



HAZELWOOD STUDIO

**The Urban Laboratory:
Community and Urban
Design Studio
2007**



The Urban Laboratory: Community & Urban Design Studio
School of Architecture, College of Fine Arts
Carnegie Mellon University

Produced by Remaking Cities Institute, Carnegie Mellon University.

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Acknowledgements

The Remaking Cities Institute and the Urban Laboratory would like to thank Jim Richter, Executive Director of the Hazelwood Initiative, Inc., as well as the residents and business owners of Hazelwood who participated in the community meetings for their time and insights.

We would also like to thank the Heinz Endowments for their support.

The Urban Laboratory:

Community and Urban Design Studio

What if cutting edge technologies are embedded in the daily lives of our communities now? What if robotics spin-off companies settle in the region? What if, through technology, we extend the productive participation of aging and disabled populations in the everyday life of our communities... And what if that becomes a major industry? What if the same happens with entertainment technology? What if major international companies are successfully attracted to open manufacturing and/or R&D activities in close proximity to the activities aforementioned? What if Carnegie Mellon brings 1,000 students, some with families, to the Hazelwood area? What services will grow around them? What if Junction Hollow becomes a transit corridor? What if we develop programs for current residents to take advantage of the growing employment opportunities in some of those sectors? What if all of this is done with a strong sense of respect for the ecological framework of the region and with a commitment to diversifying the economic and cultural opportunities product of the intervention?

These ideas only scratch the surface of the possibilities that could be created by aligning the creative energy of our universities and institutions, the motivation for new product development in the private sector, the principles of sustainable community design and the energy and leadership of our region.

Since 1963, the Urban Laboratory: Community and Urban Design Studio has used Pittsburgh as a laboratory for the study of participatory urban design. Students and faculty from the 5th year Bachelor of Architecture and Master of Urban Design programs have worked with local government agencies and community organizations to jointly advance neighborhood development strategies in over 20 Pittsburgh communities. Hazelwood is one of these communities, having first served as a focus of Urban Laboratory work in 2001.

The Urban Lab revisited Hazelwood in 2007 through its Spring Master of Urban Design studio and Fall 5th year urban design studio. Since the Urban Lab was last in Hazelwood in 2001, the former LTV site has changed ownership from a private holder to a coalition of non-profit foundations (ALMONO, LP), several plans have been proposed by international urban design firms, and the Remaking Cities Institute (RCI), the School of Architecture's flagship urban design research center, was established. In 2006, RCI received a grant from the Heinz Endowments to research and explore Hazelwood's future as part of a multi-stage visioning and planning process for the site. Central to this endeavour is the work created by students in the Urban Laboratory.

Through our work in Hazelwood, Remaking Cities Institute and the Urban Lab will demonstrate the belief that university/industry/community collaboration can foster sustainable change ecologically, economically and culturally.



Luis Rico-Gutierrez
Director, Remaking Cities Institute
Associate Dean, College of Fine Arts
Carnegie Mellon University

Hazelwood Studio

The Fall 2007 Urban Laboratory consisted of three studios studying a large urban brownfield adjacent to the Pittsburgh neighborhood of Hazelwood. The studio explored reclaiming and reprogramming this post-industrial urban terrain by reconnecting it to surrounding human and natural ecologies, exploring programmatic scenarios, and designing a piece of sustainable contemporary urbanism. Working in pairs, students examined how the site could be transformed into a new sustainable urban neighborhood combining residential, retail, office, institutional, and research uses. The studio explored the tenets of good urban design, and then attempted to advance them to fit the requirements of a first-rate twenty-first century “new town” with local, regional and global connectivity.

Site Context

Hazelwood’s 178-acre ALMONO site is located in southeastern Pittsburgh, on the northern flatlands of the Monongahela River, four miles from the city’s downtown core. For nearly a century, its mills were part of the Steel Valley’s network of riverfront industrial sites, producing iron and steel from coal mined in the surrounding hillsides, and shipping its products to international destinations via the Monongahela and Ohio Rivers. Workers came from all over Europe to settle in Hazelwood and work in the steel and shipping industries, gradually meshing into a tight-knit community.

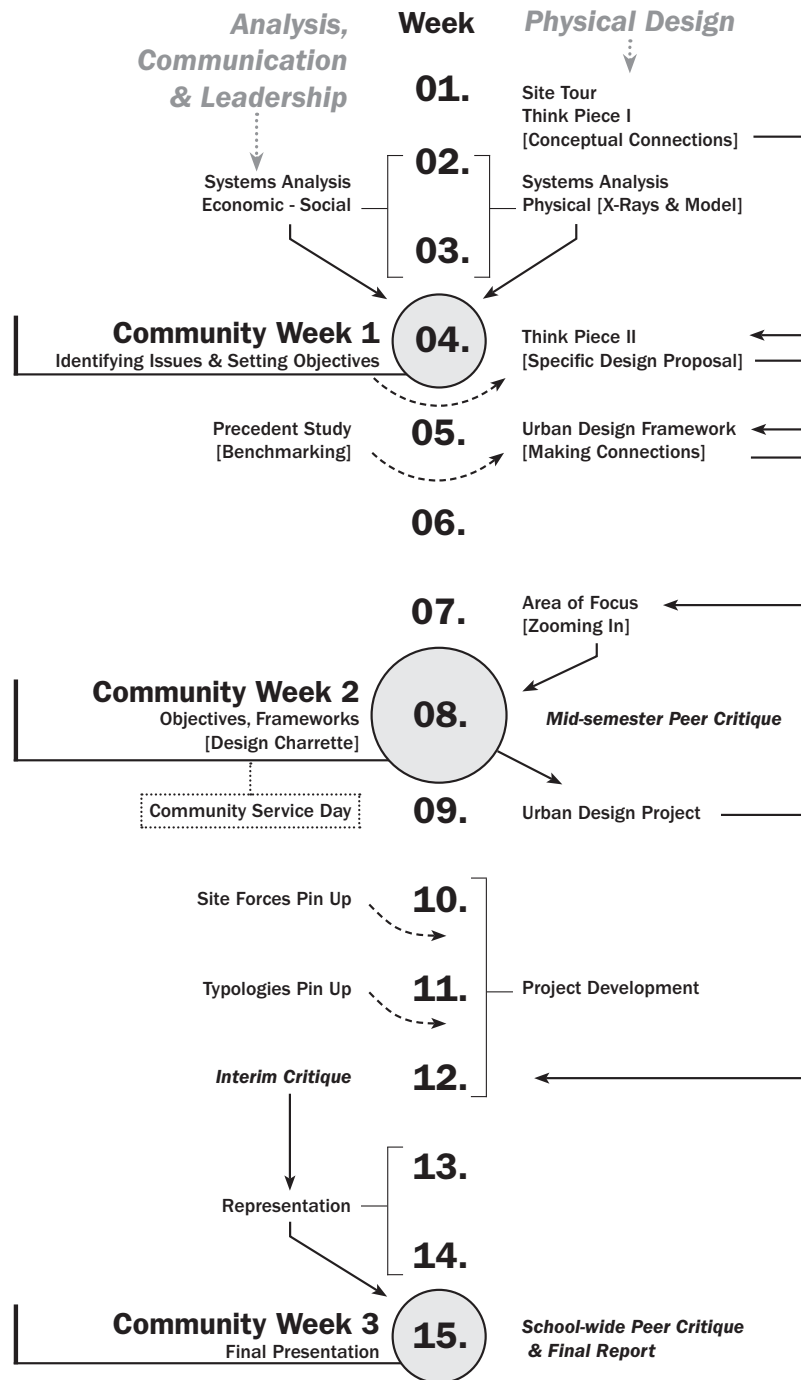
Hazelwood’s employment opportunities and population dwindled with the decline of the American steel industry beginning in the 1950s. By 2005, only 5,330 residents remained, down from a high of 33,140 in 1950. As the Hazelwood community has struggled to revive its local economy and keep its resident base, the adjacent ALMONO site has been largely cleared of its above-ground infrastructure, although its soil has only been partially remediated. Several plans have been proposed in recent years for the ALMONO site and surrounding neighborhoods. The client for the project was a combination of community stakeholders including the local Community Development Corporation, Hazelwood Initiative, Inc., and site owners ALMONO, LP, as well as current and future research tenants, such as the CMU Field Robotics Center. Three community workshops brought these diverse communities of interest together to work with students on ideas for the future of the site.

Studio Organization

All three studios shared a common pedagogy, community process and lecture series. Each section, however, approached the Hazelwood site with a different programmatic focus in relation to the public realm. The entire Urban Laboratory followed the same methodology and schedule, meeting as a group once a week for field trips, lectures and community meetings. The studio schedule was structured in three phases, with each culminating in community-oriented weeks involving public presentations and work sessions. The phases were:

- I. *Analysis*: Creating and interpreting a spatial, social, cultural and economic geography of the site in relation to a variety of scales.
- II. *Urban Design Framework*: Creating a master plan for the site with an emphasis on accommodating a particular programmatic focus.
- III. *Urban Design Project*: Creating a detailed urban design for an area of focus.

Project Flowchart



STUDIO A: Robot City

The ALMONO site and its spatio-economic context offer unique opportunities to explore the future of the City of Pittsburgh as well as that of the “city” in general. Its proximity to the University of Pittsburgh and Carnegie Mellon allows for the possibility of building a cluster of related research and development facilities which could transform the economic geography of the city at the local, national and global scales. The two universities are doing leading research in biomedicine, bioengineering, multi-media technology, cyber security, and robotics, all of which are in need of room for physical expansion.

Studio A explored scenarios for accommodating these R&D programs on the site. The studio sought to reinterpret the default scenario of R&D office park by looking for ways to integrate and layer these building and landscape programs into a mixed-use district with an urban public realm. Our design efforts focused on both the program and the public space that it helps to define. While the various master planning efforts for the site have offered convincing, if predictable, solutions for connecting new development to the Hazelwood community, no clear solution has emerged for the northern end of the site most likely to house the bulk of the R&D program. Looking to a variety of recent precedents combining landscape, urbanism and infrastructure, this studio sought innovative urban design solutions.

STUDIO B: Urban Housing

Studio B focused on a range of housing types and densities looking for connections to both the Hazelwood neighborhood and the universities. Given the scale of the problem and the architectural issues, the studio required not only coherent rationale at the broader urban design scale, but also fine-grain architectural design resolution. Solutions were meant to be both innovative and realistic in terms of building codes, zoning regulations and the logic of the local real estate market.

At the master plan scale, this studio focused on mixed-use development and housing aligned with Smart Growth strategies and Transit Oriented Development. International multi-family housing projects situated in urban locales by some of the greatest architects of the twentieth and twenty-first centuries served as a reference point and launch pad for the semester’s work. We focused on strategies for innovative urban housing, from the scale of the master plan to the conception of housing units. The studio investigated how human habitation can be physically, socially, ecologically and culturally integrated with the surrounding communities and region through innovative landscape, urbanism and infrastructure.

STUDIO C: Possible Publics

As architects and urban designers, we spend a great deal of our time discussing public space, and contrast it with private space. But what exactly do we mean? Hanah Arendt’s classic definition of the public sphere, articulated in her essay “The Human Condition,” is characterized by three features: it is artificial, man-made rather than occurring in nature; it has a spatial quality, in that citizens require a physical space in which they can interact, disagree and search for solutions; and finally, it is distinct from private interests. Do these attributes still hold true today?

Studio C explored the meaning of ‘public’ as it relates to the urban realm. It was defined broadly to encompass civic and cultural institutions, retail and office buildings, public space, and public infrastructure. Students were encouraged to test various programmatic possibilities for the site, including but not limited to libraries, museums, post offices, shopping venues, parks, plazas, transit connections and depots. These were evaluated using three different approaches to urban design: the visual-artistic tradition, exemplified by the works of Camillo Sitte and Le Corbusier; the social usage tradition, as per Kevin Lynch; and the place-making tradition, best characterized by Peter Buchanan’s contention that “places are not just a specific space, but all the activities and events that make it possible.” Public design of buildings, space and infrastructure was considered for its central role in creating character of place and function for the new neighborhood, as well as its capacity to establish links to the larger Hazelwood community.



Faculty: **Jonathan Kline** is a principal of the Studio for Spatial Practice, a newly founded design firm focused on architecture and urbanism. Jonathan taught in the Urban Laboratory from 2002 – 2004, authored the current curriculum and was a research associate on the 3 Rivers 2nd Nature Project. He is currently a research fellow with the Remaking Cities Institute. Jonathan holds a BArch and an MFA in Painting and Drawing. Jonathan also practices and exhibits as an artist.

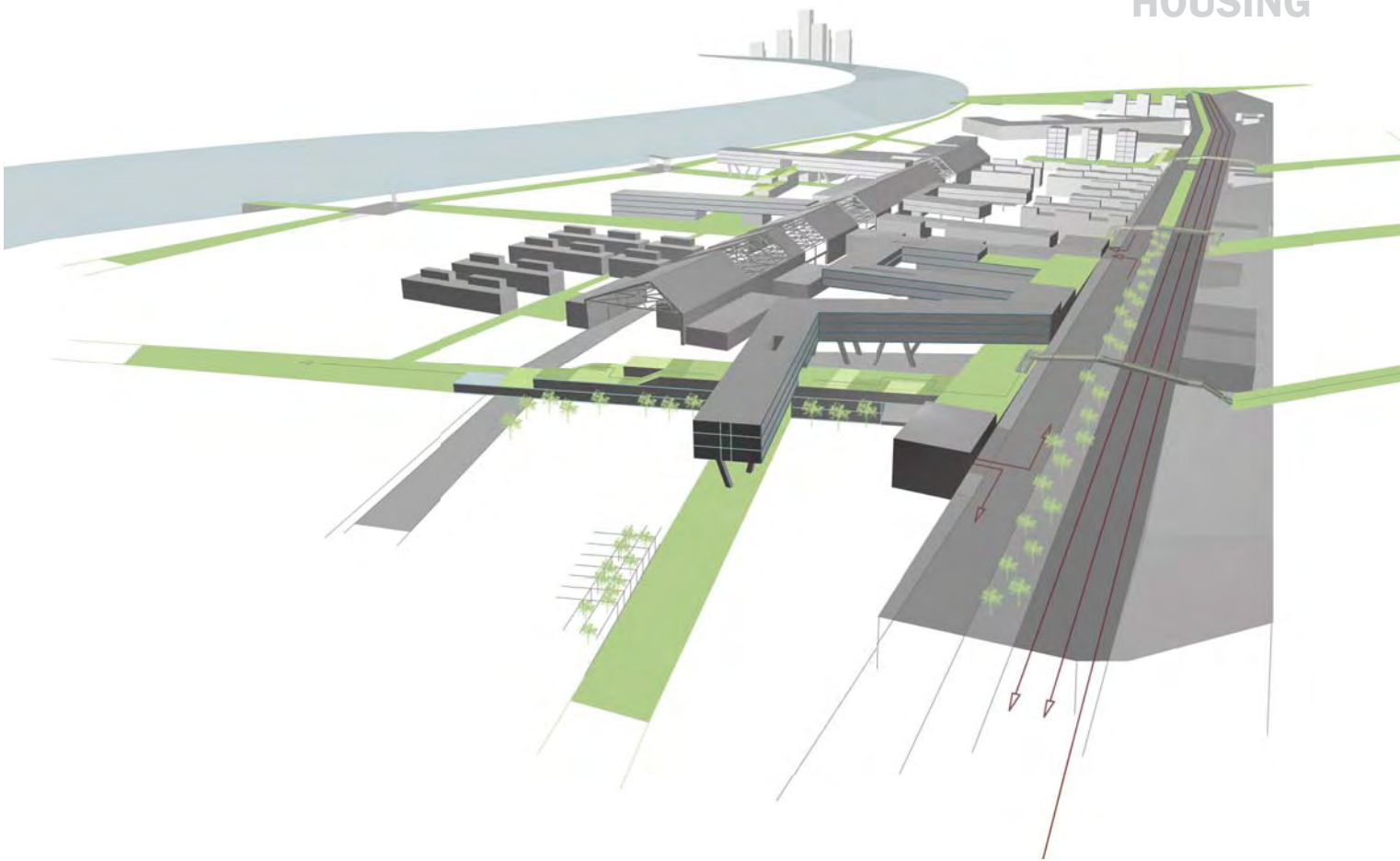


Faculty: **Kelly Hutzell** is the Lucian Caste Chair Visiting Assistant Professor. She has a BArch and an MS in Architecture and Urban Design and has worked as a designer for offices that specialize in academic and cultural buildings. In addition to teaching, Kelly currently works for the firm over,under.



Faculty: **Rami el Samahy** is a principal of over,under, a multidisciplinary design studio based in Boston, Massachusetts, with projects in the United States, Guatemala and Egypt. The work ranges from urban design and architecture, to interiors and graphic design. Rami holds degrees in Architecture, International Relations and Near Eastern Studies.

HOUSING



Views and Corridors

Matt Scarlett and Robin Fok

Urban Laboratory

STUDIO B Housing

Kelly Hutzell, Professor



The main design intent of this project was to establish strong connections with the overall park network of Pittsburgh. The project diverges from the common approach of dissecting the site into a street grid for automobile access. Rather the placement of buildings and the massing of the architecture is meant to engage people on a pedestrian level. Following this approach our process involved designing a series of massing permutations that could incorporate conditions of porosity while responding to charged points of interest on the site. Within the overall plan, the buildings assume the role of a “conduit” as they tie certain spaces and experiences together. At times, the massings lift off the ground or become part of the ground plane in an effort to playfully push and pull people through the park spaces while responding to the river and the traces of history on the site.

As the area of focus plan shows, the idea of directionality and view corridors informed the placement and form of the apartment buildings. Pavilion spaces would be designed around the industrial relics to create points of interest at the riverfront edge.

Figure 1

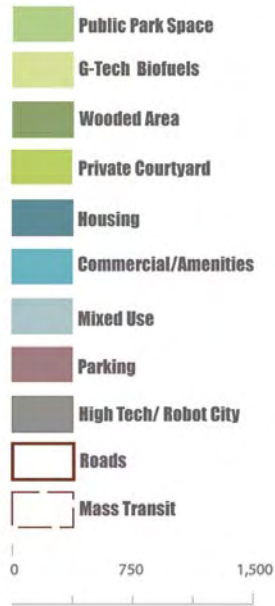


Figure 1 Framework Plan

Figure 2 Section A

Figure 3 Housing Types

Figure 4 Section B

Figure 5 Area of Focus Plan



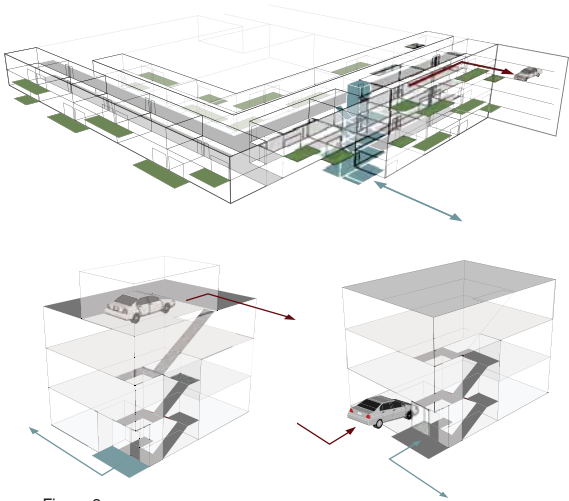


Figure 3

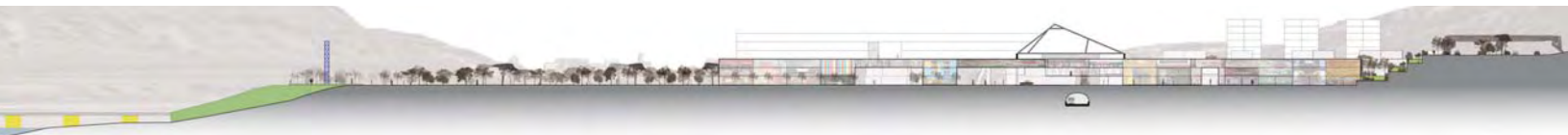
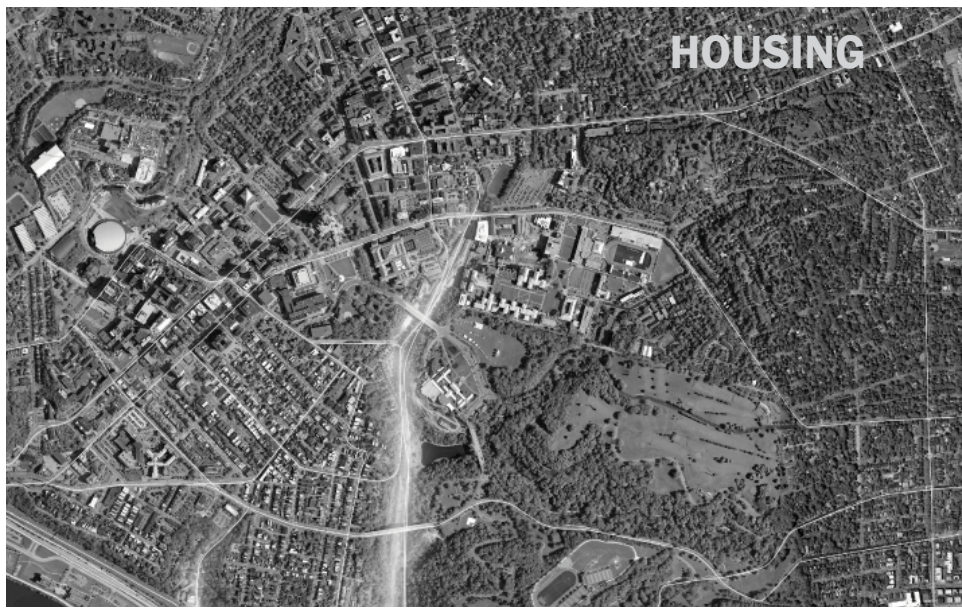


Figure 4

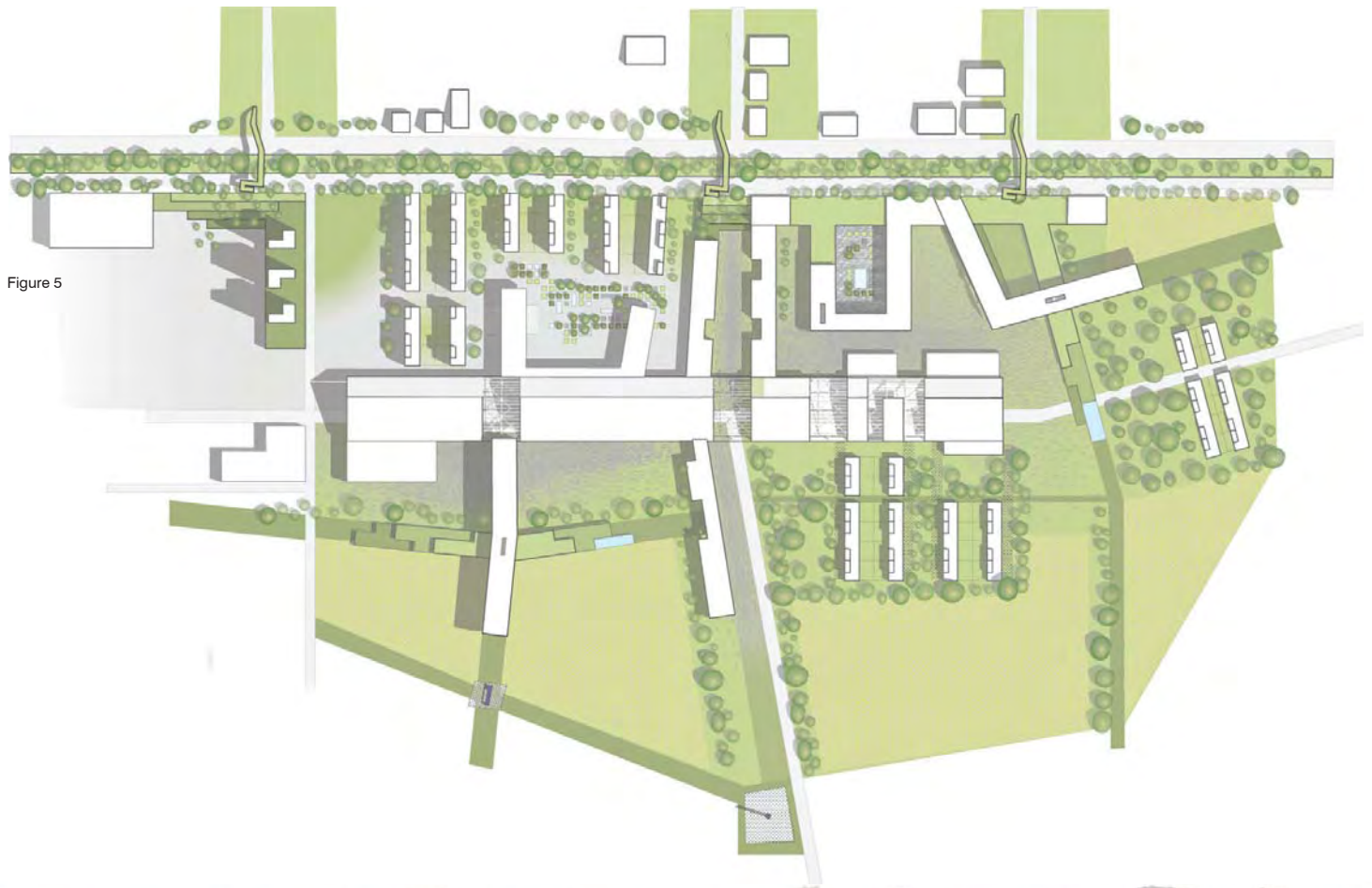
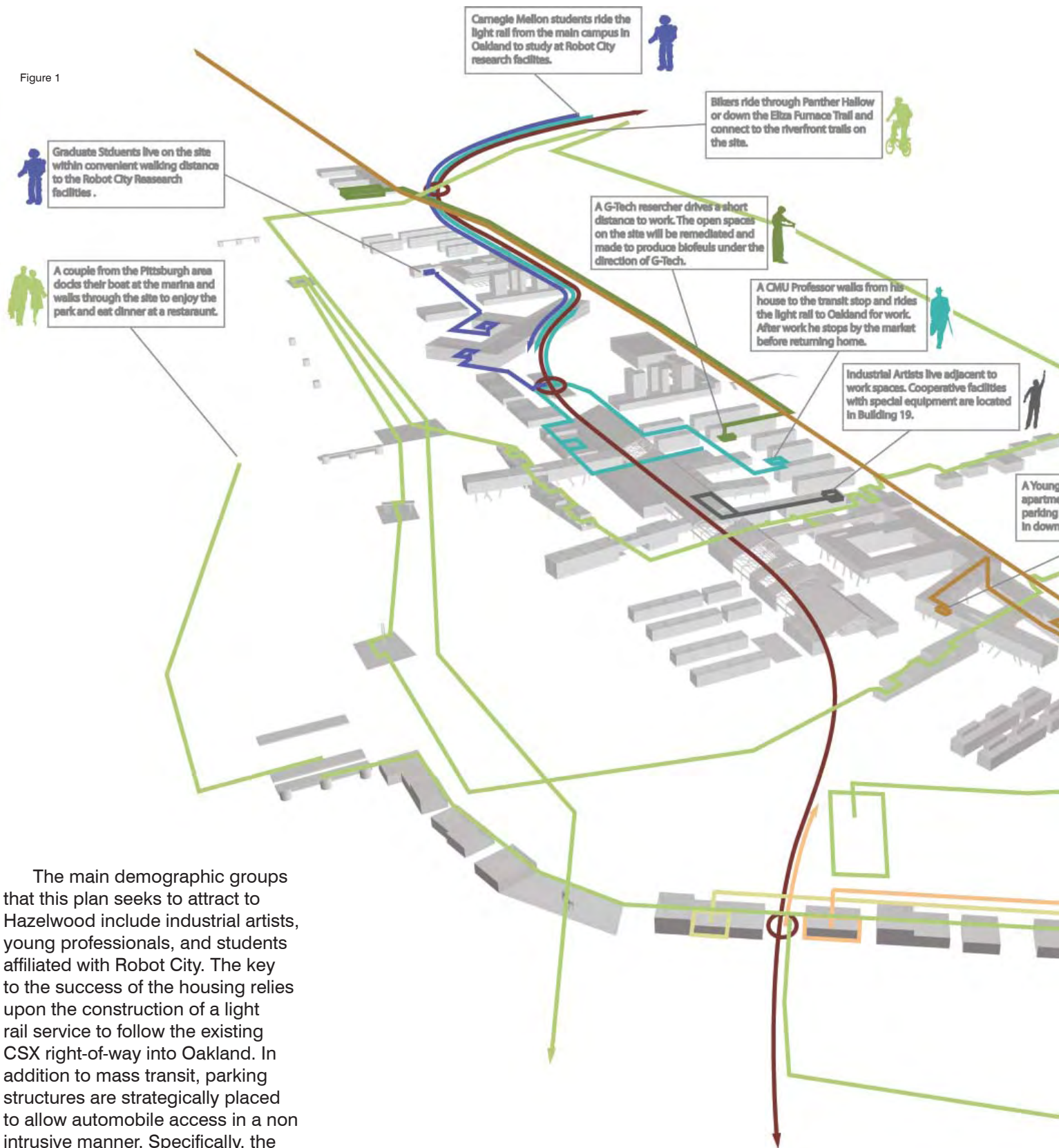


Figure 5



Figure 2

Figure 1



The main demographic groups that this plan seeks to attract to Hazelwood include industrial artists, young professionals, and students affiliated with Robot City. The key to the success of the housing relies upon the construction of a light rail service to follow the existing CSX right-of-way into Oakland. In addition to mass transit, parking structures are strategically placed to allow automobile access in a non intrusive manner. Specifically, the edge condition along Irvine Street is utilized as a means to allow efficient automobile access while reducing the presence of cars on the site.

