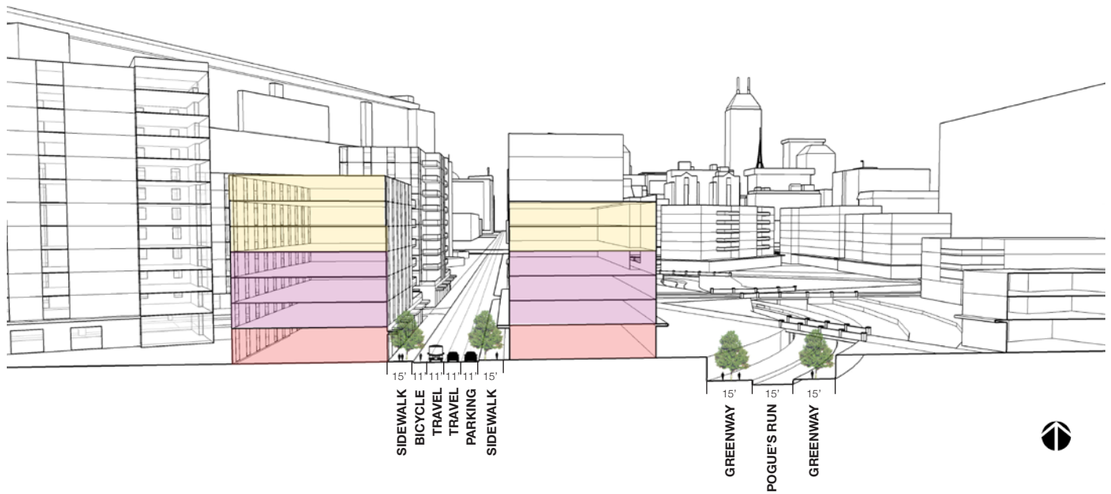


FIGURE 11 (TOP): POGUE'S RUN FROM INTERIOR STREET This view overlooks Pogue's Run from an interior street in the block south of Lucas Oil Stadium. Pogue's Run acts as a datum around which several interior streets cross at different angles. This provides many unique views and experiences of water in downtown Indianapolis.
FIGURE 12 (BOTTOM): INTERIOR PATHS The paths that dissect the current "megablocks" into more manageably-sized city blocks follow abstract lines taken from major influencing elements on site, including Lucas Oil Stadium, Pogue's Run, and the existing city grid.



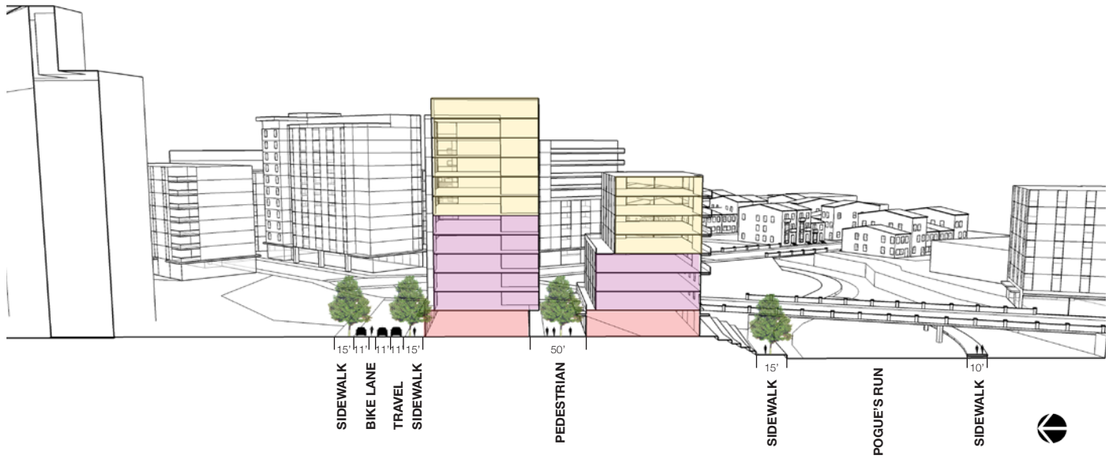
OBJECTIVE 3: EMPHASIZING MULTIPLE MODES OF TRANSPORTATION

As mentioned above, the current paths of transportation do not serve all modes of transportation well. Largely, only cars are provided with safe passage on site, with little to no attention given to transit, pedestrians, or cyclists. This is a problem because it creates dangerous intersections and reduces the amount of people traveling slowly or remaining on site for longer periods of time. This, in turn, reduces the level of safety and protection in the area as a whole. This can be explained by two common urban design concepts: “eyes on the street” and “defensible space.” “Eyes on the street,” a concept first coined by Jane Jacobs, states that streets and neighborhoods are safer when there is a population there full-time, subconsciously monitoring suspicious behavior and criminal activity simply with their presence. Jacobs went on to describe that urban decline can be attributed not only to crime, but also to the fear of crime. Her recommendations to increase safety in public sites revolved around people and the use of design and management policies that foster interaction and commitment. Though not readily accepted during her time, this theory is now dominant in the profession of urban planning. “Defensible space” is a similar concept coined by Oscar Newman, which states that certain areas are more easily protected by the “eyes on the street” method, depending on the physical design of the built environment. Because this theory relies on resident involvement to reduce crime, space that has a sense of ownership versus public anonymity will be more protected by its residents.

Currently, this site has almost no clear lines of ownership or responsibility. The River South District proposal aims to change that through an extension of the Cultural Trail along South Street, the addition of frequent bus service to the area through the new Marion County Regional Transportation Plan, and a commitment to developing “complete streets,” or streets which consider multiple users and provide safe and enjoyable paths for each (See Figure 13). It also provides more structure to the site with clearly separated travel lanes and more defined lines of responsibility and ownership that often mix in new programmatic uses that emphasize shared space and resources. These interventions will have a positive impact on the act of simply traveling through the site by providing protection offered by a constant population.

OBJECTIVE 4: HARNESS THE ENERGY OF LUCAS OIL STADIUM

This site contains several assets, including Lucas Oil Stadium and proximity to several Indianapolis destinations such as the White River, downtown, the Cultural Trail, and Fountain Square. All of these assets, however, have not yet translated into a solidified identity for this community. One major component of this project is to connect these current assets in a way that capitalizes upon the vibrancy of Lucas Oil Stadium and integrates the activity around the stadium with other unique local destinations. This proposal envisions an entertainment district, which handles large



crowds with ease, but also can support smaller groups of daily users and residents who live and work in the area. Buildings of varying scale and density guide the user’s experience through a series of compress-and-release moments throughout the site. This type of rhythm in the built environment was created in the design to make the area surrounding the 22-story Lucas Oil Stadium feel more enclosed and pedestrian friendly. By making people feel tightly enclosed within one space, and opening to a large plaza before the stadium, a pattern is created that helps people to feel comfortable with the vast area around the stadium (See Figure 14). The famous architect Frank Lloyd Wright used this concept in several of his designs to emphasize the user experience of his buildings. A similar strategy is borrowed in the River South District proposal to enhance user experience by adding a sense of character to the area without mindlessly building density to meet the height of the stadium.

This dynamic has been localized through the creation of density in buildings near key intersections or nodes of activity, large plaza and open spaces which can accommodate game day crowds, but are also programmed with enough detail so that a small number of daily users and residents are not overwhelmed by the size of the space, and landmark buildings and destinations arranged throughout the site plan which give a sense of place and authenticity (See Figure 15). These steps are being taken to inject a sense of place, ownership, and identity into a currently confused area. The positive impacts of these interventions will be numerous. Take, for example, the situation of the nearby Fountain Square neighborhood. Once unique elements of the area such as its music and bar scene were recognized and capitalized upon, growth in

FIGURE 13 (TOP LEFT): CAPITOL AVE. SECTION This image shows the relationship of the newly multi-use Capitol Ave. in relation to other nearby major project elements, such as Pogue’s Run and the Entertainment District.

FIGURE 14 (TOP RIGHT): ENTERTAINMENT DISTRICT SECTION Denser buildings are placed close together near the stadium in order to create an experience that characterizes “compress and release.” This rhythm has been used in several other projects to help correctly scale monolithic buildings without mindlessly building density.

FIGURE 15 (BOTTOM RIGHT): ENTERTAINMENT DISTRICT A dense wall of buildings that range from 7-15 stories encircle Lucas Oil Stadium, bringing a mix of uses to the Entertainment District that foster vibrancy and sustained use.

the area increased dramatically and created an identity unique to the neighborhood; the area is now known as a cultural district in Indianapolis. This redevelopment hinged upon the construction of the Cultural Trail along Virginia Avenue. Much like the proposed open-air Pogue's Run connects two sides of the River South District site, the Virginia Avenue segment of the Cultural Trail stitches together offices, businesses, and residences that were previously severed by Interstate 70 cutting through the neighborhood. The River South District proposal aims to create this same sense of urban continuity in the area surrounding Lucas Oil Stadium (See Figure 16). The strong urban environment anchored by Lucas Oil Stadium will act as a stark contrast to the wild, ecologically sensitive wetlands running through the core of the River South District. The adjacency of these two seemingly divergent landscapes challenges preconceived notions of either type of space, urban or natural, and explores how these environments can thrive off of their inherent contrast and begin to work together to create a unified urban/natural environment. The areas adjacent to either environment vary greatly throughout the site, offering different experiences along Pogue's Run as it weaves through the community.

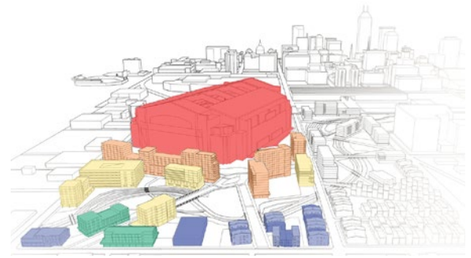
OBJECTIVE 5: INTRODUCING NEW FORMS OF USE AND OWNERSHIP

As mentioned prior, the large "mega blocks" on site create confused lines of ownership and responsibility; currently, there are only vague claims to the land in the area, and none of it feels as if it is even possible to be claimed by the public. This is a problem for many reasons, including safety concerns, and attractiveness for future development and investment, both public and private. The River South District proposal aims to change this by incorporating new use typologies into the program of open space and buildings on site that more explicitly define lines of ownership, albeit mostly shared ownership. This will involve creating more defined separations and conglomerations of space between public, semi-public, and private uses through the creation of additional rights-of-way, increasing the number of developable lots, and programming the public space so that it complements its adjacent uses and has a sense of cohesiveness as people move through the site. These interventions are important because they offer concrete ways that the built environment, through both design and programmatic elements, can delineate space. Without this delineation, problems like disinvestment and disconnection much like those seen in the current site conditions will arise. These small steps work towards larger goals of creating a safer community, incorporating the current uses and businesses on site within the new programmatic elements, and allowing for affordability in an area sure to see increased property values as demand rises and an impetus is created for intensive future development (See Figure 17).

AN ARGUMENT FOR CONTEMPORARY URBAN DESIGN

This project is relevant to both Indianapolis and contemporary urban design as it addresses issues that are widespread in cities across the world, but especially this nation. The current state of this site is representative of gradual actions in the built environment that Indianapolis and several other cities took throughout history; the site contains disjointed ecological systems and urban fabric attributed to projects that tunneled tributaries located near urban development that were prone to flooding, as well as projects that disrupted neighborhoods and communities due to the construction of the interstate system. This project has potential to address these issues locally, yes, but also to have a transferable set of goals, metrics, and practices that are applicable to other sites as well. Metrics of success include benchmarks within sustainability that are implemented through programmatic uses, material choices, and the scale of design. Sustainability benchmarks follow the triple bottom line, a concept coined by John Elkington, a cofounder of the business consultancy SustainAbility. The triple bottom line incorporates a long-term vision for projects that are good stewards of social, natural, and economic capital. Social capital relates directly to the quality of life and experience for the people and communities directly or indirectly affected by the project. The River South District addresses social capital sustainability by providing a range of housing options (at least 25% of all new housing units are to be affordable, defined as 80% area median income or less, a standard in the field), centers of employment, social services, and recreational opportunities (See Figure 19). Natural capital is addressed through the restoration of Pogue's Run as an active piece of the White River Watershed and responsible landscape materials such as permeable pavers and passive stormwater management. The proposal addresses economic capital through the expected return on investment through increased property values and additional leveraged development and investment.

Environmental, ecological, social, and economical gains all support



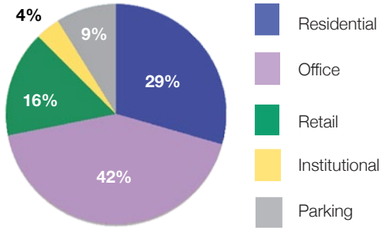


FIGURE 16 (TOP LEFT): DISTINCT AREAS The River South District proposal creates 5 distinct areas, all joined by several design elements. These areas include: the Entertainment District, the restored habitat of Pogue's Run, and a vibrant residential neighborhood which preserves housing affordability in the area.

FIGURE 17 (TOP RIGHT): AFFORDABLE HOUSING A neighborhood was created in this proposal to provide both affordable housing choices and a stable resident community for the district.

FIGURE 18 (MIDDLE): BUILDING DENSITY AND HEIGHT Ranging from 2 stories (dark blue) to 22 stories (red), the buildings in this diagram are color-coordinated according to their height and consequent use. Blue and green areas are more residential, whereas yellow and orange represent a higher-density, mixed-use Entertainment District that gradually steps up in height to Lucas Oil Stadium.

FIGURE 19 (BOTTOM RIGHT): USE BY SQUARE FOOTAGE The River South District boasts a wide variety of uses, with an emphasis on shared space office use to help supply the large demand for that space typology in the city.

the importance of this project and create an impetus for its completion. Not only can this project support dense development home to nightlife venues, restaurants, bars, and high-end retail, it can also support a smaller-scale neighborhood environment and open space which revitalized habitat. Benefits from both creating a stronger community through the built environment as well as preserving ecological habitat are numerous; doing both at once only multiplies said benefits. Though the costs of this project will be immense, the return on this investment could easily be double or triple the capital expenses of reconstructing the site, as realized through increased property values and opportunities for lucrative development.

This return on investment will take many forms: firstly, and perhaps most importantly, it will present itself in terms of a reinvigorated downtown Indianapolis, providing a location for new development that through recent trends has shown to be attracted to the Indianapolis market. Secondly, the domino effect of development could leverage more development in areas adjacent to the site, spurring economic growth in several communities. An example of this kind of urban revitalization can be seen in the Indianapolis Cultural Trail. Since its completion in 2013, the $63 million dollar project has spurred additional development along its path, especially in the Mass Ave and Fountain Square neighborhoods. If similar guidelines for this project are followed, creating a mixture of uses and density depending on the context of the area, Indianapolis could gain a multitude of better-designed and integrated communities due to the success of the River South District.

CONCLUSION

The River South District proposes a reinvigorated community adjacent to downtown Indianapolis focused on a daylit Pogue's Run that unites the district at its core. The project aims to better integrate this site with downtown Indianapolis, catalyze future development, and create a more sustainable management of Pogue's Run that respects its role in the White River watershed. Design elements such as complete streets, an entertainment district which captures the vibrancy that surrounds Lucas Oil Stadium, smaller, more manageable city blocks, and programmatic uses that reflect the modern economy all work towards the overall project goals and address the site's larger issues of chronic disinvestment, vacancy, and inaccessibility.

The impetus of this project cannot be ignored: Indianapolis is growing, and a focus should be placed on guiding future growth and development in the most sustainable and beneficial way possible. This site, which is proposed to house the River South District, will eventually develop; whether or not it is done cohesively across the region is not so certain. The River South District is but one future of the immediate south side of downtown Indianapolis. However, it is a future that is sustainable -- economically, environmentally, and socially-- and innovative: attributes that the City of Indianapolis cannot ignore.

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FIGURE 20: 24/7 COMMUNITY The River South District is designed to provide stability, strength, and vibrancy to a currently struggling area in downtown Indianapolis.

BREACHING THE RIVER EDGE

CONNECTING INDIANAPOLIS WITH THE WHITE RIVER

SARA WEBER, B.A. ARCHITECTURE

The White River is not accessible to downtown Indianapolis and not being utilized to its fullest potential. The proposed solution for this site is to address the current barriers preventing access, the lack of development on and around this site, and how this development could enhance downtown Indianapolis. The proposal will include both private and public space along the river edge. These public and private spaces will begin to overlap one another so that the private entity does not overshadow the public entity. There will be trails, light commercial space, and river activities for the public that coexist with privately owned space. This provides the amenities of being close to the river and downtown while still providing a private feel to the residential space. This proposal will help to extend the lively atmosphere of downtown into a developing district to the south.

INTRODUCTION

In March of 1913, Indianapolis was flooded by nearly 20 feet of water from heavy rainfall. The downtown levees failed and 4,000 people were displaced from their homes. Fearing greater flooding in the future, Indianapolis built walls to contain the water. In the process the city turned its back to the White River. By ignoring the river, the communities adjacent began to treat it as if it were of no importance. Not having any pride in wanting to live in such an area, residents not displaced from the flood moved out, creating vast areas of empty land. With the increase of empty land, industrial activity began to flourish along the levees. With the city not actively using the river, it became a dumping ground for industrial waste, polluting the river and driving people away from enjoying the once clean waters. Unfortunately, as the industrial spaces slowly diminished overtime due to the development of downtown, the land became barren, unused, and in need of a new life.

The White River edge, between Kentucky Ave and Interstate 70, is an underutilized space that will be revitalized with residential development and river attractions to once again engage the city of Indianapolis with water. By increasing the use of this site, other problems will also be solved, such as giving the site and surrounding neighborhood a unique identity. This identity is centered on the use of the river and how individual's interact with the water as a resident of the site and as a visitor. The experience of both living and playing in the river is not seen in downtown Indianapolis. By creating a distinct destination, the site will begin to have a purpose outside of the simply being a part of the river edge.

RIVER IN RELATION TO THE NEIGHBORHOOD

The identity created for this specific site will help maintain a connection with the White River and the surrounding neighborhood, prompting people to take care of the river. The pride behind the identity of a community will then begin to spread to the surrounding neighborhood, giving the residents a reason to want to take better care of their properties. When individuals have pride in something, they then begin to want to maintain and improve it. A prime example of this is the neighborhood of Bricktown in Oklahoma City. Once a deserted industrial zone adjacent to the city center, Bricktown developed a canal to connect downtown to the Oklahoma River in order to prompt growth for the area. The unique urban feature created a defining characteristic of the city and something for the citizens to be proud of and want to maintain. The same concept of wanting to be proud of something and caring for it can also be applied to the White River. By being able to see and experience the river every day, residents will be encouraged to keep the river clean for the enjoyment of themselves and others. This site could prompt the city to clean the river throughout Indianapolis, making it a more enjoyable environment, rather than simply managing flooding concerns.

FIGURE 1: EXISTING CONDITIONS Image taken from Kentucky Ave bridge on the White River. The levee wall is covered by dense foliage and prevents people from entering the site.

RIVER IN RELATION TO THE CITY

Currently the White River is hidden and often overlooked due to the dense foliage and high bridges. Figure 1 shows the existing conditions of the river in relation to the city and the barrier between the two. Even with this barrier, downtown Indianapolis is one of the few places where one will really see the White River without being directly overtop or on the water. It is this lack of access and disconnect between the City of Indianapolis and the river that prevents the citizens from being aware of what is really occurring along the river. Today, the river is not a safe place to be beyond kayaking or canoeing. According to White River Alliance, a not-for-profit organization focused on improving water quality, the river is contaminated with bacteria from failing septic systems, various metals as a result of industrial use, and petroleum products from auto emissions. Though brief exposure the water will not harm someone, the water is dirty and it is not recommended that one swim or wade through the river. While fishing is allowed in the river, any fish caught are not suitable for consumption and must be released back into the river. This will change. By being more aware of the river, citizens will be encouraged to take care of it rather than turn their backs to it, as they have since the Great Flood of 1913.

Turning one's back to the river is not the only issue that the site could solve. Recently, the City of Indianapolis has had a lackluster downtown experience outside of work hours and special events. Downtown is often deserted on weekends until evening hours when people arrive for nighttime activities. Reasons for this desolate space could be the lack of housing options and outdoor activities available to the public. Increasing the number of residents in downtown will boost the economy as a greater need for fun, daytime activities will be needed prevent people from venturing outside the city center. Though downtown Indianapolis has begun to build new residential dwellings, it is still a long way from the desired number of people living in an urban environment. However, there exists potential to increase the number of residents within the city by developing along the White River. Developing on the levee between Kentucky Ave and Interstate 70 will capitalize on the need for housing in Indianapolis while also creating a destination for the public. This development will begin a ripple effect to change the current land use of southern portion of downtown.

THE SITE

The site where the river development is located is currently inaccessible to anyone not entering from the water, and still potentially dangerous to anyone entering the site from the river. Allowing safe access to the river edge will increase the use of this space. By increasing the use of this site more individuals will be drawn to downtown Indianapolis. This in turn will increase the overall number of residents within the city and number of visitors on weekends from the outlying neighborhoods. An increase in people coming to Indianapolis on weekends will give it a new life that currently does not exist outside of a weekday or special event.

Though the site is in a current floodplain, it will still be developed upon if one takes the correct precautions. According to the data collected by the United States Geological Survey (USGS) group, water levels of the White River between 2010 and 2015 do not exceed 18 feet from the center of the river at downtown Indianapolis. Figure 2 demonstrates the water levels since 2010 in relation to the appropriate placement of the housing units. Even during major flooding, such as that which occurred in summer of 2013 and summer 2015, the river does not reach 20 feet in depth. This leaves nearly 10 feet of levee left to develop that is out of the danger zone of yearly flood patterns. However, extreme flooding could breach this zone. The USGS data also revealed that April and July are the two months most prone to heavy flooding, making the current strong and the river banks unusable. The heavy flooding prevents development from occurring at river grade.

The site is also currently made up of a large levee put in place after the Great Flood of 1913 that put most of downtown Indianapolis under 20 feet of water. This levee consists of a thirty foot wall dropping down from the existing street before gently sloping towards the river. Along the gentle slope exists dense foliage and debris from recent flooding. The levee is a barrier between the public and the river. By building residential units and public parks on top of a levee, people can begin to see that a habitable space can be created on these barriers normally considered places to avoid. Redefining how a levee operates will change the public's perspective of the area and increase the use of the space.

Other successful levee projects include the new Ohio Riverfront in Cincinnati. Stretching along the river in front of downtown Cincinnati, the serpentine wall is a composed of concrete and is stepped to accommodate mass numbers of individuals. Though the wall is effective at collecting debris from the river and creating an inviting edge, the steps only truly get used once a year during the firework show. Indianapolis can learn from this innovative way of treating a river by developing a more usable space by the public. Rather than having a once a year event space, the White River site will activate the river edge with a variety of activities and destinations.

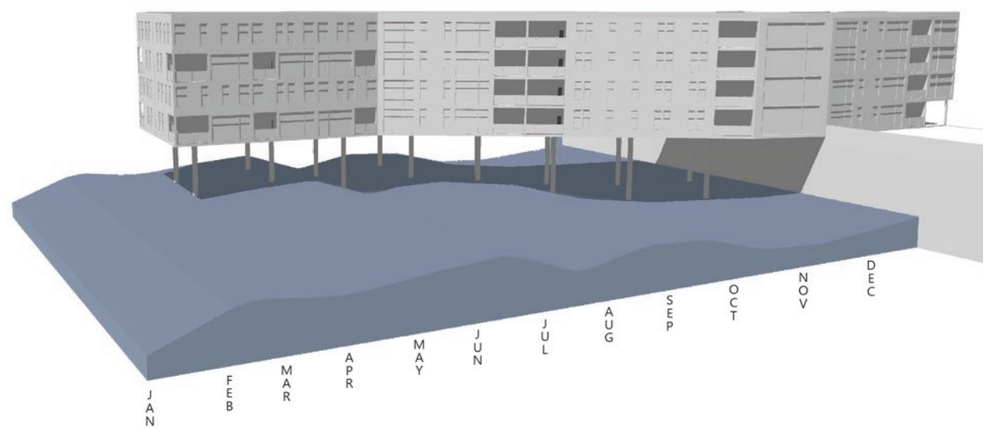


FIGURE 2 (RIGHT): WHITE RIVER WATER LEVELS
Drastic changes in water levels occur throughout the year with the average height of the river being 7 ft in height from the center.

FIGURE 3: MASTER PLAN The site is split up into two distinct areas, the active realm on top of the levee with a mix of commercial and private use and the serene realm on the river bank reserved for more leisurely activities.

1 POGUE'S RUN

2 WHITE RIVER TRAIL

3 WHITE RIVER PARKWAY

RIVER CHARACTERISTICS

By not developing the river edge this close to downtown, Indianapolis loses out on capitalizing on a unique feature within the city. Though other river developments exist, typically as either public or private, Indianapolis's is unique because of its size. Most public river developments tend to be off of large rivers and typically consist of parks and plazas because of the frequent flooding and rapid movement of the water. Residential structures are typically not built along these rivers because of the risk of losing or damaging them to an annual flood. Many private developments however are built off of calm streams or controlled canals where flooding is not an issue. The problem arises in the lack of access allowed for the public to these waterways. The spaces tend to be narrow and fenced off, creating a barrier preventing the outside world from looking in.

The White River in Indianapolis, however, is a medium size river, giving it characteristics of both the large and small rivers. The White River is not large enough to be considered a navigable river for anything larger than a raft, but there still exist enough water for leisure activities. The water levels are such that one does not have to worry about the river running dry or being swept away by a strong current on a typical day. However, flash flooding does occur within the chosen site. This is due to the increased runoff of rainwater from downtown as it redirects all its water back into the White River. Having a medium size river allows for diverse development in both the public and private realms along the river.

PROJECT

By developing the river activities beyond that of simple boating, Indianapolis will gain a greater market along the riverfront, especially during the summer months. In Figure 3, the project is illustrated to show the relationship of the public activities to the private, residential space. Activities such as swimming, fishing, and water aerobics could be introduced to the White River, located along the river bank. A water park will also be added to the river edge for children to enjoy the river. This increase in activity will provide a boost in tourism and an increase of revenue for the city. The increased activity will also draw more residents to the Mile Square as river activities boost the use of downtown outside of work and sporting events.

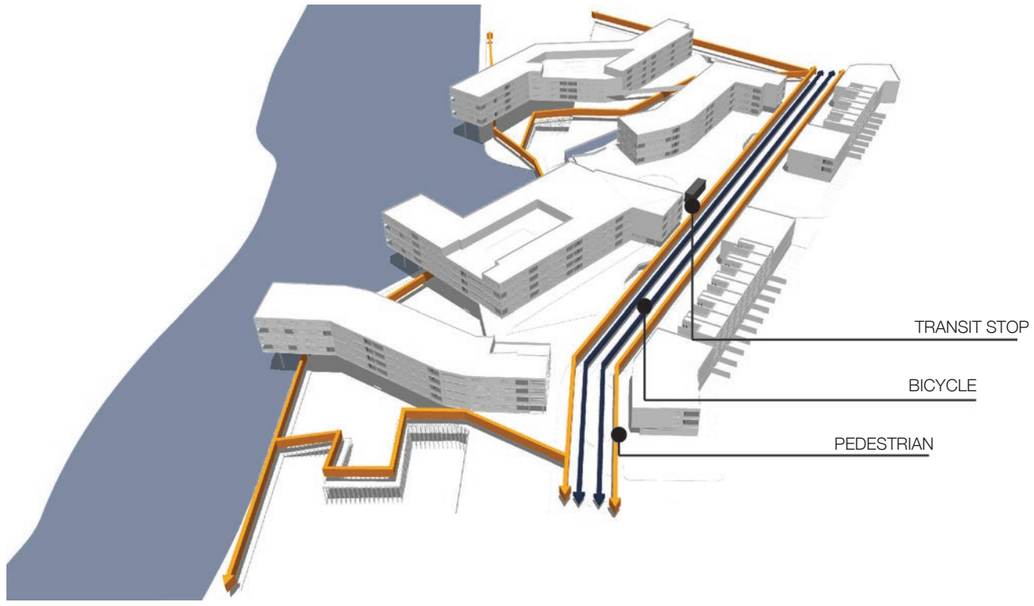
The site is ideal for river development due to its proximity to downtown Indianapolis. Located southwest of Monument Circle, the site is adjacent to many existing amenities that will draw a crowd. Such amenities include: convenience to Lucas Oil Stadium, White River State Park, Victory Field, the Indianapolis Zoo, and nearby neighborhoods. However a current disconnect exists

between the site and these amenities. Though the White River State Park is along the river, there exist no easy access to the water where one may enjoy it. The cause of this disconnect is by industrial development and the levee. By developing this site, a ripple effect will occur to liven up the spaces in-between these amenities. The increase in activity and livability will draw more development to the area, promoting further growth. This will be encouraged by the proximity of downtown Indianapolis and the want for expansion across the existing railroad and into the chosen site.

The design of the White River project is to encourage residents to live here while still maintaining the White River as an inviting space to the public. Though the private projects will be the most dominate on the site, public access will still occur and weave through the private developments. This is seen in Figure 4, demonstrating how pedestrians move through the site in both a public and private manner. River attractions will be available to the public to draw the residents of Indianapolis and tourists to its edge. These attractions include: a beach leading into the river with water shelfs, a large dock to accommodate fishing canoeing, and other boating activities, and a connection to the White River Trail, known as new River Walk to encourage biking and walking throughout the site. The idea is to allow premium housing options overlooking the river while the public will still enjoy the river edge without feeling intrusive upon the residents. The street to the east of the residential development, White River Parkway as seen in Figure 5, will also provide ample retail, grocery stores and restaurants to maintain the public environment, with residential units overlooking the street as well.

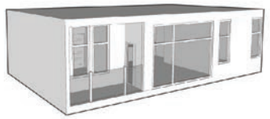
Other unique features to be introduced within the site is the daylighting of Pogue's Run and its connection with the White River. Pogue's Run will enter the site from beneath Oliver Ave, connecting back to southern downtown, it then weaves through two residential structures before emptying into the White River in a graceful waterfall. This tributary will often be dry and will be used to direct stormwater to the White River in a pleasing way. This gives a celebration to rainfall rather than dreading the sheer volume of water. The expanded park system will provide public access along the levee. Individuals will be able to see the water

FIGURE 4 (BELOW): CIRCULATION DIAGRAM A relationship between pedestrians, bicycles, and transit stops.
FIGURE 5 (LEFT): WHITE RIVER PARKWAY A moderately busy street suitable for a neighborhood environment. The street caters to pedestrians as the dominate users.

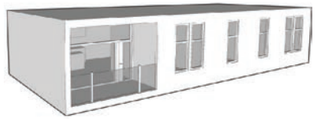


1 BED FLAT
700 SF
86 UNITS

2 BED FLAT
1025 SF
74 UNITS

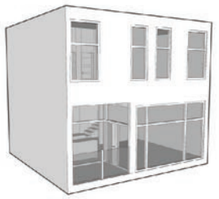


3 BED FLAT
1450 SF
34 UNITS



LOFT
600 SF
31 UNITS

2 STORY, 2 BED
1275 SF
16 UNITS



2 STORY, 3 BED
1750 SF
16 UNITS

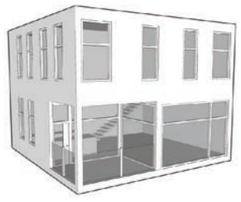


FIGURE 6: UNIT TYPOLOGIES Diversity of housing options will provide an opportunity to increase the diversity of users within the site.

and interact with it in between the residential structures. The housing placed upon this site will be in response to not just the river but the dense foliage already existing on the site. The goal is to create views to the river while keeping as many trees as possible. These trees have withstood the wrath of the river for decades and some have reached a height of 40 feet. By keeping them, the natural appeal of the river edge will be maintained. As such, the apartment buildings will serpentine through them before jutting out on to the river. These apartments will be a mix of owned and rented units so as to increase the demand for housing in Indianapolis while also providing affordable housing options. Currently Indianapolis has a high renters market in downtown not affordable to everyone. The price of many of these apartments is upwards of $1,200 and more for a one to three bedroom unit. This makes it especially unaffordable to families who need the additional rooms for children. Having a mix of owned and rented units creates opportunity for those wanting to invest long term in a home and those looking for an affordable renting option. By bringing in the idea of mixed owned and rented housing to the neighborhood, downtown Indianapolis will expand the range of income within the area to change the culture of the city.

The apartments will be arranged in two groups of two along the river bank to provide adequate amenities for all four units without over sharing the space. Amenities to be included within the apartment will be those ideal for downtown living: gym access, a pool, and multiple outdoor recreational spaces. The apartments themselves will be of mixed unit typologies with six different types of units to accommodate different lifestyles along the river edge. These units are detailed in Figure 6. There will be large two story apartments consisting of two to three bedrooms and a single story apartment consisting of three bedrooms. These apartments will be most ideal for families to live in the area. Having an excellent school just across the river and ample park and playground space along the apartment complex grounds, will be a great incentive to live in this area. This coupled with downtown living will make it a new hot spot for Indianapolis residents.