Figure 1 Usage Narratives

Figure 2 Phasing Diagram

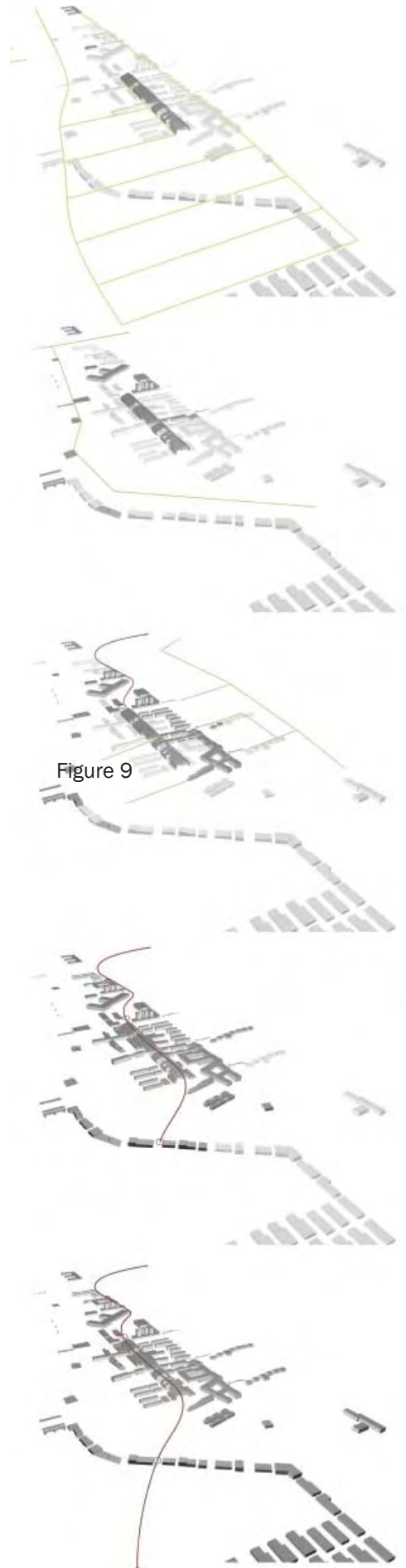
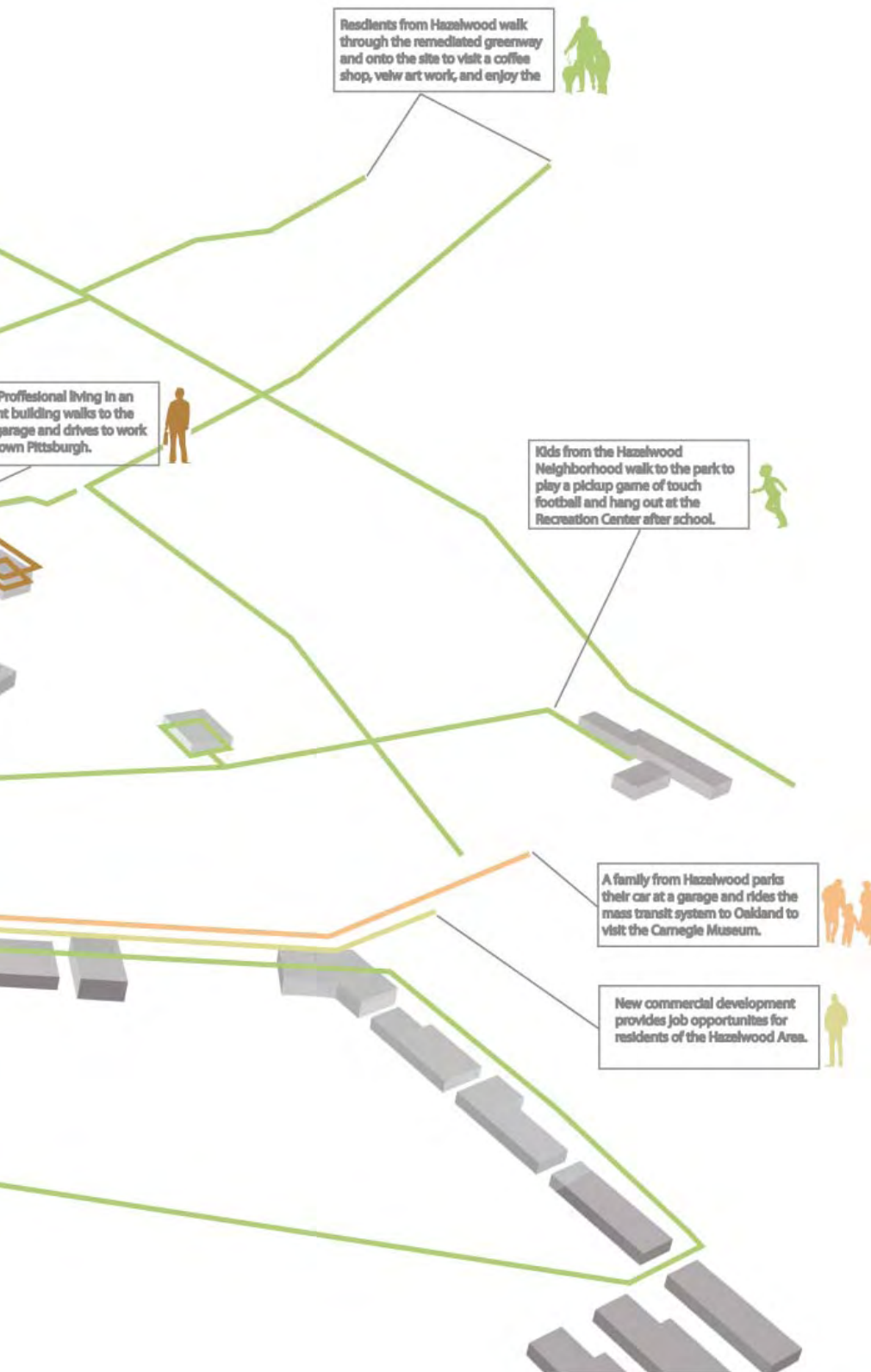


Figure 9

Figure 2



Figure 1

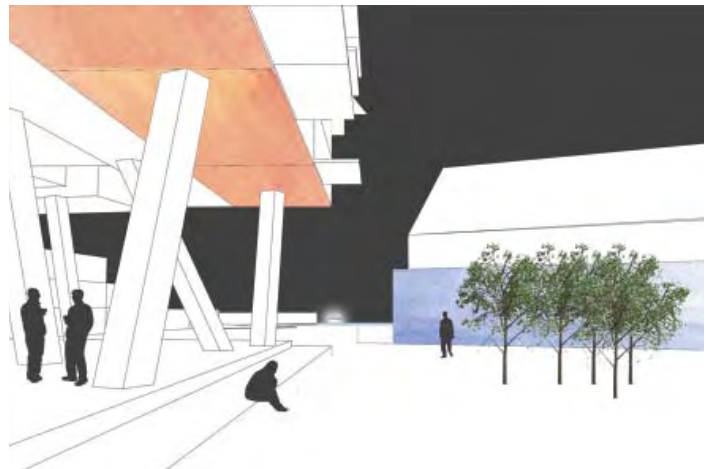


Figure 1 Process Massing

Figure 2 Relics, Views, and Points of Interest

Figure 3 Axonometric Views showing
Permeability and Movement

Figure 2

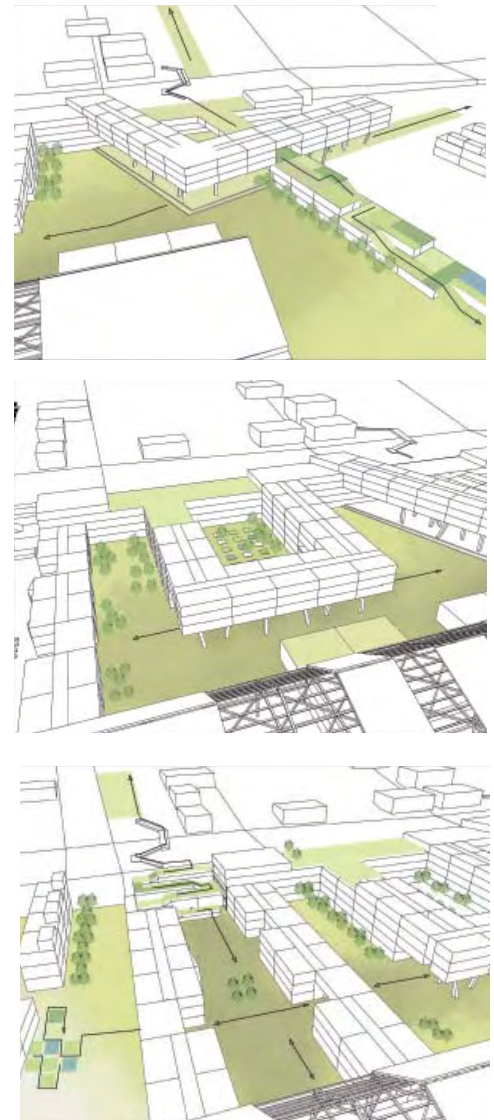
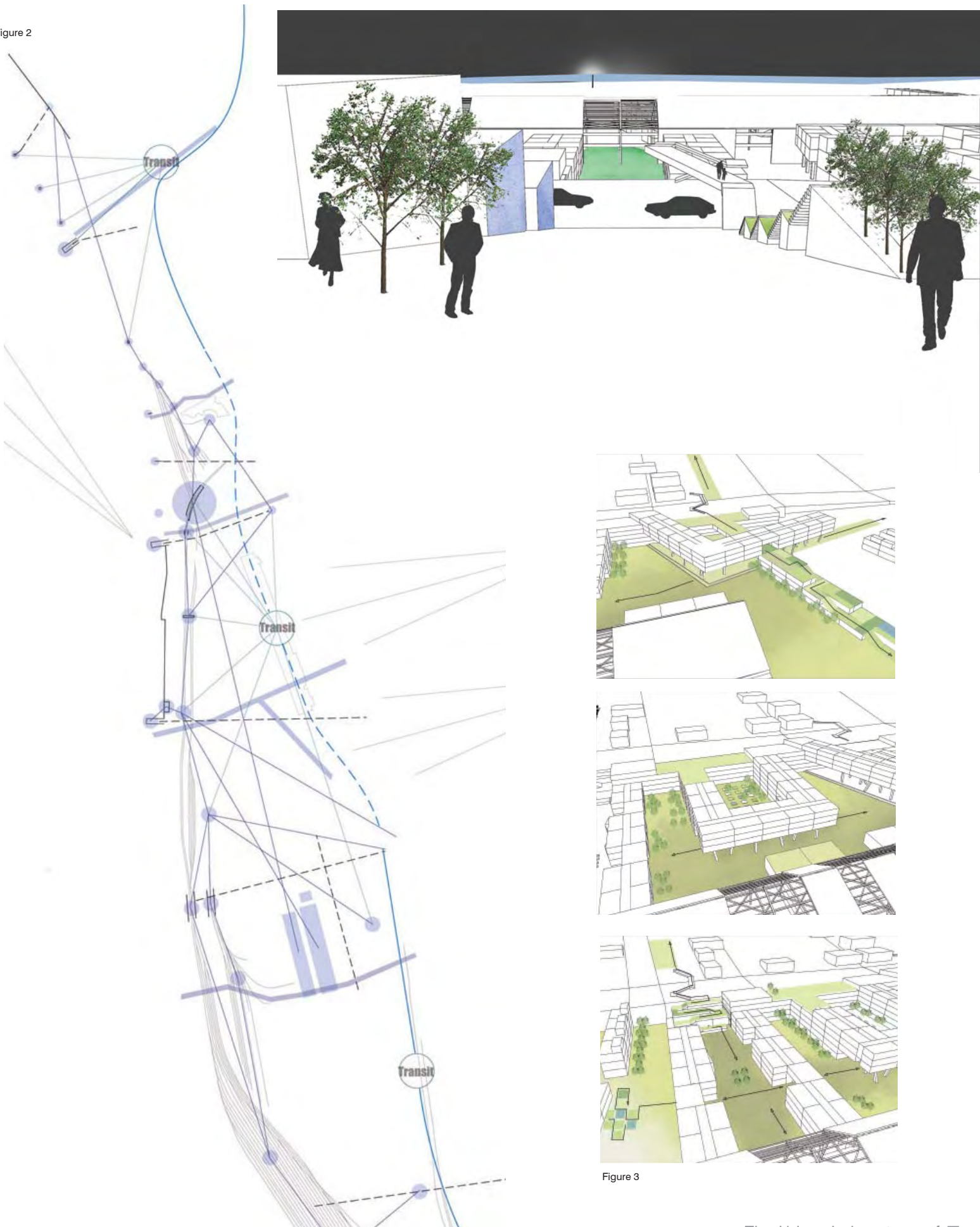
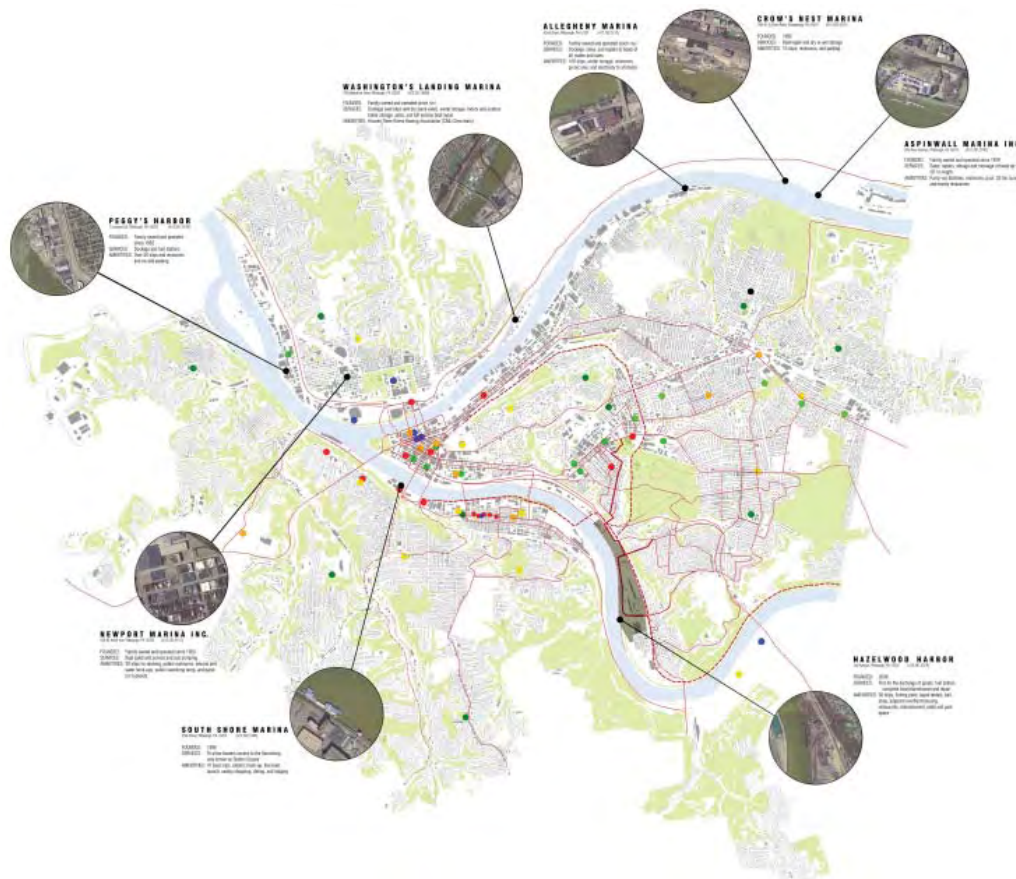


Figure 3



Temporary Permanence

Cathryn Kozar and Jennifer Couch

Urban Laboratory

STUDIO B Housing

Kelly Hutzell, Professor

URBAN STRATEGIES

1. Strengthen the economy by introducing riverfront industry that will create jobs and put Hazelwood on the map as a place of importance and prosperity.
2. Reconnect Hazelwood to other regions of Pittsburgh via the extension of bus, light rail, and water routes, as well as footpaths and trails.
3. Re-establish Hazelwood as a diverse community by expanding the existing commercial district and providing places of gathering such as schools and recreational facilities to attract people of all ages, colors, and incomes.
4. Improve the quality of living by weaving green spaces in between commercial, housing, and mixed use programs and capitalizing on the river as a resource and unique amenity.
5. Reduce crime by providing better education and activities for children, reducing the number of vacant lots, improving the streetscape, and increasing police presence.

Initial study of the ALMONO site quickly identified the Monongahela River as being one of its greatest assets. We want to capitalize on the fact that the entire length of the site has water frontage.

As we delve deeper into the project, examining the greater Pittsburgh region, we noticed a high concentration of water culture in and around downtown and the point. However, there was nothing south of Station Square that acknowledged the presence of the river. Therefore, we immediately recognized a market for some sort of marina or water activity on our site that would help rejuvenate Hazelwood.

But before this vision can be realized, revenues must be generated to facilitate the excavation and development of the marina.

Therefore, in the first phase of the project we propose the relocation of the Robotics Institute headquarters along with the MRTC to the brownfield site.

Eventual developments in medical robotics will create a need for mass production and a consequential need for a port to facilitate the exchange of goods. To maintain this port, a group of workers capable of repairing and preserving its facilities and equipment is necessary.



Figure 1



Figure 2

Figure 1 Conceptual model studying the density of the site

Figure 2 Area of focus plan studying the specific organization of housing modules in relation to the commercial district and marina

Figure 3 Perspective revealing the exterior spaces as defined by the placement of the built modules

Figure 4 Regional diagram making a case for a marina on our site based on a lack of water culture south of Station Square



Figure 3

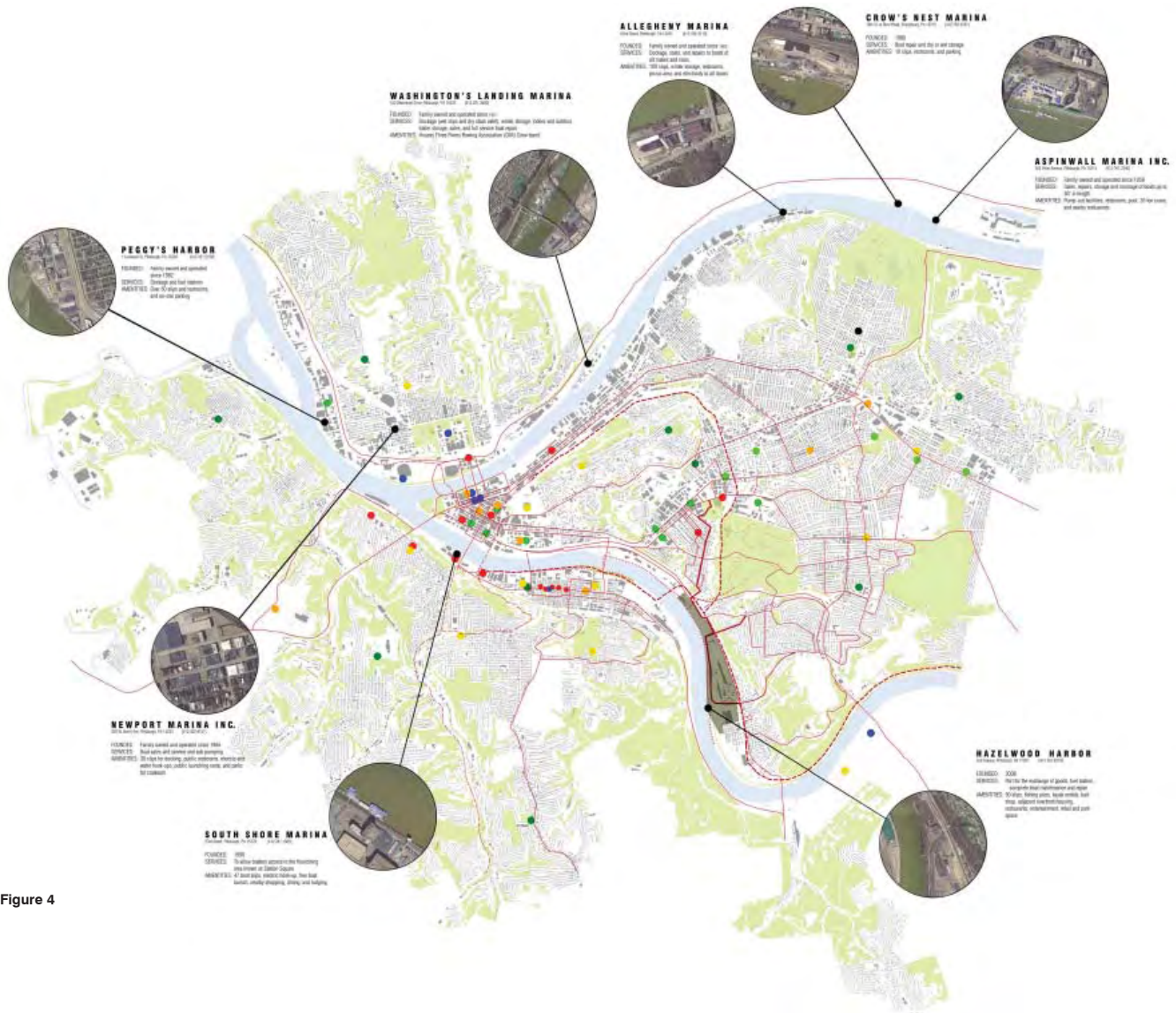


Figure 4

The combination of the newly established headquarters and port would bring in approximately 360 employees, many of whom would need housing.

The influx of people both outside of and within Hazelwood, generated by the robotics industry and port, will demand an expansion of the existing residential fabric below the tracks to support the increased number of residents.

To sustain the lives of the citizens who are moving into the community, the commercial district must be revitalized and expanded, providing all the conveniences of a city. The extension would be anchored to the proposed marina, creating a strong relationship to the river. In doing so, the use of the waterfront is transformed along the length of the site from recreational to industrial.

As more and more people are attracted to the site for its cutting-edge employment opportunities, luscious park space, boutique-style retail, and unique waterfront, additional housing will be necessary to accommodate the increase in residents. Finally, a large portion of the site will be designated for agriculture, of which Hazelwood residents will have direct access to grow and harvest their own crops.



Figure 5

“Maybe robots will be manufactured there [ALMONO site] someday.”

-Bill Widdoes, RIDC Project Coordinator



Figure 6

As the focus of our studio, we explored the possibility of housing within the site more indepth. In our research we recognized a trend of young people moving into the city for its livelihood and conveniences, but just a few years later relocating because of a change in priorities, the result being vacant and rundown lots.

Due to this realization, we opted to study the demographic in terms of a cycle in which a single person moves into a small space, gets married, has children, eventually becomes an empty nester, and sadly, one day a widow.

As a means of accomodating the evolutionary needs of people and keeping them in the city, our housing proposes a flexible module that can adapt to the changing needs of its inhabitants. The hope being that they remain in the area for the duration of their life.

The module consists of two units whose relationship is determined by the relationship of the occupants. The units can be separate providing a studio apartment for one resident, a two bedroom unit for another resident, and a two car garage shared between the two. When occupants require more space, the units can be combined to form one dwelling which would consist of three to four bedrooms and a private garage.

In areas of higher density, an additional ground floor studio apartment would replace the garage.

These different accommodations allow the units to adapt to the needs of the occupants throughout different stages of their lifes in multiple locations throughout the city.

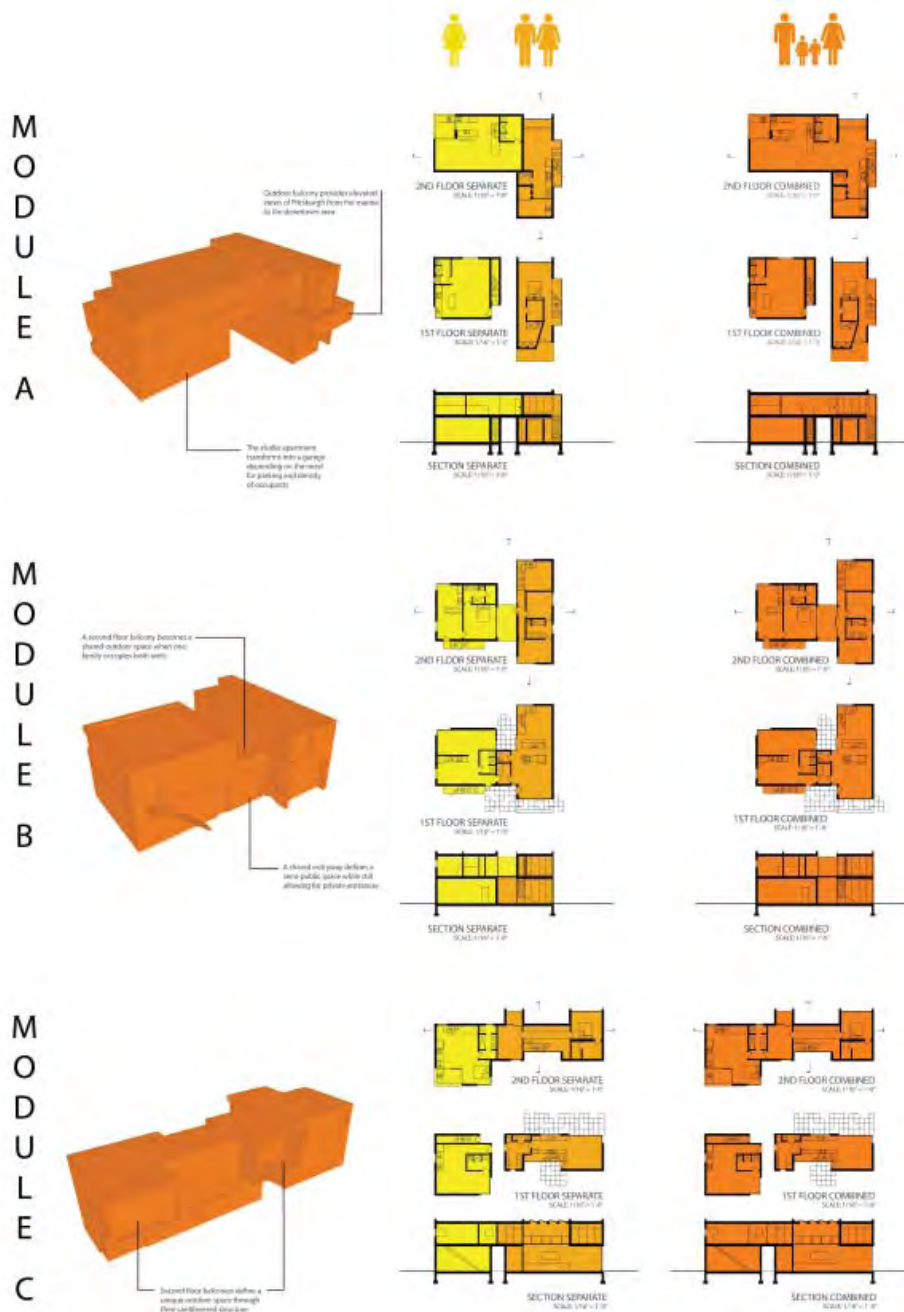


Figure 7



Figure 8

Figure 5 Frameworks plan showing overall scheme for the site

Figure 6 Exploded axonometric showing the layering of networks throughout site

Figure 7 Housing Module diagram revealing the massing and floor plans of each unit, separately and combined

Figure 8 Diagram showing the changing priorities of people throughout their lifecycle



Figure 9



Figure 9 Axonometric view from the ALMONO site to downtown Pittsburgh revealing the activity of the site



Hazelwood Redevelopment: Robotic Greenways and Housing

Aftyn Giles and Michael Chung

Urban Laboratory

STUDIO B Housing

Kelly Hutzell, Professor

Housing Demographic

Research Institutions



Retirement Homes



Figure 1

Field Research Areas

Hazelwood Avenue Bridge

Apartment Housing

4 Unit Coop Housing

Digital Sports Fields

Community Center

Single Unit Housing

Existing Hazelwood Housing

LRT to Homestead Waterfront

Figure 2

LRT to Oakland



New Retail Corridor

Existing Hazelwood Retail Corridor

LRT from Homestead Waterfront

Robotics will in one way create a level of convenience that has long been desired through self-navigating robots to maintain the safety and beauty of the site and provide quick and convenient transportation across the site. But more so, the robotics technology employed on this site aims to radically transform the way we move through space by transforming the way we understand it. Robotics technology will provide in some ways a 6th sense in which wifi and radar begin to communicate for users automatically and instantly, exchanging and providing information to users from throughout the environment. The way we find and communicate with friends and families takes on a new life, as well as how we move through the urban fabric.

Figure 2 Overall Frameworks, showing overall layout of building program

The Urban Laboratory: 27
COMMUNITY & URBAN DESIGN STUDIO (Fall 2007)

Phasing

PHASE 1: Extend and Revive 2nd Ave Commercial Corridor



PHASE 2: Connect with river through a Boardwalk Waterfront Commercial Corridor



PHASE 3: Research and Retirement Housing Core



PHASE 4: Expand Research and Retirement Housing w/ Single Family Units on Perimeter



PHASE 5: Transform vacant lots in Hazelwood into New Greenway Corridors



Figure 4

URBAN STRATEGIES

1. Revive and extend Hazelwood's Second Avenue Commercial Corridor as a central feature of the site and the neighborhood in order to attract new commerce and grow the population of Hazelwood.

2. Reconnect with the river through new greenways that weave through the site to the water's edge where it meets a new Waterfront Commercial Corridor. Also extend Hazelwood Avenue through site and across the river as a main access road to waterfront retail. The proposed Hazelwood Bridge would also connect to the Southside Works, a retail development across the river.

3. Create new housing on site specifically for new Robotics Institute tenants. The housing core will provide a new experimental robotics housing condition for students and researchers of the robotics institutions in which collaboration and interaction are enhanced through imbuing the housing units with new technologies. Further, as an experiment in new living, the Robotics Institute and the Quality of Life Technology Center will be inviting retirees to the site to live in a new retirement home that tests how technology can improve retirement home living.

Figure 4 Phasing Diagram, showing major Urban Design goals and the means of implementing the project

(1) Extend and Revive 2nd Ave Commercial Corridor

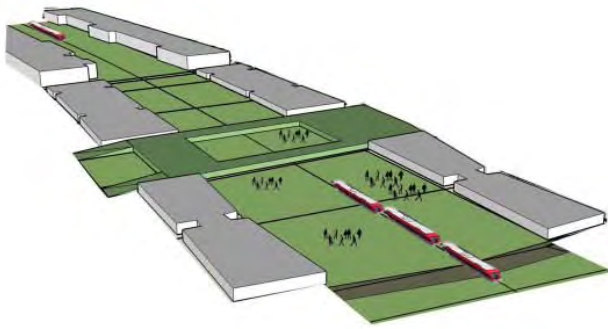
(2) Reconnect with river through a Waterfront Commercial Corridor

(3) Develop a Research and Retirement Housing Core on Waterfront

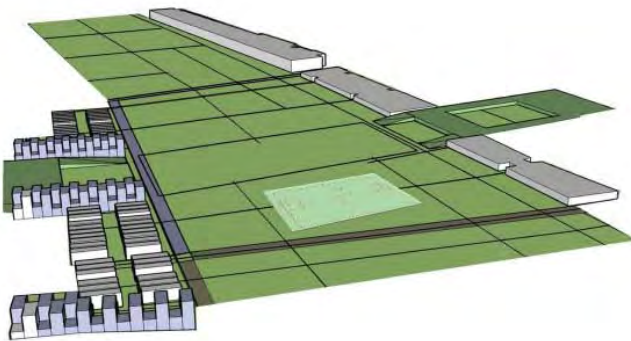
(4) Expand Researching and Retirement Housing Core

(5) Recapture vacant lots in Hazelwood to create new Greenway to site

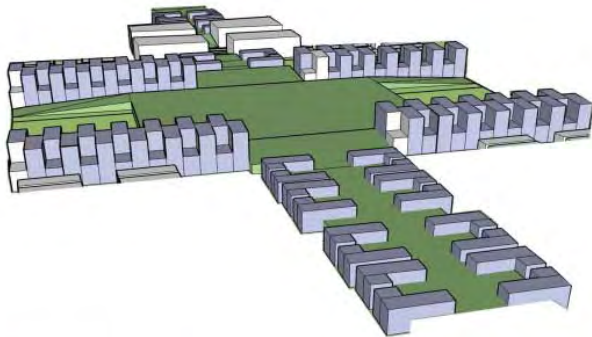
Commercial Corridor



Robotics Park



Housing Common Area Greenspace



Waterfront Retail



Figure 5



Figure 6

4. Expand the housing core further by injecting Modular Single Family Units into the core to create more density in the living. The neighborhood west of Second Avenue in Hazelwood would also be extended towards this core by inserting Modular Single Family Units.

5. Reconnect with the existing community by capturing vacant lots throughout Hazelwood to create a new fragmented greenway space that weaves through the neighborhood and connects with the existing greenways of the site. These new green vacant lots will also act to create small urban parks for recreation on a local urban block level.

Figure 5 Axonometric views of N-S robotic greenways through

- (1) Commercial Corridor
- (2) Main Park Space
- (3) Robotic Housing Core
- (4) Waterfront Retail

Figure 6 Diagram of major circulation/movement through site

- (1) Public Transit
- (2) Pedestrian Movement
- (3) Automobile Movement

Overview



Figure 7

Building Program

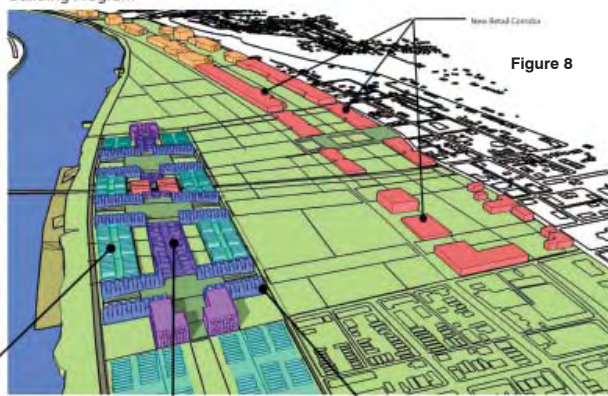


Figure 8

Waterfront G

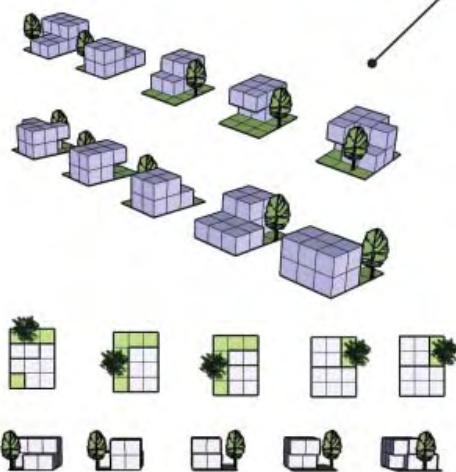


Figure 9 Modular Single Family Units

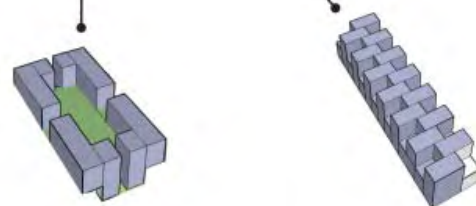


Figure 10 4 Unit Coop Housing

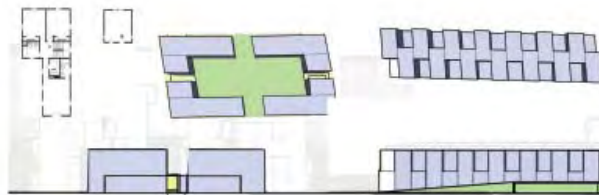
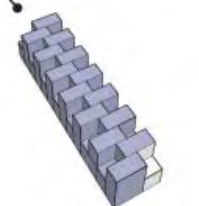


Figure 11 Modular Apartment

MODULAR SINGLE FAMILY UNIT

Each Single Family Unit takes on a unique quality through the use of modular design. By doing so, each unit takes on a life of their own in which ownership and a sense of place is increased. Each of the five configurations offers a slightly different living experience to accommodate for the different needs of various users.

4-UNIT COOP UNIT

Four Modular Single Family Units are arrayed around a central common space. Each unit, while being independent from the other units in the Coop, are interlinked through a common space that acts as both a common lounge area on the lower floor and a common greenspace courtyard on the upper level. This unit is intended to create a micro-community within the new larger Robotics/Retirement housing community.

MODULAR APARTMENT UNIT

The Modular Apartment Unit offers another density of living in the Robotics/Retirement Housing Core. Modular Single Family Units are stacked and arrayed on top of each other creating a 6-story apartment complex. While all units relate back to a core, each unit relates also to adjacent units through elevated greenspaces that occur throughout the apartment complex.



Greenway



Waterfront Greenway



Coop Housing Courtyard



Waterfront Commercial Corridor



Precedent Images



Buildings

Figure 7 Overview Perspective

Figure 8 Overview of Site, showing Building Programs

Figure 9 Five Configurations of Single Family Unit, showing diagrams of Axons, Plans, Elevations, and Perspectives

Figure 10 Four Unit Coop Housing Unit, showing diagrams of Axon, Plan, Elevation and a typical Plan for one of the four units

Figure 11 21-Unit Modular Apartment Unit, showing diagrams of Axon, Plan, Elevation and a blown up Axon of individual unit array

Figure 12 Perspective showing roadway along Robotic Housing Core

Figure 13 Perspective showing new proposed Waterfront Greenway

Figure 14 Perspective showing Courtyard in 4-Unit Coop Housing Unit

Figure 15 Perspective showing the Waterfront Commercial Corridor

Figure 16 Precedent Images of possible architectural styling of housing units

Figure 17 E-W Section through Hazelwood Avenue from Second Avenue to across the river



Figure 17



Remaking Hazelwood

Lauren Connell and Andrew Werner

Urban Laboratory

STUDIO B Housing

Kelly Hutzell, Professor

The ALMONO site is located in southeastern Pittsburgh on the northern flatlands of the Monongahela River, four miles from downtown. The 178-acre parcel is a long, narrow strip of derelict riverfront land, geographically bound by the Monongahela River to the west and a steep hillside to the east. It extends from the Hot Metal Bridge at the northern tip to Tecumseh Street at the southern end. The land is jointly owned by the ALMONO, LP partnership, a group of four regional foundations including the Richard King Mellon Foundation, the Heinz Endowments, the McCune Foundation, and the Claude Worthington Benedum Foundation. A fifth ALMONO partner, the Regional Industrial Development Corporation of Southwestern Pennsylvania (RIDC), manages the property, makes the development decisions, and assumes much of the associated liability.

Currently, the site remains undeveloped. Two rail lines owned by the CSX Corporation run through the site, one along the riverfront and the other along Second Avenue. Although the inland line is still actively used, CSX is considering abandoning the riverfront spur altogether. Most of the above-

ground infrastructure has been demolished and a substantial brick rubble pile stands on the southernmost portion of the site. One large industrial building, called the “Bar Mill” building, three small support buildings, including a pump house, and a former locomotive roundhouse remain in various states of decay. One dirt road and several circular paved roads also remain, along with the remnants of several service rail spurs. Three loading docks, a floating wharf, and some ice breakers are also still in existence and, unlike the rest of the remaining infrastructure, appear to be in decent condition. Carnegie Mellon’s Field Robotics Center is the site’s only current occupant. The Robotics Center partially renovated the locomotive roundhouse and, along with a recent Carnegie Mellon spin-off company (GTECH Strategies Inc.), is using portions of the heavily contaminated lands



Figure 1



Figure 2



Figure 3

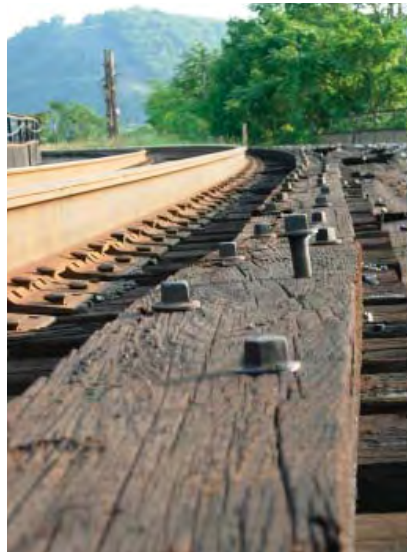


Figure 4

Figure 1 Interior of Bar Mill building

Figure 2 Exterior of Bar Mill building, looking southeast

Figure 3 Plan, LTV Site existing conditions

Figure 4 Detail of train trestle, LTV Site

("Area B") in front of the Bar Mill building as a testing site for robotic soil remediation research and automated vehicular navigation.