Families, however, are not the only ones to benefit from this new living environment. The apartment complex also features single story units consisting of one to two bedrooms, perfect for empty nesters. This will become a great opportunity for those who had moved out of the city to raise a family only to find that they wanted to return after their children left home. With no need to live out in the suburbs, and either working or wanting to retire closer to downtown, the river edge provides a relaxing environment with a shorter commute time to and from downtown. Other people who

FIGURE 7: WHITE RIVER BANKS Suitable for an assortment of leisurely activities in a quite environment.

will benefit from downtown living in this new natural urban setting are young professionals. Working in downtown but wanting to stay close to the action on weekends makes this new neighborhood ideal for the younger generation. These people will benefit most from the new lofts being placed within the complex that will give great views of the river and downtown Indianapolis. Having such a wide variety of ages in one complex will provide diversity to the area and allow for increased growth of downtown Indianapolis to occur not just physically but also economically and socially.

Major obstacles to building along the White River is the constantly changing flow of water and the debris that is carried down the river. This shouldn't be something to fear. Though the White River is difficult to control, preventative measures will still be taken to ensure safety during flooding months. Permanent structures built along the river base are at the most risk of flooding, which is the reasoning for keeping the residential units closer to the street and higher above the common flood zone. The public space closest to the river then remains open, serving two purposes: to provide public access and leisure activities, and to prevent permanent structures from flooding.

CONCLUSION

The White River once devastated the city and destroyed many homes. It was bored up in an attempt to contain the mass amount of water that flows through it each year. This created a barrier that needed to be breached in order to continue the growth of downtown Indianapolis. The design proposal crosses this barrier by building on the existing levee while creating a peaceful coexistence with the mighty river, while providing ample public and private space to enjoy the river edge. Though its strength should never be taken lightly, the river shouldn't be something to fear, but rather viewed as an asset, unique to Indianapolis. The proposal provided will strengthen the river edge and bridge the existing barriers that stand between the White River and Indianapolis.

SOURCES

1. "USGS Current Water Data for Indiana." USGS Current Water Data for Indiana. United States Geological Survey, n.d. Web. 16 July 2016.
2. "The White River Alliance, UWRWA, Indianapolis Indiana." The White River Alliance, UWRWA, Indianapolis Indiana. N.p., n.d. Web. 16 July 2016.

RIVER KEY

REESTABLISHING COMMUNITY IDENTITY IN WEST INDIANAPOLIS THOUGH EDUCATION AND RECONNECTION WITH OUR WATER WAYS

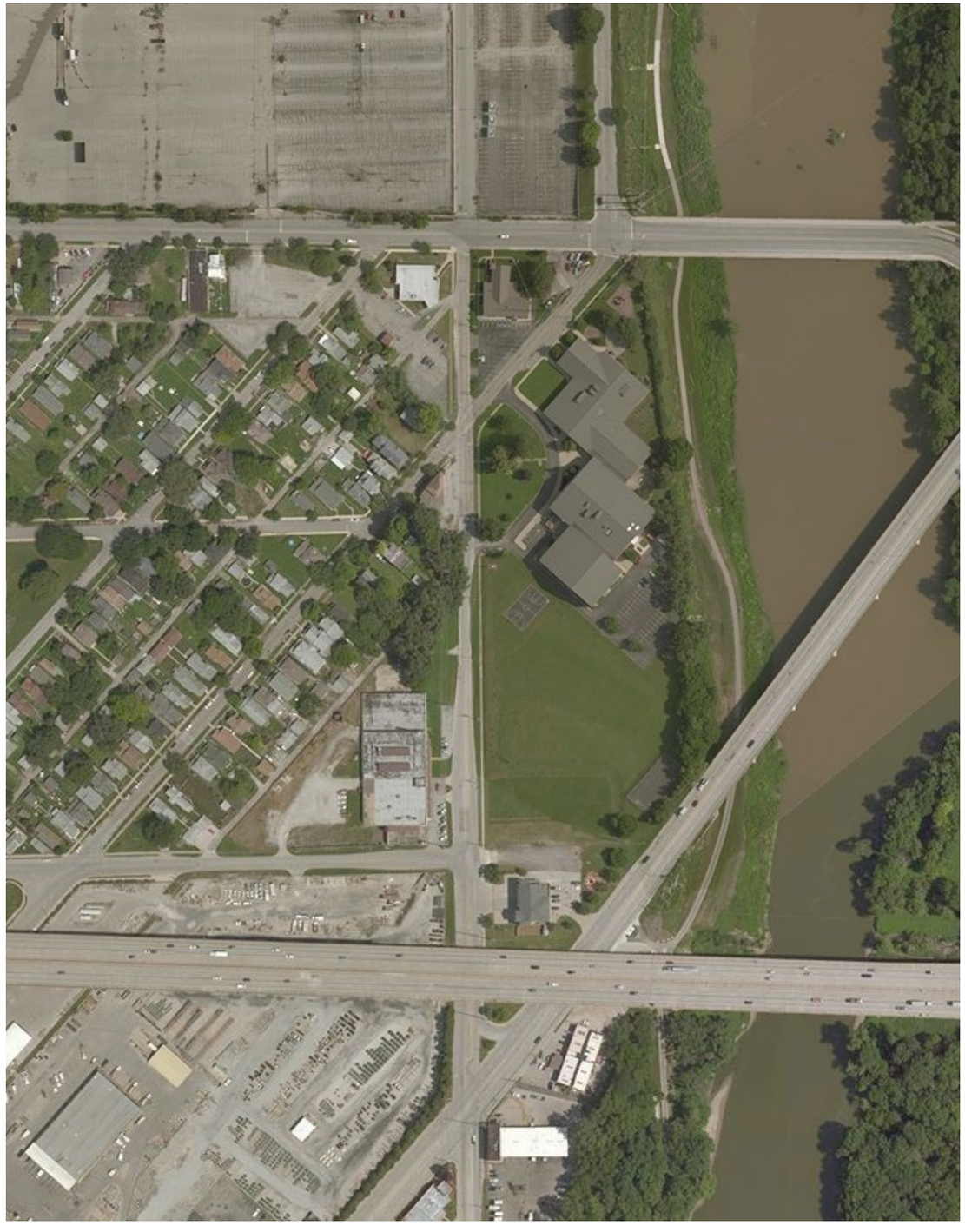
AUSTIN ROY, BLA

Historically, the west Indianapolis neighborhood was developed as a residential community that benefited economically and socially from job opportunities that the surrounding industrial development provided for residents of the neighborhood. In the early half of the twentieth century, the residents of west Indianapolis lived in a community driven neighborhood that provided almost all goods and services to support virtually all human needs. The neighborhood provided a school for children as well as transportation opportunities into the downtown area of Indianapolis via horse and buggy, mule and trolley, and later on, street cars. However in the 1970s, construction of Interstate 70 resulted in dividing west Indianapolis into two different halves. The population of the neighborhood was split and the sense of community within the area was lost. This division not only tore the sense of community in two, it also resulted in less demand for products and services sold locally in the neighborhood, resulting in almost all neighborhood shops to leave for the inner city. As the twentieth century progressed, industry, which had for so long supported west Indianapolis, began to disappear, as industrial jobs moved overseas, property values as well as standard of living also began to diminish. In 2011, the retraction of industrial jobs reached its peak when the GM stamping plant, located directly north of the neighborhood closed its doors.

RIVER KEY DEVELOPMENT

Today the site is home to around 1,100 low income, predominantly white residents. It is an older, working class neighborhood comprised entirely of small single family residential architecture. Acting as a divider, Interstate 70 separates the residential district with the mixed industry located on the opposite side of the interstate. Now stricken with blight, the significant challenges regarding the site are three fold. Firstly, the neighborhood lacks a community identity. With the division of the community and loss of neighborhood shops and stores, there is nothing that draws interest or inspires people to be a part of the neighborhood. Secondly, with the great flood of 1913 and the construction of the river levees, the White River has been actively shunned by both the city of Indianapolis and the residents of west Indianapolis. This has resulted in a lack of interest in both the health of the river's water quality and natural ecosystem. Lack of interest in the river has also resulted in ignoring the river as a recreational resource for the community and as a major driver in creating a community identity. Thirdly, the site lacks public and pedestrian connections to both the river and across the river to downtown Indianapolis. With the loss of industrial jobs in the west Indianapolis area, residents of the neighborhood will require various transportation opportunities to and from new employment districts specifically downtown Indianapolis where employment opportunities are growing. Recognizing the historical heritage of the neighborhood The RiverKey Development project will propose a strategy to establish a community identity through community education interaction, neighborhood connections, and interaction with the White River, and to provide diverse transportation opportunities to downtown Indianapolis.

Firstly, the RiverKey Development project will provide the west Indianapolis area with a sense of community though education. By reinventing the existing Key Learning Community School and its relationship with the surrounding neighborhood, the project will reestablish a strong community identity that is inspired by the school and its influence on the community. Secondly, the project will provide entertainment and event opportunities as well as pedestrian and boat access to the river edge and allow for the revitalization of the riverbank while providing for a comprehensive flood control strategy. By redesigning the river bank and its relationship with the adjacent neighborhood, the project will redefine how neighboring residents interact with and utilize the White River.Thirdly, The RiverKey Development project will provide a safe, efficient, and affordable connection to downtown Indianapolis by way of pedestrian, bike, and vehicular circulation. Though systematic street design and the implementation of a new greenway network, the project will provide safe, efficient,



and diverse transportation opportunities to and from the downtown Indianapolis area.

THE WEST INDIANAPOLIS NEIGHBORHOOD

The West Indianapolis neighborhood street grid was developed as a continuation from the original downtown street grid running north to south and east to west. All streets accommodate two directions of traffic as well as on street parking. Vehicle traffic throughout the neighborhood is extremely low and has very little impact on the street environment. Since its origination, The West Indianapolis neighborhood housing has been almost exclusively single family, low to middle income homes. The architecture in the surrounding area of the project site dates back to the 1950s, 1960s, and 1970s. Fifty to sixty percent of the homes do not accommodate vehicular parking, requiring residents to park on the streets. Property lots are small averaging around 6,000 square feet in area. As a whole, the housing setbacks throughout the neighborhood are very short, resulting in small front yards and a close connection to the street environment. For many residents, the street scape has become a part of their living environment, adapting the street as primary spaces for recreation. The lack of vehicular traffic on neighborhood streets have allowed for the safe use of the street as a usable space.

Today the neighborhood of west Indianapolis suffers from lack of identity, falling property values, and growing vacancy due to an emigrating population. Without intervention the quality of neighborhood and livability within west Indianapolis will continue to decline. While a large majority of West Indianapolis is located away from the river, The RiverKey Development project has focused on this location due to its relationship with the river as well as the Key Learning Community. The site will also act as a gateway between the rest of the west Indianapolis neighborhood and downtown Indianapolis.

OBJECTIVE 1: ESTABLISHING A SENSE OF COMMUNITY

The most significant existing element that will provide opportunities for community identity is the Key Learning community. The Key Learning Community is a K-12 Indianapolis public school that is located on the west bank of the White river. The design strategy for the school revolves around the idea of “nature learning”. A series of design changes to the school will prioritize ecological education on a multitude of intellectual levels beginning with an elementary strategy and continuing on to a middle school and high school level. The goal of the Key Learning Community design strategy is to create a community identity based around and inspired by ecological and environmental education.

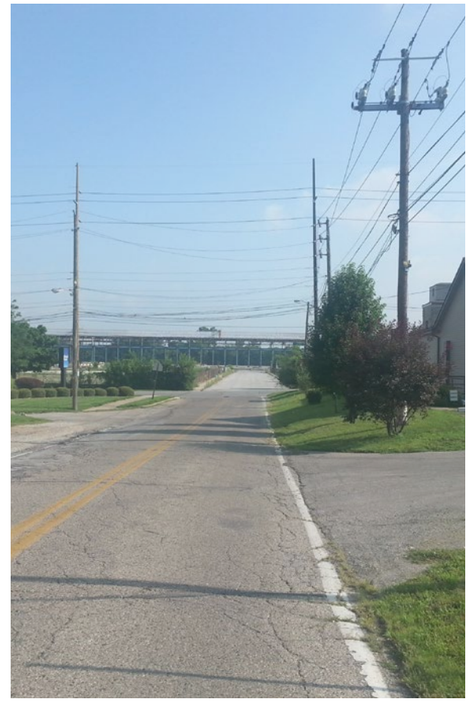


FIGURE 1 (LEFT): EXISTING CONDITIONS Birds Eye view of the existing conditions of the west Indianapolis neighborhood.
FIGURE 2 (ABOVE): SITE ENTRANCE View of the abandoned GM stamping along the main access road into the site.

The most significant influencer of community identity is the establishment of a comprehensive nature based education system. While remaining true to a classical curriculum, the mission is implemented by engaging children and families with the natural world in the places of daily life (home, school, and neighborhood) through participatory environmental design, action research, education, and dissemination of information. According to Robin Moore, an international authority on the design of children's play and learning environments, "Nature play is defined as a learning process, encouraging children to work together, develop physical skills, to exercise their imaginations, to stimulate poetic expression, to begin to understand the workings of the world around them." Robin Moore and the Nature Play initiative argue the importance of nature based education within a school environment as well as the importance of its integration into the local community. "Community engagement is the foundation of successful implementation and sustainability of nature play and learning projects. If the community is involved from the beginning, the project is more likely to succeed." (Moore, 131) The implementation of a nature play project can also act as a catalyst for community place building and act as the influencing identity for a neighborhood.
A case study located in Los Angeles California (El Sereno Arroyo Playground) offers an example of the successful implementation of a nature play playground in an urban context. The park not only provides outdoor educational opportunities to neighborhood schools, the park also provides recreational spaces for the surrounding community. Another case study located in Manhattan New York (Teardrop Park North) was designed as a community based educational park that provided a semi private/public recreational and educational opportunities as well as event space for community engagement.

Utilizing design and implantation strategies laid out by Robin Moore and the Nature Play Initiative, the RiverKey Development project has proposed a nature learning park that through designed, educational, recreation, and event space, will establish a strong community identity. The park will act as a physical and social bond between the school, the river, and community. By reestablishing these bonds, the RiverKey development project hopes to

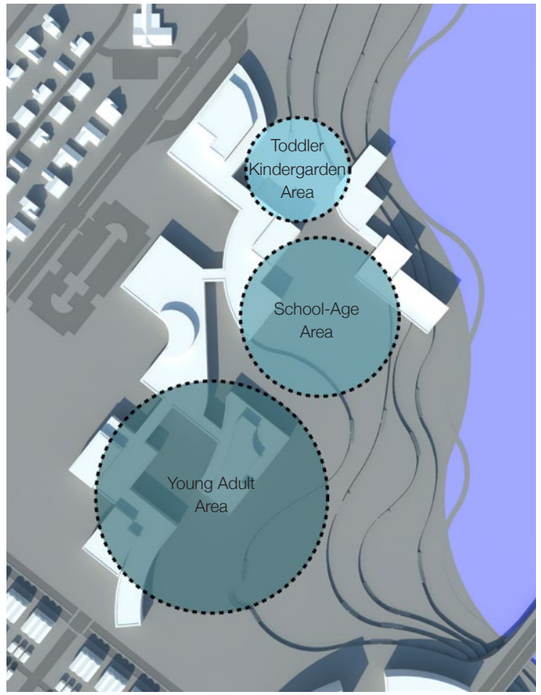


FIGURE 3 (LEFT) NATURE PLAY The key Learning Community will integrate outdoor physical and cognitive learning through the interaction of the natural environment.
FIGURE 4 (ABOVE) KEY LEARNING COMMUNITY SCHOOL The Key Learning school provides Nature Play spaces for students ranging from kindergarden to twefith grade.

restore the heritage of community to the west Indianapolis neighborhood.

CREATING COMMUNITY DRIVEN EDUCATION

Today the Key Learning Community consists of an entirely private learning environment. With the exception of a 30 minute recess break, the educational process exists entirely indoors within private classrooms that have no exciting or creative inspiration. Robin Moore states that though nature play and nature learning, growing children have the opportunity to spend more time outdoors, promoting a healthy lifestyle and learning about a healthier environment.

Through a new Nature Play design solution, the learning environment and educational spaces will include outdoor classroom spaces, river ecology buildings, and a comprehensive series of age based learning spaces that accommodate different types of intellectual interaction with the surrounding environment. The redefined Key Learning School will be a designated, managed area in a specifically modified outdoor environment where students from preschool to high school will play and learn by engaging with and manipulating diverse natural elements, organisms, materials, and habitats, through sensory, fine motor and gross motor experiences.

The outdoor park area will include three major zones, the preschool zone, school age zone, and the young adult zone. The preschool zone will consist of spaces that accommodate the youngest students, including the infant/ toddler area, infant lawn, a sand play area, a log balancing area, and a small scale playground. The school age zone will include spaces like open lawn for games, climbing boulders, climbing trees, and rope and log play structure. The young adult zone will be designed for the oldest of the students. These spaces will focus on higher end environmental and ecological education such as the river edge greenhouse, wetland prairie, the orchard, and open field for events and games.

A nature play environment focused around a school does not only benefit students participating in that institution. These spaces also provide benefits to the surrounding community by allowing outside users to engage in the recreational opportunities provided by a nature play environment.

OBJECTIVE 2: REVITALIZING THE RIVER EDGE

The problem surrounding the river has been previously stated as, the general lack of interest in the utilization of the water way by both the city of Indianapolis and the residents of surrounding neighborhoods. According to the American Planning Association's report on ecological riverfront design, interest in restoring our cities rivers has been on the rise. The authors of the report discuss design strategies that help to establish connections to the rivers as well as create a healthy relationship to the river edge and surrounding communities. The authors explain that strong connections to the river though pedestrian corridors, green ways and recreational and event space opportunities are essential to establishing public interest in

FIGURE 5: RIVERKEY RIVER WALK The RiverKey Boardwalk weaves in and out of the White River and allows access to the water as well as circulation along the river edge.

the river as well as creating bonds between the community and it's river. The RiverKey Development project will also prioritize the five design principles laid out by the American Planning Association in regards to river edge development. 1. Protect and restore natural river features and functions. 2. Regenerate the riverfront as a human realm. 3. Make the process of planning and designing riverfronts broadly participatory 4. Ecological goals and economic development goals are mutually beneficial, and 5. Compromises are necessary to achieve multiple objectives. (Otto, 34)

Alongside the Key Learning Community strategy, the river edge design will also be paramount to the success of creating a strong community identity with the west Indianapolis neighborhood. The design strategy focuses around public park space and opportunity space. The design includes, Providing entertainment and event opportunities as well as pedestrian and boat access to the river edge while allowing for the revitalization of the riverbank as well as providing for flood control. The physical design of the river edge includes a terraced river bank design while providing open greenspace opportunities as well as dense natural plantings along the length of the terrace edges. A boardwalk trail weaves in and out of the river providing close access to the water and natural habitat of the river bank.

The design that has been proposed will help to reestablish a connection to the river though the nature play park discussed in the previous objective as well as pedestrian connections to the river and recreational opportunities on and around the river. The project proposal includes pedestrian greenways that lead to the river from both the school and the residential neighborhood. A major green way that runs along the edge of Interstate 70 will also connect the White River with other portions of the west Indianapolis neighborhood located further back from the river's edge. These newly established connections will offer the community opportunities to access the river, interact with the river, and connect with the river.

OBJECTIVE 3: CONNECTING WITH DOWNTOWN INDIANAPOLIS

Walkable connections and pedestrian access to the White River and downtown Indianapolis is key to the goal of establishing a strong community identity within the neighborhood. A primary design strategy involves the concept of Complete Streets, a series of design standards and guidelines that promote diverse transportation strategies with an emphasis on pedestrian circulation.

Since the adaption of vehicles as the primary from of street transportation, streets have become, ironically both a form of circulation and a barrier. At the pedestrian level, streets effectively act as walls, restricting non-vehicular circulation perpendicular to street layout. Solving this problem is an essential design component of the project. The primary design strategies that will allow for non-restrictive pedestrian circulation along and across roads are the principles found in the Complete Streets design guidelines. At its foundation, the strategy prioritizes the accommodation of all forms of transportation along a singular corridor. When designing a multi-use street, a major design principle is pedestrian safety. Slowing vehicle traffic through street design is the most efficient way of providing safer street environments for pedestrians. In this specific project, safe, nonrestrictive pedestrian circulation, perpendicular to the street layout is essential to the success of the project's goal of walkable connections to the Key Learning Community, the White River, and downtown Indianapolis.

As stated before, diverse transportation opportunities are essential to the revitalization of the west Indianapolis neighborhood. As industrial job opportunities have moved out of the area, residents of the neighborhood will need safe, efficient, and affordable transportation connections to both outside the neighborhood and specifically downtown Indianapolis where many job opportunities exist. Connections to downtown will be accomplished by providing a safe, fun, and efficient connection to downtown Indianapolis by way of adapting existing bridges to provide pedestrian, bike, and vehicular circulation. The implementation of large greenways along the Kentucky Ave and Oliver Ave bridges provide the most significant pedestrian and bike connection opportunities into downtown Indianapolis. Pedestrian friendly Complete Streets also allow for safer circulation throughout the neighborhood. The Interstate 70 greenway along the south edge of the site also allows for connection to downtown from further western neighborhoods.

The two primary design elements for accomplishing the goal of enhanced connection to downtown are the implantation of the two greenway bridges along the Kentucky Ave Bridge and the Oliver Ave Bridge. These two roads are the only forms of connection across the river into downtown Indianapolis from the West Indianapolis Neighborhood. The design of these greenways primary focus on promoting pedestrian and bike traffic across the White River alongside Kentucky and Oliver Ave. The greenways consist of non-motorized trails surrounded by various, human scale spaces that promote exploration, sightseeing, and relaxation. Vegetation and ecological design is the primary form of spatial organization along the greenway datum. The other major design element involved in the downtown connection strategy is the Interstate 70 greenway that will attempt to connect the rest of the West Indianapolis neighborhood with the river edge development, the Key Learning Community and the Kentucky and Oliver Ave Bridge greenways. Currently the vast majority of the West Indianapolis neighborhood is disconnected from the project site and river. The interstate 70 greenway is designed to provide safe and efficient pedestrian and bike circulation around and under Interstate 70 allowing all of the West Indianapolis Neighborhood connection to downtown.

These transportation and circulation design stratagems will help to connect the residents of west Indianapolis with new accessible job opportunities in downtown Indianapolis as well as other employment within the region. The design also maximizes pedestrian and bike circulation around and along Interstate 70 allowing for safe and efficient accessibility to the Key Learning Community School, the nature play park and the river edge.

LIVING IN RIVER KEY

Alongside the three objectives mentioned above, the RiverKey Development project is also proposing to redevelop portions of the existing residential neighborhood as well as develop new housing porotypes which include townhouses and apartment units. These new units will both provide new, attractive and divers living options as well as provide differing income opportunities. The housing development strategy as a whole will accomplish both help to stabilize property values as well as diversifying income levels within the neighborhood.

The single family and multifamily portion of the neighborhood has been revitalized through new low impact, sustainable housing prototypes when and where old architecture is un-preservable. The revitalization process has been influenced by the Fall Creek Place neighborhood in north-east Indianapolis. The Streets throughout the neighborhood have also been revitalized

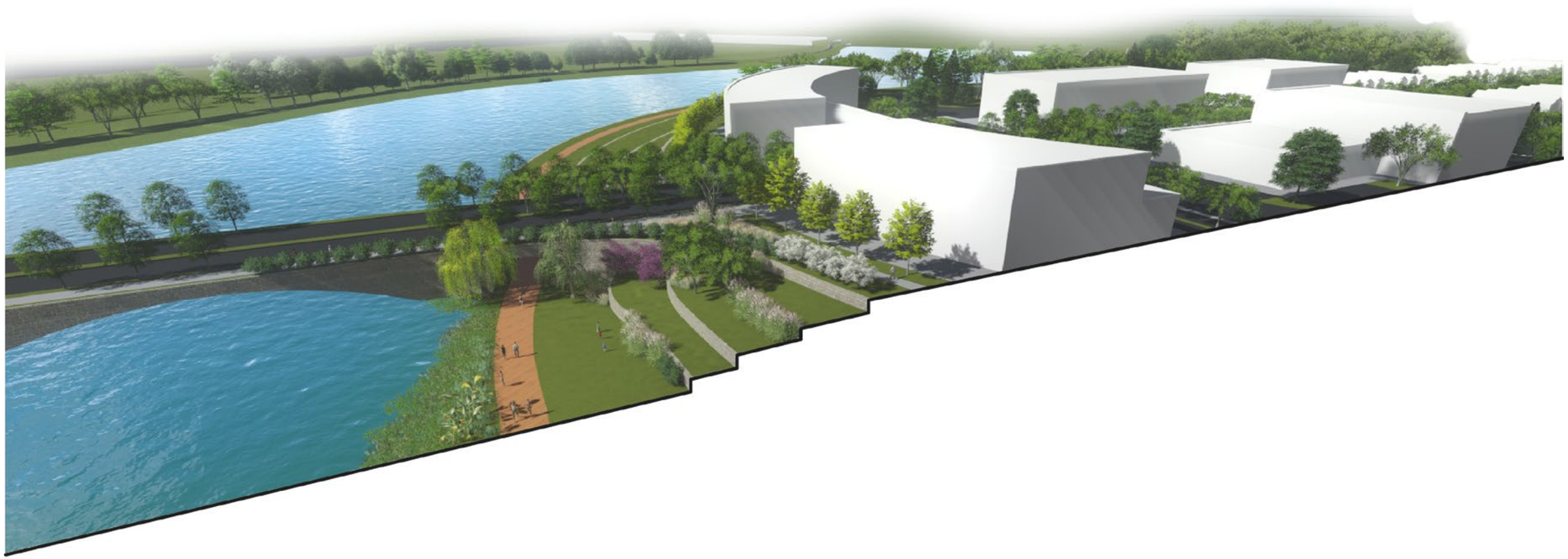


FIGURE 6: RIVER EDGE SECTION The vertical relationship between the White River and the urban develoment

FIGURE 7 (LEFT): TERRACE PARK Birds eye view of the terrace park that divides the school and the mixed use develoment.

FIGURE 8 (ABOVE): RELAXING AT THE PARK Residents relax at the terrace park along the edge of the river with veiws into downtown.

using Complete Streets strategies. Spread intermittently throughout the single family community are a series of small opens spaces designed to provide recreational opportunities close to home and to act as a series of public recreational nodes that lead pedestrians through the single family development. In regards to the proposed blocks of residential development to the south west of the school. A series of diverse townhouse architecture and unit design prototypes have been designed to attract residents of low to upper middle income. These townhouses will all face onto open green space and away from the road. This will promote community interaction within public open space and help to facilitate pedestrian circulation.

The RiverKey development project also proposes a series of mixed use buildings that will support commercial retail, a low amount of office space, and residential living units such as apartments. This community hub will act as a centralized point along with the school as a gathering place for residents, students and other users. The commercial land use within the hub will be a small grocery store, corner drug store, and restaurant. The buildings will also provide rentable office space for small businesses in the area. Atop the commercial and office space will be residential apartment units that provide housing costs affordable for low to upper middle income wages earning individuals or families. The mixed use development hub is located south of school, along Kentucky Ave. the buildings are designed to face the river edge park and nature play districts allowing easy access to the park and the river edge. The I70 green way that runs along the interstate and crosses Kentucky Ave Bridge also runs alongside the mixed use development hub, allowing for users of the greenway to utilize the commercial opportunities and to act as a node along the green way trail. Today, there is a significant disconnect between the residential community and the river edge. The Key Learning Community, un-walkable terrain, as well as dense vegetation are currently physical and psychological barriers to the river and do not allow for a clear and easy way of access to the river edge. The RiverKey Development Project has proposed a planning strategy that will bring the riverbank literally into the residential community. The design proposes that the topography of the riverbank be pulled back into the neighborhood at five foot elevational increments. These topographic layers will begin to define different spatial elements and patterns that act as a blueprint for residential, retail, and mixed use development planning. By pulling the riverbank topography into the community, the design is actively bringing the river to the residents. While the actual edge of the river water will not be manipulated by more than a few feet. The topographic layers that reach into the neighborhood act as an extension

FIGURE 9: THE AMPHITHEATER The multi-use amphitheater is located in the terrace park that is utilized by both the community residents and students from the scholl

of the river itself. The topographic layers will provide space for both private and public institutions; however the layers will most significantly influence public open greenspace and act as a path or greenway leading to the actually river edge.

CONCLUSION

Recognizing the historical heritage of the neighborhood The RiverKey Development project will establish a community identity through community education interaction, neighborhood connection and interaction with the White River, and to provide diverse transportation opportunities to downtown Indianapolis. This will be accomplished through a series of design stratagems. First, a unique sense of community will be established through the integration of a nature play park that fuses the school, river and neighborhood into a community identity that values education, recreation, and environmental responsibility. The strategy also focuses on the revitalization of the neighborhood and the establishing of a sense of place through mixed use development and unique public event and recreational space within the community and long the river. Finally by connecting the community through the establishment of safe, efficient, and affordable transportation opportunities to downtown Indianapolis, The community will gain greater access to local and regional job opportunities that will help grow the RiverKey neighborhood into a healthy and thriving Indianapolis community.

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THEATER BLOCKS

AN URBAN DESIGN STRATEGY MODELED ON ECONOMIC, SOCIAL, AND ENVIRONMENTAL SUSTAINABILITY

TAYLOR FIRESTINE, BUPD

The Twin Aire neighborhood in Indianapolis, Indiana has suffered decline over the last generation, resulting from years of waning land value, loss of skilled labor jobs, and stagnant or decreasing income. These issues are intrinsically linked to other problems facing depressed neighborhoods across the U.S., including transit inaccessibility and barriers to educational attainment. Given the availability of urban land ripe for redevelopment, the Theater Blocks will initiate a phased redevelopment plan of the Twin Aire Drive-In Theater site under two guiding objectives: 1: Stabilize the Neighborhood through Accessible Social Services; and 2: Facilitate Growth and Reinvestment for Future Success. While the first objective is a short-term endeavor, the second addresses long-term strategic planning for the community. Both objectives contain various goals addressing a host of issues facing the area, including land use, social services and education, parks and open space, and branding. These objectives and their subsequent goals are directed at bolstering the area's quality of life through a model of economic, social, and environmental sustainability.

CONTEXT

Located on Indianapolis' Near-Southeast side, the proposed Theater Blocks development would be located within the current boundaries of the Twin Aire neighborhood, about 2 miles southeast of Monument Circle and 1 mile east of Fountain Square. The site, located adjacent to an existing 1950s-era shopping center and Pleasant Run, was home to the Twin Aire Drive-In Theater until the 1990s. The 40-acre site is bordered on the east by South Keystone Avenue, on the north by Hoyt Avenue, and the south by Pleasant Run Parkway North Drive, located just northeast of the Pleasant Run waterway, a tributary of the White River (See Figure 1). The parcel is owned by Citizens Energy Group as part of its larger Indianapolis Coke Facility, which ceased operations in 2007. Most of the Citizens Energy Group property is currently undergoing environmental remediation and will not be developable in the near future. However, the Twin Aire Drive-In parcel provides a clean slate for redevelopment, as it is the only piece of currently developable land within the total 140-acre Indianapolis Coke property.

PROPOSAL

Theater Blocks is a strategic plan responding to problems that have plagued the Twin Aire neighborhood for generations. Enhanced social services, accessibility to education and job skills training, improved public transit, and a system of public parks and open spaces are central components to the redevelopment of this site. Refocusing attention to the area's hydrological function as part of the Pleasant Run watershed will also be a vital connection into the urban design of the development. These improvements will also have a marked impact on the area's land value, and thus, its desirability for reinvestment. Increased land value in the area will be an impetus for further redevelopment, which will include commercial, retail, and office space, and a gradient of mixed-income housing typologies to appeal to a diversifying market and offer new opportunities for employment for current and future residents. This project is multifaceted, addressing as many of issues as possible, to ensure that the tools are available for the neighborhood to recover and better position itself for future changes.

OBJECTIVE 1: STABILIZE THE NEIGHBORHOOD THROUGH ACCESSIBLE SOCIAL SERVICES AND ENVIRONMENTAL STEWARDSHIP

In order to stabilize the neighborhood, this project aims to balance the needs of its residents with the demands of a shifting economy, and focuses on strategies that will deliver the most positive impact in the shortest period of time. Jobs and education are the core economic drivers in

FIGURE 1: EXISTING CONDITIONS Pleasant Run meanders through the site, but is effectively ignored as a natural resource, with concrete berms restricting access and combined sewer overflow (CSO) outfalls along its course.

this area of Indianapolis.