Although the ALMONO site's southern tip directly abuts a Hazelwood residential area, it is largely disconnected from the surrounding community. The neighborhood-scale blocks that once extended from the Second Avenue business district across the site to the riverfront have long been demolished. The site is now isolated from the rest of the community, bordered by active rail lines, the Irvine Street/Second Avenue commuter corridor, steep hillsides, and industrial perimeter fencing. Topographically, it is possible to restore connections from the residential neighborhood to the site in the future, especially from the Riverside section of Hazelwood neighboring the site to the south.

The Second Avenue Business District functions as the Greater

Hazelwood Area's "main street." The district is located along the Second Avenue transportation corridor and stretches nearly the entire length of Hazelwood, about three-quarters of a mile. The primary retail and community activities, however, are mostly concentrated along the six blocks between Hazelwood Avenue and Johnson Avenue. Local business stalwarts include Dimpero's Market and Jozsa Corner Hungarian Restaurant. Over the past 30 years, the Second Avenue business district has suffered greatly from Hazelwood's decline. Once a thriving commercial street, many of the storefronts are now empty.

- Excerpted from *Remaking Hazelwood: Remaking Pittsburgh* (August, 2007), Remaking Cities Institute, School of Architecture, Carnegie Mellon University.

Figure 1 Aerial view of site, looking North

Figure 2 Regional site plan

Figure 3 Looking South along the shoreline of the LTV Site

Figure 4 Connection to the river, southern region of LTV site



Figure 2



Figure 3



Figure 1



Figure 4



Figure 1

Our proposal utilizes a balanced infusion of green space, commercial infrastructure, housing, industry and attraction to revitalize the ALMONO site. Simultaneously, this approach integrates itself with the existing Hazelwood neighborhood, flooding the area with much needed capital to allow for community, job, and housing growth.

Figure 1 Masterplan phasing strategy

Figure 2 West-East site section through re-developed Bar Mill building

Figure 3 Exploded axonometric of key planning concepts

Figure 4 Plan of fully developed site

The technological economies of Carnegie Mellon University and the University of Pittsburgh Medical Center provide the initial capital and population, using the site for much needed expansion of research facilities. To support these facilities, the existing LTV steel building is reinvented into a mixed-use destination containing a hotel, live/work housing, conference/meeting facilities, fitness and leisure space, and light retail/commercial infrastructure. The LTV building and its adjacent public green spaces (including parks, riverside boardwalks and marinas) will also serve to attract outside members of the population to the site. The existing roundhouse, once used for storage of locomotives, is re-

adapted as a public exhibition and display of Carnegie Mellon's robotics technology. The open nature of the existing architecture creates a dialogue with the LTV building and forms an interstitial space used for public demonstrations and robotics testing.

As more technological and government entities move in to support CMU and UPMC, housing for students, researchers, and professors migrates farther southward on the site. As these populations reach a critical mass, they will begin to support re-growth and expansion of the Second Avenue central business district. The original north-south corridor will be supported by nodes of east-west growth, linking Second Avenue to the newly created parks and boardwalks at the edge of the river.

Figure 2

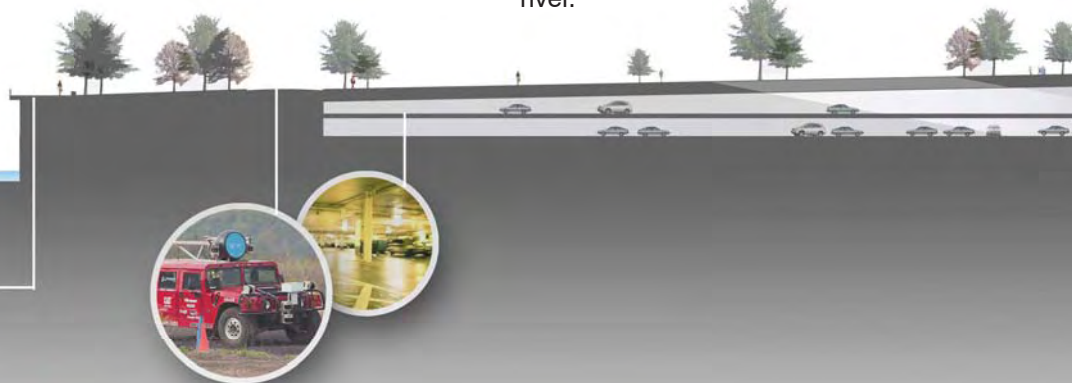


Figure 3

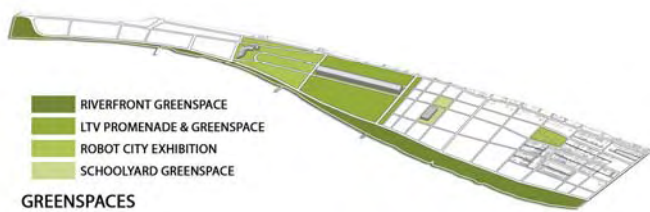
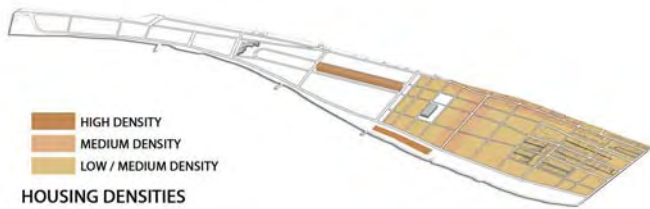
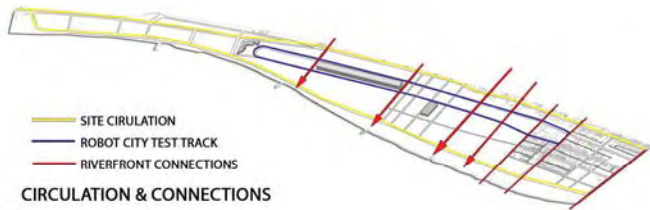


Figure 4

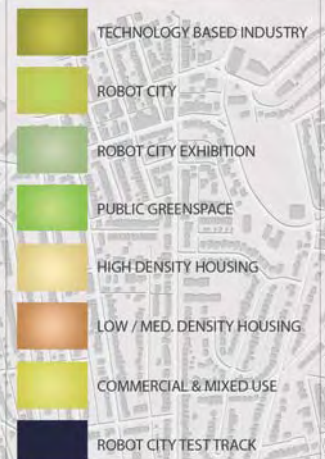
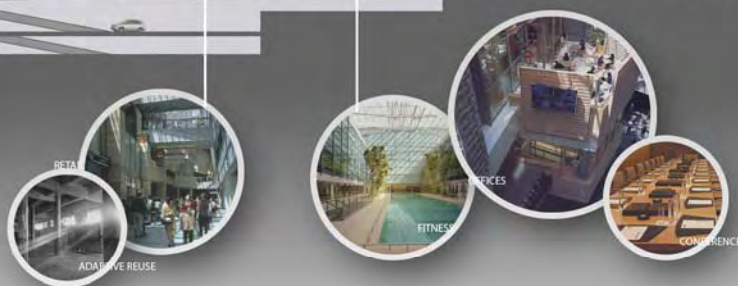


Figure 9





A Young Southside Family

Mary and Todd have two young children and live in on **South Side**.

- Every week, Todd meets his buddies at the **riverfront soccer fields** for a lively pick-up game.
- On rainy days, Mary loves to take her kids to the **Bar Mill** for some shopping or to catch a movie. When it's sunny, she takes them outside for a stroll along the River Walk.
- For their wedding anniversary, Todd charts a boat from the **Hazelwood Marina** and takes Mary on a dinner cruise around Pittsburgh.

A Local Hazelwood Family

Blake and Grace live in the **South Side**.

- Each morning, Grace drops the boys off for their school bus and heads to her job as a dental hygienist.
- Blake takes the Pittsburgh L train to work as a sales manager.
- During her lunch hour, Grace walks towards the riverfront for a jog.
- After work, Grace does some errands before picking up the boys from school. She then takes them to the **riverfront** for a game.

A Carnegie Mellon Grad Student

Jennifer is a Carnegie Mellon graduate student studying artificial intelligence.

-Every morning, she walks out of her **riverfront condo** and jogs northward for a two mile loop of the **boardwalk**.

-The public bus system stops right outside her front door. She takes the bus into **Oakland** for her daily classes.

-After class, she takes the Pittsburgh Light Rail System from CMU, which drops her off at her research assistantship with the **Robotics Institute** on the north end of the LTV site.

A Medical Resident

Michael is a medical resident at the University of Pittsburgh's Hazelwood Research Center and lives in a small apartment inside the **Bar Mill building**. He enjoys being in close proximity to all his basic services inside the mixed-use Bar Mill, including shopping leisure, and exercise facilities.

-Before work each morning, he works out at the **Bar Mill Health Club**.

-The Pittsburgh Light Rail System stops near his end of the Bar Mill, so he hops on for a ride up the street to his **research offices at UPMC**.

-Many of his nights are spent on-call at his residency in the UPMC emergency room. The light rail system allows him to get up to **Oakland** from his home or office at any time of the day or night.

outhern section of **Hazelwood** with their three sons.

her boys at the **Berwick Street School** before heading to on **Second Avenue**.

ight Rail System up to his job in **Downtown** as a retail

e enjoys window shopping along **Hazelwood Avenue** as ont lookout and **promenade** at the end of the street.

e last minute dinner shopping along Second Avenue from their after-school program. After dinner, it's time to ont **sports courts** for their recreational league basketball

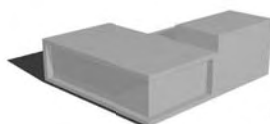
Figure 1 "A Day in the Life"

HOUSING

Figure 1
UNIT TYPOLOGIES



1 BEDROOM UNIT



2 BEDROOM UNIT



2 BEDROOM UNIT



3 BEDROOM UNIT



Figure 2
Figure 3

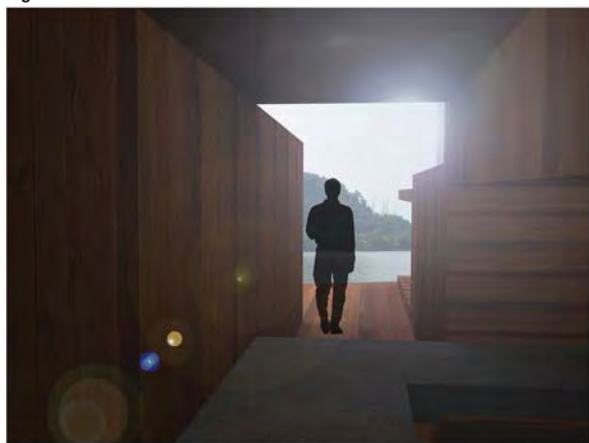


Figure 4

Figure 1 Unit configuration, single node

Figure 2 Aerial view of complex looking southeast, at dusk

Figure 3 View of corridor leading to entry foyer

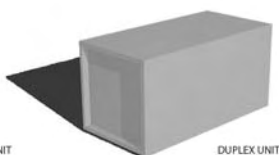
Figure 4 View of public stair between nodes

Figure 5 West-East section through apartment complex and central business district

Figure 6 Plan, 3-node complex

Figure 5





DUPLEX UNIT



5 UNIT CONFIGURATION



10 UNIT CONFIGURATION

Overlooking the river's edge, a complex of mixed-income housing units serves as a terminus to the newly developed nodes of east-west growth. Continuing this concept of growth, the apartment units are designed as an open system of nodes with combinations of one-, two-, and three-bedroom units repeated in plan and section. As population increases over time, these nodes can be repeated infinitely down the shoreline.

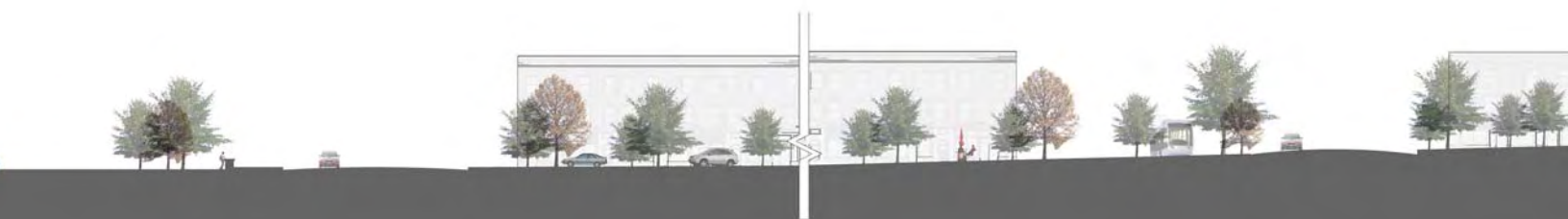
Each apartment affords multiple views of the river, as well as private and semi-private outdoor spaces. Full-height glazing further blends interior with exterior. Experiential quality is heightened through the arrival sequence to each apartment, as residents are drawn through below-grade parking areas to sheltered, open entry foyers with direct views of the Monongahela. These foyers create a combination indoor/outdoor space shared with the adjacent apartment.

Public stairs cascade down the hillside in the gaps between each apartment node. These stairs connect to the public walkway that traces the river's edge. Residents can also access these stairways through connections to some of the entry foyers.

By offering a range of apartment types and interior amenity levels while adhering to modular, economical pre-cast concrete construction, units can be offered to citizens with varied economic backgrounds and income levels. Utilizing design strategies employed in high-performance, low-cost housing projects throughout Europe, the pixelated massing strategy allows unit types and prices to be distributed evenly through the development. In addition, sustainable design features help to reduce energy consumption. Grass roofs reduce heat-gain to upper level apartments, while the concrete construction provides energy storage mass for radiantly heated floor slabs. Cisterns harvest rainwater to be re-used in the building's wastewater management system. Taking advantage of its riverside location, the entire complex is powered by an aquifer geothermal system. Heat exchangers for the system are located within small pools of flowing water on the public stairs, eliminating the need for unsightly cooling towers.



Figure 6





Improving Hazelwood

John Eastridge and David Waldron

Urban Laboratory

STUDIO B Housing

Kelly Hutzell, Professor

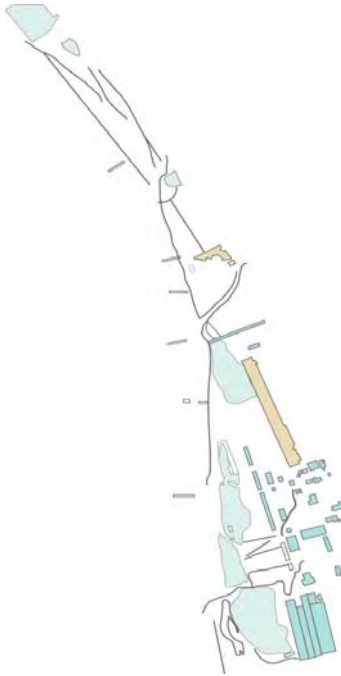


Figure 1



Figure 2

Figure 1 Site scar mapping

Figure 2 Phase 5 Framework plan

Figure 3 Framework drivers exploded axonometric

Figure 4 View of main corridor through Bldg. 19

proposed first phase program

proposed grid/corridors

site scars

site contours/natural corridors

surrounding context/
existing buildings

Figure 3

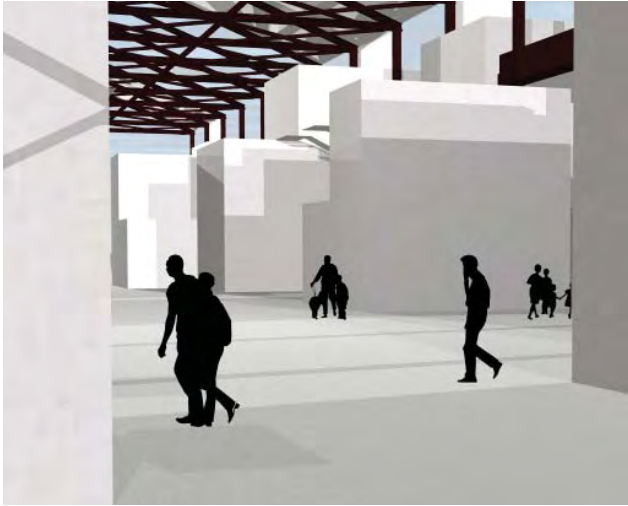


Figure 4



Figure 5



Figure 6



Figure 7

In meetings with the community of Hazelwood during the fall, the Urban Lab identified a number of issues which negatively affect the neighborhood. Central to these issues were two problems in particular: The area's lack of wealth and a deficiency of outside visitors.

It was decided that the first step in a plan to revive Hazelwood should be to provide a programmatic impetus for attracting these things. In this design that impetus takes the form of an institution of higher learning focusing on agricultural research.

It is important however, as Hazelwood becomes host to new people and new money, for it to maintain its history and its identity as an industrial epicenter in an industrial city. To that end, we have adapted as a design driver a strong desire to preserve in some form the many physical remnants of the former Jones & Laughlin / LTV Steel plant that occupied the site from the 1870s into the 1990s.

“...avoid a ‘raze and rebuild’ attitude, rather seek to adapt and improve.”



Figure 8

Rather than raze or fill over these many “site scars,” our scheme seeks wherever possible to adapt and improve them and integrate them into the fabric of the community.

Development will occur in five phases. The first phase involves the complete installation of university-

related program, which will be concentrated in two locations: In the existing mill building on the site (“Building 19”) and in the faltering commercial district along 2nd Avenue south of Hazelwood Ave. Classrooms, equipment storage, and housing for students and faculty will be located in

the mill, near to farming zones. Auxiliary program elements such as administrative offices, bookstores, and eateries will repopulate vacant lots and buildings on 2nd Ave.

Additionally during Phase 1, the site will undergo soil remediation by plant cultivation. The density and type of vegetation will outline



Figure 9



Figure 10



Figure 11

and fill as a placeholder the urban grid foreseen in Phase 5, taking shape as a network of paths. New construction will expand to fill this green grid on a north-south axis, growing between 2nd Ave and Building 19.

Asked to develop an aspect or area of our area frameworks

in greater detail, we elected to examine a large region in the middle third of the site (Fig. 8). This area of focus includes Building 19, farmland, open and forested recreation space, and the northern edge of the urban blocks that will ultimately occupy the southern end of the site. Our motivation in this

Figure 8 Area of focus site plan

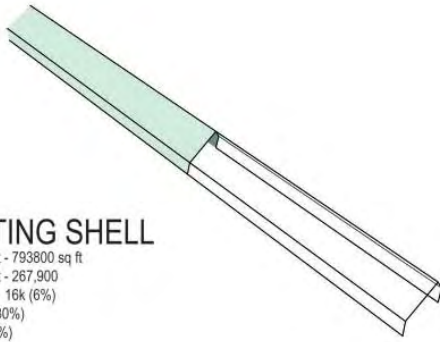
Figure 9 Section

Figure 10 Section

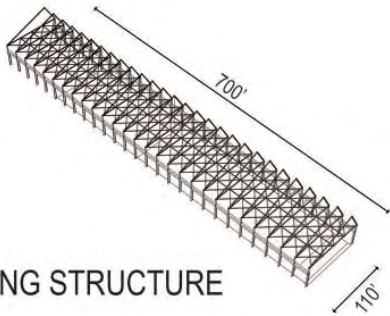
Figure 11 Section

EXISTING SHELL

max build out - 793800 sq ft
total build out - 267,900
commercial - 16k (6%)
studio- 80k (30%)
1br - 60k (22%)
2br - 40k (15%)
parking - 40k (15%)
storage - 4k (1.5%)

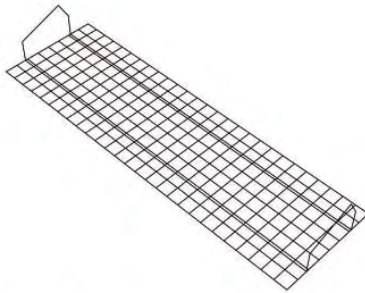


EXISTING STRUCTURE



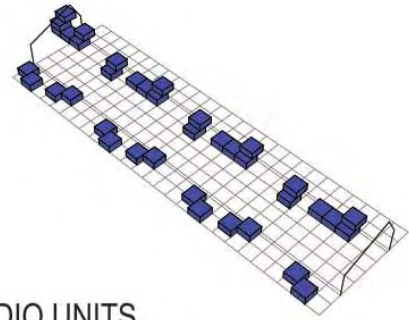
STRUCTURAL GRID

25' X 25'



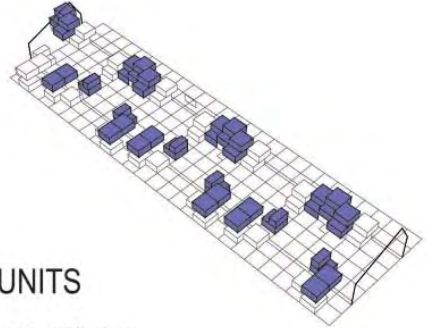
38 STUDIO UNITS

625 sq ft units
students, staff, faculty
singles



23 1BR UNITS

1250 sq ft
researchers, faculty, staff, other
couples, singles



11 2BR UNITS

1875 sq ft
researchers, faculty, staff, other
families

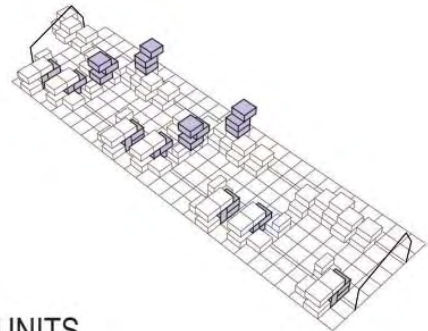


Figure 12

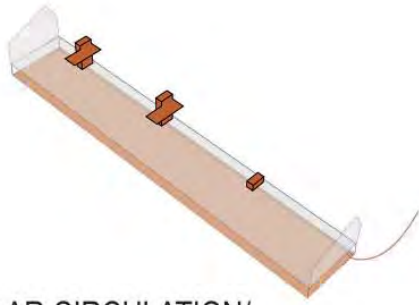
Figure 12 Diagram of Bldg. 19 housing

Figure 13 Aerial view of site with vignettes

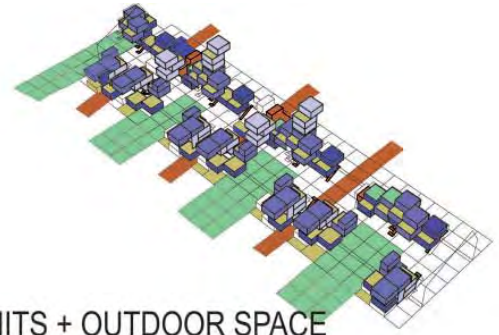
selection was twofold: First, it provided the opportunity to focus on the relationships between the most important aspects of the program and second, it allowed our design to emphasize the ideas about adaptive reuse of site scars by turning Building 19 into a centerpiece for the site.

In our work on Building 19, we focused on housing. The scheme we developed involves modular stackable housing units of three sizes.

The width of the units is dictated by the structural bays of the building, such that they are free to punch through the walls

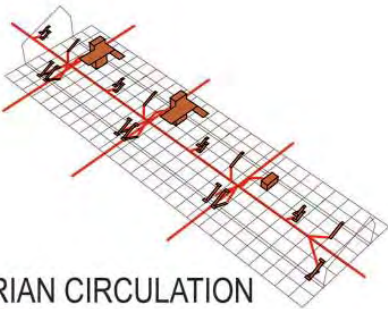


VEHICULAR CIRCULATION/
PARKING



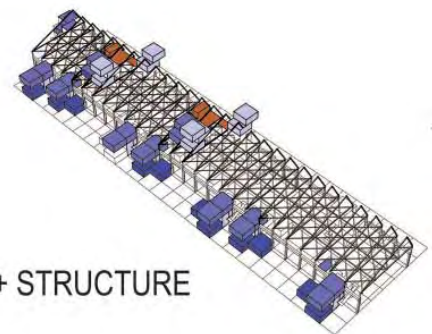
UNITS + OUTDOOR SPACE

circulation area
private outdoor
public outdoor

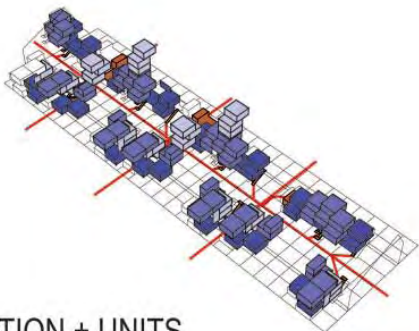


PEDESTRIAN CIRCULATION

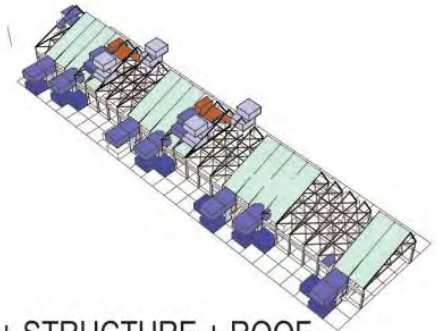
vertical circulation
ground circulation



UNITS + STRUCTURE



CIRCULATION + UNITS



UNITS + STRUCTURE + ROOF

“We emphasize ideas about adaptive reuse by making Building 19 a centerpiece.”

to the exterior. At about 24', they also fit into most vacant lots in Hazelwood's residential areas and could be erected individually in that use.

In Building 19 units are arranged in a configuration which clusters small groups of homes around larger community public spaces

and provides each individual home with a private outdoor space. The community clusters are connected to one another and the larger site by the extension of the path network into the building and among them.



The waterfront area will be landscaped and feature staircases that lead to river-level docks for boating.



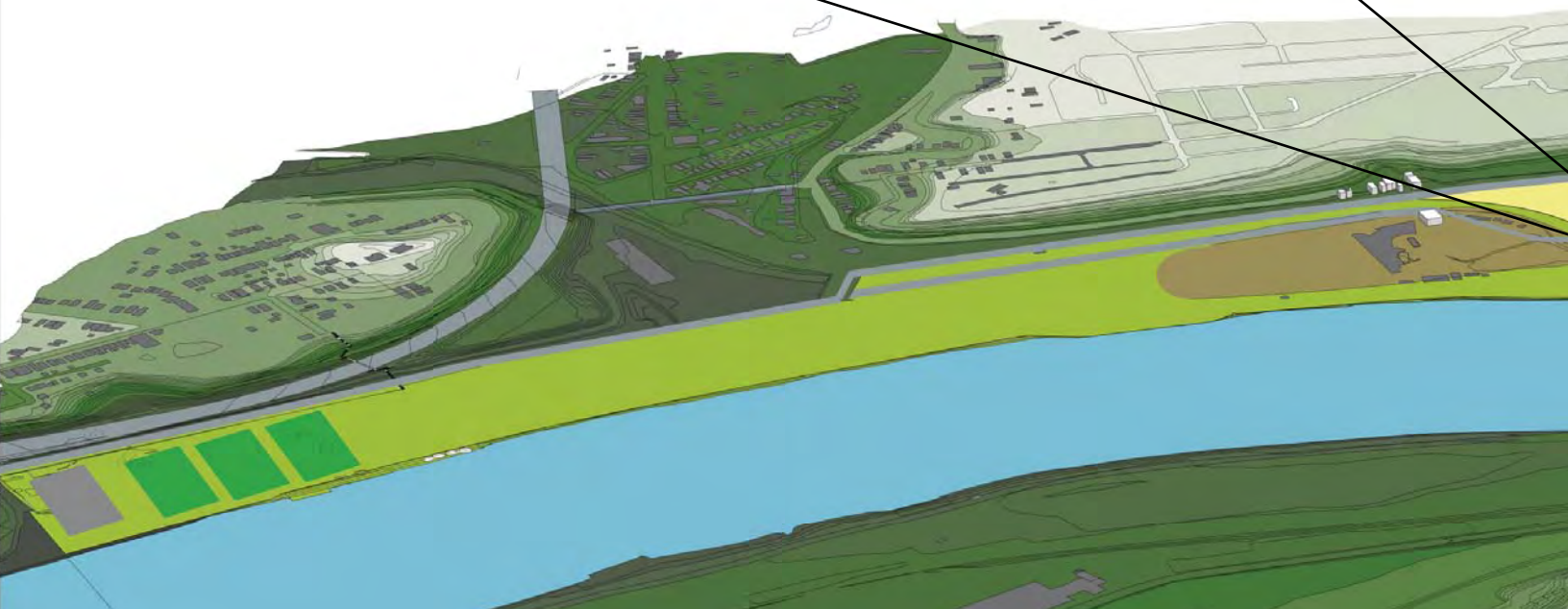
Building 19's structural frame acts as the design generator for a modular housing complex.



A large open site is occupied by free-growth vegetation which extends from Building 19.



The Eliza Furnace Bike Trail is extended into the LTV Site, occupying the old railroad bridge and connecting it to points south.





area of the
occupied by a
ecosystem
ends through
9.



To articulate site history,
building footprints are converted
to community garden
space and other outdoor
recreation space.



In later phases, the modular
housing units designed for
Building 19 will be inserted
into vacant lots around Hazel-
wood.

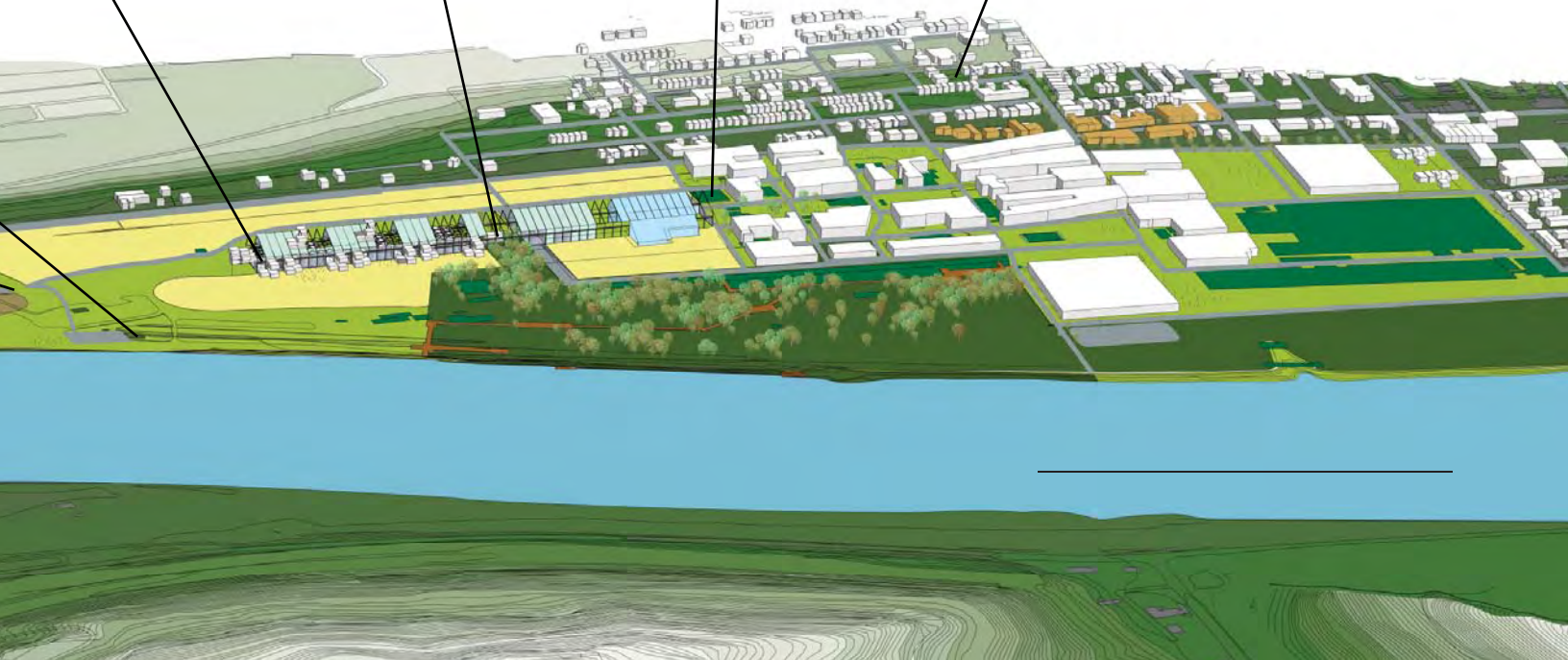


Figure 13



Hazelwood Environmental Center

Hannah Levine and Patrick Russell

Urban Laboratory

STUDIO B Housing

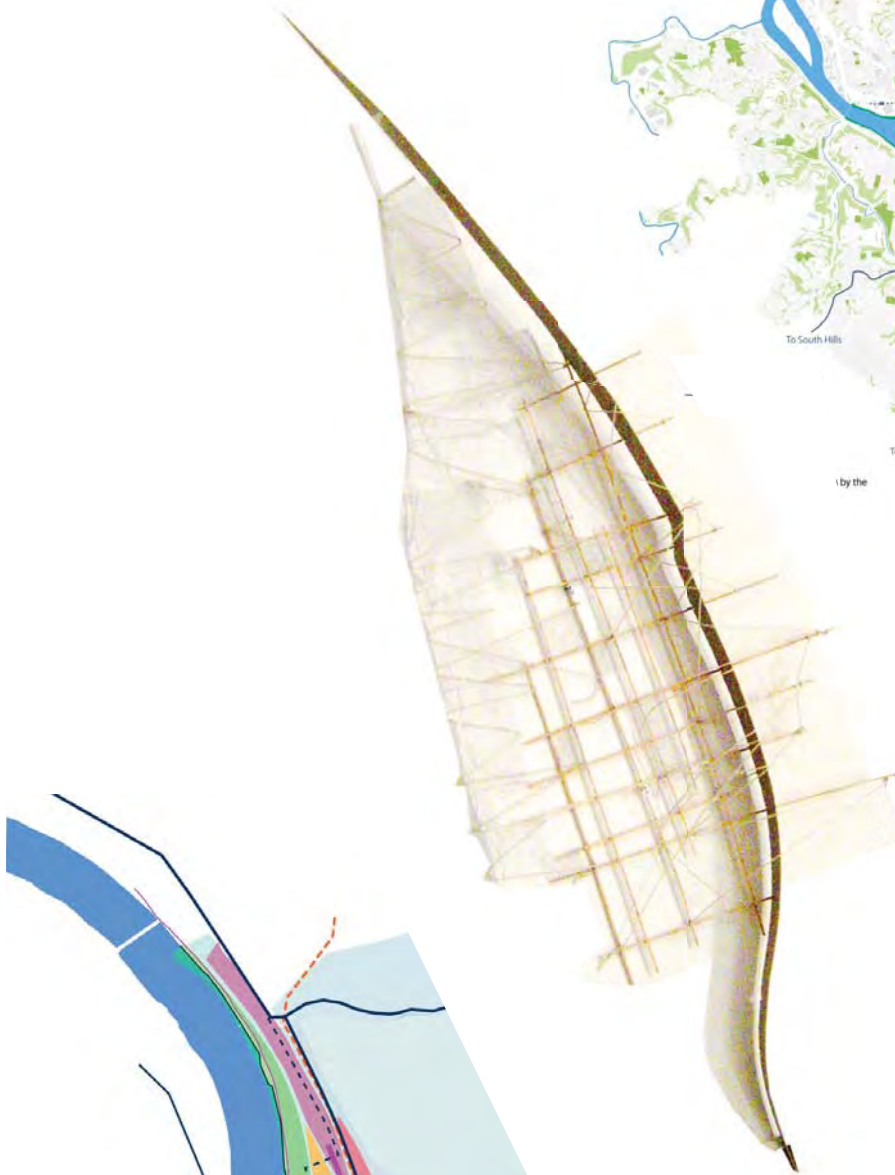
Kelly Hutzell, Professor

Analysis and Approach



The community of Hazelwood is located next to the Monongahela River and the former LTV Steel Site. The population has decreased over the years, leaving empty homes and a scattered community. Today, there is nothing in Hazelwood that would attract anyone outside to come and visit. Further there is little reason for the current residents to stay, as all of the neighborhood schools have closed, and basic amenities are not available. A branch of the Carnegie Library and several churches are some of the few places supporting the community. For many years, the neighborhood has been threatened with the construction of the Mon-Fayette Expressway, which would go directly through the neighborhood. Still, there are committed residents throughout the neighborhood who are looking towards the LTV Site as a means of regeneration.





Conceptual model



Parti Diagram

We viewed the site as it is represented in this model, defined by three zones aligned along the North-South axis. The zones are the Second Avenue Business District, which is the main axis of the site; Housing, located on a grid of streets; and the Riverfront with a strong emphasis on green space.

We integrated these zones, pushing and pulling them in the East-West direction. The community members expressed a desire to be connected to the river and we promoted this asset by bringing green space into the community.

Hazelwood Framework

Wetlands

The wetlands provide a **habitat for local wildlife** as well as hands on research for the environmental center. It also addresses issues of **stormwater** runoff from the hillside. **Grey water** recovered from the houses on site as well as from the combined storm/waste sewers will be treated in the center and released into the wetland for further purification before it enters the river.

Light Rail

The new light rail system will use the old train tracks to connect Hazelwood to Downtown and Oakland. The route follows the suggestion of the Eastern Corridor Transit Study.

Environmental Center

In conjunction with the University of Pittsburgh Environmental Studies Program and the Penn State Cooperative Wetlands Center. The Program would include 15 faculty, 30 researchers, and 240 students (190 undergraduate – 40 master – 10 doctoral), a great increase from the current faculty of 6 .

Focus of the Center:
Human Interaction with the Environment

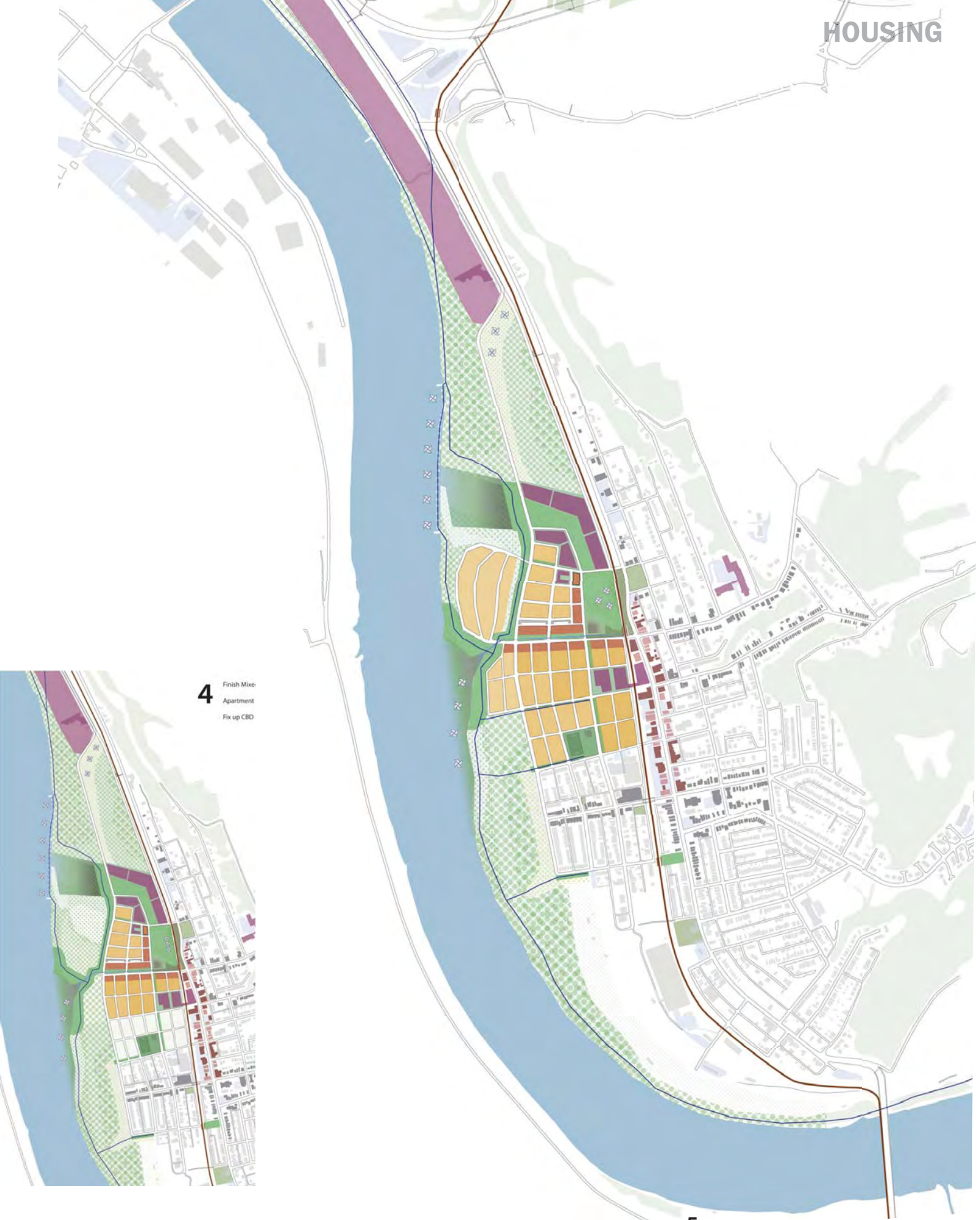
Habitat Restoration
Urbanism and the Environment
Housing impacts on the Environment

Policy and the Environment

Wind Farms

The main wind turbines will be installed on the remains of the piers from the steel mills on the riverfront. The turbines are able to generate power year round and will provide power for the environmental center and the immediate development. They represent a shift in technology as Pittsburgh sheds its gritty city image and evolves into the green city.





4 Finish Mixe
Apartment
Fix up CBD

5 Completed Urban Framework

Area of Focus: Central Park, Commercial, Housing



Density Figure Grounds

Features in the Area of Focus

Environmental Center

Jobs, Activity, Walking Paths

Light Rail

Fast Connections to Downtown, Oakland, Homewood

Wind Farm

Power for the Community, Reminder of Industrial Past and Green Future

Wetlands

Water Remediation, Nature Revitalization, Flood Control

Central Park

Gathering Place for Community, Theater, Sports Field, Public Art

Stream

Expose Water from Under the Site, Create Destination

Bike Trail

Recreation, Connections to City

Single/Double Unit Housing

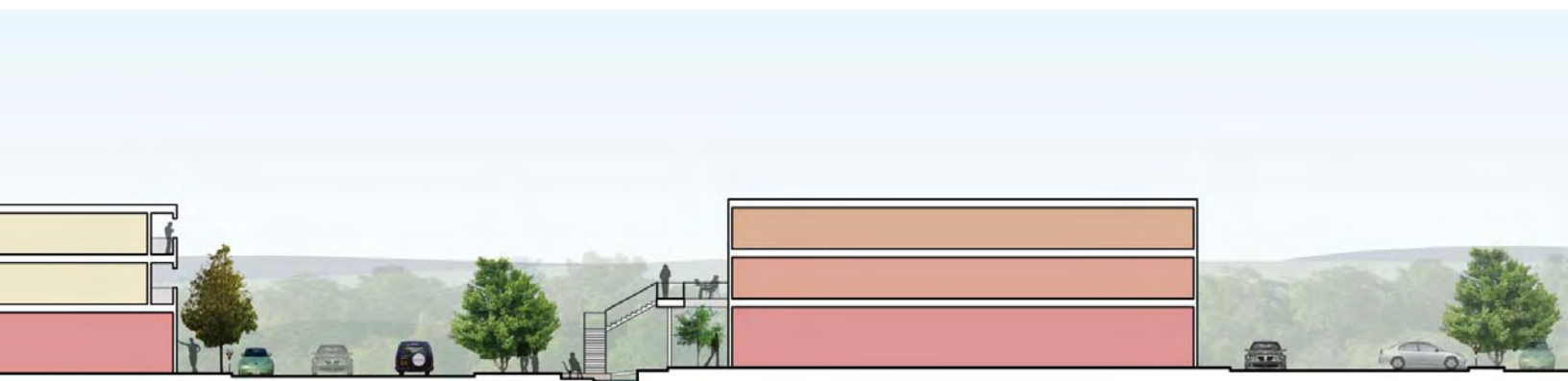
Couples/Families, Family and Grandparents, Family and Renter, Family and Home Office

Apartments

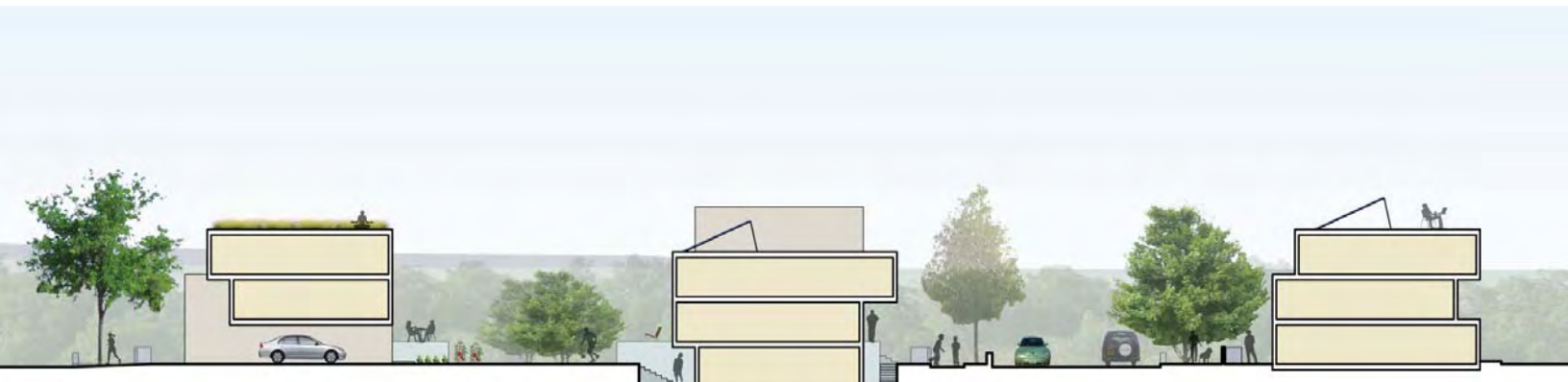
Students, Young Professionals, Couples, Seniors

Mixed Use

Create Lively Street, Bring People into the Site towards the River, Retail and Commercial or Retail and Housing



N-S Area of Focus Section

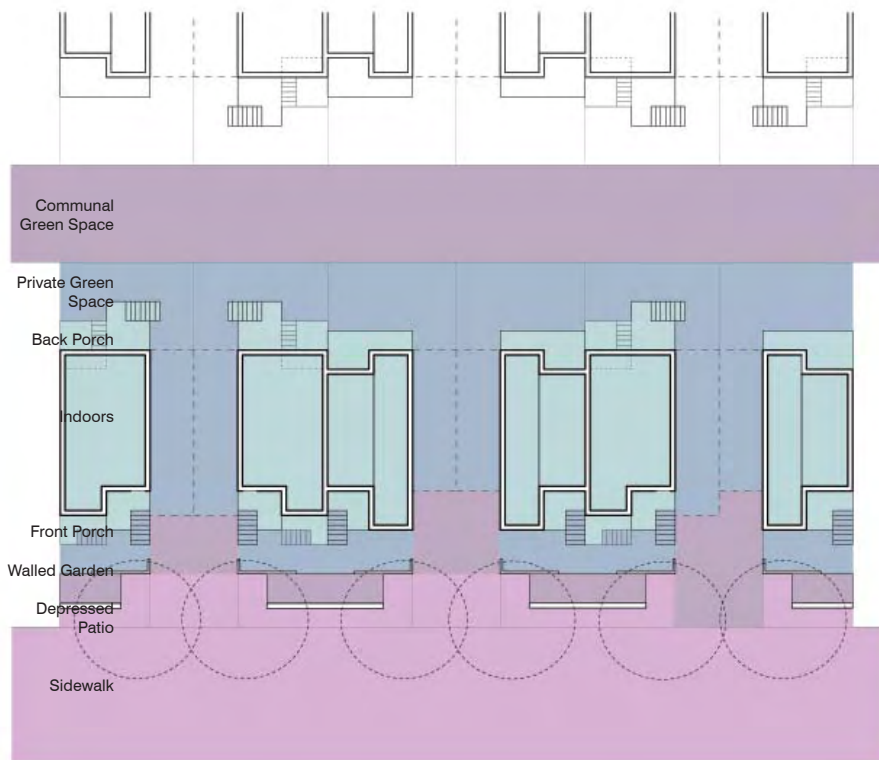


Social and Environmental Housing

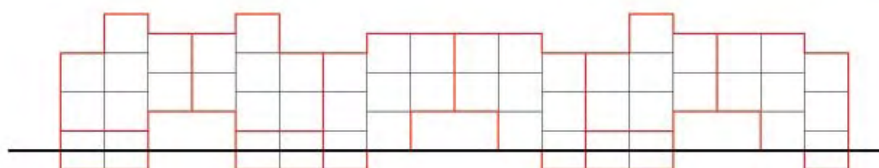
Within the area of focus, housing is considered both environmentally and socially. Socially, we used the front stoop, a strong urban place of interaction in Pittsburgh, as a precedent. We reinterpreted this zone to mix in different levels of public and private space that simultaneously meets the needs of the homeowner and promotes interaction between residents.

Environmentally, we linked the housing with the proposed Environmental Center to study how the housing could have a minimal effect on the environment. To achieve this, we placed solar

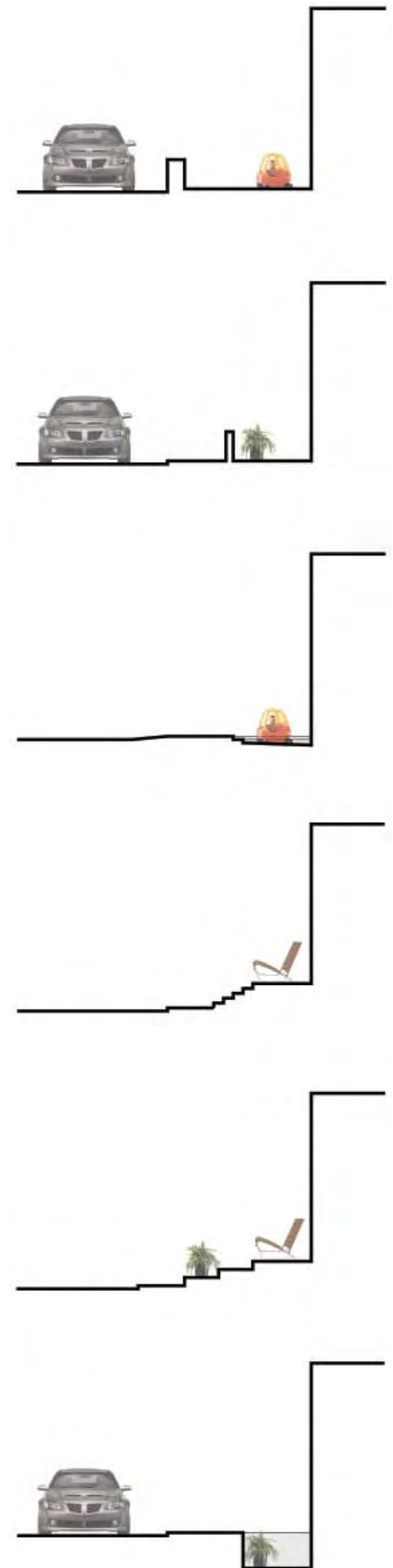
panels on each house and provided roof level outdoor space and green roofs. Each house is linked into a greywater and rainwater recycling system that would use the Environmental Center and the wetlands to filter water on the site. Wind farms are placed on site to generate power to offset the power used to run the Environmental Center. Lastly building materials for the housing would all be found locally and be made from a high percentage of recycled material.



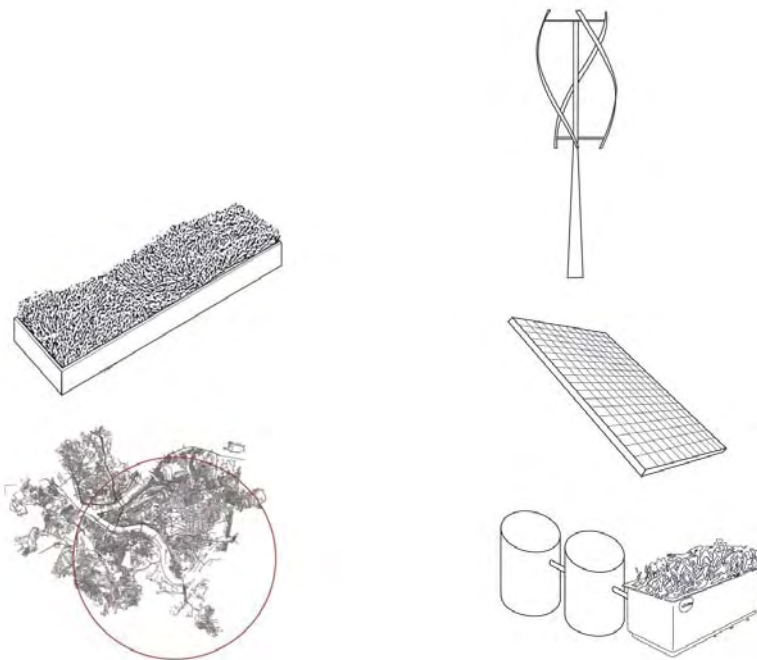
Housing Plan



Housing Elevation

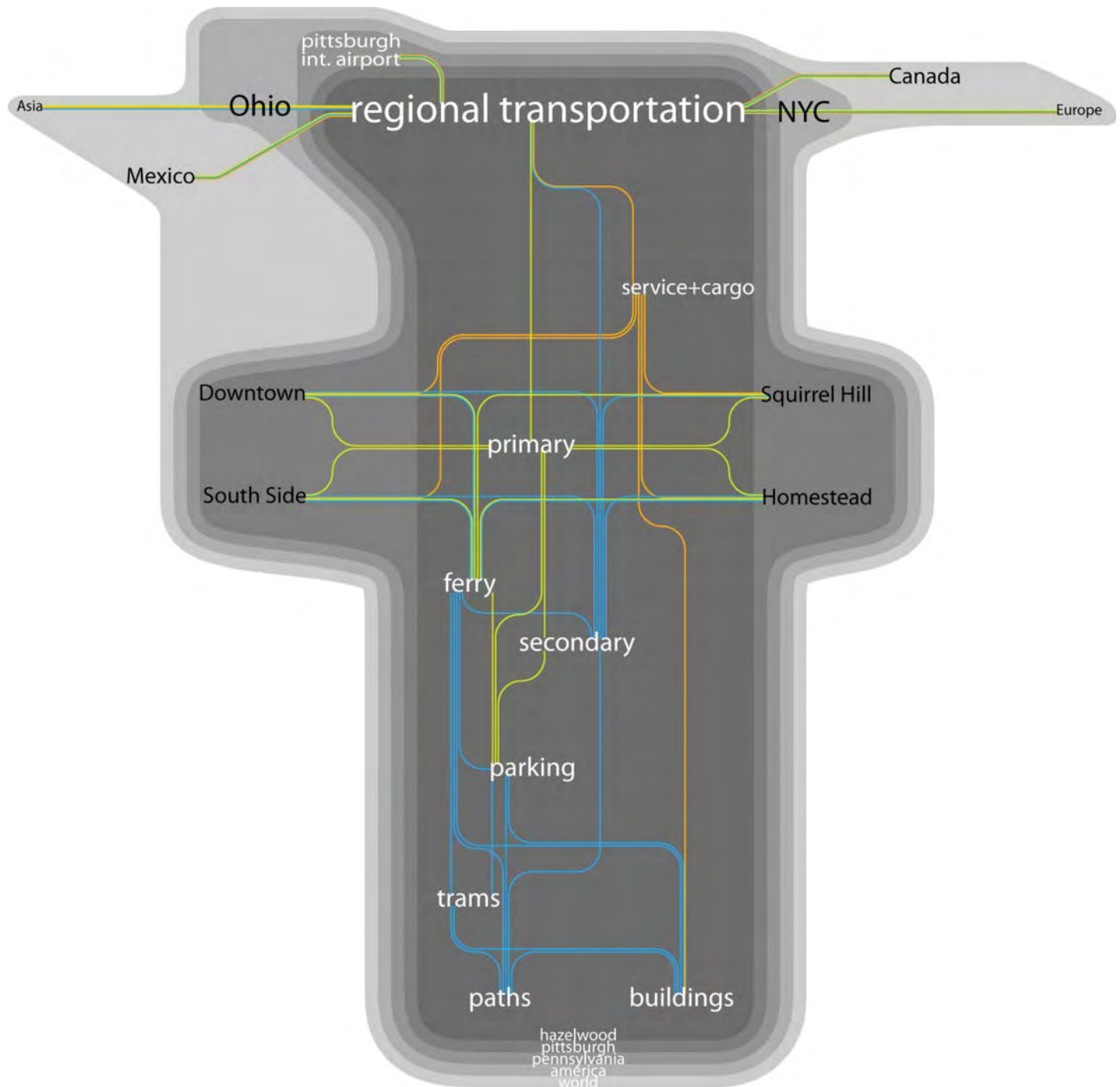


Social Building Blocks



Environmental Building Blocks

PUBLIC SPACE



Local Mobility, Global Connectivity

Natale Cozzolongo and David Eskenazi

Urban Laboratory

STUDIO C Possible Publics

Rami el Samahy, Professor

2 years



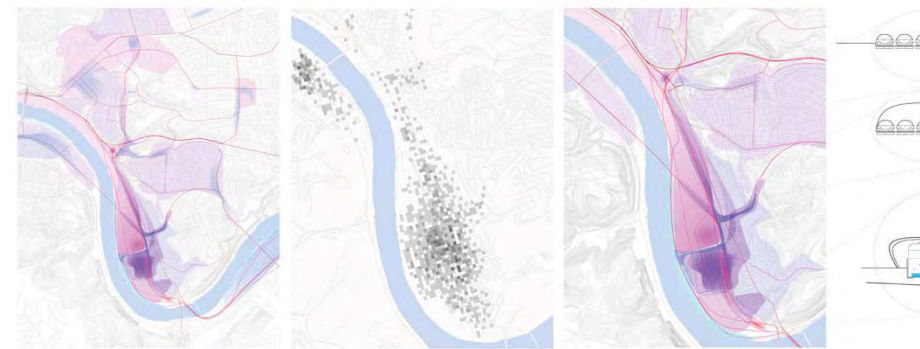
7 years



13 years



45 years



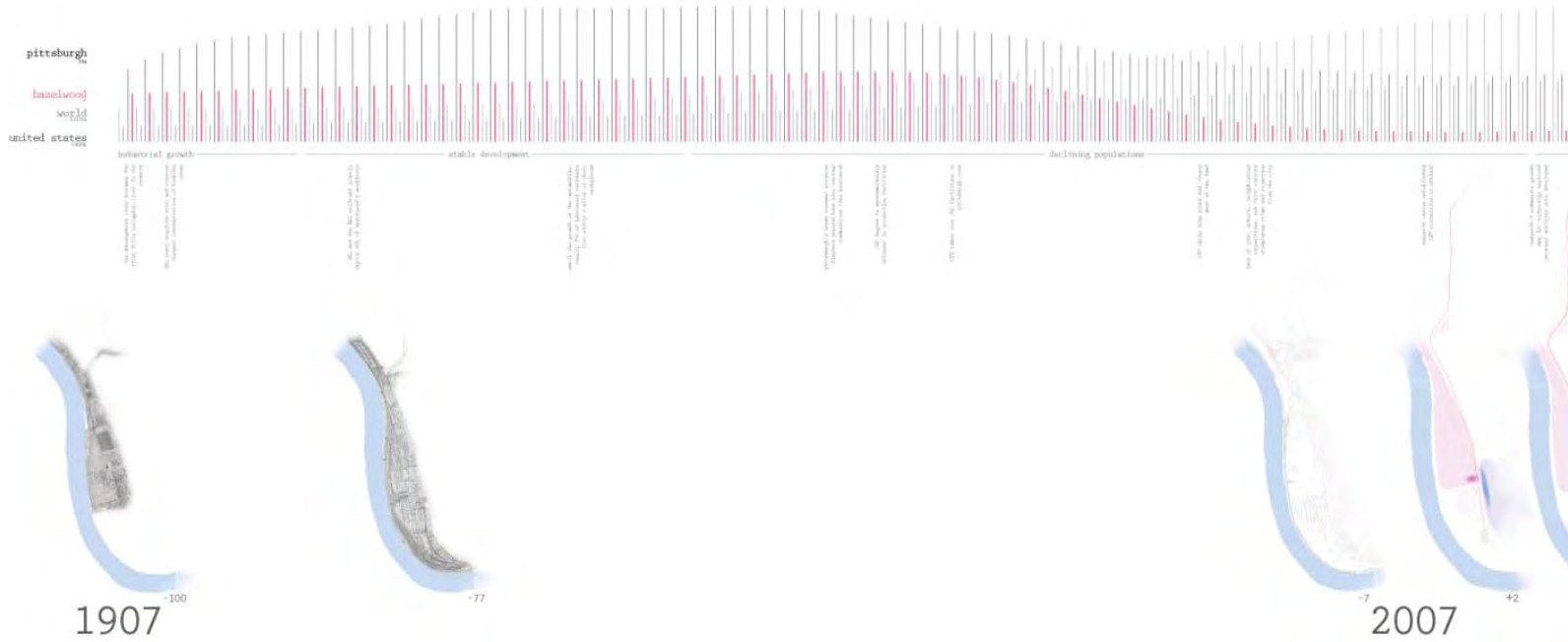
100 years



Pittsburgh research institutions, such as Carnegie Mellon University and the University of Pittsburgh, want to expand their campuses onto the site due to its proximity and tabula rasa condition. At this point, further exploration of autonomous transportation could develop, including sustainable transportation

The Urban Laboratory: 65
COMMUNITY & URBAN DESIGN STUDIO (Fall 2007)

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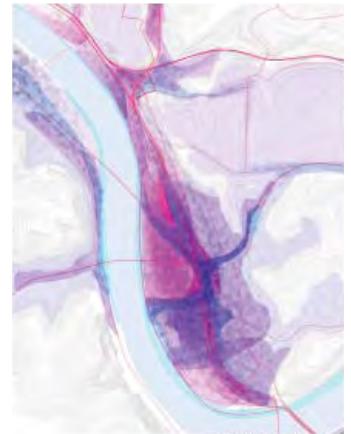
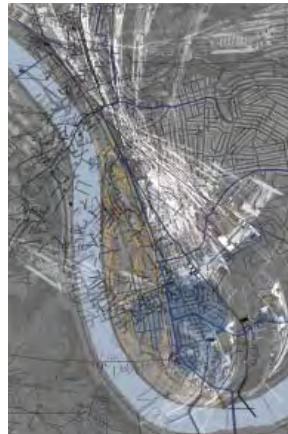
above timeline exploring population and zoning changes over a two hundred year period

right progression of conceptual frameworks, exploring historical overlaps and transportation connections

below frameworks model displaying proposed transportation infrastructures

opposite, vertical precedent ideas exploring technologies and transport-oriented cities

opposite, diagrams diagrams explore the centrality of the site, as well as its scale compared to other urban spaces

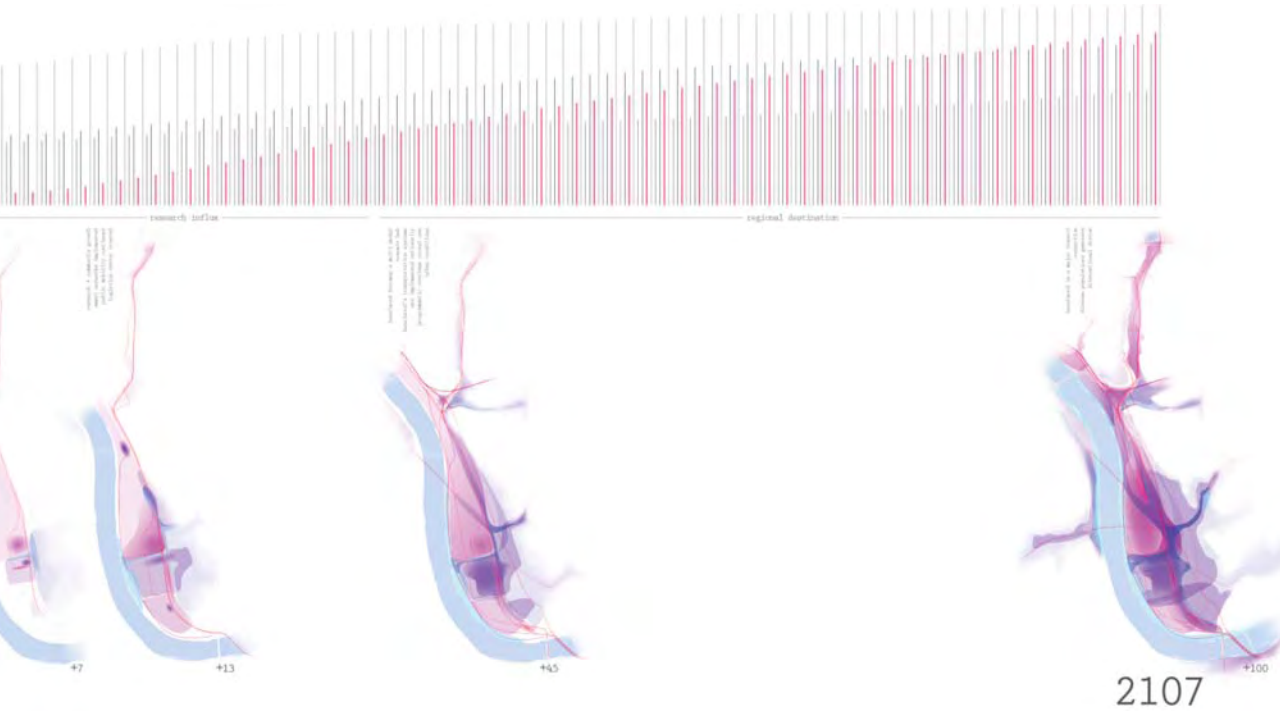


100 year framework 1:1000

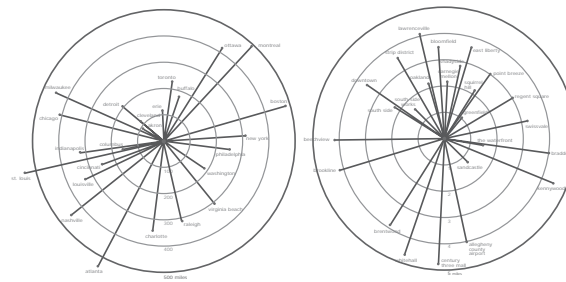
systems. As a result of possible transportation research and the centrality of the site on a local and national scale, there exists a potential to develop a multi-modal transit oriented development that is initiated through research and sustained by future logistic operations.