Due to the closures of major nearby manufacturing centers and IPS Florence Fay School 21, the neighborhood's socioeconomic health has suffered over the years (See Figure 2). With globalization and advancements in manufacturing technology, most blue-collar jobs will likely never return. However, this gives the neighborhood the distinct opportunity to reinvent its economy. Providing entrepreneurship and trade skills training and flexible childcare services for working parents or students, will be key to initiating the neighborhood's stabilization and recovery. The Theater Blocks development will include retail, office, and commercial space for small businesses, as well as "flexspace," similar to already successful startup spaces, such as The Speak Easy or DeveloperTown in Indianapolis. These investments will reorient the community from its former manufacturing-based economy to a small business-friendly service-based economy.

Easing personal and financial barriers on residents—disproportionately felt in low-income families—will increase economic mobility and improve social well-being in the neighborhood. Although new wealth is encouraged within the area, the project is sensitive to the wants and needs of residents already rooted in the surrounding area, most of whom earn incomes of less than $15,000 annually. To protect residents from the possibility of displacement, mixed-income housing will be included throughout the development using federal and state tax credits. The site is eligible for funds through its federal designation as a Promise Zone through the Department of Housing and Urban Development (HUD).

GOAL 1.1
RECLAIM BROWNFIELD AND UNDERUTILIZED LAND FOR COMMUNITY BENEFIT

Stabilizing the neighborhood socioeconomically first requires the development of vacant land for productive use once more. Nearly a quarter of the area's housing stock is vacant. Neighborhoods suffering from high vacancy rates usually see decreases in civic involvement, safety, and property values. Vacant homes or buildable lots outside of the site will be targeted for rehabilitation and infill, but must be affordable. Attracting varied income levels naturally diversifies the neighborhood and increases its economic resiliency in anticipation for future downturns. The overall 140-acre site and surrounding vacancies are painful reminders of Indianapolis' manufacturing past. Returning this land back to the community through a mixed-use, environmentally-sensitive approach will heal this wound and help stabilize an area of the city that has suffered from a host of complex issues.

FIGURE 2: EXISTING CONDITIONS The Twin Aire Drive-In site (top) is currently a fenced-off area with no necessary environmental remediation. The Citizens Energy Group Indianapolis Coke facility (middle and bottom) sits adjacent to the site and closed in 2007.

Given the vast land area ripe for redevelopment, the complete plan considers seven phases on a timetable spanning several decades, between 2016 and 2050. Local banks, nonprofit community development corporations, the City of Indianapolis, area utility providers, and Citizens Energy Group will enter into land acquisition, financial, and engineering agreements with a number of selected developers as the initial step prior to each phase. Environmental remediation is ongoing on the rest of the site, with exception to the Twin Aire Drive-In parcel, which is clean and ready for redevelopment. As such, the drive-in site has been selected as Phase I of the 34-year plan. The vast majority of the remaining 100-acres will be developable by 2030 (See Figure 3).

GOAL 1.2
IMPROVE AND ENHANCE SOCIAL SERVICES AND EDUCATION

The cornerstone of Indianapolis' Near-Southeast neighborhoods, is and always have been, their people, yet their needs are not currently met by the existing social service infrastructure. The Theater Blocks development is founded on enriching the quality of life for current and future members of the community. The development is sensitive to the prospect of gentrification or income displacement as the neighborhood sees increased investment, and thus, increased property values. In 2015, the median household income in the area was $17,278 and only projected to increase slightly to $17,411 by 2020. This highlights the problem of disadvantaged neighborhoods with low access to social services and wage stagnation.

According to Indiana University – Purdue University Indianapolis' Polis Center, 20% of the neighborhood's workforce was unemployed in 2014, ranking 92nd of Marion County's 99 designated community areas. Compounding this problem, the neighborhood has the lowest rate of post-college education among adults 25-years and older, with only 9.2% of residents holding an associate's degree or higher. Nearly 40% of residents did not complete high school. Working with public education institutions, such as Indianapolis Public Schools and Ivy Tech Community College, the founding of a vocational school or trade school training program could bring opportunities for improved educational attainment in the neighborhood.

FIGURE 3: CONTEXT The Citizens Energy Group Indianapolis Coke boundaries (highlighteD) include the former Twin Aire Drive-In, for a combined 140-acres of brownfield and greenfield urban infill.

The institution of a community center affiliated with the United Way of Central Indiana's Center for Working Families program will be the centerpiece for the neighborhood's improved social services infrastructure, including a library branch, health clinic, daycare, and trade school. This initiative will be achieved through nurturing existing community partnerships while forging new ones. The community center and related education programs will be housed in a centrally-located landmark building at Hoyt Avenue and South Rural Street, acting as a link between the existing Twin Aire neighborhood and Theater Blocks development.

Working closely with Local Initiatives Support Corporation of Indianapolis (LISC), social services will be located within the center after developing strategies between involved stakeholders. For example, the Indianapolis Public Library is looking to end its lease for the Fountain Square Library Branch in 2018, one mile west of the site. A permanent location within the United Way building could serve a greater need in the immediate area, improving access to needed educational and technological resources, especially for children and young adults.

A health and dental clinic, which is sorely lacking in this area of Indianapolis, could be implemented with a health care provider such as Eskenazi Health or Community Health Network—major employers in the metropolitan area that already have neighborhood clinic locations throughout the city. The Lilly Endowment is another local avenue for fundraising. The endowment, one of the largest in the U.S., targets revitalization efforts in the categories of community development, education, and religion. Lilly also awards grants with a special emphasis on causes of philanthropy and volunteerism benefiting youth. Coalescing these community betterment organizations will cluster quality of life resources within the Theater Blocks to bring opportunities for social well-being, not easily accessible previously.

GOAL 1.3
IMPROVE HYDROLOGICAL FUNCTION AND ECOLOGY

Developing extensive brownfields on the site will require astute attention to water and air quality improvement in order to protect the environmental health and well-being of the community. A partnership with Citizens Energy Group ensures that appropriate monitoring after remediation will continue with respect to city, state, and federal regulations. To date, Citizens Energy Group has placed more than 100 monitoring wells throughout the site, collected hundreds of soil, sediment, groundwater, and surface water samples, and conducted thousands of laboratory tests to ensure the area does not pose an immediate threat to public health. The most prevalent contaminant is coal tar, a byproduct of the coke manufacturing process. Phytoremediation and improved stormwater collection strategies will be implemented to improve the long-term environmental health for the site.

Combined sewer overflows (CSOs), which are today commonplace along Pleasant Run from multiple outfall sites, will be essentially nonexistent after Indianapolis completes its $1.9 billion federally-mandated sewer separation project, to be completed by 2025. Special focus will be given to the site's hydrological system,

FIGURE 4 (RIGHT AND ABOVE): THE RUN BIOSWALE This engineered creek-bed will be a centerpiece of the Twin Aire Drive-In redevelopment. The bioswale will be lush with native trees and plantings, operating as a sponge during hydrological events (bottom).

with a design that is sensitive to Pleasant Run and refocuses the neighborhood's attention to the waterway, a goal of community partner Reconnecting to Our Waterways (ROW). An on-site, bioswale will buffer the east end of the central lawn from the dense mixed-use buildings fronting the South Rural Street extension (See Figure 4). This engineered creek bed will function as a ribbon of managed wetland, acting as a sponge between Pleasant Run and the site. The bioswale will absorb excess precipitation to prevent overwhelming the local stormwater collection system. Its lush palette of native plantings will also serve as a regional destination for migratory birds, insects, and other creatures. This natural urban design strategy will be the focal point of the development's environmental sustainability efforts.

Restoration of the urban tree canopy will also be crucial in achieving this goal. Including a lush urban tree canopy, especially native trees and plantings, will improve the local ecosystem, manage stormwater runoff, mitigate the urban heat island effect, purify the area's air quality, and enhance the aesthetic character of the neighborhood. Keep Indianapolis Beautiful, Inc. (KIB) is a local nonprofit that has been identified as a possible partner in implementing this proposal. KIB annually supports some 500 community-based projects involving more than 30,000 volunteers. In 2015, the group planted nearly 3,000 trees throughout Marion County.

Promotion of biodiversity and wildlife, especially along Pleasant Run, will complete a missing link along the existing natural urban corridor included in landscape architect George Kessler's Indianapolis Park and Boulevard Plan. Connected to the existing Pleasant Run Trail, an extensive system of public greenways and passive and active recreation areas will be dispersed throughout the Theater Blocks (See Figure 5). An urban agriculture center and community garden will also be strategically placed at South Temple and Hoyt Avenues, acting as an invitation for residents between the original Twin Aire neighborhood to collaborate with residents living in the Theater Blocks.

OBJECTIVE 2: FACILITATE GROWTH AND REINVESTMENT FOR FUTURE SUCCESS

Once the neighborhood has been stabilized by reclaiming brownfields and allocating space for a social services, transportation, housing, and marketing will be essential components in sustaining renewed growth and encouraging future investment within the Near-Southeast side. Goal 2.1 addresses integration of various modes of transportation. Goal 2.2 addresses a need for offering variation in mixed-income housing

FIGURE 5 (ABOVE): REALIGNED PLEASANT RUN TRAIL
Pleasant Run Trail will be realigned and enhanced from its current state (top) to improve user experience, encouraging walkability and improved bicycle accessibility, especially to the community garden (bottom).

typologies. Goal 2.3 outlines proposals for an enriched system of public spaces. This leads into Goal 2.4, which addresses a marketing and branding campaign for the area. Taking cues from its context and local success stories, the Theater Blocks will unify disparate community development groups around a shared vision for redeveloping the area, creating a collective voice benefiting area residents and attracting new business opportunities.

GOAL 2.1
INCREASE TRANSIT ACCESSIBILITY AND MULTIMODAL TRANSPORTATION OPTIONS

Transportation is a necessity for people who live, work, or go to school. Inaccessibility to a quality transportation system exacerbates social inequality and disproportionately burdens low-income individuals, who cannot afford to own personal vehicles or pay for fuel. Today, nearly 20 percent of area residents rely on transportation other than a car to complete daily tasks. As a transit-oriented development, the Theater Blocks will operate as a connector between stops on the proposed IndyGo Bus Rapid Transit (BRT) Orange Line via Keystone and Rural streets, offering residents upgraded transportation options across Marion County.

An extension of Rural Street from Hoyt Avenue to Prospect Street will include dedicated bus rapid transit lanes, curbside bus shelters, and protected bike lanes, linking a vital transit corridor on the city's east side (See Figure 6). Removing the stigma of using public transit in Indianapolis and investing in a quality bus system will encourage reinvestment in neighborhoods along the line's path and improve connections to services throughout the city, including employment and education nodes. According to the Marion County Transit Plan, residential properties near high quality public transit service kept their value 42 percent better than competing homes during the Great Recession.

Modifications will also be made to East Pleasant Run Parkway North Drive and the intersection of Hoyt and South Keystone avenues in an effort to "right-size" the streets, calm vehicular traffic, and introduce on-street parking. Trowbridge Street and South Temple Avenue will be exptended south through the site as extensions of the existing street grid to the north. Other innovative

FIGURE 6: S. RURAL ST. EXTENSION An extension of S. Rural St. will be the central transit boulevard for IndyGo's proposed Orange Line bus rapid transit (BRT).

modes of transportation will also be available for localized destinations, including the additions of an Indiana Pacers Bikeshare station and BlueIndy carshare station. The plan encompasses a vast network of shared alleyways, multiuse path connections to the existing Pleasant Run Trail, and a regional connection from the trail to the existing Shelby Street Protected Bikeway. The integration of multimodal transportation options encourage bicycle and pedestrian travel on site and into surrounding neighborhoods, lessening the supremacy of the automobile, improving health and safety.

GOAL 2.2
OFFER MULTIPLE HOUSING TYPOLOGIES

About 63 percent of current area residents rent their homes and 38 percent are owner-occupied. The development's land use plan contains several housing typologies in an effort to create a mixed-income community, accommodating to a diversifying market. About 174 townhomes, 81 carriage homes, 1- and 2-bedroom apartments, condominium units, and five live/work units are included in the Theater Blocks proposal.

These housing types will be denser than the single-family homes that comprise the surrounding neighborhood context, in anticipation for BRT and expected rise in property values. Retail, office, and business incubator space will complement housing, creating a mixed-use neighborhood, centered on a BRT station accommodating of bike and pedestrian transportation.

Leveraging federal funds and state tax credits, about 20 percent of new housing will be subsidized for homeowners and renters earning less than $20,000 annually. This mandate will help achieve a mixed-income neighborhood, insulating the area from dramatic housing crises during economic downturns. Special consideration will also be necessary to accommodate senior citizens living on fixed incomes, building on the recent successes of TWG Development's conversion of nearby IPS Florence Fay School 21 into senior living apartments.

GOAL 2.3
IMPLEMENT A SEQUENCE OF PROGRAMMABLE PUBLIC SPACES AND EVENTS

Surrounded by the new housing types, a 4-acre internal green space will be included along an extension of South Temple Avenue. The public lawn will serve as the community's central gathering place, including an outdoor movie screen during warmer months, alluding to the site's historical use as a drive-in movie theater (See Figure 7). The central space will be converted into an ice rink and include heaters to encourage neighbor interactions through the cold winter months. South Temple Avenue will become pedestrianized for special events, including weekend farmers' markets and monthly neighborhood block parties. The southern extension of Temple is envisioned as a "third place," serving the community as a 24/7 hub of activity.

A sequence of small public spaces will link the less dense areas in the western portion of the site to the densest areas in the eastern portion of the site. These smaller public spaces will include shaded seating areas, tree groves, water features, a dog park, adventure playground, and public art pieces. By programming dynamic large and small spaces throughout the site, residents and visitors are encouraged to explore their neighborhood and take advantage of amenities that allow for chance encounters,

especially among neighbors—creating a vital sense of community that improves public safety. Varying the types of public space also appeals to a range of users, fostering more inclusive connections to take place.

GOAL 2.4
ORGANIZE, MARKET, AND BRAND COMMUNITY TO IMPROVE IDENTITY

Once this sense of community has taken root, the collective neighborhood is encouraged to adopt a vision framework that will market and brand the area to visitors. The Near-Southeast side of Indianapolis has grappled with well-meaning yet competing visions for its future between multiple neighborhood associations, community development corporations, and nonprofits on a unified vision for the area. Fountain Square, a mile west of the site, is perhaps the nearest example of a successful branding and marketing campaign based around community identity. Designated as one of the city's seven official "cultural districts," Fountain Square has transformed itself over the last 20 years from a derelict neighborhood hemorrhaging residents to a highly-desirable community centered on the arts and local shops. Looking to Fountain Square as a case study, stakeholders should consider consolidating overlapping neighborhood associations and community development corporations in an effort to pool resources, eliminate redundancies, and help raise the collective voice of residents under a new umbrella organization. This organization will function as a nonprofit and carry out the area's existing Quality of Life Plan objectives, act as a liaison to the City of Indianapolis, and plan community events. A neighborhood farmers' market, art fair, and annual clean-ups will foster neighbor relations, instill community pride, and help brand and promote the area to visitors and prospective residents, under a unified vision.

Several characteristics emblematic of the area could be used as marketing and branding opportunities. Citizens Energy Group has agreed to save relics of the former coke manufacturing facility from demolition and protect trees planted for lives lost at the plant. The campaign could turn a perceived negative in the community into something that brings value to its identity, once again. Nearby Pleasant Run, should also be capitalized on as a natural asset and recognized for the defining physical characteristic that it is. Packaging this imagery with a brand via contemporary marketing techniques (e.g. social media), will be crucial to helping the neighborhood achieve outside investment.

FIGURE 7: TWIN AIRE LAWN As the primary open space for the development, the park is programmable throughout the year, hosting seasonal activities, like kite-flying in the summer (above).

CONCLUSION

Theater Blocks is a phased redevelopment of the Twin Aire Drive-In site, now owned by Citizens Energy Group. The redevelopment strategy relies on two guiding objectives: 1: Stabilize the Neighborhood through Accessible Social Services and Environmental Stewardship; and 2: Facilitate Growth and Reinvestment for Future Success. Objective 1 outlines three short term goals on a timetable from 2016 to 2030: Goal 1.1: Reclaim Brownfield and Underutilized Land for Community Benefit; Goal 1.2: Improve and Enhance Social Services and Education; and Goal 1.3: Improve Hydrological Function and Ecology. Objective Two outlines four long term goals on a timetable from 2030 to 2050: Goal 2.1: Increase Transit Accessibility and Multimodal Transportation Options; Goal 2.2: Offer Multiple Housing Typologies; Goal 2.3: Implement a Sequence of Programmable Public Spaces and Events; and Goal 2.4: Organize, Market, and Brand Community to Improve Identity.