Development will occur over an extended period of time based on the implementation of research developed on the site. Within two

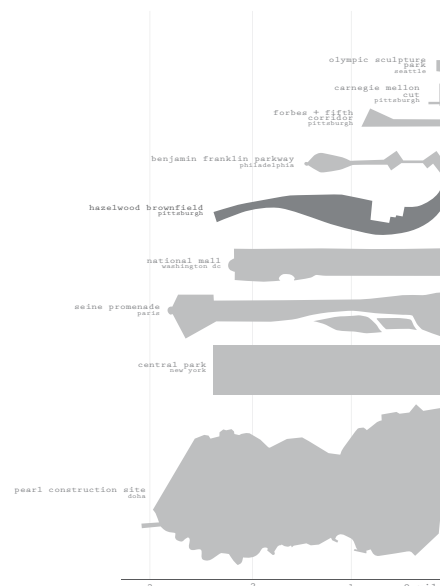




**pittsburgh is
within 500 miles
of more than half
the US population**



years, a new research institution will be positioned centrally within Hazelwood, linked to Oakland institutions by reusing existing freight rails as a public rail system. After seven years, this institution will expand into a small campus with housing for researchers and students. This will necessitate commercial activity within the community. As transportation systems are researched, community members will be involved in implement



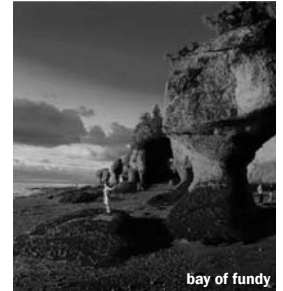
stackable car



maglev trains



amusement parks



bay of fundy

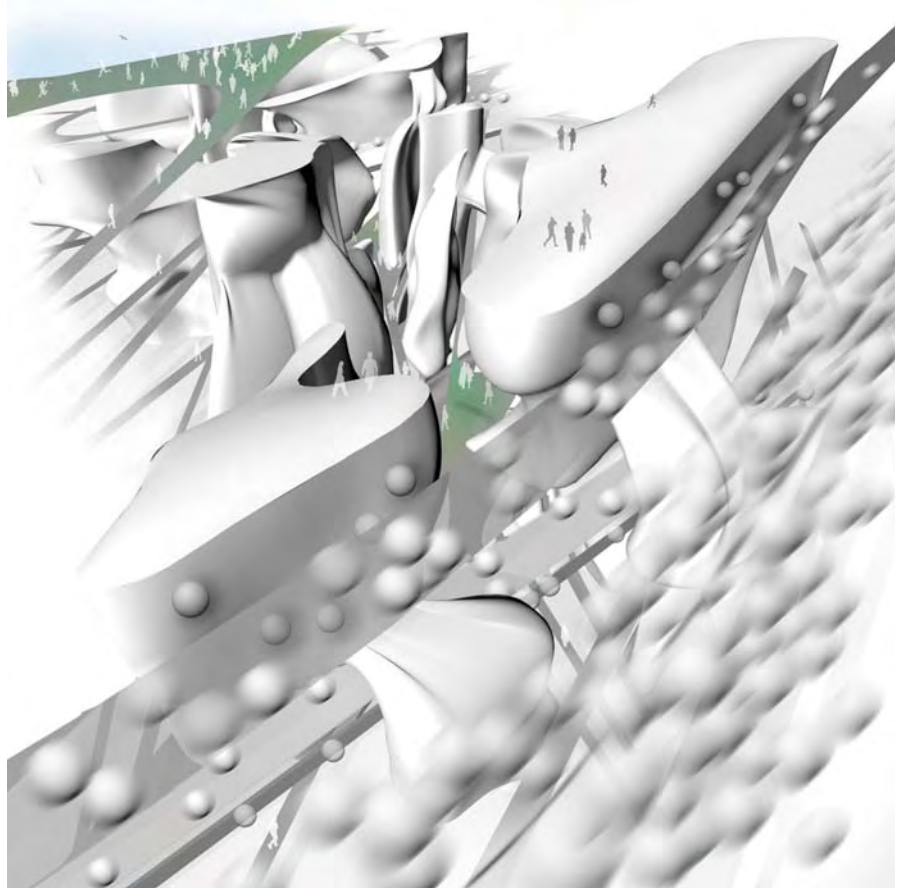
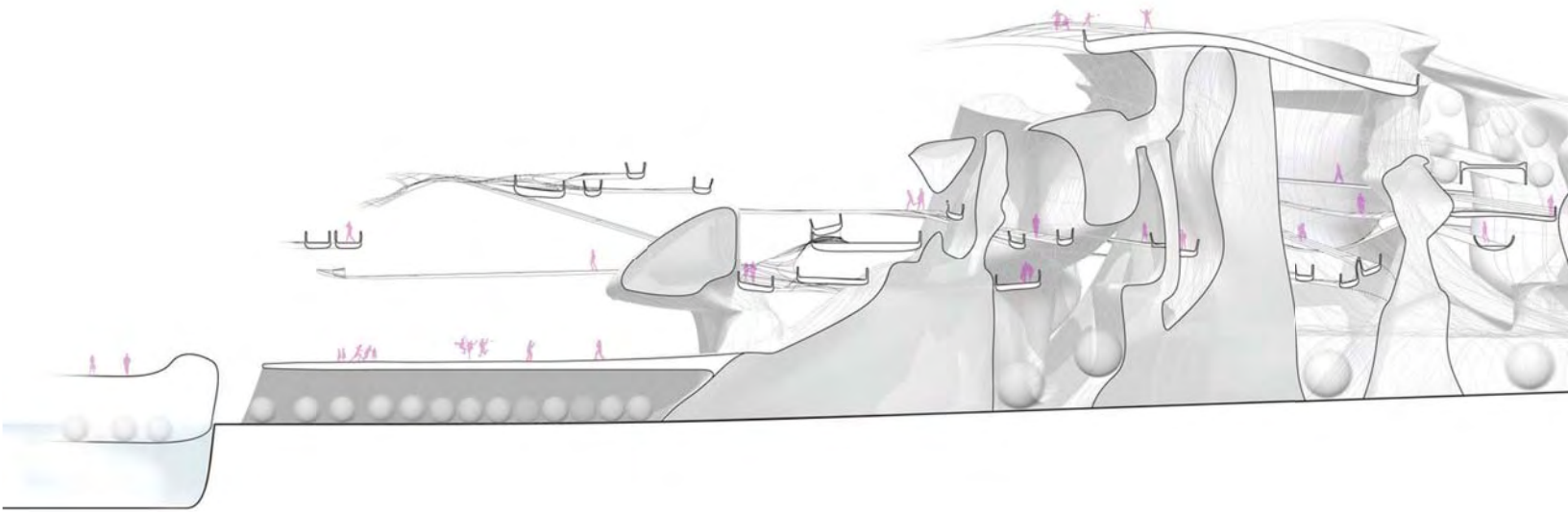


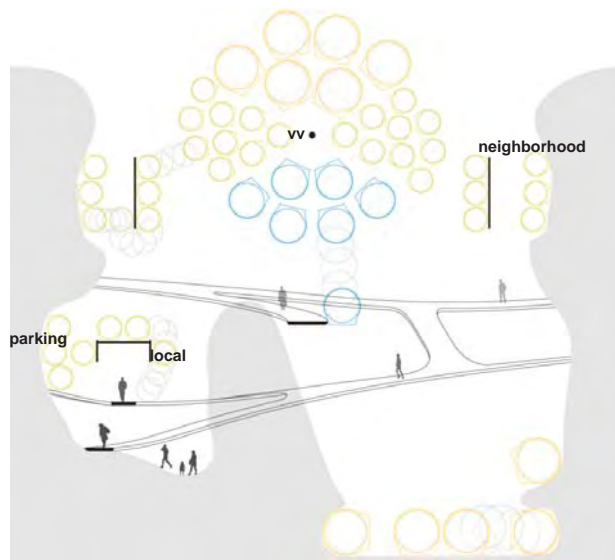
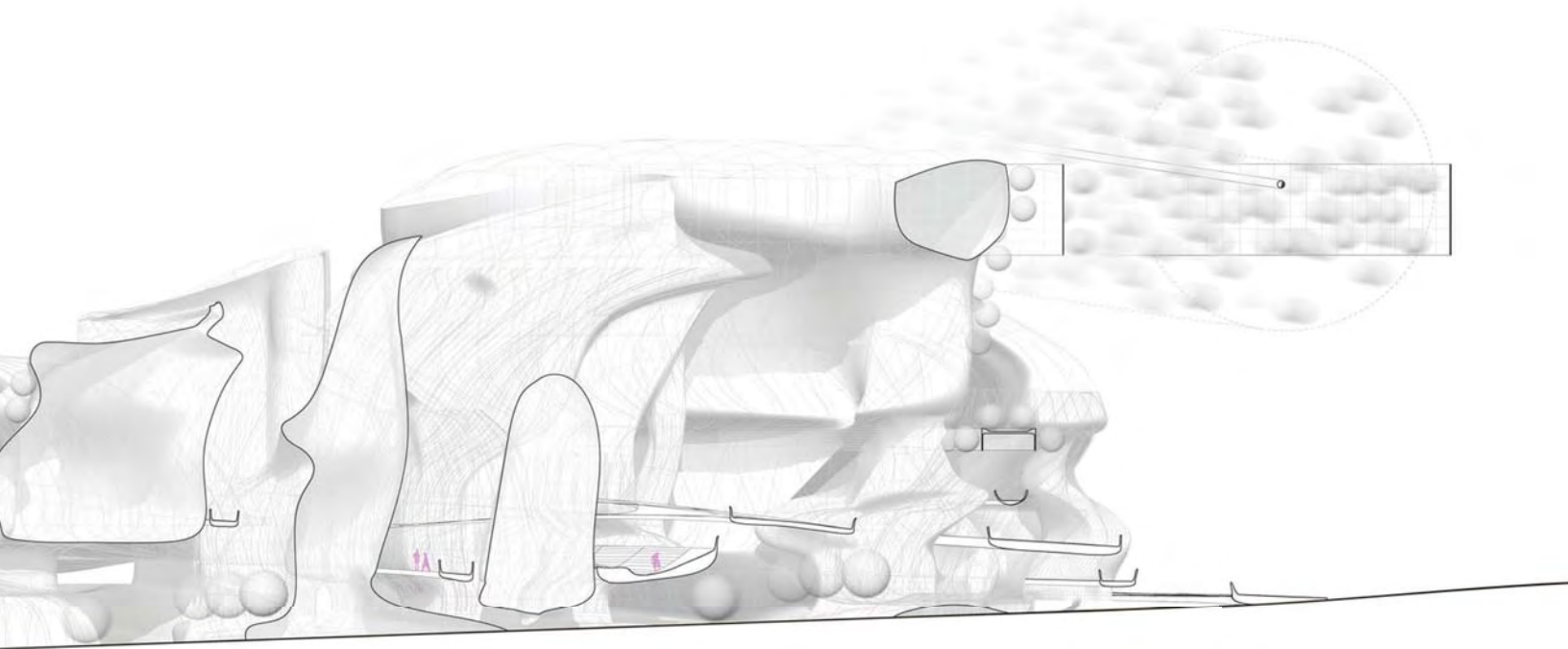
petra, jordan



blade runner



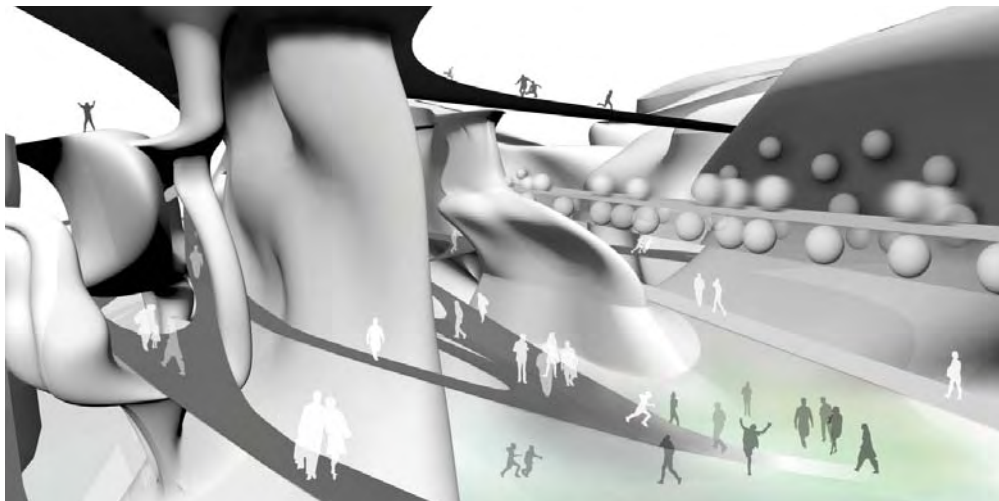


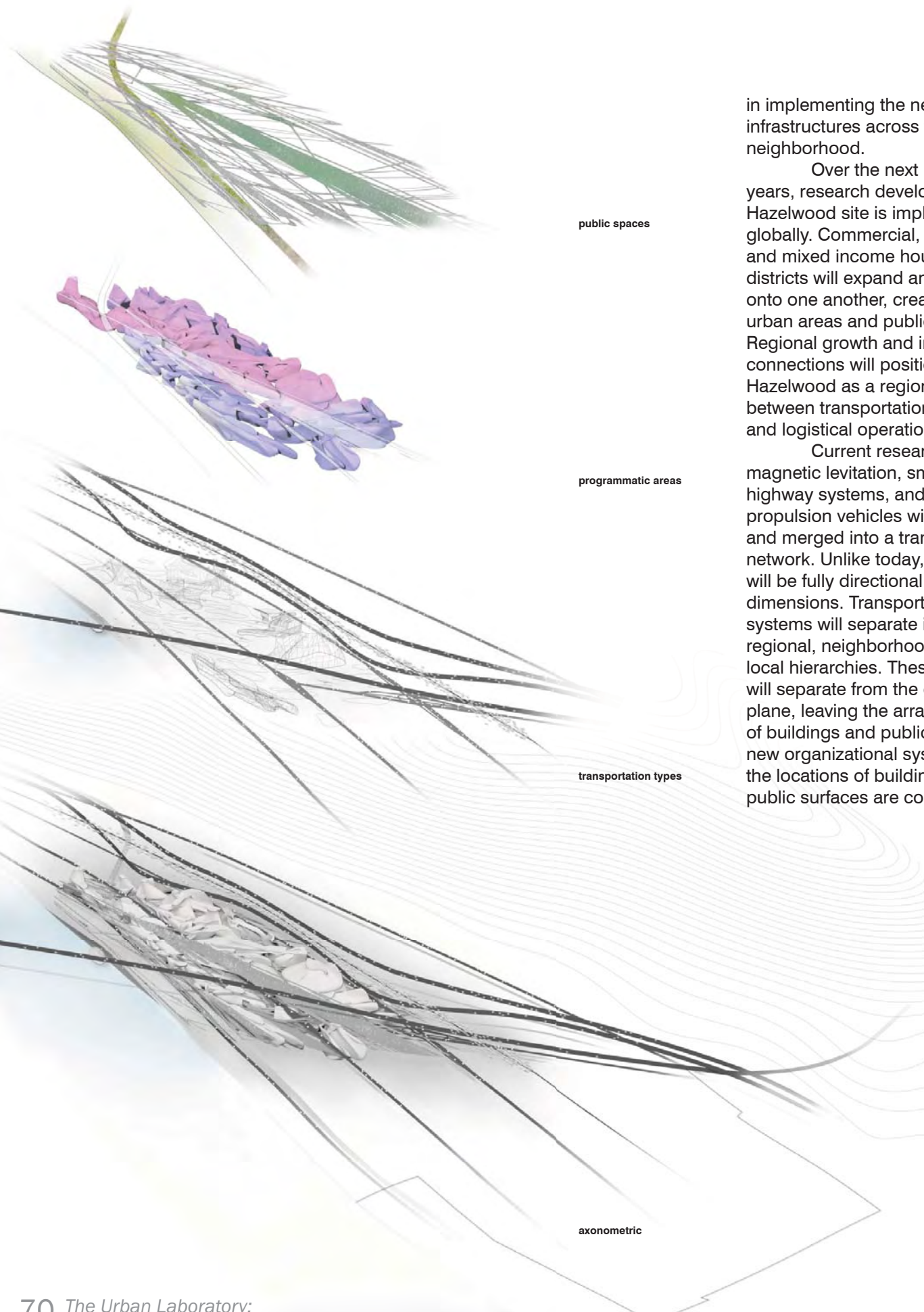


above section of proposed urban development

left diagrammatic section of transportation types and connections to public spaces and buildings

below and opposite renderings and model shots describing various urban conditions occurring between transportation types and public spaces

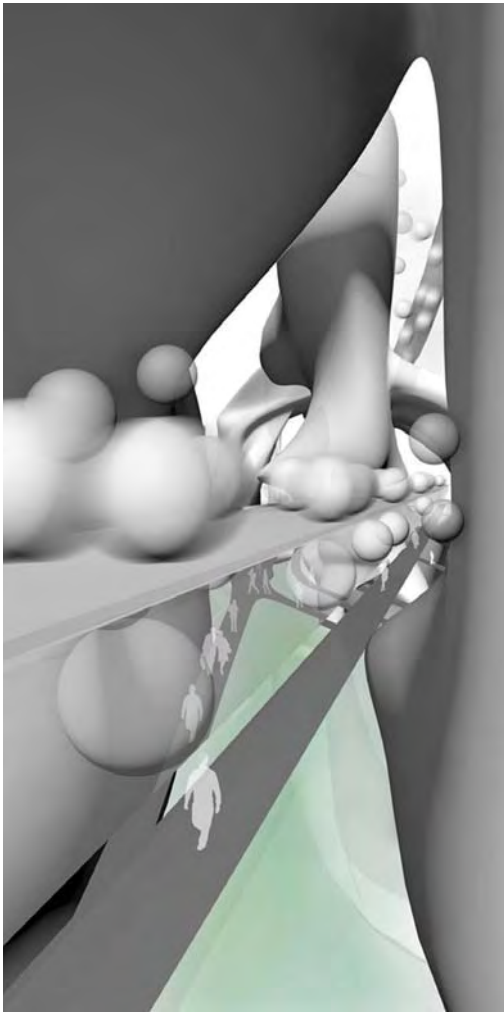




in implementing the new infrastructures across the site and neighborhood.

Over the next hundred years, research developed on the Hazelwood site is implemented globally. Commercial, research, and mixed income housing districts will expand and overlap onto one another, creating various urban areas and public spaces. Regional growth and infrastructural connections will position Hazelwood as a regional hub between transportation systems and logistical operations.

Current research into magnetic levitation, smart highway systems, and sustainable propulsion vehicles will be furthered and merged into a transportation network. Unlike today, vehicles will be fully directional in three dimensions. Transportation systems will separate into regional, neighborhood, and local hierarchies. These systems will separate from the ground plane, leaving the arrangement of buildings and public space to new organizational systems. While the locations of buildings and public surfaces are constant, their



left and below renderings describing various spatial and infrastructural connections

right site plan explaining connections to surrounding neighborhoods and research institutions

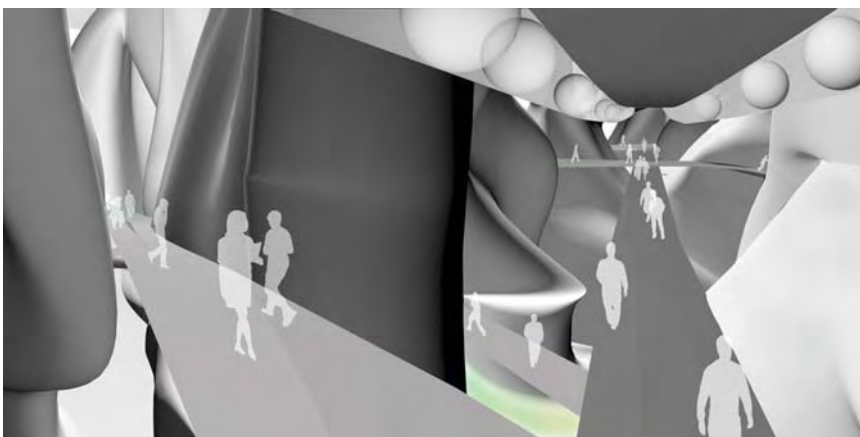
opposite exploded axonometric of urban layers

physical characteristics are reactive to programmatic, social, and economic parameters. For example, a building's biological growth and decay would be dependent on the fluctuations of office, parking, and transportation needs.

Public areas are formed at the intersection of exterior surfaces. The relationship of these nodes to the interior of surrounding buildings fluctuates with various public needs. Public spaces are activated by the visual excitement of the nearby transportation systems.



local mobility, global connectivity





Five Season City

Gabriel Cuellar and Jared Langevin

Urban Laboratory

STUDIO C Possible Publics

Rami el Samahy, Professor

Figure 1

Figure 1
Framework

Figures 2 - 5
Phasing over 2, 7, 13, and 22 years



Figure 2



Figure 3



Figure 4



Figure 5

Infrastructure is a critical element to cities. Both hard and soft infrastructures make up a city's armature. Hard structures include roads, bridges, and sidewalks -- they are the solid, figure of a typical map. Soft structure consists of everything besides the massing and concrete, the "ground" of a typical map. This ground however, is never a void, it is actually full of movement and energy. That movement is part of a rhythm of urban public space, based in day-night and seasonal shifts and social patterns.

A fundamental part of Hazelwood's soft structure is the streetlight. The photograph shown in Figure 13, shot from across the river on the hill, illustrates the existing streetlight distribution. The ALMONO site and Hazelwood do not share any common soft structures and concentrations of strong lighting indicate locations of supernatural inhabitation -- the streetlight makes an urban rhythm that allows public inhabitation that is otherwise in the darkness.

This revitalization proposal relies on publics made possible by hybrid street lamps which emit light and heat. New community and commercial amenities are provided, while also attracting people from the region with a UPMC campus and river park. The framework defines numerous elements, both

hard and soft structures: Lamps, a commercial block, UPMC Sanitorium, forest (evergreen and deciduous), new streets, light rail network, and a trail network with existing greenways and the industrial heritage at the northern edge.

The focus area, a Commercial Block, is located at Irvine Street and Hazelwood Avenue. This block is defined by the urban air itself, taking advantage of the physiological effects of specific light frequencies and rhythmic shifts of outdoor light and temperature. The soft structure creates the possibility of a new urban space type that can revitalize Second Avenue with space conditioned for mood, wakefulness, warm winters, cold summers, sleepy days and wakeful nights.



Figure 6



Figure 7



Figure 8



Figure 9

Figure 6
View Along Walking Path

Figure 7
Diagram Showing Heat

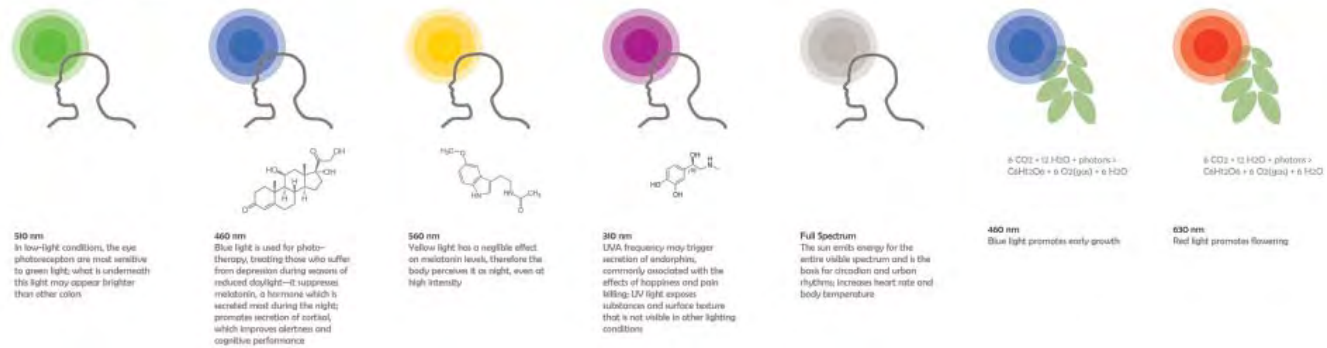
Figure 8
Diagram Showing Light

Figure 9
Diagram Showing Cooling

Across the Year: Light Frequency and Heating



Human and Plant Physiology



The lamps are reactive to diurnal and seasonal shifts. Each light color/frequency corresponds to a physiological or perceptual effect for the public space inhabitants and plants.

Figures 10, 11 Model showing area of focus



Figure 10

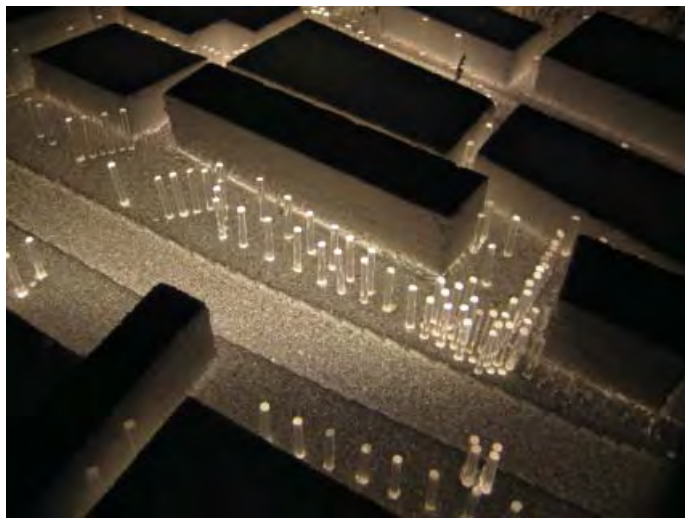
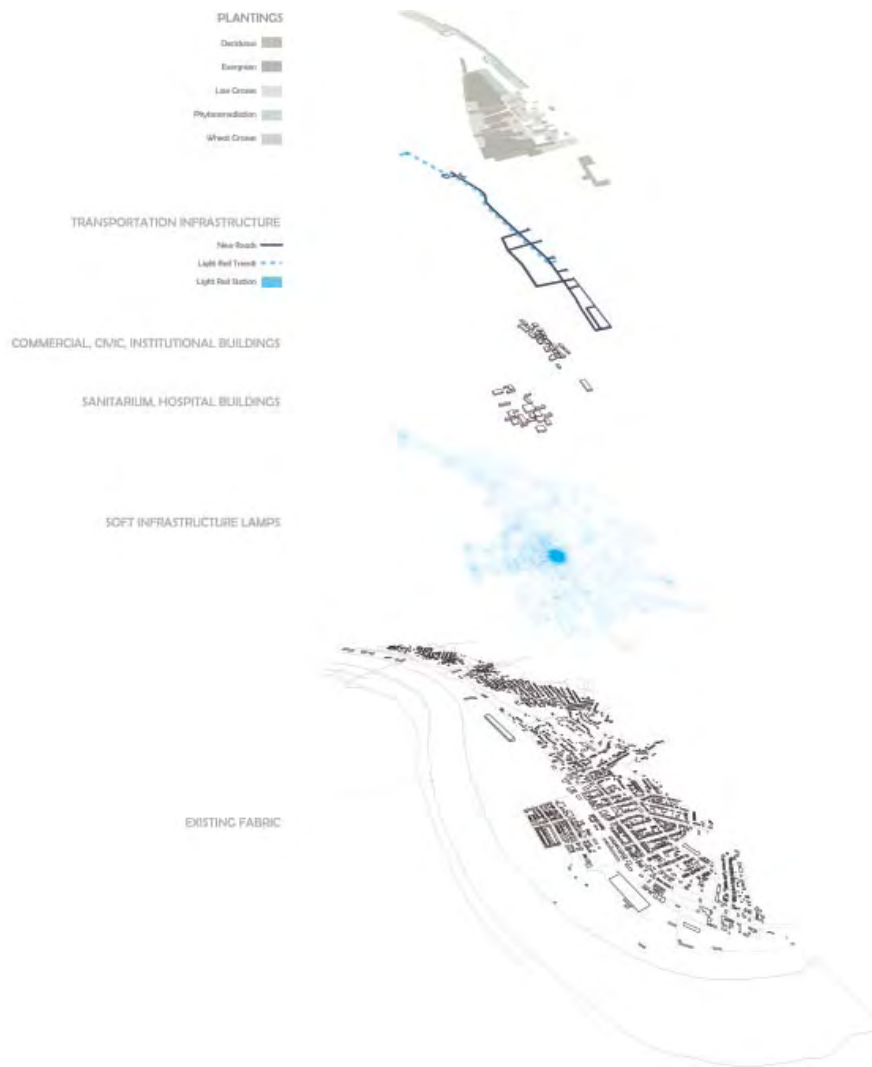


Figure 11



The framework consists of both hard and soft infrastructure.

“A rhythm of urban public space, based in day-night and seasonal shifts and social patterns.”

The project framework operates on the assumption that Second Avenue can be built off of and used as a strong connector to the site. In addition to the new commercial and institutional programs being added in the focus area, another main road has been proposed running parallel to Second Avenue. The traffic and activity that occurs between these two roads will serve to extend Second Avenue’s influence into the ALMONO site. The lamps move through and between the elements of hard infrastructure, connecting them through a vibrant and changing public realm.

Beginning in the Commercial Block, the lamps spread across the site and towards the river, forming paths, groups and general densities of arrangement as a way to draw people onto the site. As the lamps move away from the focus area, they begin to interact with other pieces of the framework, such as the sanatorium and forested areas beyond.

As the lamps encounter different parts of the framework, the nature of their influence changes. For example, in the forested areas, when the lamps are placed in a dense area of deciduous trees, their influence on temperature and light allows the trees directly surrounding them to have extended growth seasons. This, in turn, leads to patches of dense forest in seasons when plant growth should be spare or dying. In this case, therefore, the lamps impact ecological rhythms as well.

The lamps, through their vibrant and changing nature, will give their users a distinctive kind of public space. This public space, with its sense of rhythm and life, will be the catalyst for the revitalization of Hazelwood.

PUBLIC SPACE



Spring 6 A.M.



Summer 6 A.M.



Spring 12 Noon



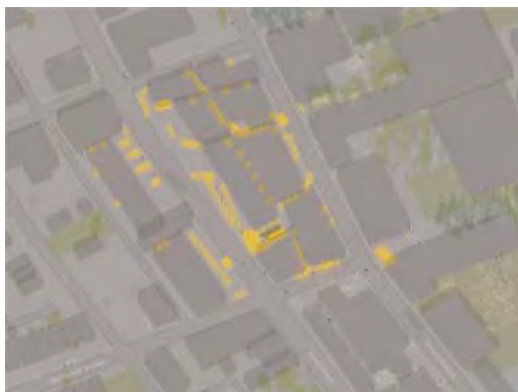
Summer 12 Noon



Spring 6 P.M.



Summer 6 P.M.



Spring 12 Midnight



Summer 12 Midnight



Autumn 6 A.M.



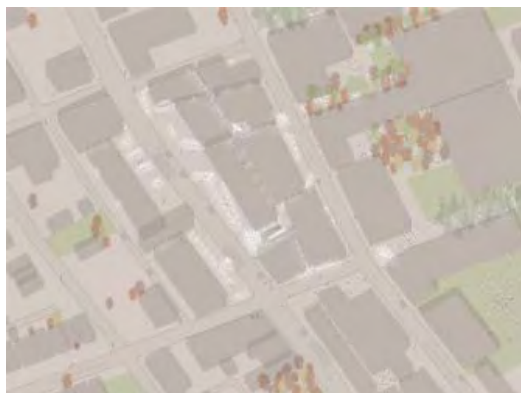
Winter 6 A.M.



Autumn 12 Noon



Winter 12 Noon



Autumn 6 P.M.



Winter 6 P.M.



Autumn 12 Midnight



Winter 12 Midnight



Hazelwood Market

Patrick Schnell

Urban Laboratory

STUDIO C Possible Publics

Rami el Samahy, Professor



Figure 1



Figure 2

Figure 1 Diagram showing new configuration of Second Avenue.

Figure 2 Framework drawing. Housing is in dark green, retail in red, and research in dark blue.

Figure 3 Plan view of final model.

Figure 4 Connections diagram.

Figure 5 Diagram showing possible market configurations.

Figure 6 Diagrams showing circulation through and around the plaza; both cars and light rail (dashed).

Figure 7 Diagram showing elements of leisure in the plaza, including places to sit, and the digital wall.

The framework for the project attempted to deal with various forces on the site, such as the poor economic quality of the existing Second Avenue and the way that it is currently used as more of a throughway rather than a commercial main street. We took into account the need for green space, as well as the need for a reinvigorated retail spine. We also recognized the existing presence of Robot City, a facility connected to Carnegie Mellon University which tests robot-controlled vehicles. We anticipated a great influx of new residents due to cheaper prices for housing and a new light rail connection to downtown.

All of these forces led to the most important feature of our project, the re-routing of Second Avenue on a large portion of the site. For much of the existing Second Avenue, the street is bounded by a hill on the east, and railroad tracks on the west. This was not the original route of Second Avenue; in fact it doglegs underneath the railroad tracks rather than continuing in a straight line.

Our proposal is to extend Second Avenue's northern path southward until it reaches what would be Hazelwood Avenue. At this point the existing Second Avenue and the old Second Avenue connect in a roundabout containing a central market. All of this would exist as a new shopping corridor to strengthen the existing "Main Street" feel of Second Avenue. Green corridors connect the community to the river, taking then through several zones of activity. Most of the housing will be added south of the Riverside neighborhood, although other housing will be included along the river and on the side of the hill. A new school would be built close to the center of Hazelwood.



Figure 3

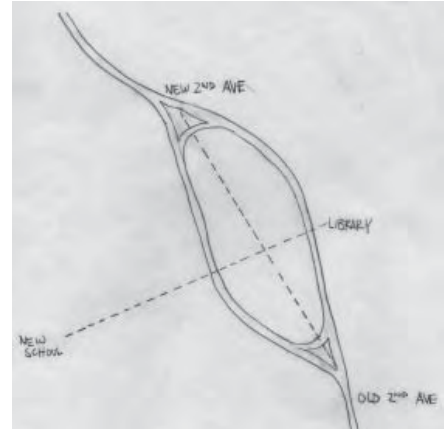


Figure 4

The project focuses on a new market square at the heart of Hazelwood. Several diagrams highlight the design concepts of the plaza. The plaza sits on the border between the existing community and the new neighborhood. It will act as a common space between the two neighborhoods. The use of the market plaza will allow for flexibility of uses, and be a center for transportation. The plaza will also permit opportunities for leisure and community sponsored activities.

Figure 5



Figure 6



Figure 1



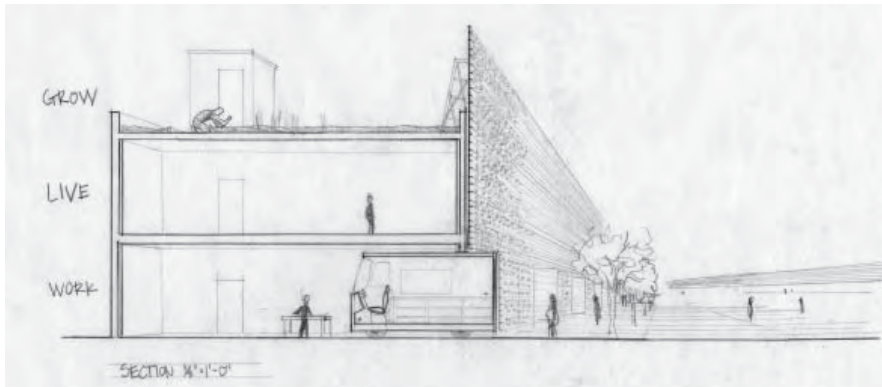


Figure 8

The market depends on its periphery for its goods. Along the edge of the round about, live-work spaces allow for the market vendors to live on the second floor, and work on the ground floor. Additionally, vendors could grow different produce goods on their rooftop, diversifying their goods. On market days, vendors merely pull their carts across the road into one of the market areas and sell their goods.

The edge of the plaza is also bounded by a twenty foot digital wall, which allows for a constantly changing experience of the space. The wall could act primarily as a billboard, telling commuters what to buy, the same experience of a market space, yet at a new speed. The wall could also allow for more community involvement, reminding residents of important upcoming events, or showing movies for people to enjoy on warm evenings. The wall becomes an interface

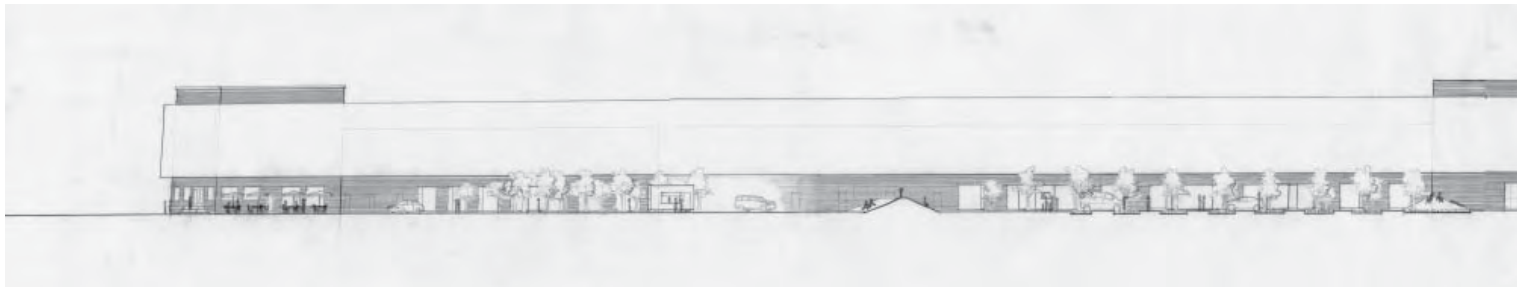


Figure 9

“The wall becomes an interface between the community and the rest of the city.”

between the community and the rest of the city. It defines the space. Having a panoramic scale on the plaza, one is bounded by the experience of the changing lights.

One building sits in the center of the plaza, dividing the whole space into two separate spaces. One space acts more as an open air market, whereas the other becomes the “living room” for the community, a place for people to come together. The building is home to vendors from all over the city and beyond. Housed beneath its interior lies an important light rail terminal, drawing a daily rhythm of people going to and from downtown.