These recommendations are essential to the continued health and well-being of the Near-Southeast side of Indianapolis. Through the Theater Blocks redevelopment, the successful implementation of these objectives will be a springboard for renewed neighborhood rejuvenation and enhanced quality of life for current and future residents. Improving economic and educational opportunities, providing safe and reliable modes of transportation, and building in union with the local environment will introduce Indianapolis to a new prototype for resilient neighborhood development.

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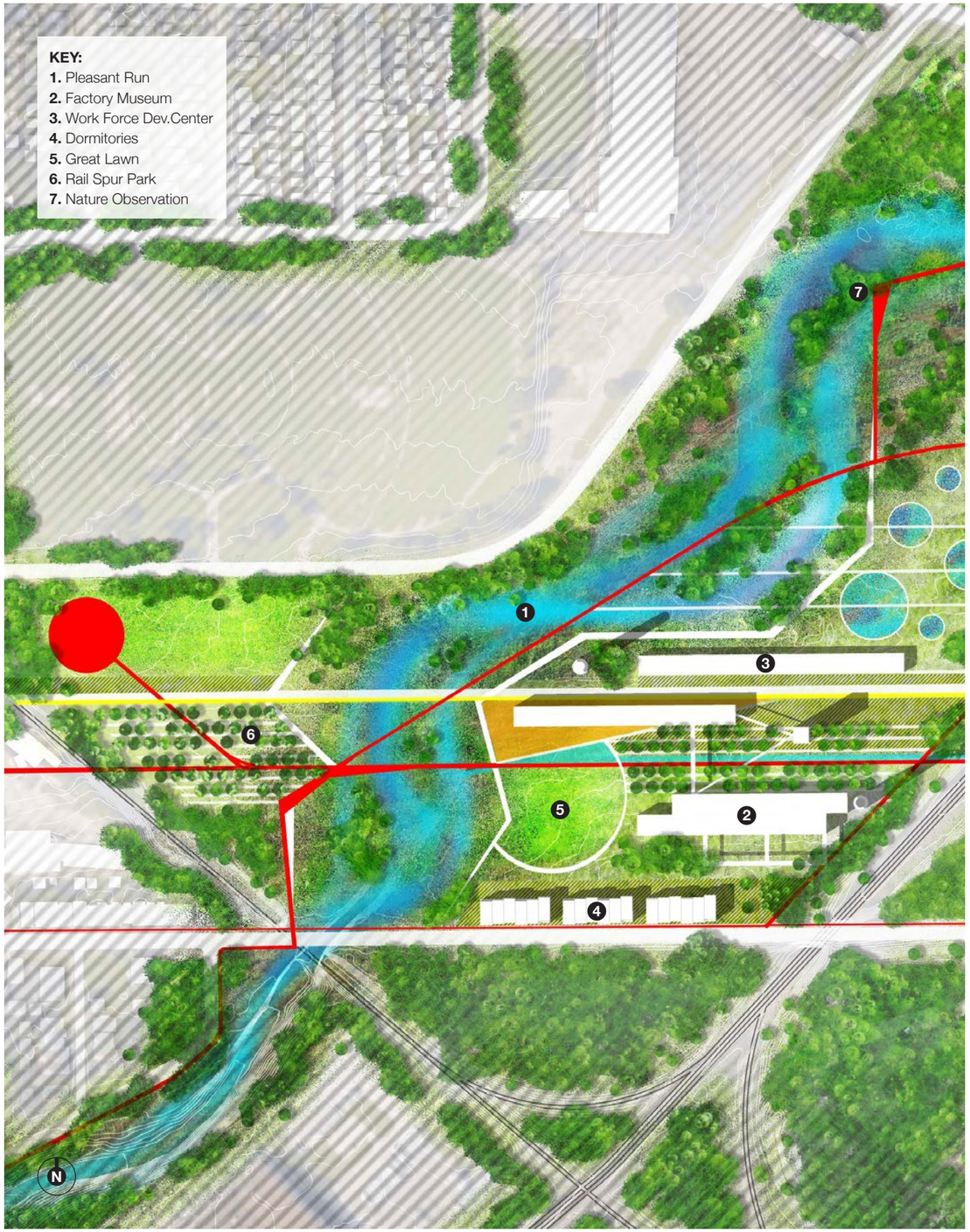


THE BURNSIDE DISTRICT

A NEW APPROACH TO POST-INDUSTRIAL DEVELOPMENT ON INDIANAPOLIS' EASTSIDE

KEVIN SWEETLAND, BLA

This creative project explores the practical application of urban design strategies to reverse the effects of de-industrialization on Indianapolis' eastside. If the problem of de-industrialization is not properly addressed, large numbers of inner city people will remain unemployed and the industrial sites that are decomposing in their backyards will continue to destroy the health of the local environment. In lieu of a future defined by hazardous places for wildlife and people, the Burnside District sets a new vision for the eastside's vacant industrial sites. This project reimagines these decrepit places as valuable community assets that allow people to live, work, and play in their own neighborhood.

FIGURE 1 (ABOVE): EXISTING The Citizens coke factory employed nearly 400 people in its heyday. Today, toxins from the vacant site leach into Pleasant Run causing serious environmental problems.
FIGURE 2 (LEFT): PROPOSED In this project, the coke factory site is reused as a community asset. Renovations to existing structures create opportunities for the community to reconnect with the neighborhood's heritage.

PREMISE

In the United States, cities are no longer the robust industrial centers they were in the past. The transition from industry to a service-based economy leaves most cities with large quantities of vacant industrial land that are extremely difficult to redevelop. In Indianapolis, the transition to a post-industrial economy was significantly delayed, but the recent recession accelerated the metamorphosis. According to the Indianapolis Chamber of Commerce (2015), 23,000 manufacturing jobs were lost during the last decade, representing a 21% drop in one of the city's top five employment sectors (p. 29). On the eastside alone, the area where this project is based, five major factory closures since 2007 brought about the loss of nearly 2,000 jobs. Entire neighborhoods were put in jeopardy and hundreds of acres of derelict industrial land were vacated.

Today most of Indianapolis steadily recovers from the Great Recession, but areas on the eastside continue to struggle as the ruins of their industrial past waste away. Deterred by the potential challenges of redeveloping troubled sites, developers and civic leaders ignore the inner city and choose greenfield sites in the suburbs for their projects. Over time, this practice has caused the population of Marion County to become extremely decentralized. The sprawling nature of Indianapolis development is creating huge strains on regional ecosystems and public infrastructure. All the while, viable industrial sites in the inner city sit untouched as they contaminate local watersheds, and leave behind hazardous environments for local wildlife and people.

This proposal argues that the defunct Citizens coke factory on the eastside represents a grand opportunity for Indianapolis to address de-industrialization while making large-scale infrastructural and environmental upgrades that will ultimately improve livability for its low income residents. In this project, existing infrastructure and industrial facilities are reused strategically to rebuild the core of working-class neighborhoods on the eastside. Iconic structures and rail lines are repurposed to promote the area's unique character while creating exciting destinations that feel authentic to residents and visitors. Additionally,

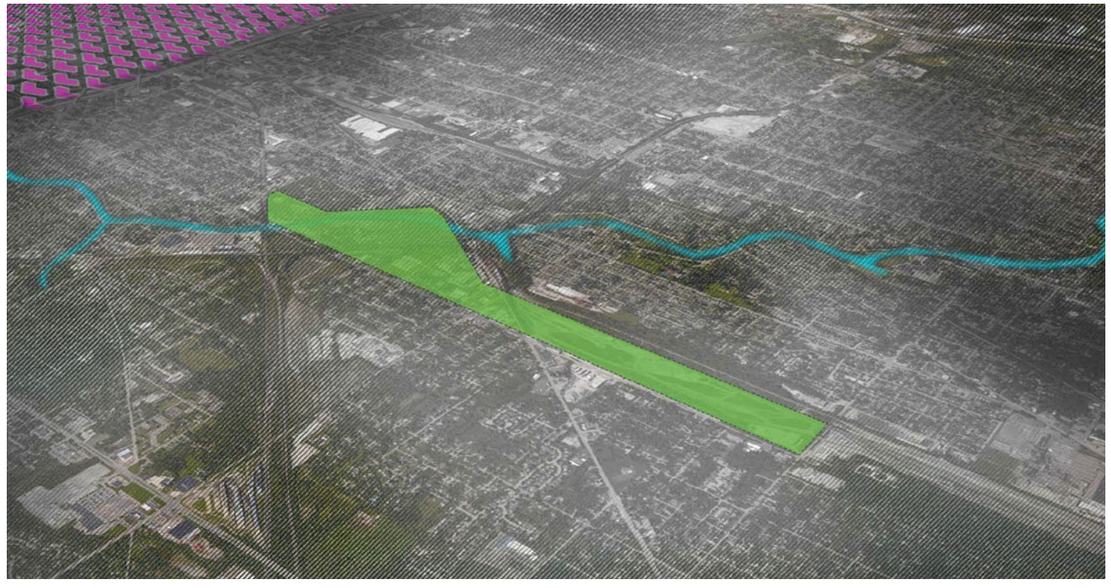


FIGURE 3: SITE Once extremely productive, the 280-acre study area (highlighted in green) contains several under performing, vacant industrial sites that have a huge negative impact on local property values and the Pleasant Run watershed.

new industrial facilities are planned to take advantage of the site's active rail lines and provide jobs for a severely underemployed urban population.

THE PROBLM

This project uses the Citizens coke factory site and the surrounding areas as an incubator to explore strategies for redeveloping Indianapolis' post-industrial neighborhoods to meet the needs of current and future Hoosiers. The selection of the site was based on the prevalence of issues typically associated with the de-industrialization process. Site issues were studied and divided into categories relating to the site's economy, environment, spatial composition, and cultural significance. Current site conditions are abysmal in every category. To understand how this happened, the following sections provide a brief overview of the site's history and current condition.

ENVIRONMENTAL ISSUES

Over the course of the last century, the site's natural systems were routinely sacrificed for the sake of providing space for industry outside of downtown where it could be ignored. In 1909, the Citizens coke factory became the first major industrial operation in the area. For several decades, the factory produced all of the gas used for heating in Marion County. Over time, several other factories were built in the area, creating new jobs and demand for new housing. A majority of the neighborhood's current housing stock was built during the 1940s and 50s as the area reached its economic peak. Infrastructure to serve all the new homes was constructed based on the engineering standards of the time. Accordingly, storm drains and sewers were combined into one system as a quick fix for drainage issues created by new development. Combined sewer outfalls were located along Pleasant Run, the local creek, allowing water carrying raw human waste to enter the waterway. Today, three outfalls within the site overflow nearly a hundred times each year, which has led to dangerously high amounts of E. coli and other bacteria in the water (Friends of Pleasant Run, 2011, p. 43).

In addition to combined sewer overflows (CSOs), the site suffers from numerous environmental problems caused by impervious surfaces. Because of the site's heavy industrial use in the past, nearly 75% of the site's 280-acre area is covered with material that prevents water from infiltrating the soil and water table. Storm water infiltration is a critical part of natural processes that allow waterways to remain stable during wet and dry seasons. The hindrance of natural hydrological systems on the site allows rainwater to enter Pleasant Run at unnaturally rapid rates, causing regular flood events that threaten the safety of local people and their property. Such events are also dangerous to local wildlife that depends on the stability of Pleasant Run for survival. To make matters worse, the site's 127 acres of industrial wasteland contribute a wide variety of toxic materials to the deathly cocktail of contaminates that make Pleasant Run the health hazard it is today.

ECONOMIC ISSUES

Previously mentioned, the study area was used as a place to locate many of the City's unattractive industrial operations; a practice that eventually led to the development of several neighborhoods. Although not extravagant, these neighborhoods and the industries that supported them provided excellent opportunities for working class people to find jobs and affordable housing. In addition to putting thousands of Hoosiers to work at livable wages, industry on the eastside consistently generated large amounts of tax revenue for the City. Unfortunately for Indianapolis and its citizenry, the local industrial economy eventually faltered. Signs of decline first arrived in the 1990s when Citizens Energy Group first began to close down pieces of its operation at the coke factory. In 2007, the factory closed down completely and was eventually joined by four other major factories in the area. Job losses accumulated, ultimately reaching a total of 2,000 at the height of the Great Recession.

Today, eastside residents continue to struggle to find decent work to replace their factory jobs. The prevalence of unemployment on the eastside may be attributable to the area's disproportionately small number of college graduates. According to a 2014 report by Southeast Neighborhood Development, Inc. (SEND), only 7.6% of local residents have a college degree, which is 20% lower than the countywide average (p. 11). Whatever the cause, unemployment is a huge issue that effects nearly every aspect of the eastside economy. These effects are most noticeable in the local housing market. According to the SEND report, the area suffers from a markedly high foreclosure rate that is 10% greater than the rest of the county (p.11). As of 2014, over 14% of homes in the area were vacant.

FIGURE 4 : EXISTING CONDITION Vacancy is a major indicator of economic decline. In the study area, vacancy is common in every land use category. Vacant housing, industrial buildings, and schools are all represented within the site as demonstrated by the images above.

DESIGN VISION

PROJECT GOALS

Based on these issues that threaten the health and well being of residents on the eastside of Indianapolis, this project seeks to accomplish the following goals:

GOAL 1

To improve the economic situation of current eastside residents by bringing blue-collar jobs back to the neighborhood.

GOAL 2

To improve the area's livability by transforming large pieces of derelict land into active public spaces that are safe and accessible to people and nature.

GOAL 3

To use the site's existing industrial components and architecture to promote a unique brand that will make the development a memorable destination and a point of pride for the neighborhood.

MASTER PLAN KEY:

1. Pleasant Run
2. Citizens Coke Factory Redevelopment
3. Rail Spur Park
4. Fish Farm
5. Twin Aire Drive-In Site
6. Active CSX Railroad
7. Pleasant Run Greenway
8. Burnside Heritage Trail
9. Family Housing
10. The Battery
11. Light Industry
12. Tree Farm
13. Nature Preserve
14. Inter-Modal Railyard
15. Nature Preserve
16. Vacant Navistar Plant

FIGURE 5 (UPPER RIGHT): EXISTING This image of the site's current condition clearly shows how vacant land disrupts the continuity of the neighborhood. The absence of streets through the study area restricts the movement and interaction of current residents.
FIGURE 6 (MIDDLE RIGHT): PROPOSED This image of the site's current condition clearly shows how vacant land disrupts the continuity of the neighborhood. The absence of streets through the study area restricts the movement and interaction of current residents Note, bird's eye views depict the site from an eastern viewpoint, looking west toward downtown Indianapolis.

SPATIAL & CULTURAL ISSUES

The perpetual demise of areas in and around the project site has led to the development of several spatial and cultural issues that negatively impact the people who call this part of Indianapolis home. For example, the ability of local residents to access public amenities like parks, libraries, and schools is severely impaired by the area's poor walkability. Barriers created by vacant industrial sites function like giant holes in the community fabric that discourage any form of pedestrian movement. Figure 5 illustrates how industrial land separates communities on the north and south sides of the site. To add a metric to this problem, walkscore.com, an online walkability calculator, gives the study area an incredibly low walk score of 15 out of 100 possible points. Obvious connectivity issues are further compounded by the fact that more than 20% of local residents do not own cars. In addition to terribly poor mobility, the area also lacks any kind of community destination. In the past, the Twin Aire drive-in movie theater was the community's main destination and source of pride. In 1996, the theater shut down and a great cultural asset was lost. Consequently, the area's most recognizable elements today are the smoke stacks of the decomposing coke factory.