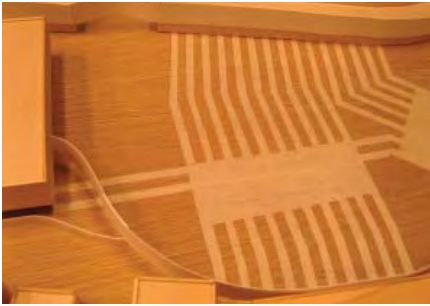


Figure 10



Figure 11



Figure 12

Figure 8 Short Section of typical plaza edge condition

Figure 10 Picture of market side of plaza.

Figure 9 Long Section through the site and the market building (digital wall in the background).

Figure 11 Picture of community side of plaza.

Figure 12 Picture of market building.

“A combination of paving pattern, trees, grass, and paved mounds combine in various ways to define many different spaces.”

When approaching the plaza from either direction on Second Avenue, one first sees the digital wall wrapping around the facades of restaurants and cafés. The further one drives, the greater the view of the plaza. The Market Building is framed in the background, with the digital wall streaming from it back towards your eye. Driving along the edge of the space, your eyes follow the digital wall, and guide you through the plaza, sometimes deforming with the edge.

The digital wall wraps into the inside of the market building, creating an indoor-outdoor relationship.

A combination of low-rising street trees and unpaved grassy areas defines street traffic circulation on the ground plane. The groundscape of the plaza bends and deforms according to the purpose of the program. The pavement pattern suggests the nature of the plaza. Mounds in the pavement allow additional seating opportunities, and help to channel people in specific directions. Openings in the pavement allow for

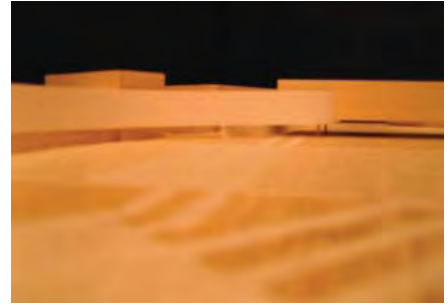


Figure 13

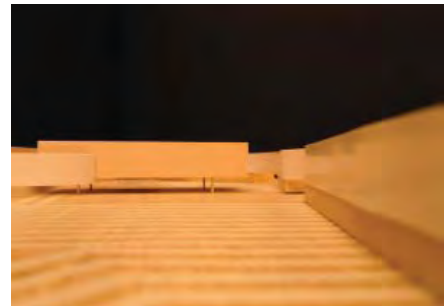


Figure 14



Figure 15



Figure 16

Figure 13 Picture looking south on main market plaza. Figure 15 Picture of southern entrance to plaza.

Figure 14 Picture looking south along roundabout. Figure 16 Picture of northern entrance to plaza.

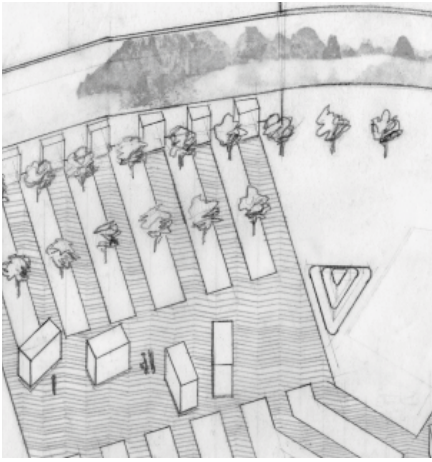


Figure 17

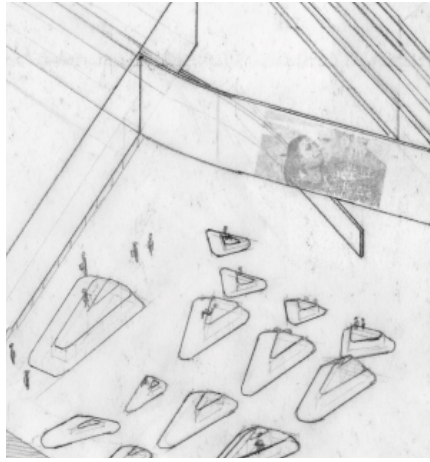


Figure 18

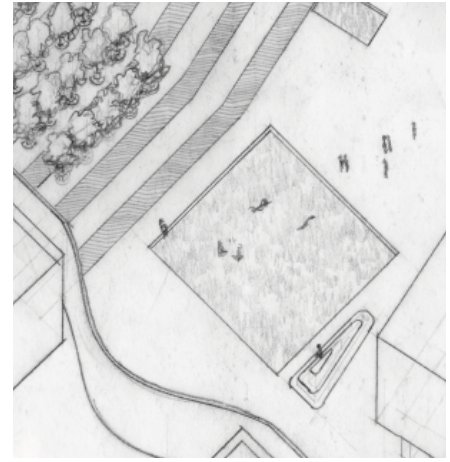


Figure 19

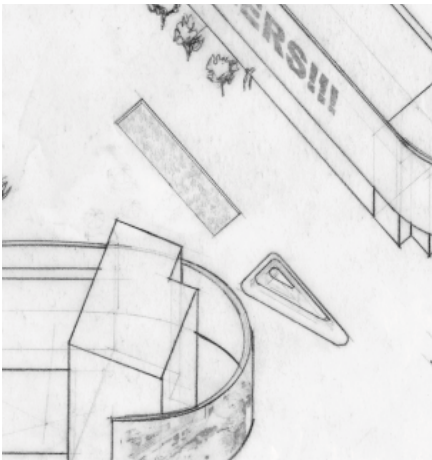


Figure 20

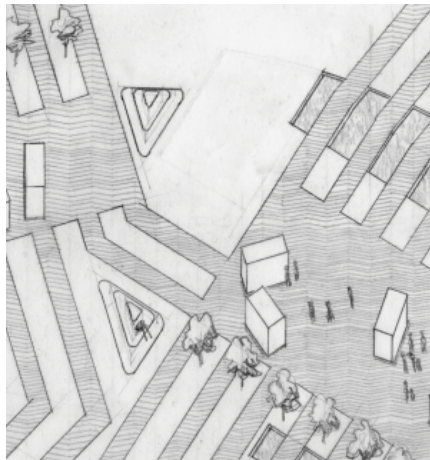


Figure 21

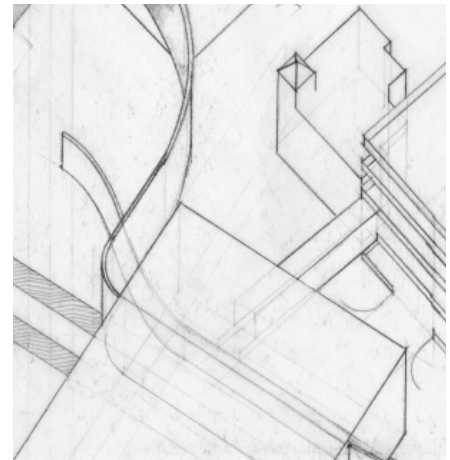


Figure 22

grass to break the hardness of the paving stone.

A combination of paving pattern, trees, grass, and paved mounds combine in various ways to define many different spaces. The edge and street trees lie parallel to one another, suggesting the street. A number of mounds together creates a zone of seating for public showings and performances. A grass clearing in front of the market building allows children to play and parents to lie down on the grass. A rise in pavement also serves to direct traffic at both entrances. The market zone is defined by the paving pattern as well as by trees for shade, and mounds for seating. An additional digital screen is added along the east side of the plaza to allow for light when the sun is setting.

Figure 17 Edge and market zone relationship.

Figure 18 Community viewing and performance space.

Figure 19 Grass opening and shaded sitting area adjacent to market building.

Figure 20 Southern entrance to plaza.

Figure 21 Market Zone.

Figure 22 Street condition behind market building.

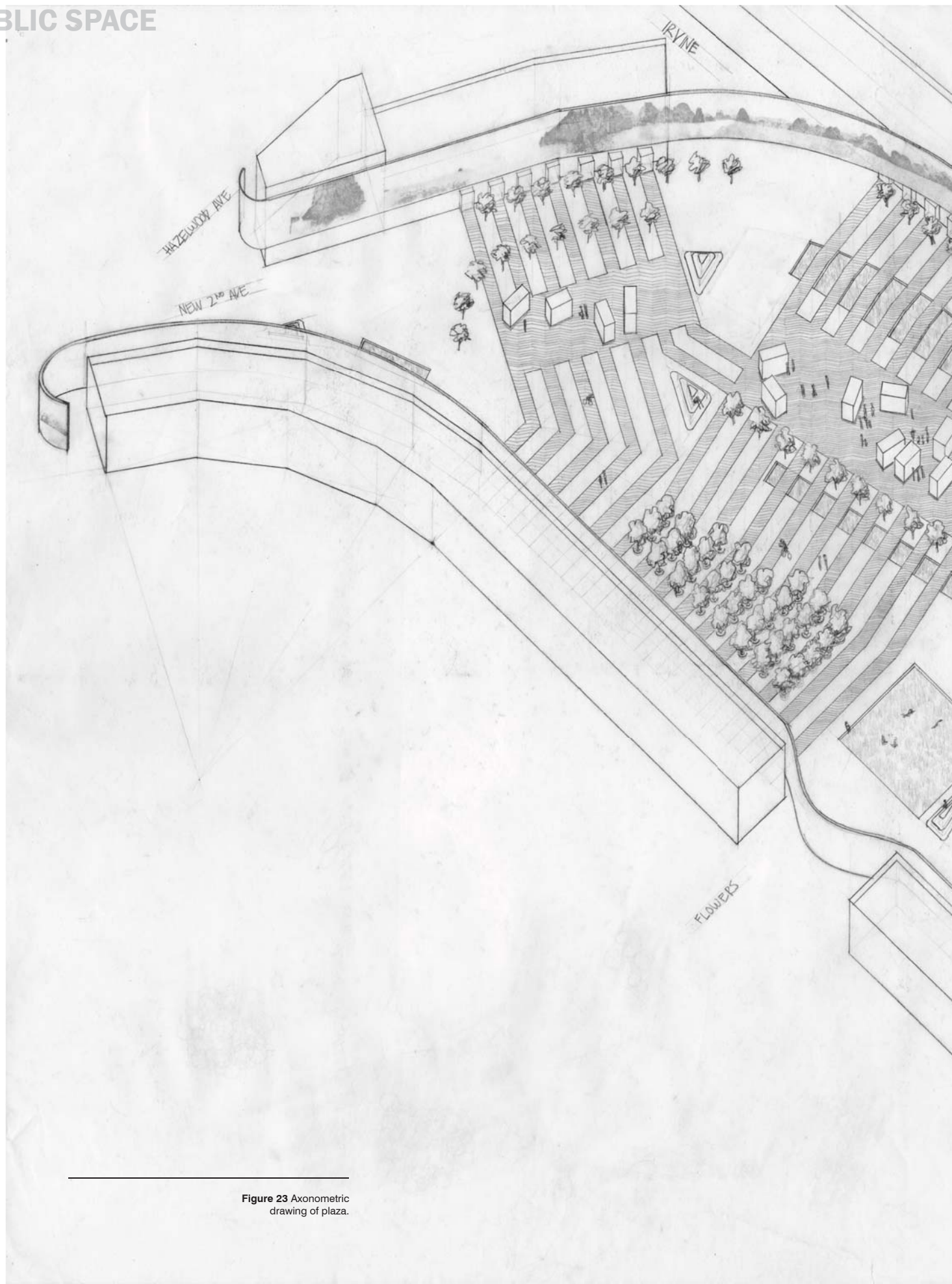


Figure 23 Axonometric drawing of plaza.

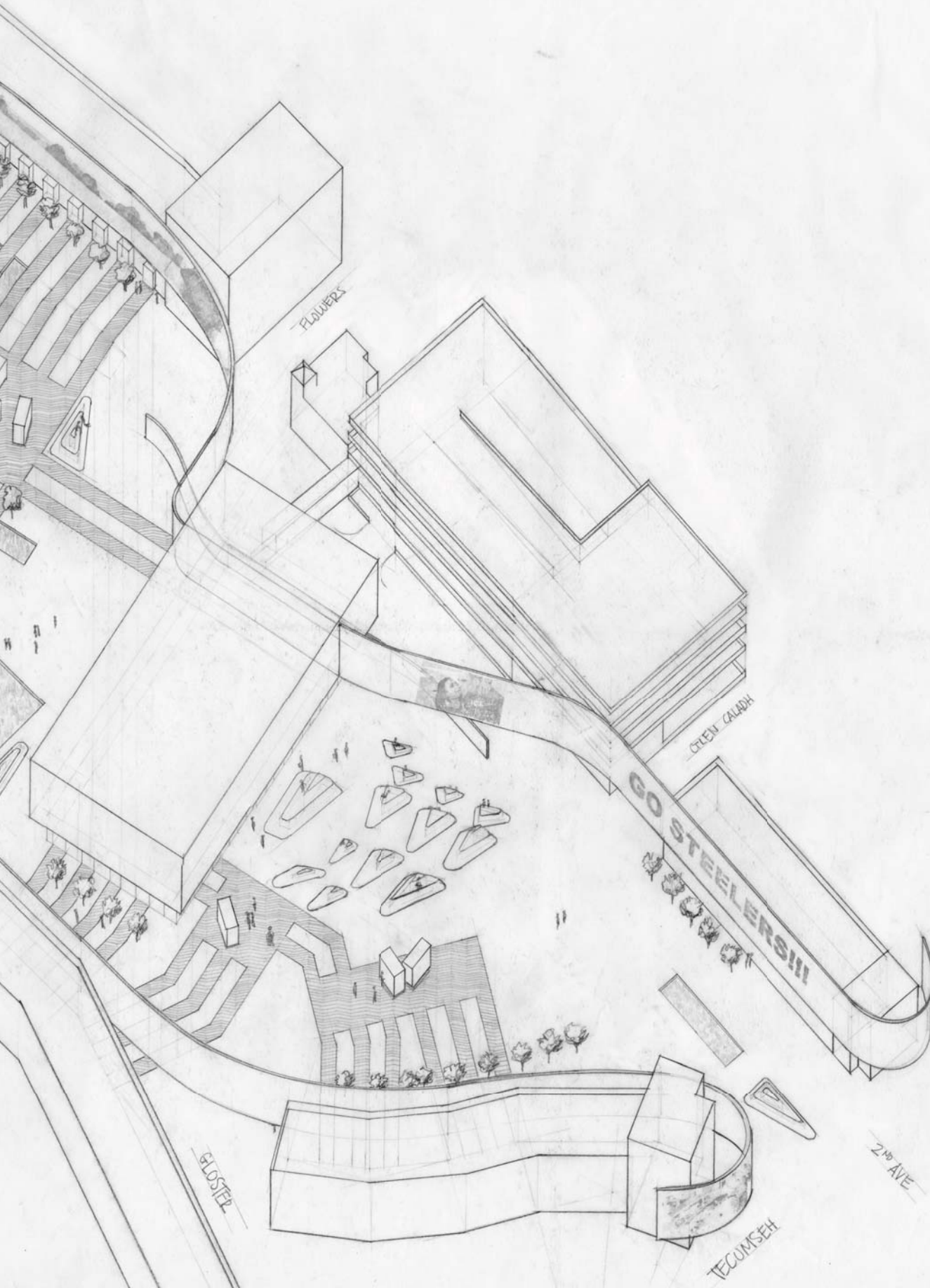


Figure 23



The Mon Riverside

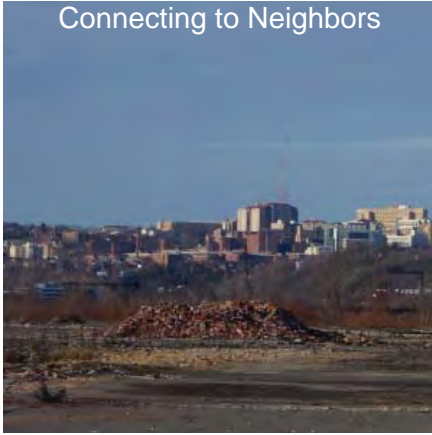
Jeb Feldman, Kate Rakus & Asa Watten

Urban Laboratory

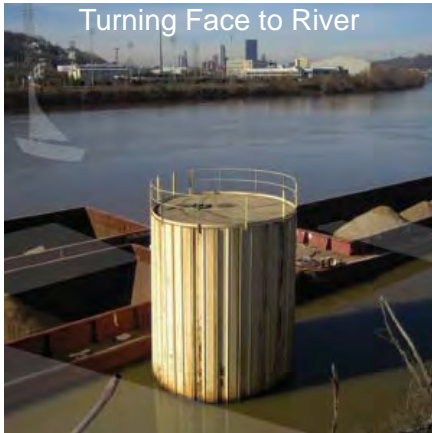
STUDIO A Robot City

Jonathan Kline, Professor

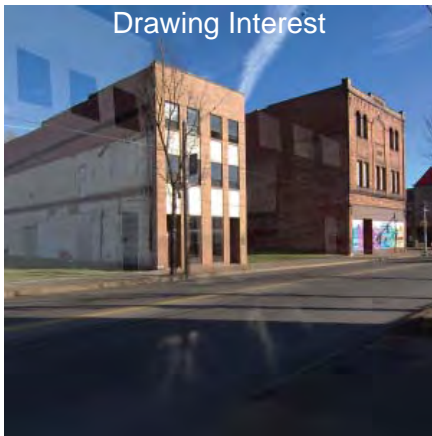
Connecting to Neighbors



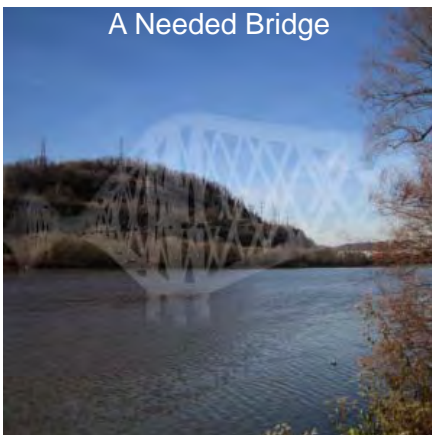
Turning Face to River



Drawing Interest



A Needed Bridge



In considering designs for the development of the former LTV mill site in the Hazelwood neighborhood of Pittsburgh, we decided that our best approach to creating a place which would mesh well with the area and the needs of the community based upon their feedback would be to integrate its spaces to the existing areas, assets, and neighborhoods already surrounding it. These include physical spaces such as the Hazelwood neighborhood, the universities in Oakland, Southside, and the Pittsburgh Technology Center, but we also look to connect to targeted drivers of local activity and economy, such as the local technology and robotics push. Finally, we are working to create a place which is an asset and draw for the entire city of Pittsburgh. Our guiding principles and goals in redeveloping this waterfront property on one of the last large available mill sites in Pittsburgh are:

- add to the value of Hazelwood neighborhood and develop a strong connection between the neighborhood and the city, especially the vital Oakland neighborhood;
- offer open space and park amenities, especially access to the river, for Hazelwood and city residents; and
- provide additional research capacity and housing for the university and business communities.

In addition, design decisions were grounded in these premises:

- utilize environmentally sustainable building techniques;
- assist in redeveloping native ecosystems as feasible; and
- enhance the Second Avenue business corridor in Hazelwood.

Our vision for the site includes three different usage sections

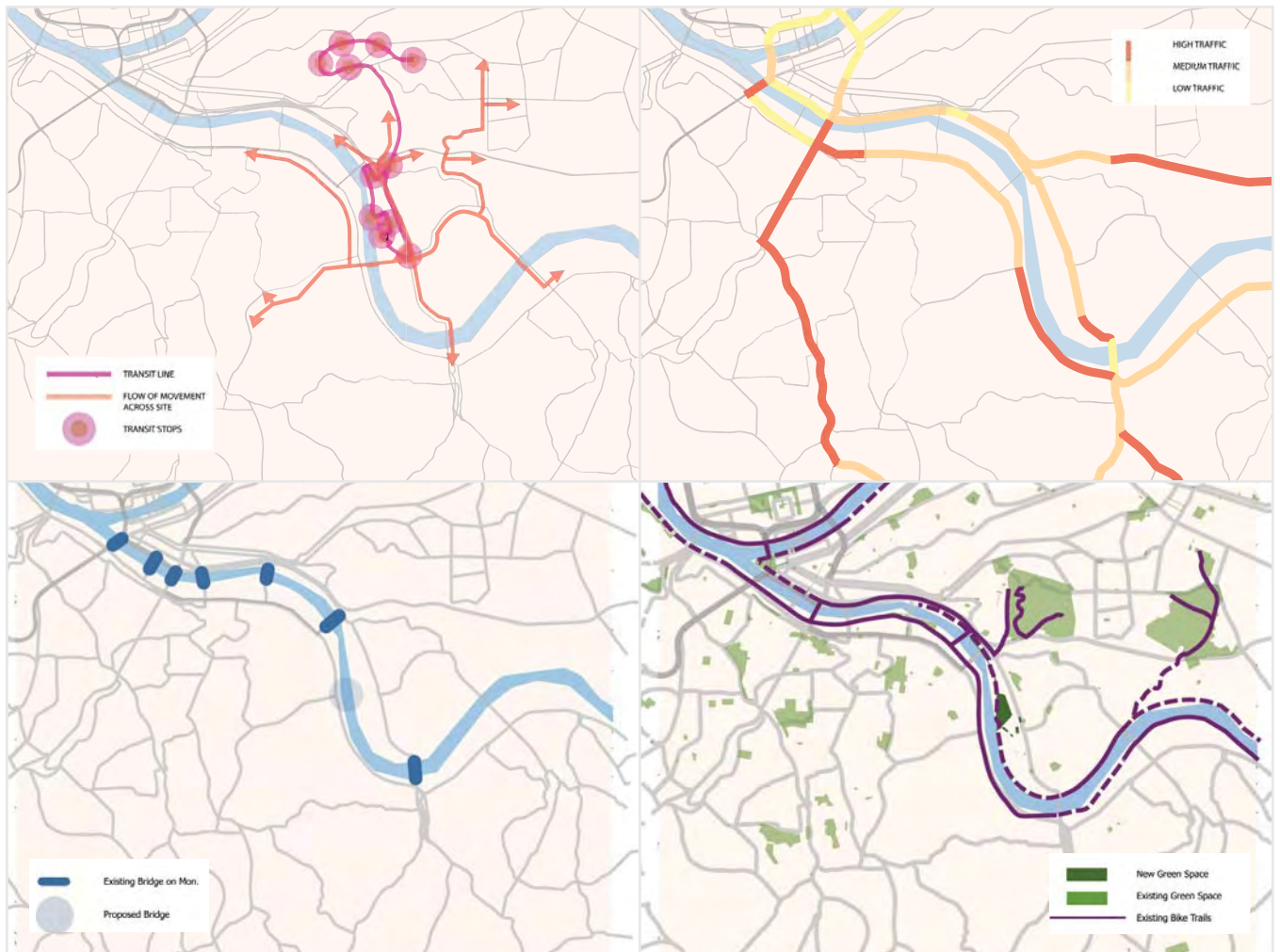
which provide: an extension of the neighborhood; open space and river access; and research and development for local universities. While in some ways distinct, we aim to blur the boundaries between these areas in the development's movement, activities, and flow within the site and out into the community.

Access to the river, with open space and park amenities, we believe is paramount for all users of the site as well as the community and region.

We recognize that public transportation between the site and Oakland will have a high capital cost, but by creating an efficient line through Panther Hollow, we aim to serve all site users and residents of the community with environmentally sensitive options for daily transportation. This connection will spur development on the site and enable its quick connection to the nearby major medical and university hubs.

Another important transportation move we've presented in our plan is the construction of a new bridge spanning the Monongahela River from the LTV site to Beck's Run Road. This bridge will fill an important and noticable gap in the sequence of bridges down this river. This gap contributes significantly to the isolation of the neighborhood as it stands. Our proposed bridge will generate a flow of energy and attention through both the new development and the current neighborhood. Knowledge that this bridge will bring new cars and people through the area has informed our street and neighborhood designs with a specific lean towards business activity on the 2nd Avenue business corridor.

Developing research, housing and office space for local universities to work and collaborate will stimulate a range of activity on



the site and hopefully spur spin-off companies and further economic development. The Carnegie Mellon Robotics Institute will continue to have space on the site which we are hopeful can be integrated with elements of experiential learning to the general public.

Environmental sustainability is a priority and new buildings will be constructed using green building techniques. Native plants will be utilized in the open space.

Preservation of some of the site's historic structures, with acknowledgement of the important role steel played in the history of the neighborhood and the region and the value of the labor in this industry, is also a goal. The existing large mill building and the roundhouse will

be retrofitted and remain on the site. Many of the smaller elements left behind by LTV Steel will also remain such as the barge moors which will be used as recreation piers as an example.

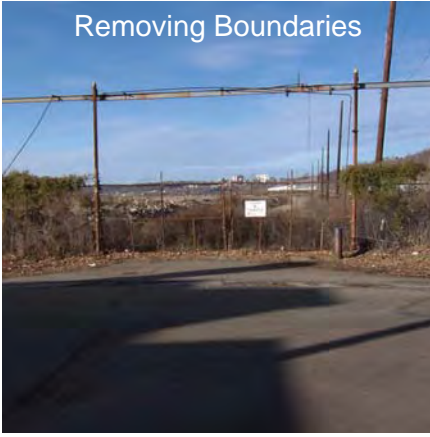
Figure 1 (above)

Top left: Traffic effected by bridge and streetcar
 Top right: Current peak hour traffic
 Bottom left: Current bridges on the Monogahella
 Bottom right: Parks and biketrails.

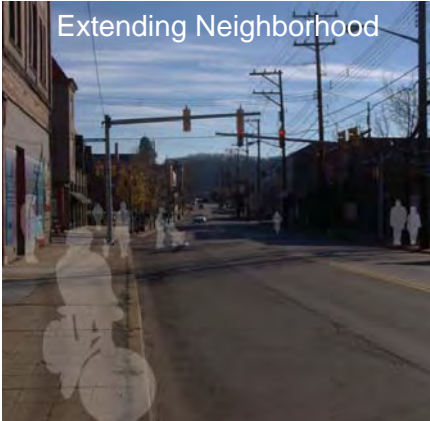
Figure 2
 Layers of proposed development on LTV site



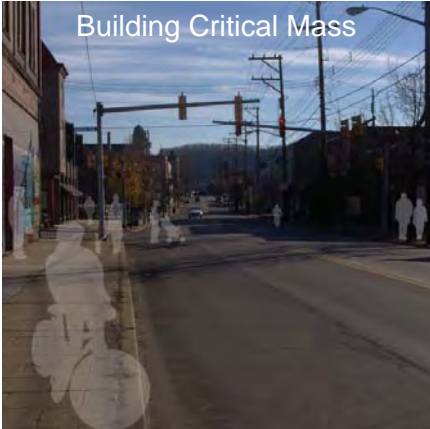
Removing Boundaries



Extending Neighborhood



Building Critical Mass



Respecting Sight Lines



A boulevard diagonally bisects the new mixed-use neighborhood, creating a strong connection between historic Second Avenue and the access to the river and views of downtown Pittsburgh. Along this main street are shops, restaurants and offices, including some housing units on upper floors. Adjacent to this main street are apartment buildings, condominiums and denser housing units. A vibrant new community is created, which links the new and existing with a walk-able, pedestrian friendly neighborhood. Residential housing continues outward from the boulevard and becomes less dense. As it approaches the existing neighborhood, the new development is similar to the current conditions.

A network of green spaces exist the new neighborhood. Designed using plantings as textures, they provide spaces to relax as well as to play. The largest green space accommodates seasonal retail vendors, creating a temporary outdoor market. Through these parks, connections are made to other sections of the development. Green spaces lead to the large riverfront park and allow access down to the water through an extensive terrace, which is show in section in figure 4. A link also exists by an anchor building, possibly a library or other community space, to the historic mill build-

ing. This building will be restored to function as both an indoor sporting facility and a related marketplace. Finally, a connection is made to the existing greenway across Second Avenue to help further integrate with the Hazelwood Community.

Recognizing that traffic traveling across the bridge and through the site should be best managed, two main routes are proposed. A northern route, by the mill building, exists for northbound traffic. For traffic going south or to Hazelwood Boulevard, a route on part of the main boulevard is available.

An Efficient Transit System

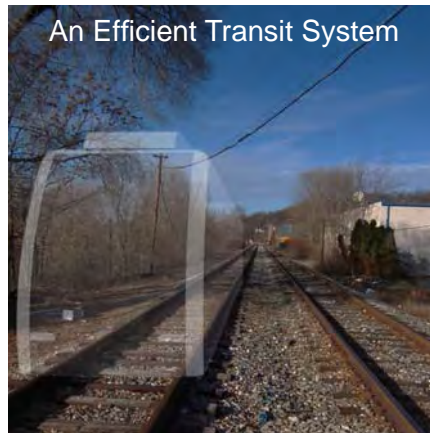




Figure 4 Green spaces leading to a riverfront park

Figure 5 Section of terraced public space leading from road to recreational river access point



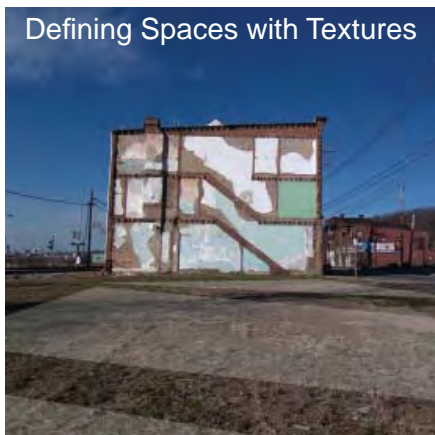
Figure 6 Section of riverside terrace



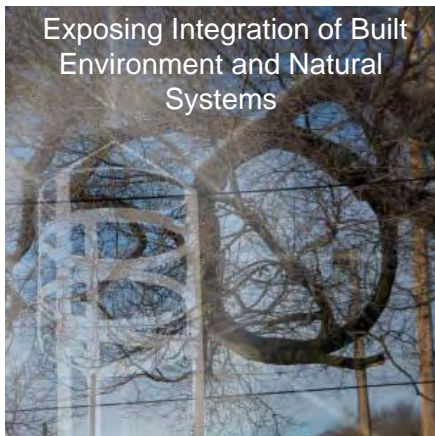
Symbolizing Hazelwood's Transformation with Plantings



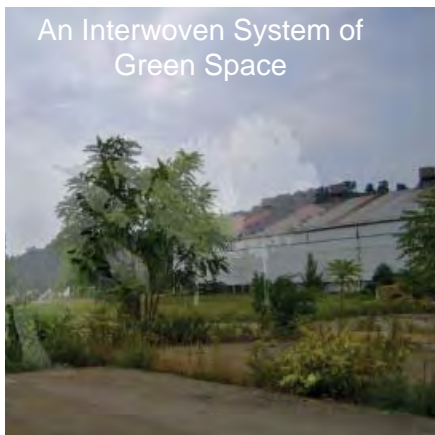
Defining Spaces with Textures



Exposing Integration of Built Environment and Natural Systems



An Interwoven System of Green Space



We see the plan for the ALMANO site telling a new story of both Pittsburgh and Hazelwood. The story is of the industry centered past transforming into a human and ecologically centered future. I see no better symbol of this transformation than the sunflower, which has the ability to take heavy metals out and put nutrients into the soil all the while blossoming. In our plan we suggest plantings to be used as symbols and ways of connecting the new neighborhood with the existing one – a mascot, a symbol, and marker for regional identity.

For our green spaces we hope to move beyond the American lawn, which having roots as 17th century British status symbol, does not make ecological or aesthetic since today. Using different ground covers, such as red clover, native grasses, and sedges, also provide the opportunity to divide green space in interesting ways. The aerial perspective illustrates how this may be achieved. In addition, many native groundcovers require less malignance and irrigation.

Permeable pavers or those that will be used by Phipps Conservatory for parking lots, can also be used to support green walkways, which would soften the hard-scape in the central green space. Other green strategies like the grassy bed of green trams in Spain and France

can compliment the vibrant feel of the new neighborhood.

Instead of hiding environmental designs features, as is often the case, we suggest exposing environmental features in an aesthetic way to both provide a unique feel and theme to the new neighborhood. Figure 10 shows how water tanks could act as one wall for a temporary small shop or weekend vendor. The tank's volume is equivalent to the volume that would fall on the adjacent businesses roof, the tank's source, in a one-inch rain; this would not only be functional and aesthetic but also educate visitors about critical issues of water collection and storm water runoff in Pittsburgh.

Figure 7 shows a view from the new library off of the central boulevard, and Figure 9 is an example of what a typical residential street might look like.

Figure 5 shows a cross-section through the triangular Matisse-like park off of the boulevard. The section shows carved out nooks in slightly raised areas grown with wild flowers between paths to create intimate places for relaxing.





Figure 7 Perspective view of central boulevard green space from cafe seating

**The Mon Riverside
will integrate
Hazelwood as a vital
piece of the
Pittsburgh puzzle.**



Figure 8



Figure 9

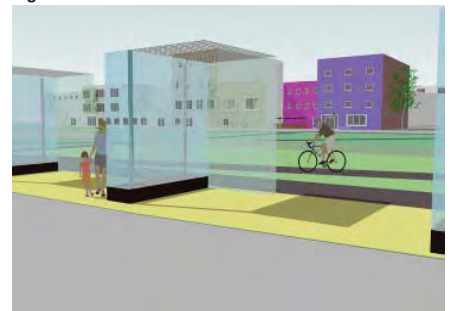


Figure 10

PRODUCTIVE LANDSCAPES



LTV Park Project: A Catalyst for the Re-development of Hazelwood

Brian McKinney and William Knapp

Urban Laboratory

STUDIO A Robot City

Jonathan Kline, Professor

This project was born out of an interest in the industrial history of this site. Both through the numerous remaining industrial artifacts as well as the cultural memory of what was there, the LTV steel mill has played a defining role in both the development and the deterioration of Hazelwood. In our proposal for this site, we seek to preserve some sense of this history while simultaneously create something that can serve as a catalyst for the redevelopment of the Hazelwood community. The result was a system of park space whose form and interactions were generated through an analysis of the site's industrial heritage.

This concept of a park was combined with several related concepts that collectively address Hazelwood's basic needs in a number of different ways. The most significant involves augmenting Hazelwood's connectivity to other parts of the city and in particular, to Oakland. Our plan leaves in place the existing rail line that travels near Second Avenue so that proposals for the expansion of light rail into this area can be augmented in the near future. Furthermore, we suggest opening Boundary Street, which is currently blocked by a gate. Such a move would make this road the most

direct route into Oakland from the site. Both of these strategies would allow this site to take advantage of the large demand for cheap housing generated by the thousands of university students in Pittsburgh. This connection would also create an opportunity to attract local artists, who similarly rely on cheap real estate.

The industrial components that currently exist on the site would be recycled to create a destination for people visiting this area. Building 19 would be split so that part of it could be taken over by Robot City and used for research, while the other part would be converted to an industrial museum. Pieces of industrial history that would be gathered both from this site as well as the greater region could be collected here to create what would be distinctly related to Pittsburgh's self identity and completely unique to the area. The industrial components on the water front would be stabilized and used to create an industrial playground. Both of these ideas have been explored in other cities and we looked at existing examples to get a more definitive idea of what such a creation would entail. Collectively, these ideas would bring numerous visitors to this area and help to stimulate the economy both directly through their patronage as well as indirectly by augmenting the prominence of Hazelwood as a neighborhood.

Existing Industrial Remains



Industrial Park Space Precedents



Figure 1. Access to Students: Universities & Light Rail Proposals

Figure 2. 3,5,&10 Minute Walking Radii from Rail

Figure 3. Boundary Street Connection

Transit Proposals



Figure 1



Figure 2

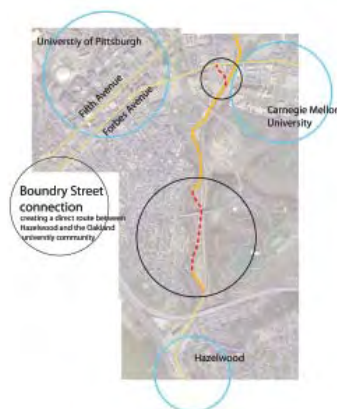


Figure 3



Park Master Plan
Scale: 1" = 1200'

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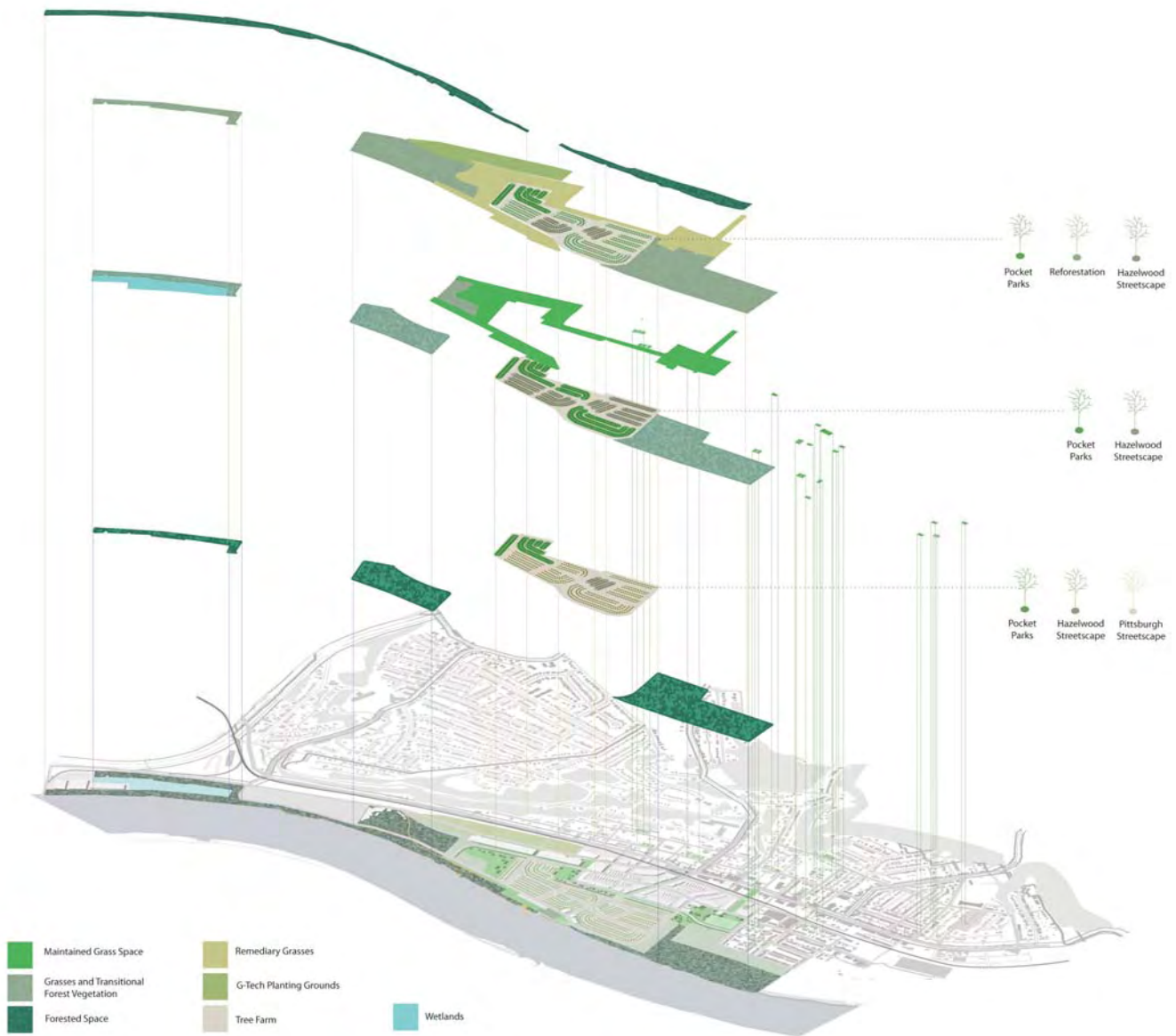
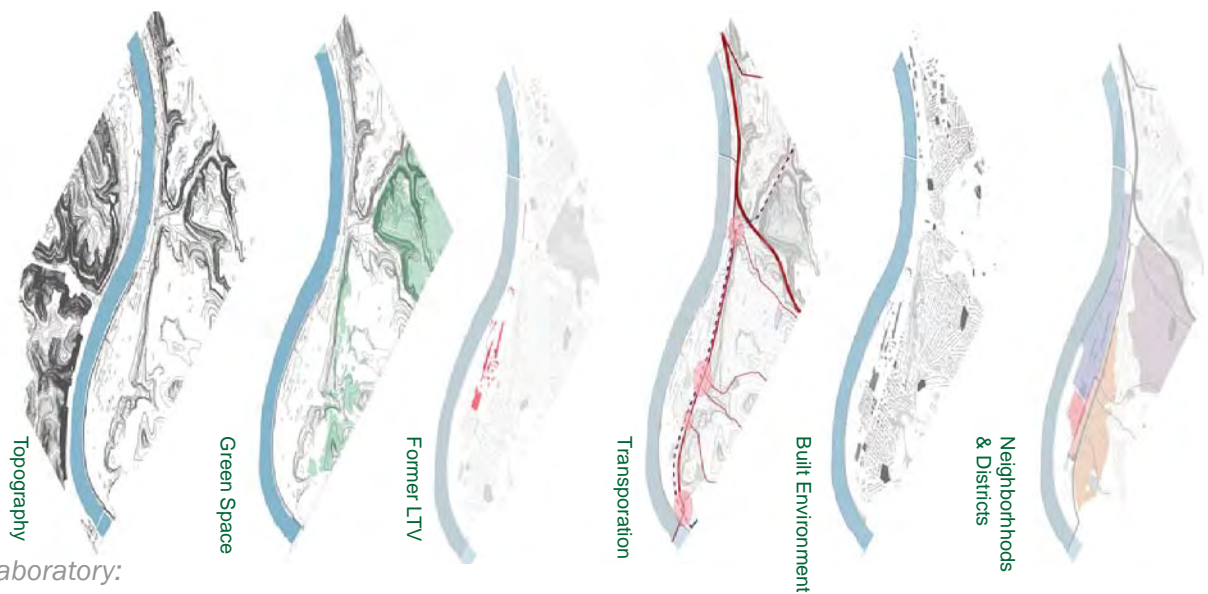


Figure 4



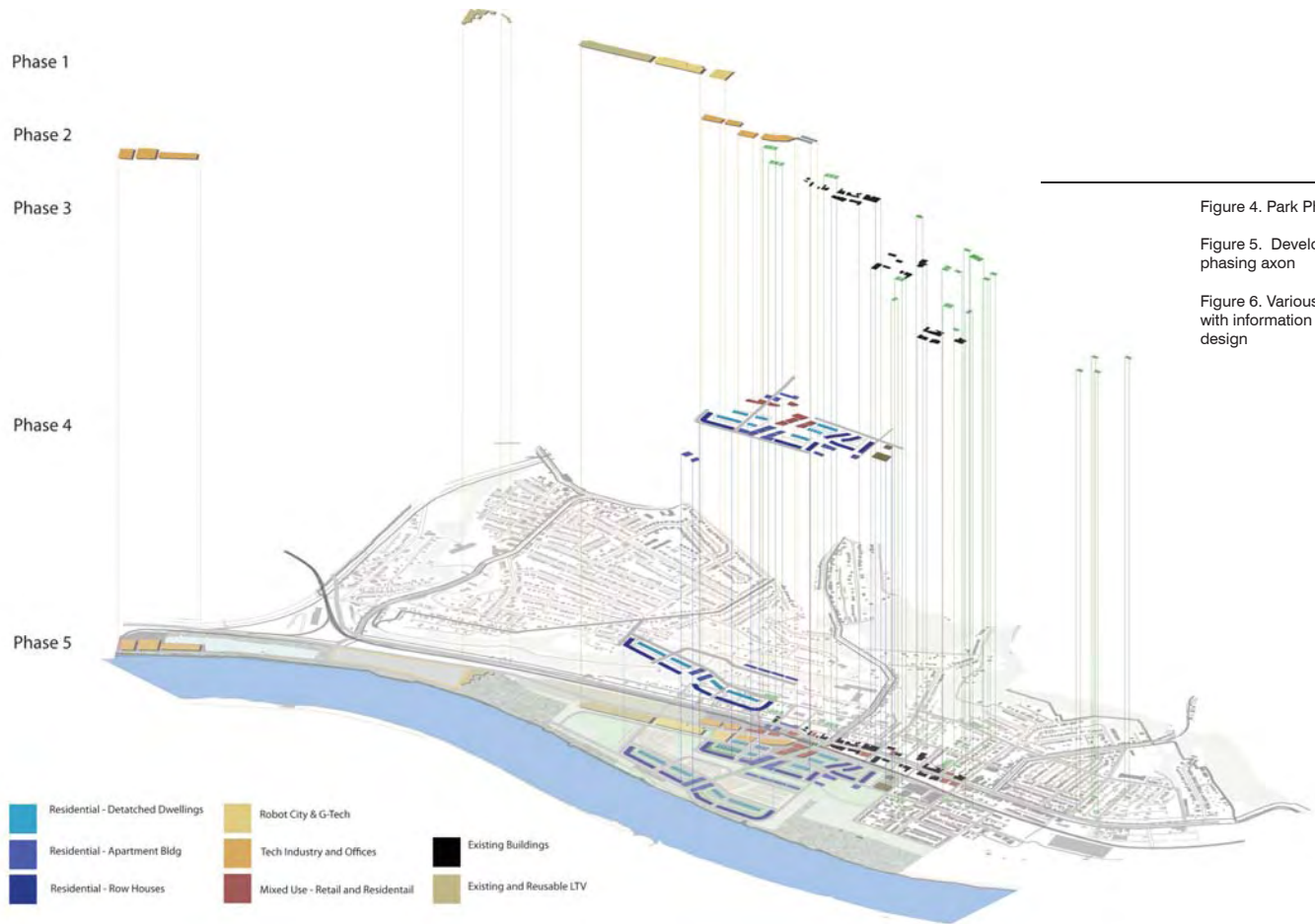


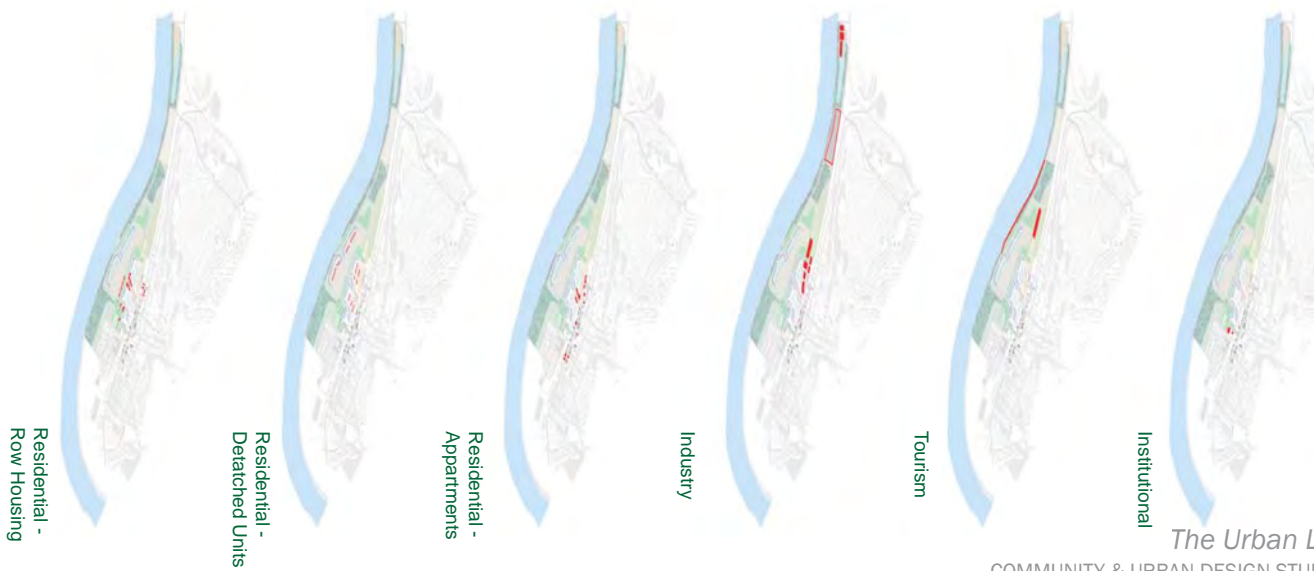
Figure 5

Figure 4. Park Phasing Axon

Figure 5. Development phasing axon

Figure 6. Various diagrams with information impacting design

Figure 6



PRODUCTIVE LANDSCAPES

Our park would also be embedded with research infrastructure to provide a foundation on which more jobs can be developed. Robot City and G-Tech, which are already using this site to conduct research, would be given a new building and encouraged to move closer to the intersection of Hazelwood and Second Avenue. This accomplishes several goals. The first is to give the people who work at this facility a more direct stake in the future of Hazelwood. Their presence would bring an influx of money to local businesses while augmenting the perceived stability of the neighborhood. Furthermore, their presence can be leveraged in order to attract more companies to this area.

The other advantage of maintaining these companies in this area is that they can help in the development of the tree farm, which is used to implement numerous pieces of the park's program. In

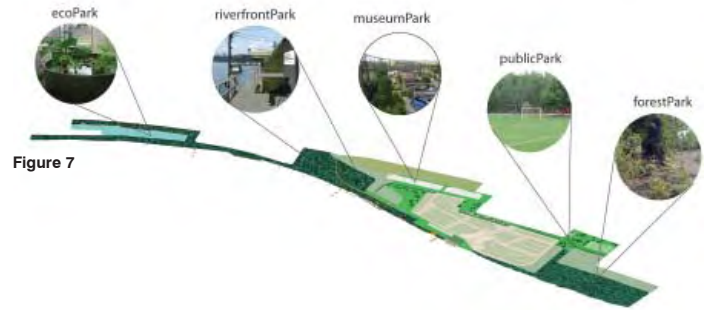


Figure 7

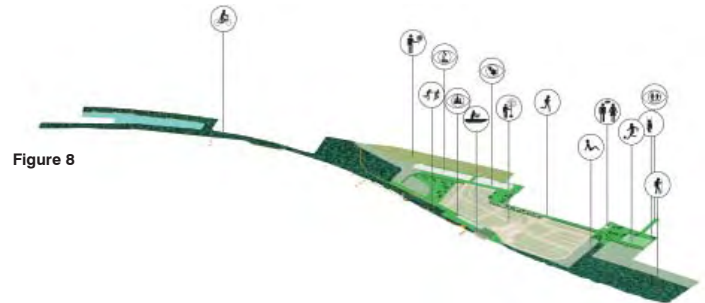


Figure 8



Figure 9

Figure 7. Park types on the site

Figure 8. Park Usage diagram

Figure 9. Area of focus axon

Figure 10. User time diagram

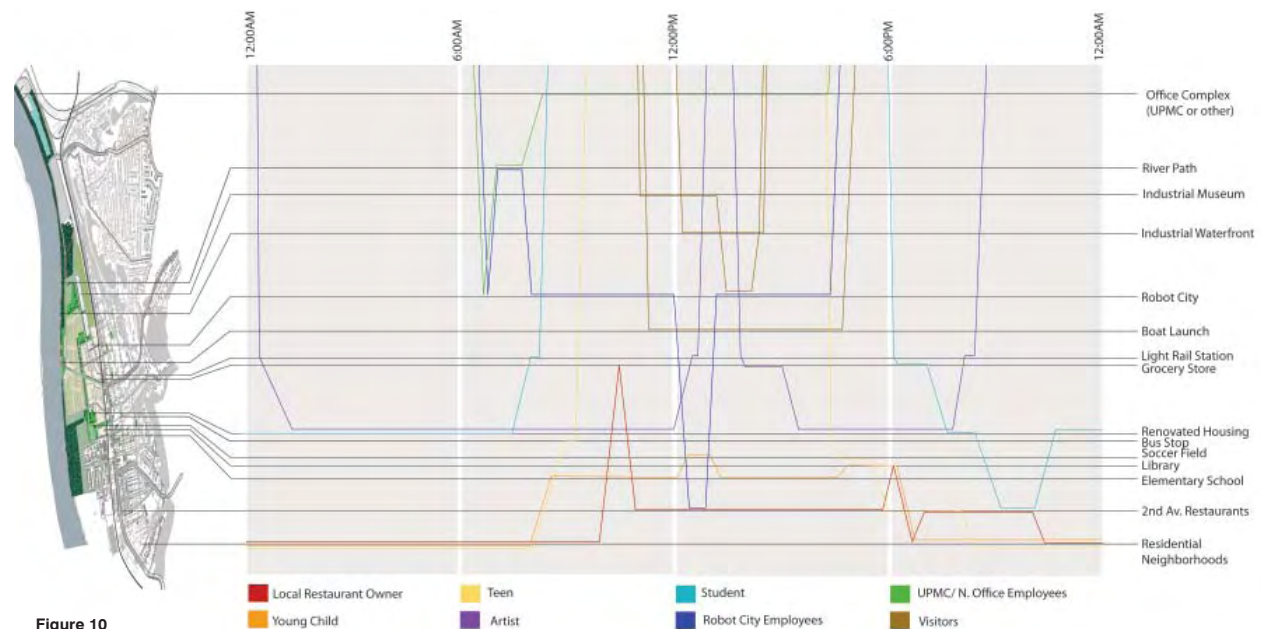
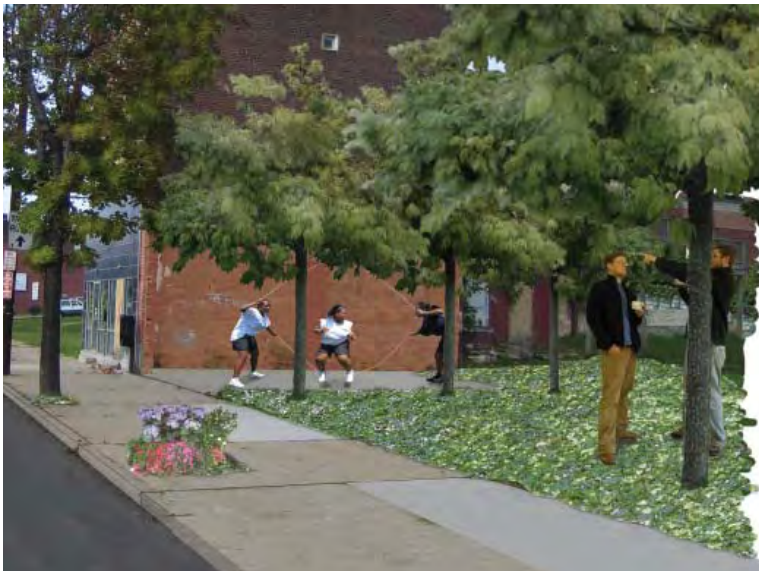


Figure 10



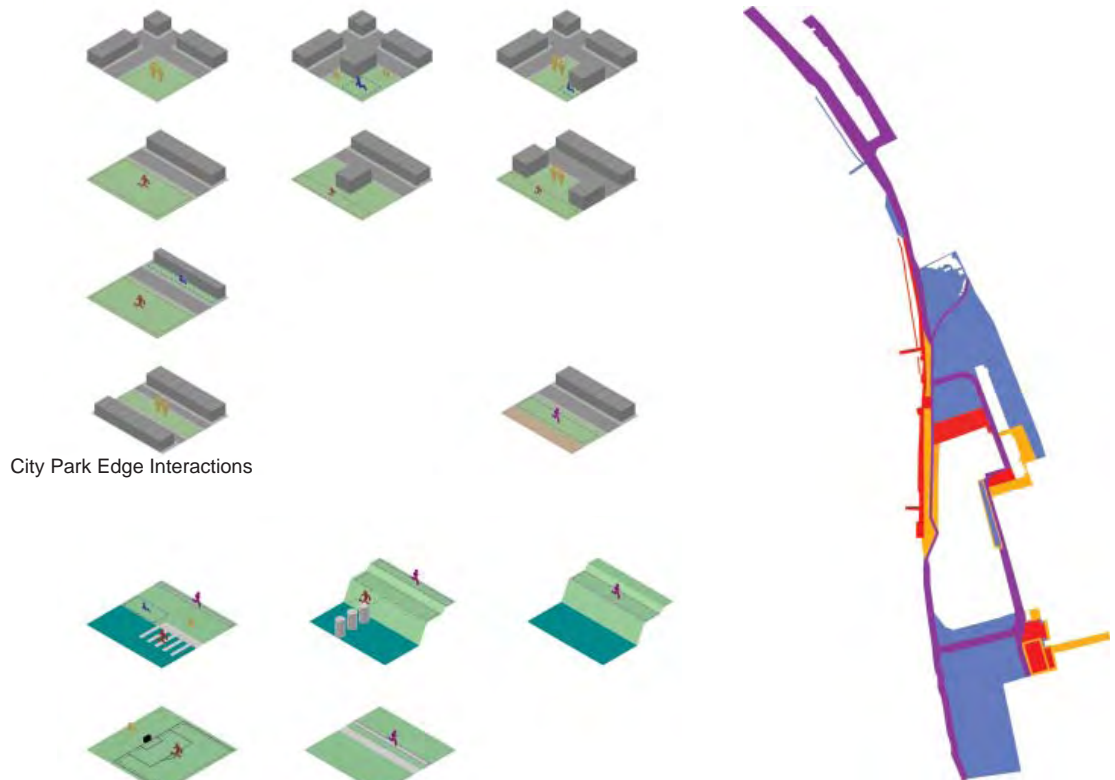
its first stage, it can be used to plant trees to reforest parts of this park, to provide a much needed source of street trees in Hazelwood, and to allow for the creation of pocket parks in what are currently vacant sites in Hazelwood. Its development would be accelerated through the use of imported dirt so that this development can begin even as the rest of the site is undergoing bioremediation. Robot City is currently doing research on how robots can be used to plant trees and this research can be extrapolated to allow for a method to plant and harvest this farm. G-Tech is conducting extensive research on properties of plants and this more biological focus can be extrapolated into a broader research program that allows for the study of and production of street trees for use in Pittsburgh.

The pocket parks would be an extension of G-Tech's research and would serve two primary functions. The first is as isolated sites on which to test trees that are to be put into larger production on the farms. The second, and more significant for Hazelwood's development, involves extending the park that we are proposing for the LTV site into Hazelwood's existing built environment. This creates local areas in which community residents can recreate while simultaneously taking abandoned lots that had previously contributed to the dilapidated image of Hazelwood and converting them into something that will improve the perception of the area. The improvement of the perception of Hazelwood will increase the likelihood that individuals visiting the neighborhood will be inclined to live and invest in this area. All of these improvements in combination provide a base on which future development can be based.



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In generating this park system, we decided to address the types of interactions that people and places could have in given spaces. We examined the conditions created by various types of parks spaces and divided the park into 4 basic types: Communal Active, Communal Passive, Solitary Active, and Solitary Passive. From here, we examined what additions we could make that would augment the existing conditions of these spaces. In doing this, we created a set of guidelines by which future designers can go about creating this park. These guidelines are goal-based in that they set out general ways in which spaces can be augmented while allowing for a wide range of flexibility for future designers to attain these goals. We also examined a few more specific examples as a way of providing some idea of what these spaces could eventually become.

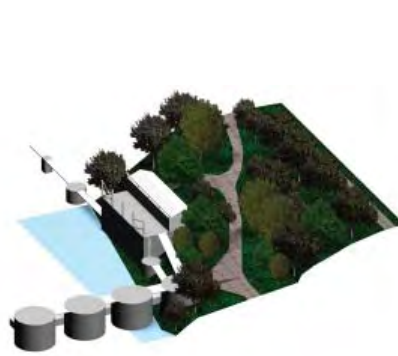


City Park Edge Interactions

Isolated Park Spaces

Pocket Parks

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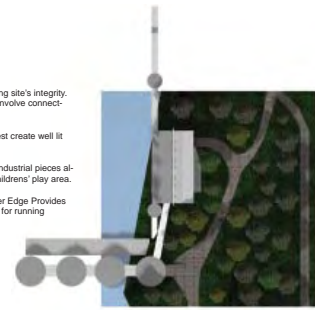
Industrial Waterfront Park

Goal of preserving site's integrity. Primary moves involve connecting paths.

Openings in forest create well lit gathering space.

Connectivity of industrial pieces allows for small children's play area.

Path above water Edge Provides long, linear path for running or biking.



Scale: 1/16" = 1' - 0"



Scale: 1/16" = 1' - 0"

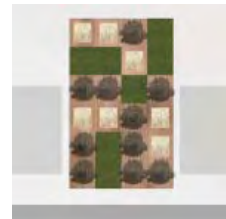


Pocket Park - A Place for Contemplation

Wood flooring allows for warmer and more flexible walking terrain.

Combination of short trees and tall grasses blocks visibility to the interior and provides privacy.

Size of spaces further enhances feeling of privacy.



Scale: 1/8" = 1' - 0"



Scale: 1/16" = 1' - 0"



Pocket Park - A Place for Interaction

Relatively tall trees allow for visual connectivity underneath them.

Height of trees also provides a comfortable shaded place underneath, where individuals may gather.

Elevated side of pocket park creates a seating surface.

Pocket park is inviting from both sides. It becomes a crossroads where



Scale: 1/16" = 1' - 0"



Scale: 1/16" = 1' - 0"



Community Niche and Park Entry

Trees along front face and edge create gathering spaces.

Large tree creates a focal gathering space.

Elevated grass platform creates multi use platform. In particular, can serve as seat or a stage at the focal point of the other gathering spaces.

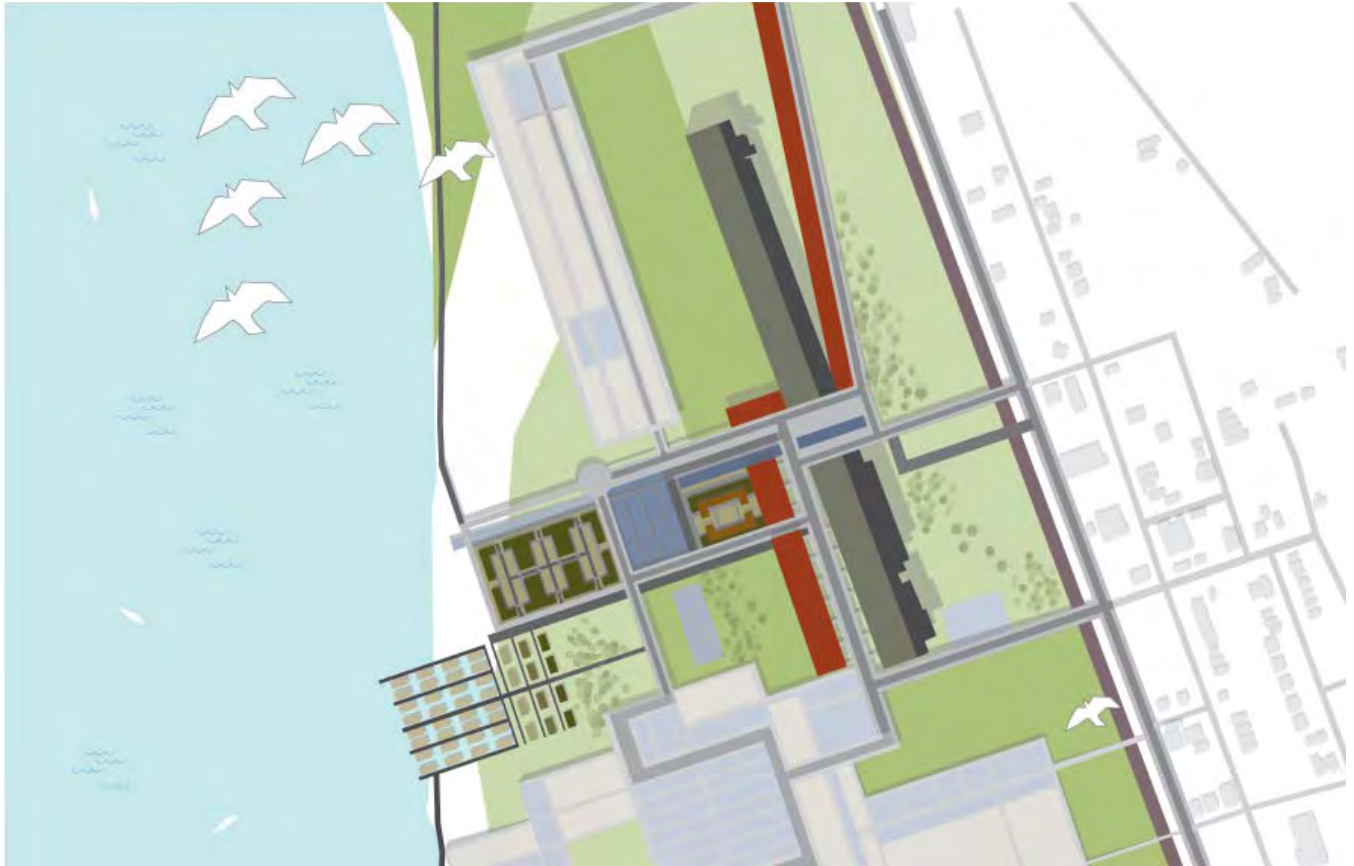
Serves as a gateway between the neighborhood and the Park.



Scale: 1/16" = 1' - 0"



Scale: 1/16" = 1' - 0"



Monongahela Landing

Angela Chi and Ken Lau

Urban Laboratory

STUDIO B Housing

Kelly Hutzell, Professor

Thinkpiece



Figure 1

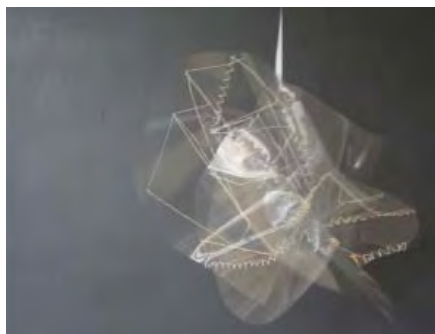


Figure 2



Figure 3

Monongahela Landing seeks to revitalize the Hazelwood community by connecting to what has historically been one of Pittsburgh's greatest resources -- its rivers. They are host to a rich variety in aquaculture. Although Hazelwood neighborhood borders a long stretch of the Monongahela River, much of the community cannot actually access it. Being on the border of such an asset, it is necessary to be able to interact with it. For our initial proposal, we sought to bring water into the site, cutting canals throughout, as well as creating boardwalks at different levels throughout the site, allowing people to interact with the river at different levels.