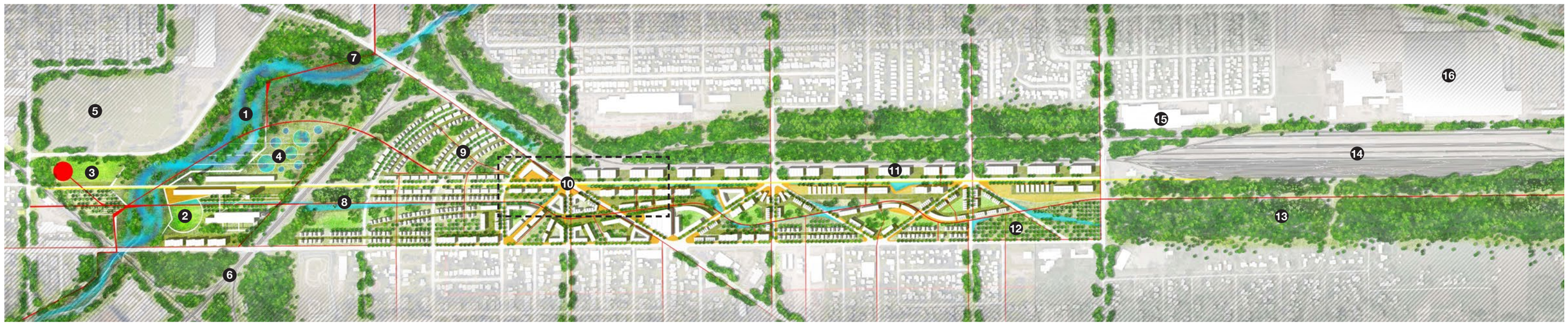


FIGURE 7: MASTER PLAN The final master plan creates space for industrial users along Gasworks Boulevard, the project's main east-west artery. Nearly 1,100 new industrial jobs will get the neighborhood to work while a gorgeous network of green space allows the community to get out and play.

FIGURE 8: CHARACTER SKETCH A visual representation of the project's goals, this image shows the character of a proposed industrial area that is well integrated with the public realm.

GETTING BACK TO WORK:

A case for reviving industrial activity on the eastside

With the admission that Indianapolis is a post-industrial city, it is important to point out that industrial development in Marion County has not stopped completely. In the new economy, there are still opportunities for new forms of small-scale industry, warehousing, and technology based operations. This simple observation means there are possibilities for this project to re-industrialize the study area in a manner of speaking. The reuse of the site's vacant land and infrastructure by industry is the most effective way to repair much of the damage caused during the area's recent demise. Unfortunately, the vast majority of new industrial development in the county takes place in the suburbs. In accordance with the project's goal to improve the economic situation of eastside residents, the master plan is designed to accentuate the site's advantages as a location for industry in order to compete with suburban sites.

In 1995 and 1997, Michael Porter, a professor of economics at Harvard, published papers on the industrial competitiveness of inner cities. Porter's work advocates for private reinvestment in underserved urban areas very similar to this project's study area. His advocacy is based on three significant economic advantages he says are present in inner cities. First, Porter proposes that inner city markets are underserved. He says, "The inner-city market itself represents the most immediate opportunity for inner-city based entrepreneurs and businesses" (Porter, 1995, p.58). According to Porter, the density of potential consumers paired with the apparent lack of service providers makes these areas desirable for economic development. Second, inner city sites are advantageous because of their proximity to important transportation routes, central business districts, and clusters of companies in related fields. Porter (1995) states, "exciting prospects for the future of inner city economic development lie in capitalizing on nearby regional clusters" (p. 60). Offering proximate access to important resources and transportation gives cities a real competitive edge when attempting to attract specialized firms that operate on a regional scale. Third, the availability of an under-employed, industrious workforce provides potential entrepreneurs with the labor they need. Inner city residents are "an attractive labor pool for businesses that rely on a loyal, modestly skilled workforce" (Porter, 1997, p.15). Assuming the city is willing and able to address concerns over infrastructure, crime, and politics, Porter indicates that these advantages have potential to spur economic development in inner cities.

On the eastside of Indianapolis, the three advantages Porter uses to generalize inner cities are all present. The potential created by these advantages is significant, but lack of interest and business financing shortages keep them from bringing about economic renewal on their own. In light of this issue, the initial phases of this project rely on the willingness of Indianapolis to contribute public funds

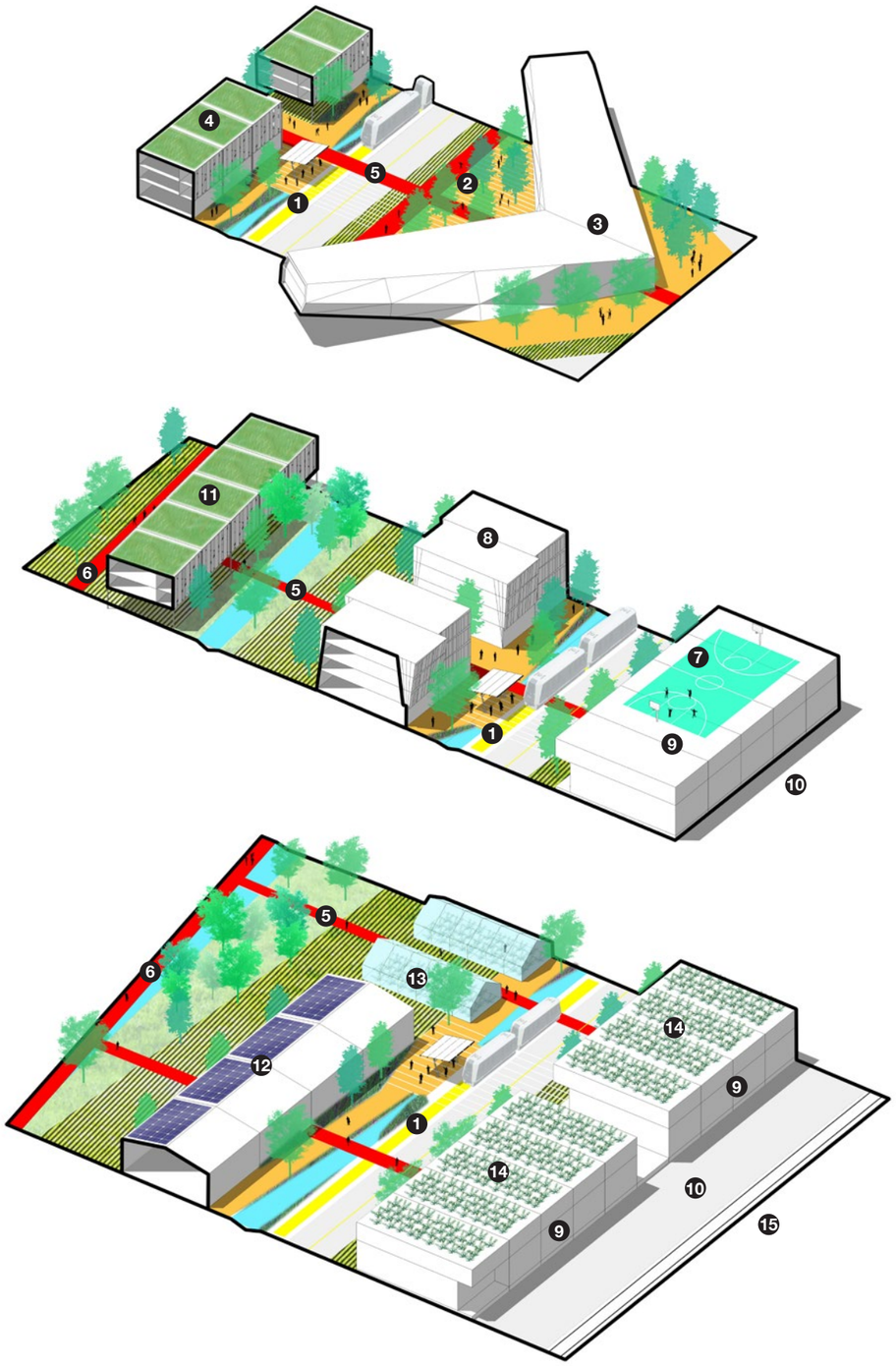


FIGURE 9 (LEFT): GASWORKS BOULEVARD The Burnside District's main corridor, provides small-scale industrialist with a variety of elements (see key below) that are commonly sought after, but not usually available in industrial areas.
FIGURE 10 (ABOVE): CCIC Like this project, the Circle City Industrial Complex creates space for small makers, fabricators, and manufactures. Image credit: Riley Area Development Corporation.

KEY:
1. Public Transportation
2. Community Gathering Space
3. Library
4. Live Work
5. Greenway Access
6. Burnside Heritage Trail
7. Recreation
8. Mixed-Use Development
9. Light Industry
10. Service Access
11. Affordable Housing
12. Maker's Space
13. Community Greenhouse
14. Green Roof
15. Rail Access

to bridge financing gaps and alleviate risk for private investors. According to Bennet Harrison, one of Porter's critics, inner city revitalization led by the public sector is effective. He says, "community development corporations across the country build retail and industrial space, own and operate businesses, provide millions of dollars in venture capital, and have become the principal vehicle for bringing private industry--especially banks--into inner cities" (Harrison, 1995, p. 3). Similar funding models are already in place in Indianapolis on the northeast side where the Riley Area Development Corporation, a non-profit community development corporation, is facilitating the use of public funds to develop the Circle City Industrial Complex (CCIC). Like this project, the CCIC retrofits one of the City's largest industrial structures for its reuse as a center for light industry, maker spaces, and retail.

In the final development scheme for this project, industry represents over 25% of new construction. In total, public expenditures combined with private investments will lead to the creation of approximately 1,100 new industrial jobs on the eastside. With that said, it is important to note that the existence of new jobs does not necessarily translate into the benefits this project seeks to create for eastside residents. In a paper published in 2010, Bates found that "inner-city firms largely meet their staffing needs by employing workers living outside the inner city" (p. 349). More specifically he found that, "inner-city residents held only 22% of inner-city jobs and were overrepresented at the low end of the wage spectrum; commuters held the other 78%, including a disproportionate share of higher-paid positions" (Bates, 2010, p. 352). In his paper, Bates blames educational disparities and network hiring patterns for this phenomenon.

On the eastside, the fact that only 7.6% of residents have college degrees indicates a need for education and work force development to ensure the value of new jobs is captured by locals. As illustrated in the master plan, the remains of the Citizens coke factory are renovated to house a training and job placement center that will help the eastside's unemployed find work in the new development. The center is partnered with local businesses that provide internships and other learning opportunities for students in order to help them into new positions. Additionally, 40% of all new industrial space within the development is reserved for minority-owned enterprises, which are more likely to hire people from the eastside's minority communities. Ultimately, the project's provisions for job creation and work force development will culminate in massive economic renewal that will help reverse the trend of decline in the area.

FIGURE 11 (ABOVE): RAIL SPUR PARK Improvements to Pleasant Run are clearly visible at Rail Spur Park, the Burnside District's largest public park. Adjacent to public transit, bicycle trails, and the new work force development center, this gem is exceptionally accessible.

FIGURE 12 (RIGHT): SPATIAL NETWORK Massing diagrams were used to explore different organizations for the project's network of public and private spaces. To ground this exercise in reality, measurements from similar developments were used to inform each concept.

FROM GREY TO GREEN:

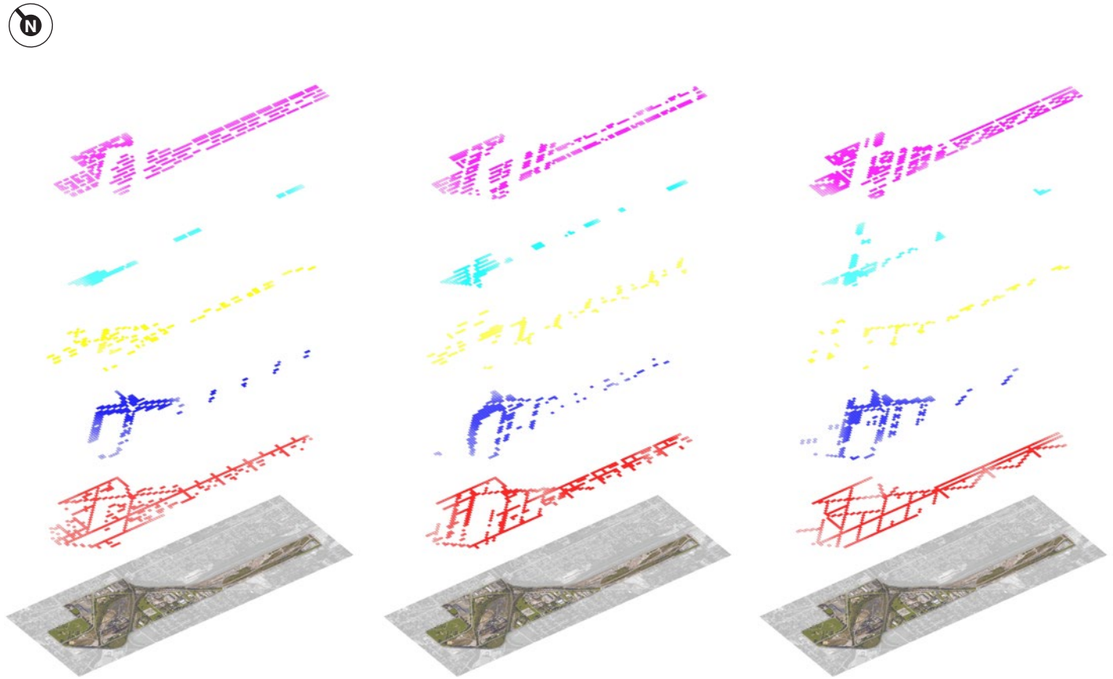
Using public space to improve livability

The following section provides a brief overview of the plan as it relates to the project's second goal of improving livability for people and nature. To put the content of this section into perspective, it is important to define what livability means. In this project, livability is measured by the quality and function of public spaces. In highly livable areas, the public realm provides users with safe places for recreation, leisure, and civic engagement. Moreover, livability is enhanced when highly functional mobility systems allow users to easily access public places.

The creation of such a system within this site is complicated because of industry. Pointed out in the previous section, more than 25% of the new development will be occupied by industrial users. As industry is responsible for a majority of the site's current environmental and spatial issues, it is possible that the new development will cause similar problems. To counteract this possibility, this plan proposes a robust network of pedestrian spaces and improved wildlife habitats to create a healthy relationship between industry and the remaining 75% of the development.

To inform the design of this system, three similar developments were intensely studied. The developments that influenced this proposal were the River North Arts District in Denver, Colorado; the Strip District in Pittsburgh, Pennsylvania; and the Zollverein Industrial Complex in Essen, Germany. In each example, a carefully designed network of public spaces was successfully implemented to transform an industrial area into a safe pedestrian district. The spatial makeup of each network was objectively measured to construct a reasonable set of benchmarks for the design of public spaces in this project.

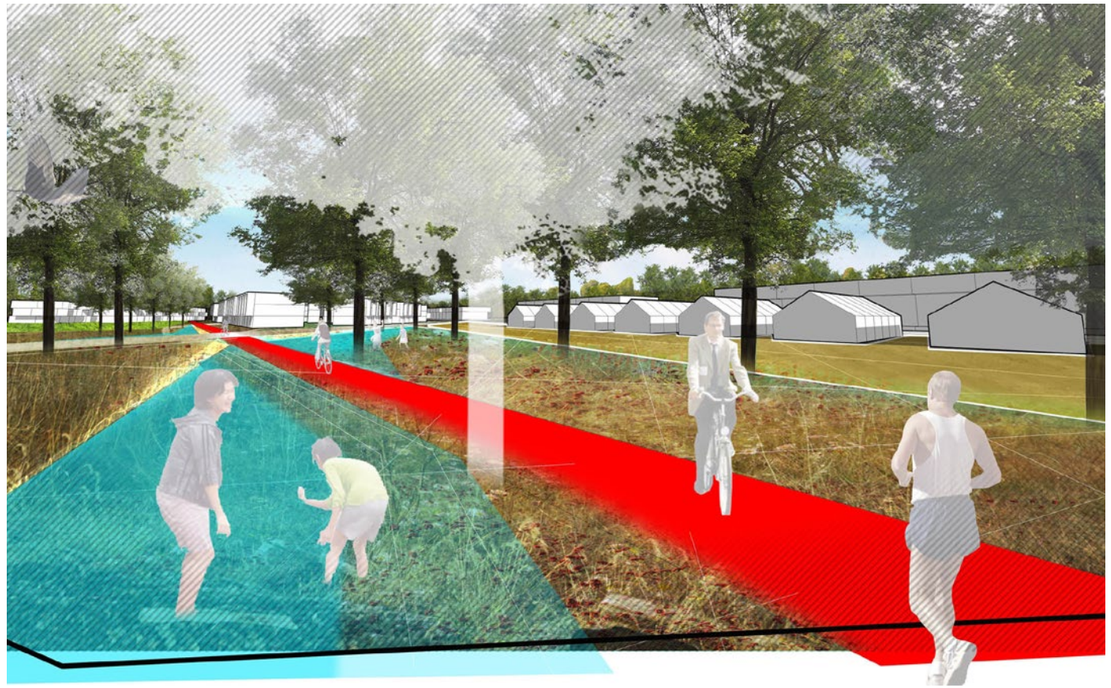
Benchmarks were used to fashion the three concepts in Figure 12. In each alternative, improving the site's walkability was a fundamental principle. Unlike traditional forms of pedestrian infrastructure like sidewalks and bike lanes, pathways in this project intentionally diverge from vehicular routes. Major trails and bicycle paths are located within the interior of blocks away from traffic to improve aspects of their safety and accessibility. An added benefit of this strategy is that it forms opportunities to sprinkle small pieces of public green space throughout the entire project. Blanketing the development with public amenities in such a way improves their usability by making them more accessible to a greater number of people. In a likewise manner, the project's larger green spaces were peppered throughout the development to provide extra amenities like athletic fields and performance areas.



CONCEPT 1:
Private Space (pink) - 34%
Primary Event Space (light blue) - 8%
Public Park Space (yellow) - 12%
Natural Space (dark blue) - 15%
Connective Space (red) - 31%

CONCEPT 2:
Private Space (pink) - 26%
Primary Event Space (light blue) - 11%
Public Park Space (yellow) - 12%
Natural Space (dark blue) - 17%
Connective Space (red) - 34%

CONCEPT 3:
Private Space (pink) - 37%
Primary Event Space (light blue) - 9%
Public Park Space (yellow) - 7%
Natural Space (dark blue) - 17%
Connective Space (red) - 29%

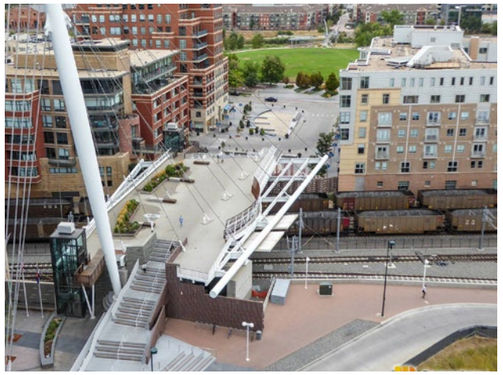


In addition to public space, the concepts in Figure 12 were also designed to improve the function of the site's natural elements. Each scheme provides new space for wildlife habitat while preserving the remains of existing ecosystems. Connectivity between habitat areas is increased to allow animals to migrate safely through the site and access the resources they need to survive. Moreover, the quality of habitat is improved through the removal of impervious surfaces and the repair of the site's natural drainage. A 40% reduction in the site's impervious areas along with the addition of storm water retention systems significantly reduces the amount of contaminated water that reaches Pleasant Run.

In the final scheme, a hybrid of all three concepts was used to design the public realm and ensure the proposed development achieves the highest level of livability. Emphasizing walkability enables this strategic design to give each resident access to a park within a five-minute walk. It also gives people the ability to complete most of their daily tasks without using their cars, which promotes healthy lifestyles and a healthy environment. Furthermore, the development's larger public spaces provide excellent spots for festival celebrations and other forms of civic engagement that create vibrant social experiences for the entire community.

FIGURE 13 (ABOVE): PROPOSED An urban tree farm acts as a productive buffer between new development and the railyard to the east.
FIGURE 14 (BELOW): EXISTING Currently, inactive rails and impervious surface define this portion of the site. In Figure 13, pathways from inactive rails are turned into pedestrian trails. Additionally a majority of the area's impervious surface is removed to create space for vegetation.

FIGURE 15 (UPPER RIGHT): DENVER Infill development, transit, and public parks created the River North Arts District in Denver while promoting the area's industrial aesthetic. The neighborhood's railroads and industrial facilities are its main landmarks and branding elements. Image credit: denverurbanism.com.
FIGURE 16 (MIDDLE RIGHT): ESSEN The Zollverein Industrial Complex in Essen, Germany was renovated to become the city's most recognizable culture and entertainment venue. Image credit: Matthias Duschner.
FIGURE 17 (LOWER RIGHT): PITTSBURGH Warehouses on the eastside of Pittsburgh were transformed into a market district called the Strip. In the Strip District, previously vacant land is now filled with exciting stores, eateries, and bars. Image credit: Brooke Ward.



THE BATTERY:

Encouraging community pride with a district defining destination

The Burnside District's pilot project, the Battery, is designed to promote the neighborhood's unique character and set an aesthetic tone for the following phases. Thoughtfully constructed experiences help this part of the development form a positive community identity that inspires residents to take pride in the places where they live and work. In the following sections, an in-depth look at the Battery provides a glimpse into the elements that make this place a premiere public destination.

CHARACTER

Currently, the experiences created within the site are considerably different from those in other areas of Indianapolis. An abundance of industrial structures, railroads, and vacant sites highlight this contrast very effectively. Unfortunately, the existing quality of the study area is overwhelmingly negative, making the eastside a memorable part of Indianapolis to avoid. To devise a plan that addresses the site's image issues, the three examples from the previous section were revisited. In each of these developments, an industrial area was successfully rebranded through the reuse of materials and buildings left behind by the previous user. The Battery reuses site materials in the same way to achieve a similar effect. In particular, tracks from abandoned rail lines and materials from decommissioned warehouses are integrated into the Battery's architecture. By doing this, the development preserves the area's unique qualities and creates connections to the site's industrial heritage. The presence of new forms of active industry within the Battery create even stronger connections to the site's past, providing users with an authentic experience.

PUBLIC REALM

To diffuse the rigidity and discomfort normally associated with industrial materials and architecture, the project's network of pathways and green spaces is allowed to permeate through the edges of buildings and streets. The pathways illustrated with red ribbons in Figure 19, are the main elements that facilitate this diffusing effect. They were designed to mimic the mechanical organization and function of the coke factory's blast furnaces. The batteries, as they were called, were outfitted with large hydraulic ramrods that would push refined coke from the center of the furnace to receiving trays on the outside. Once removed from the battery, the coke was allowed to release tremendous amounts of heat and energy before being shipped away by rail. In this design, each red ribbon acts like a ramrod, allowing people who work and live within the development to escape from their lives and release stress as they move through the development. Different program elements in each ribbon create a barrage of different experiences as illustrated in Figure 18. The Battery's larger public spaces allow for the same type of release, but on a grander scale. These areas were designed to accommodate various civil functions and celebrations that allow the entire community to enjoy the softer side of the development.

LAND USE

The overarching goal for the Battery's land use program was to create space for users to live, work, and play in the same area. The proximity of a diverse set of uses compliments the public realm by forming active edges at the ground level. Cafes, boutique shops, maker spaces, and even industrial buildings open up to allow activity to spill out of buildings and into the project's courtyards and streets. Intentional interaction between indoor and outdoor elements helps define building edges as places for informal gatherings that encourage people to socialize. The social atmosphere guarantees active use of the Battery's indoor and outdoor spaces throughout the day and in the evening to support a strong and colorful community. Residential units on the second and third floors (a third of which are reserved for low income tenants) allow people to live near the action. In addition to being able to walk to work and a variety of entertainment venues, residents will also enjoy living near the new corner grocery store and community library. See Table 1 for a complete breakdown of the Battery's land use program.

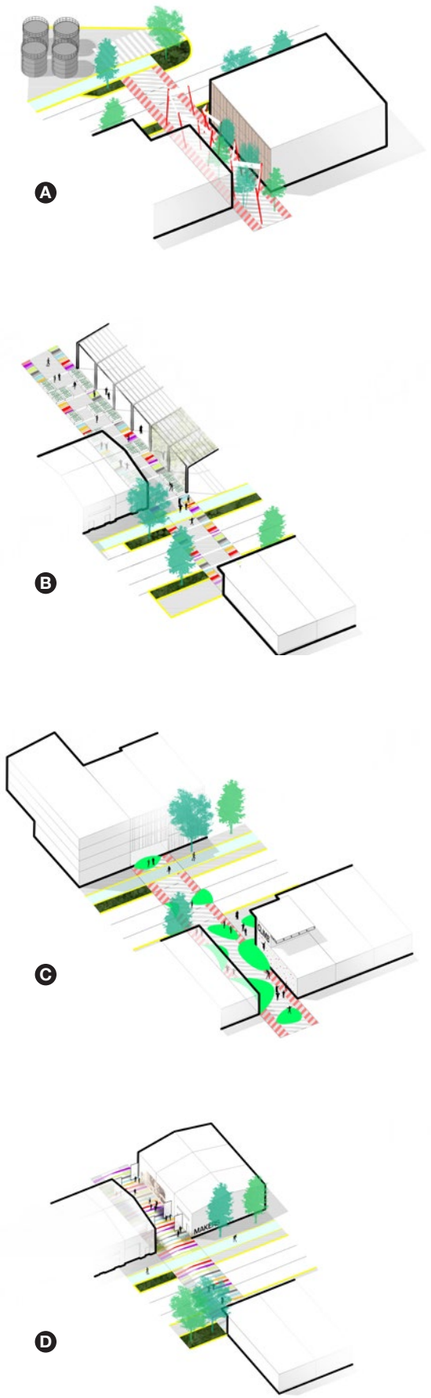


FIGURE 18: RIBBON CHARACTER SKETCHES Like the battery's mechanical ramrods, these lateral corridors push pedestrians through the development with a variety of attractions. See Figure 19 for locations.

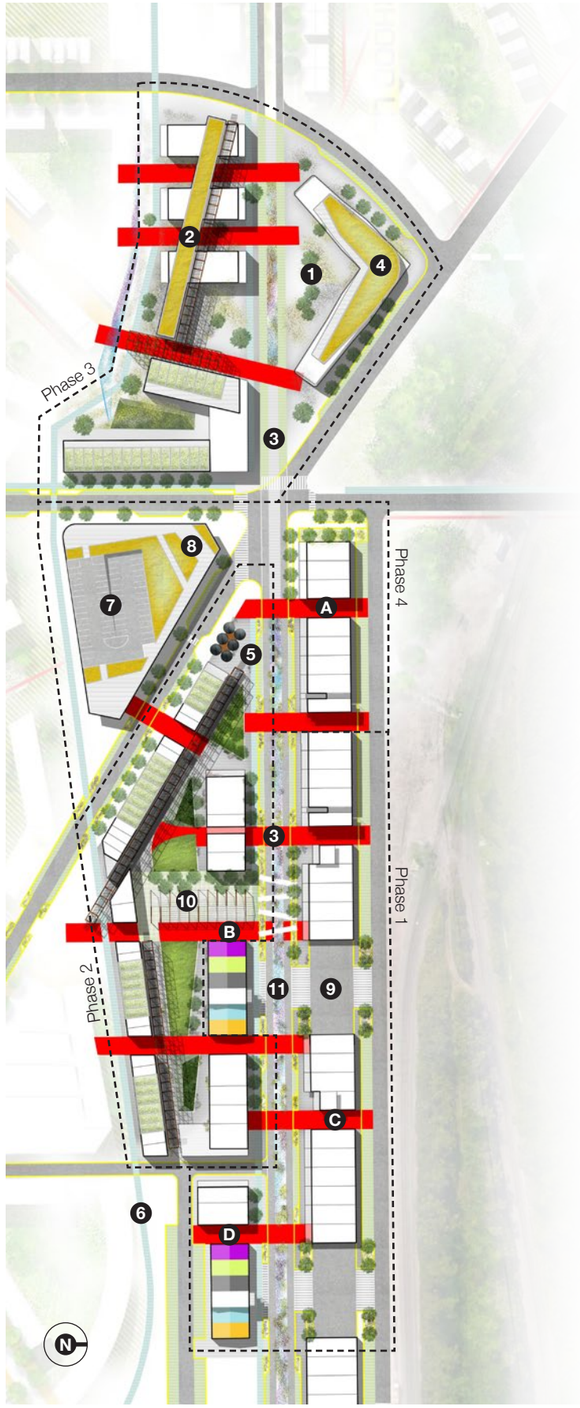


FIGURE 19: BATTERY PLAN The heart of the Burnside district, the plan for the Battery was designed to demonstrate the project's strategies for economic renewal and livability enhancement in action.

KEY:
A. Industrial Salvage
B. Community Gardens
C. Climbing Park
D. Gallery Space
1. The Battery Commons
2. Burnside Elementary
3. Transit Stop
4. Community Library
5. Landmark Industrial Sculpture
6. Burnside Heritage Trail
7. Parking Garage
8. Grocery
9. Loading Bay
10. Farmer's Market
11. Gasworks Boulevard

LAND USE PROGRAM - PHASE 1 (INDUSTRIAL CORRIDOR)

LAND USE	SF	UNITS L.I.	UNITS M.R.	JOBS
Light Industry	95,000			173
Maker's Space	21,000			30
Commercial	12,000			20
Office	8,000			27
Residential	16,000	6	6	

SUBTOTAL	
Acres	5.6
Residential Units	12
Density	2.1 units/acre
Population	26
Jobs	249

LAND USE PROGRAM - PHASE 2 (MAIN BLOCK)

LAND USE	SF	UNITS L.I.	UNITS M.R.	JOBS
Commercial	56,000			93
Office	22,000			73
Residential	84,000	29	55	

SUBTOTAL	
Acres	4.4
Residential Units	84
Density	19.1 units/acre
Population	185
Jobs	167

LAND USE PROGRAM - PHASE 3 (CIVIC BLOCK)

LAND USE	SF	UNITS L.I.	UNITS M.R.	JOBS
Civic	30,000			30
Institutional	78,600			39
Commercial	20,000			33
Office	20,000			67
Residential	27,000	5	15	

SUBTOTAL	
Acres	5.7
Residential Units	20
Density	3.6 units/acre
Population	45
Jobs	169

LAND USE PROGRAM - PHASE 4 (PARKING BLOCK)

LAND USE	SF	UNITS L.I.	UNITS M.R.	JOBS
Commercial	40,000			67
Office	24,000			80
Residential	90,000	24	57	
Structure Parking	450 (stalls)			

SUBTOTAL	
Acres	3.0
Residential Units	81
Density	27.0 units/acre
Population	203
Jobs	147

OPEN SPACE PROGRAM - ALL PHASES

PHASE #	ST. PARKING	LOT PARKING	TRANSIT STOPS	GREENWAY	STRIPS	COURTYARD/PLAZA	ROOFTOP TERRACE	GREEN ROOF	BIO RETENTION
Phase 1	17	108	0	0	3 (0.4 acres)	0.1 acres	0.8 acres	0.3 acres	0.6 acres
Phase 2	17	130 (temporary)	1	0.4 miles	4 (0.7 acres)	1.7 acres	0.4 acres	0.3 acres	0.1 acres
Phase 3	33	68 (temporary)	1	0.3 miles	3 (0.6 acres)	1.6 acres	0.2 acres	0.7 acres	0.3 acres
Phase 4	16	24	1	0.1 miles	2 (0.3 aces)	0.1 acres	0.3 acres	0.3 acres	0.1 acres

SUMMARY - ALL PHASES

LAND USE	SF	UNITS L.I.	UNITS M.R.	JOBS
Civic	30,000			30
Institutional	78,600			39
Light Industry	95,000			173
Maker's Space	21,000			30
Commercial	128,000			213
Office	74,000			247
Residential	217,000	65	132	

TOTAL	
Acres	18.7
Residential Units	197
Density	10.5 units/acre
Population	458
Jobs	732
Parking	665
Transit Stops	3
Greenway	0.8 miles
Strips	12 (2.0 acres)
Farmer's Market	0.4 acres
Bio Retention	1.1 acres
Courtyard/Plaza	2.1 acres
Green Roof	1.6 acres
Rooftop Terrace	1.7 acres

ABBREVIATIONS

SF	square feet
L.I.	low income
M.i	market rate
ST.	street

TABLE 1: DEVELOPMENT SUMMARY To shed more light on the development's program, each element of the design was measured and listed in the table above.

FIGURE 20: THE BATTERY COMMONS The Commons is the one of the proposal's main event plazas. Materials salvaged from the site were used in the architecture to promote the area's industrial aesthetic.

CONCLUSION

As the areas studied in this project continue to struggle from the effects of de-industrialization, the need for a redevelopment solution like the one proposed in this paper will steadily increase. With some urgency, I recommend that the City of Indianapolis use the Citizens coke factory and surrounding areas to make large-scale infrastructural and environmental improvements for its low-income residents on the eastside. As illustrated previously in this paper, this area has significant advantages that make it logical place for future industrial development. Investing public dollars in the area will enable the City to supply eastside residents with new jobs and financial security while making significant upgrades in livability. Livability enhancements, as defined in an earlier section, will allow people to engage with site and their community more readily than ever before. By promoting a strong sense of community and place, the Burnside District could easily become Indianapolis' next great neighborhood.

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