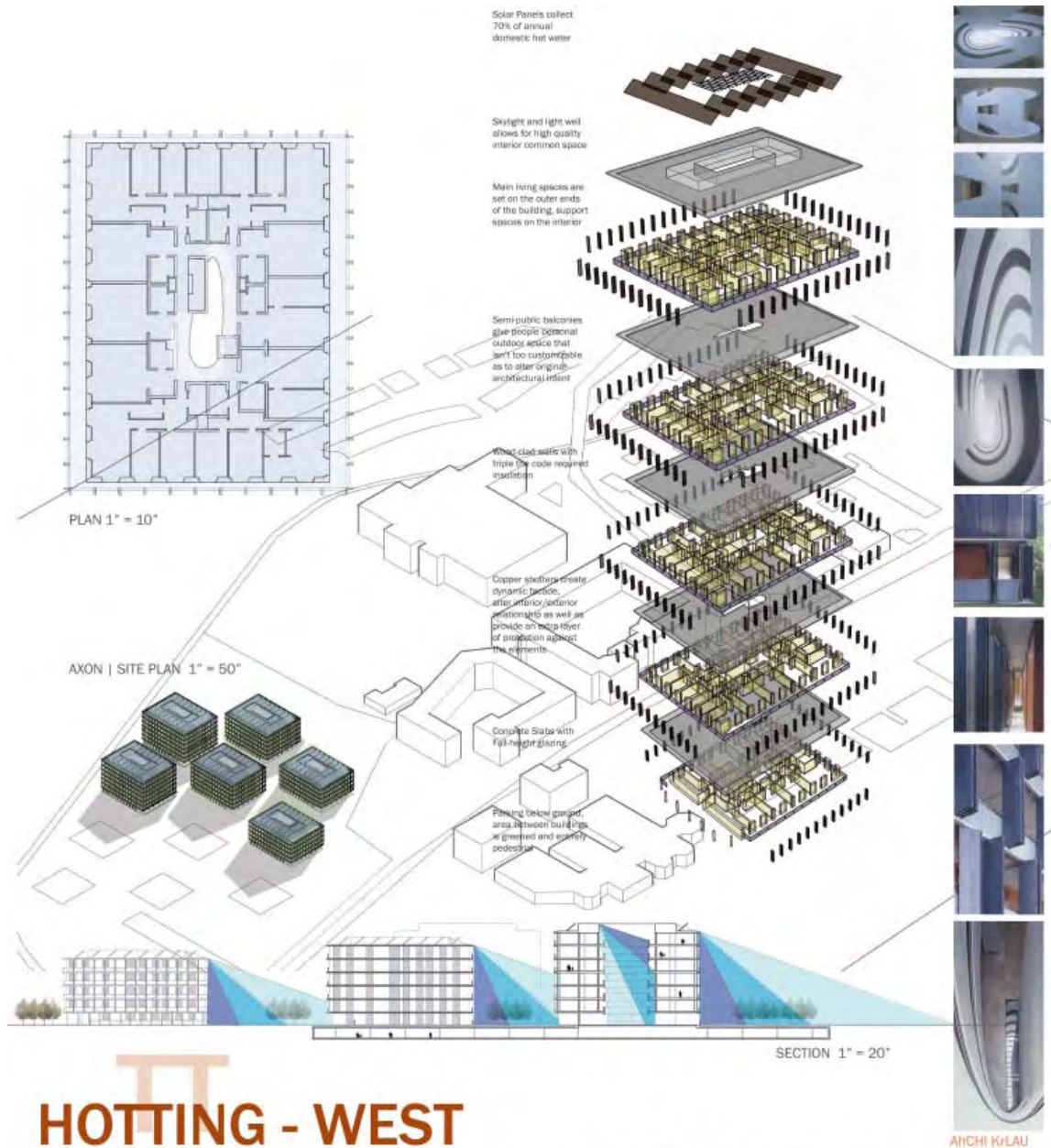
Figure 1 Thinkpiece 2 showing general flow of the site and desired intertwining

Figure 2 Thinkpiece 1 Angela showing planes intersecting to create boundaries

Figure 3 Thinkpiece 1 Ken showing the overlapping of layers

Figure 4 Case Study of Hotting West

Precedent



HOTTING - WEST

LOHBACH RESIDENTIAL PROJECT INNSBRUCK, AUSTRIA BAUMSCHLAGER & EBERLE

client EU HEIMAT TIROL GEMEINNUTZIGE WOHNUNGS- UND SIEDLUNGSGESMBH
address FRANZ - BAUMANN - WEG 12 - 22 INNSBRUCK
project manager DI GERHARD ZWEIER
structural design DI MAZ WALLNOFER
installations KLIMATHERM
floor area 22.150 M²
built up area 5.926 M²
completion 5.2000



Figure 4



Regional Study

Regional Map Hazelwood, PA

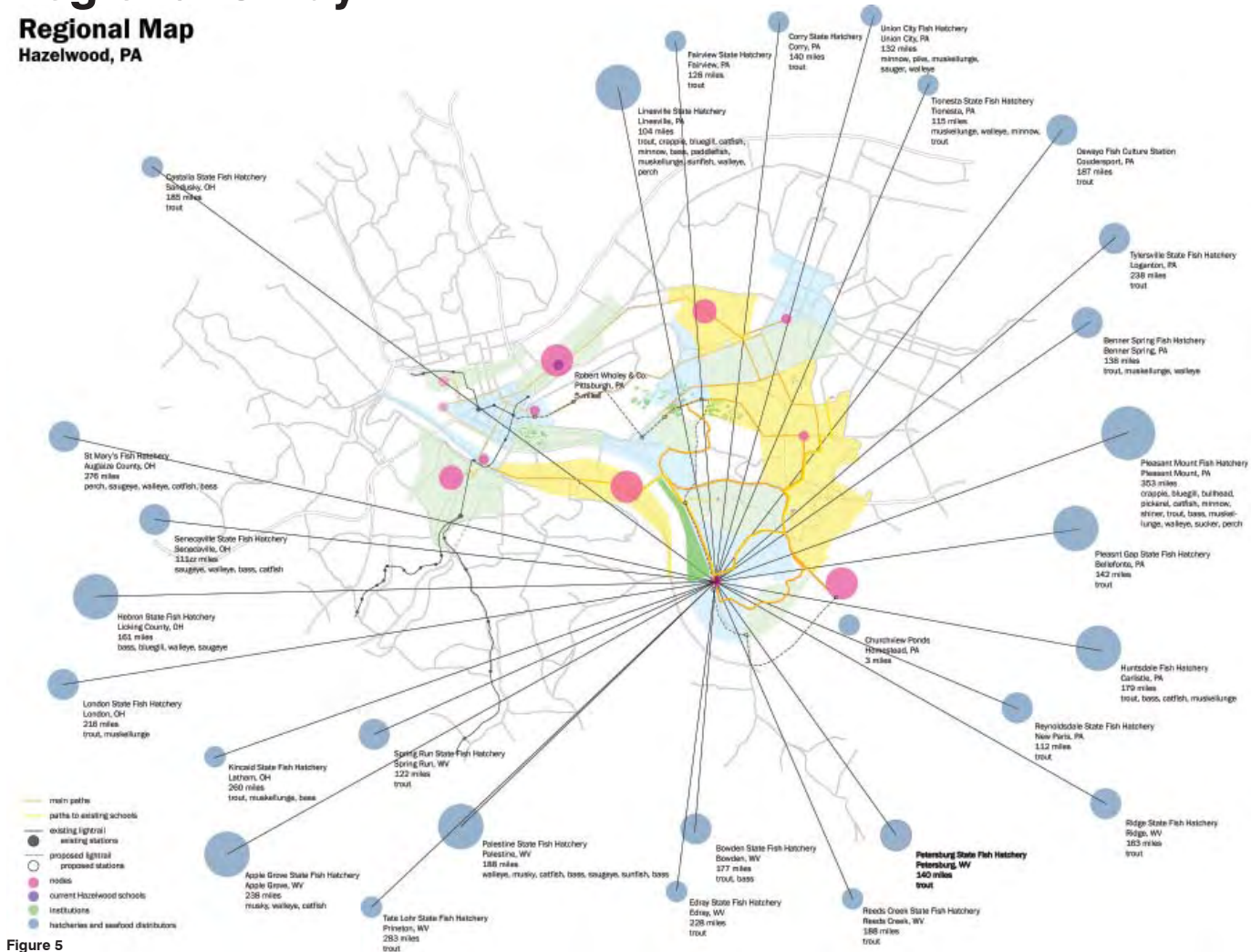


Figure 5

We also found that the former LTV site is located at a prime location for transporting goods to surrounding areas via the Ohio and Monongahela Rivers. Being along a river and such a location brought us to the conclusion that a new fish farming industry would be ideal on the former LTV site. Our goal is to create a symbiotic relationship between hatcheries and community, as well as between the river and the neighborhood.

In our research, we found that the site has old sewer lines that are no longer in use. A combination of daylighting the sewer lines and terraforming the site could work to form a network of canals and ponds for the fish and create an underlying network on which to overlay a pedestrian boardwalk network for those who live and work in Monongahela Landing.

Existing Conditions



Figure 6

Framework



Figure 7

Figure 5 Regional Map showing area fish hatcheries, major institutions and transportation lines

Figure 6 Existing Conditions

Figure 7 Framework Process Work - progression from bringing in canals to creating an industry

Figure 8 Framework Plan



Figure 8

Site Phasing

In phasing, the plan is to first employ phytoremediation on site, growing plants to reduce the level of toxicity in the soil. Next is to bring research pertaining to the aquaculture industry. The research will develop into fish hatcheries which will become a commercial driver for Hazelwood.



Figure 9

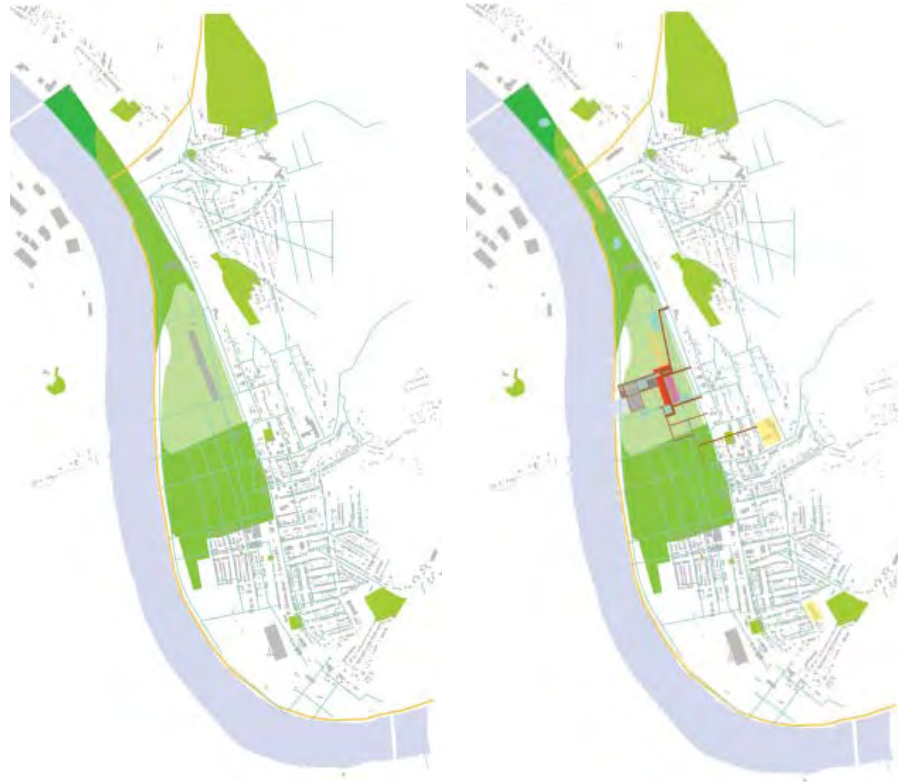


Figure 10

Network

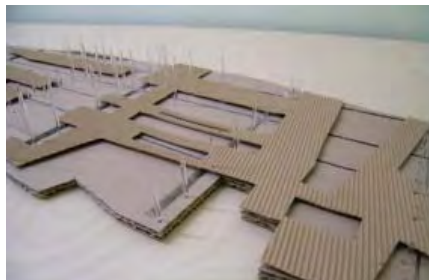
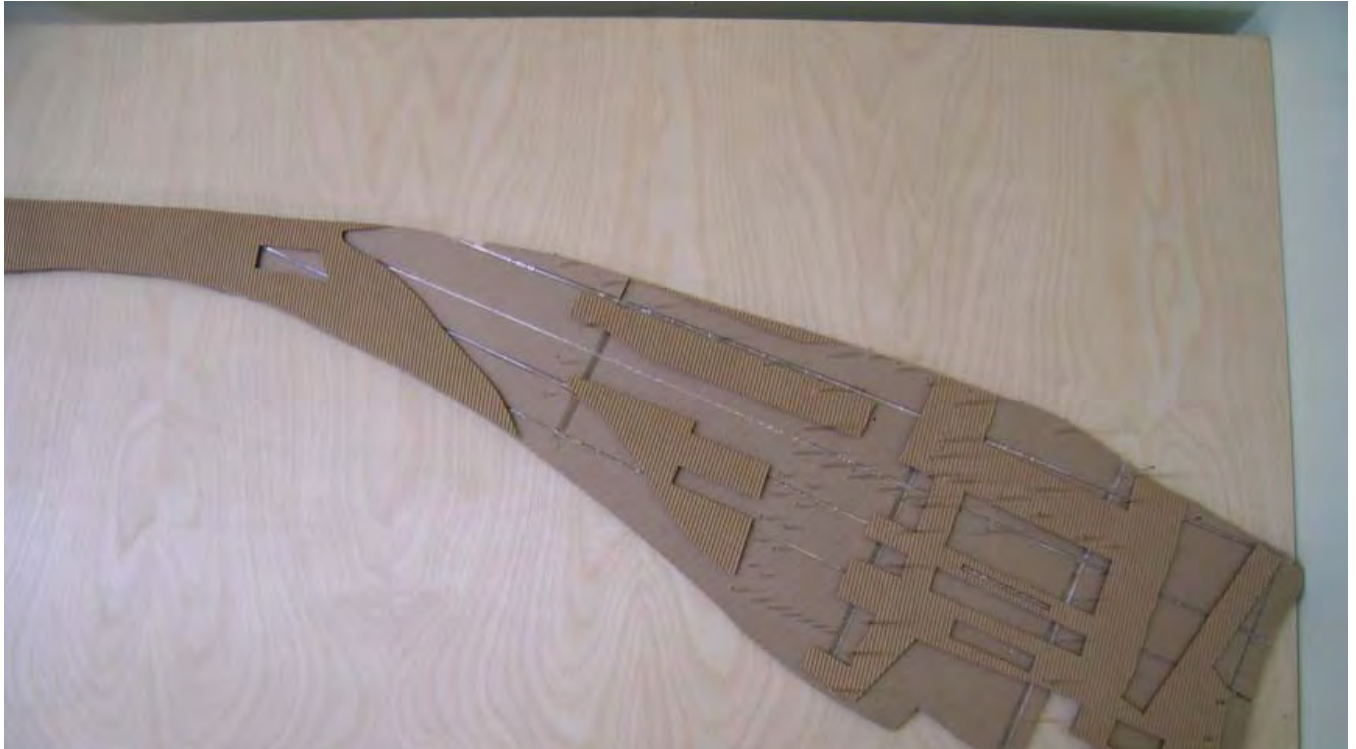


Figure 11

Figure 9 Density Diagram

Figure 10 Phasing Diagram - TL 1 year, TR 5 years, BL 10 years, BR 15 years

Figure 11 Network Model - canal networks and transportation networks

Focus Area



Figure 12

Figure 12 Overall Focus Area Model

Figure 13 Plans for the Focus Area Model

Figure 14 Diagram showing general program distribution guideline for overall site

Figure 15 Long Section cutting through central green space

Figure 15



Levels

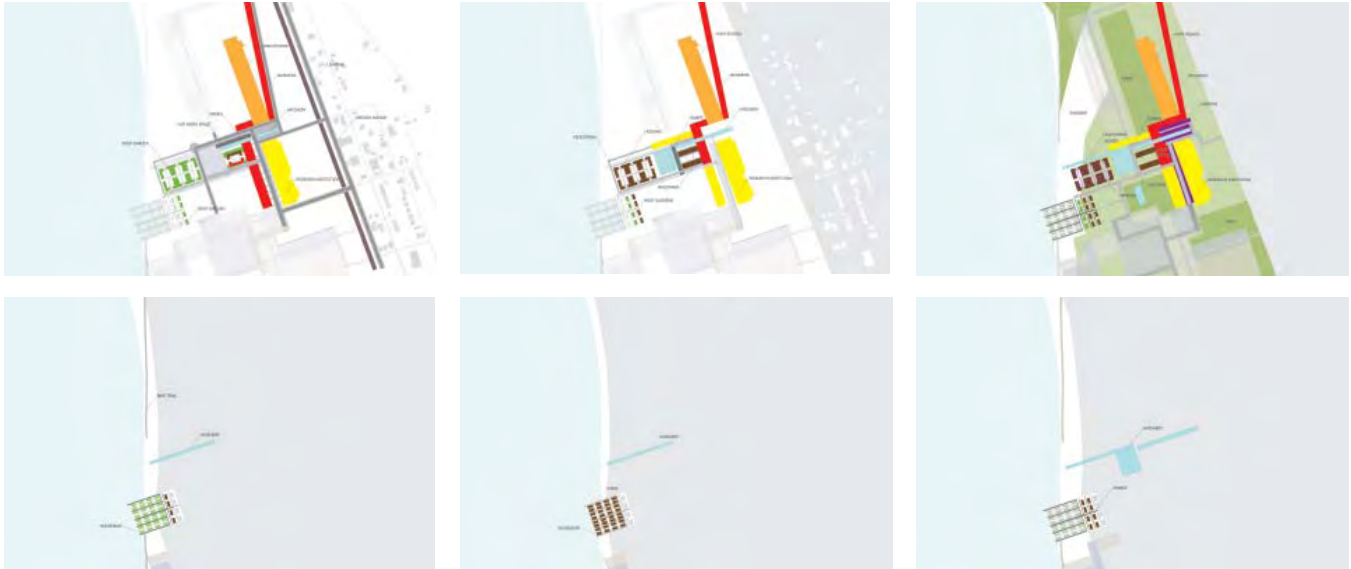


Figure 13

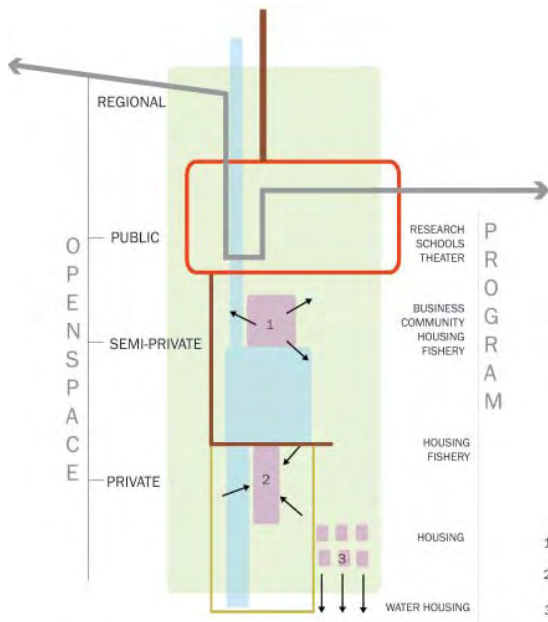
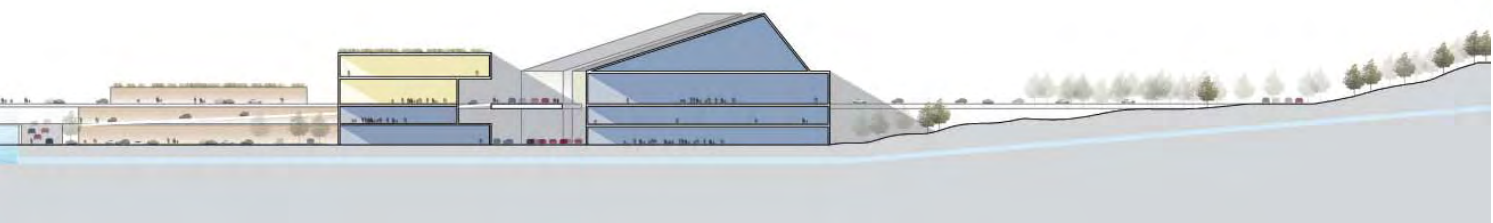


Figure 14

For our focus area, we realized that housing cannot exist on its own. Rather, it is in need of a social and economic driver. For this reason, we are introducing a research institution in the LTV building and a magnet high school that will work with the research institution. Socially, this brings a double benefit, creating additional opportunities for people in Hazelwood to connect with each other and those outside of the existing community. Economically, having the research industry on site will encourage businesses, both strengthening existing ones and creating new ones.



Housing Studies

HOUSING UNIT ARRANGEMENT STUDIES

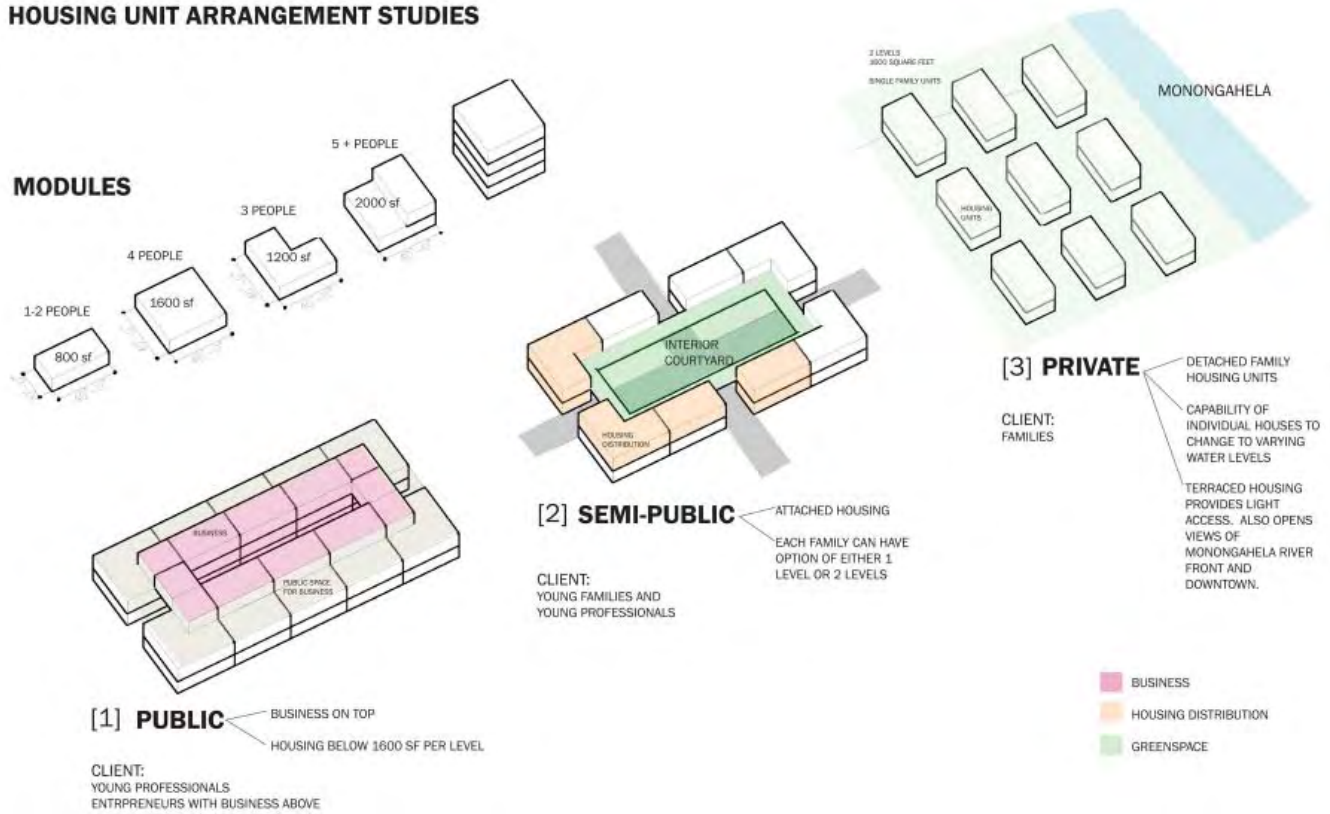
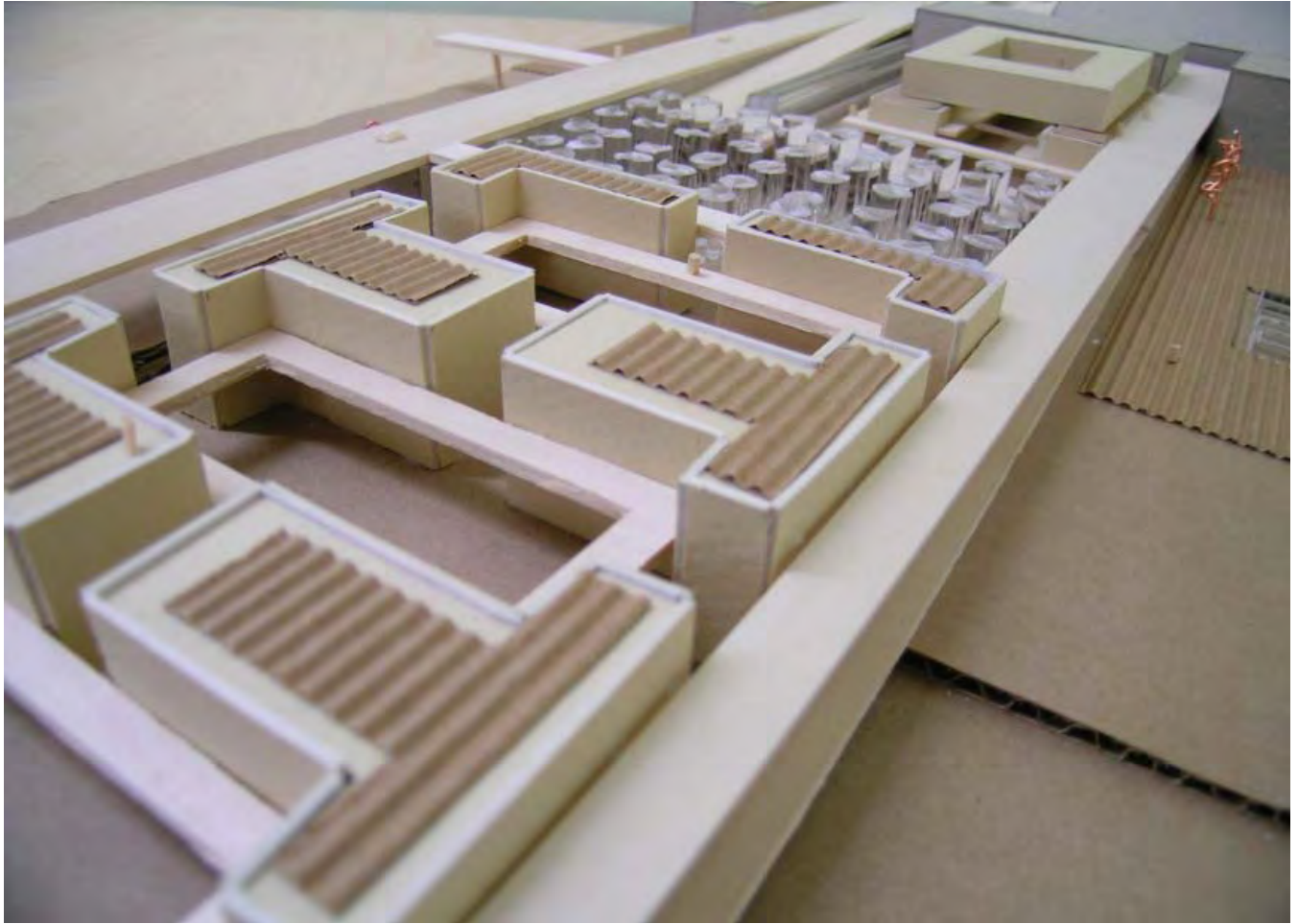


Figure 16



Housing Details



We seek to diversify the population by creating different types of housing to meet different housing needs. The site includes multi-family housing, single-family housing, studio apartments and most importantly, live-work spaces which will encourage unique entrepreneurial enterprises.

Figure 16 Housing Module Diagram

Figure 17 Short section cutting through single young professional living spaces

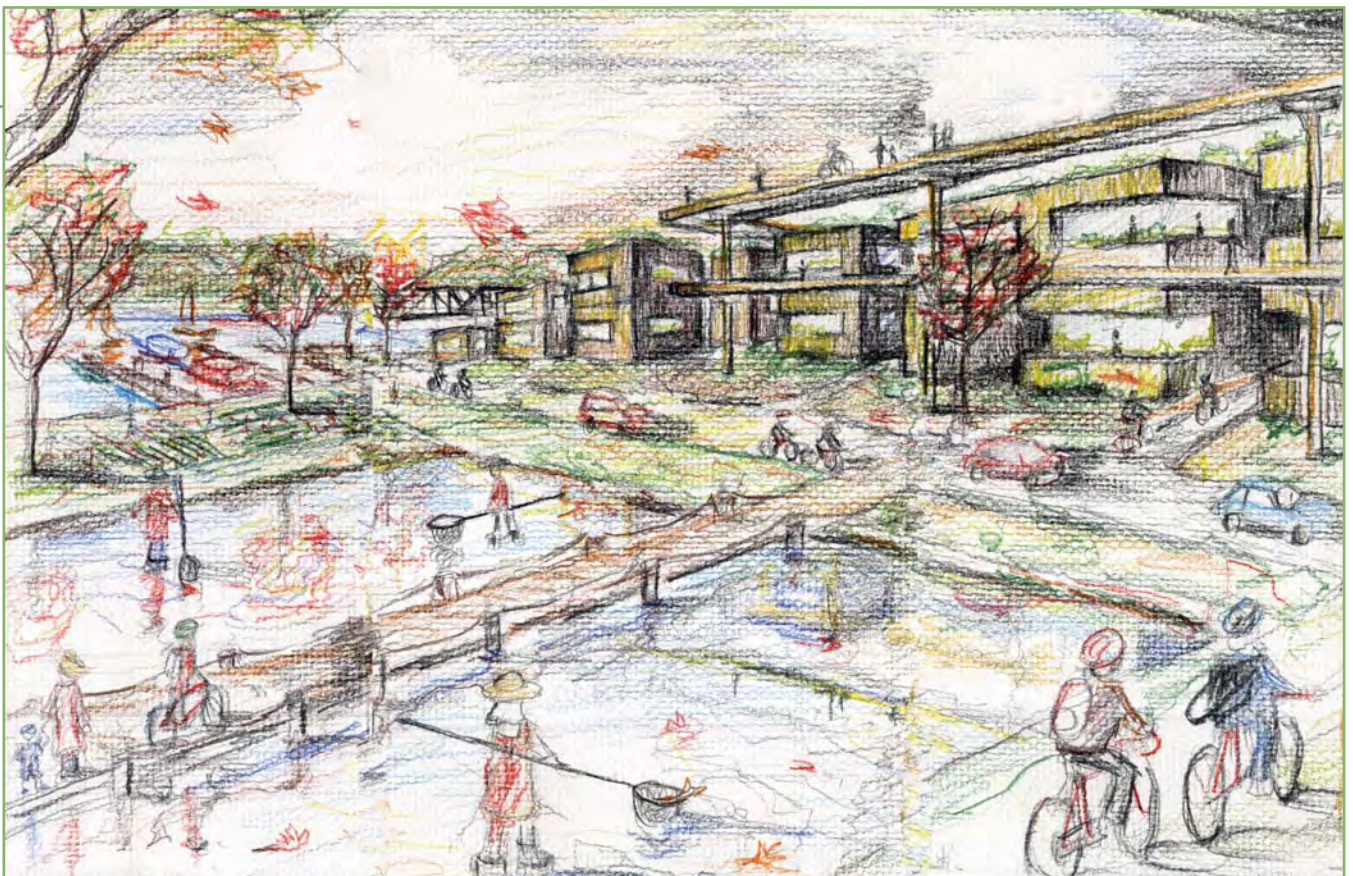
Figure 17



Procession



Perspectives





Experiments in Urban Farming

Laura Horton and Waz Wu

Urban Laboratory

STUDIO C Possible Publics

Rami el Samahy, Professor

PRODUCTIVE LANDSCAPES



Figure 1



Figure 2



Figure 3

Early investigations included site analysis and a think piece. The think piece emphasized connecting existing street networks in Hazelwood to the Monongahela River below. These connections were envisioned as physical streets or view corridors.

Additional early analysis was comprised of identifying and diagramming corridors and vacant space in Hazelwood.

These diagrams of the context provided information for later networks, found in the axonometric drawing to the right.

Additional on-site networks were based on contamination and phytoremediation strategies.



Figure 4

Figure 1. Thinkpiece, placed on site model showing site corridors and relationships.

Figure 2. Early concept work examining corridors, infrastructure, surfaces, textures and edge conditions.

Figure 3. Contaminant locator map and plants needed for phytoremediation.

Figure 4. Concept montage of container plots on the site.

Figure 5. Delayed axonometric showing project infrastructure, urban farming at the global, regional, urban and local scales, and methods of circulation on the site.



Figure 5

Project Diagramming user paths, farming context, containers



Figure 6

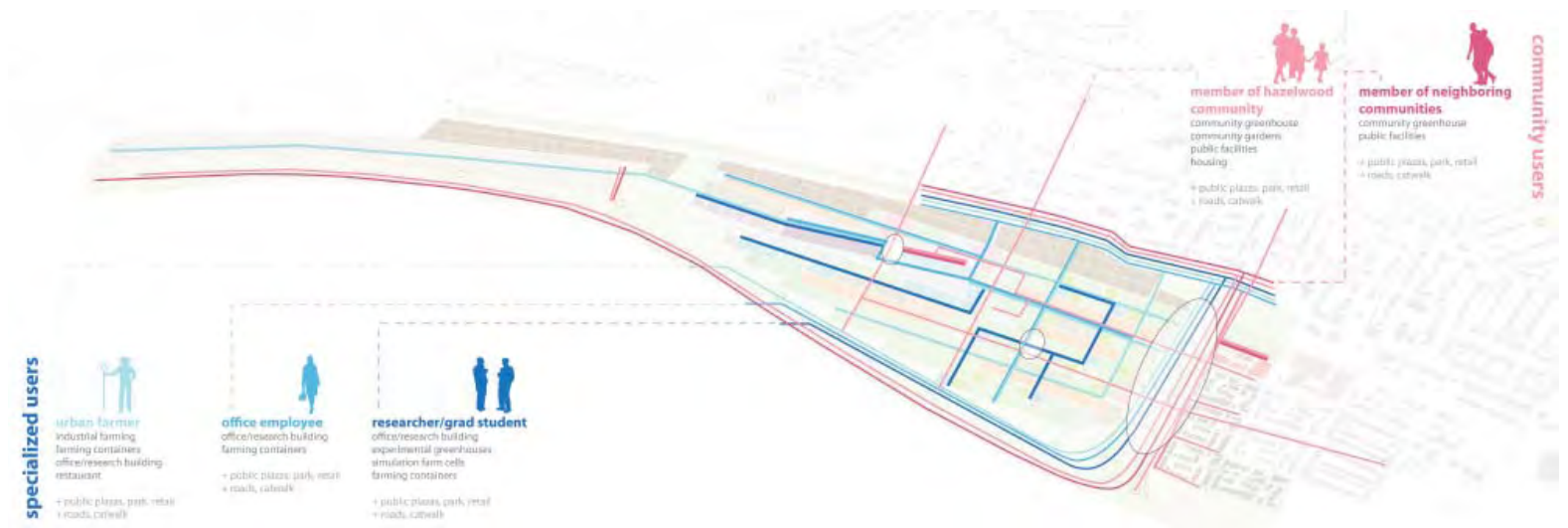


Figure 7



container distribution

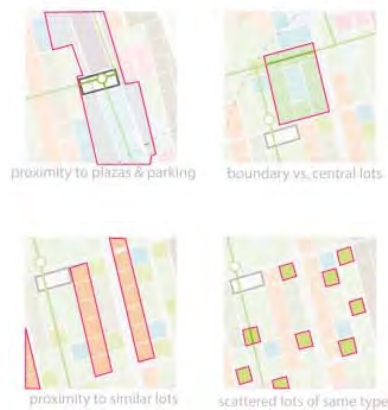
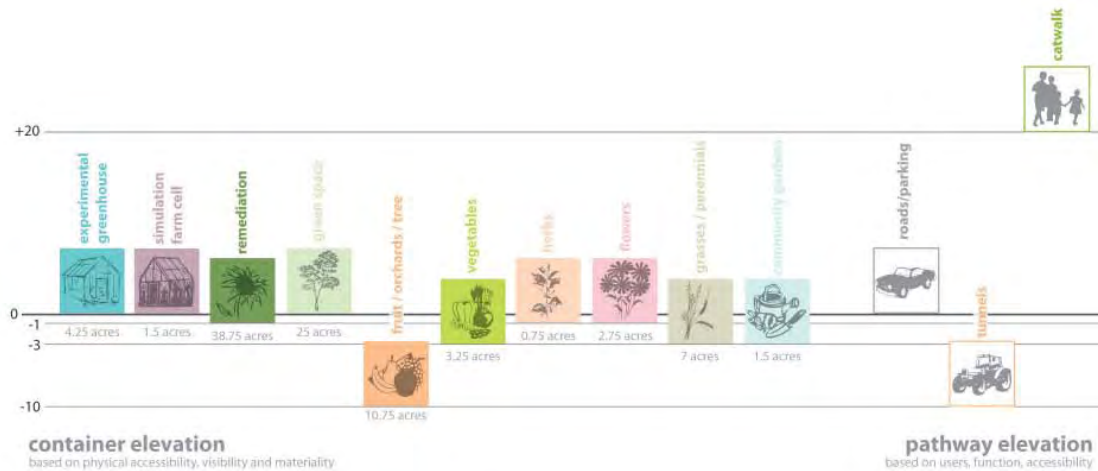


Figure 9



Primary regional and urban context research revolved around the existing infrastructure for urban and rural farms in Allegheny County, PA. Additional research located grocery stores within a five-mile radius of Hazelwood.

Additional research in Hazelwood considered potential users of the site given a program of urban agriculture and experimental farming.

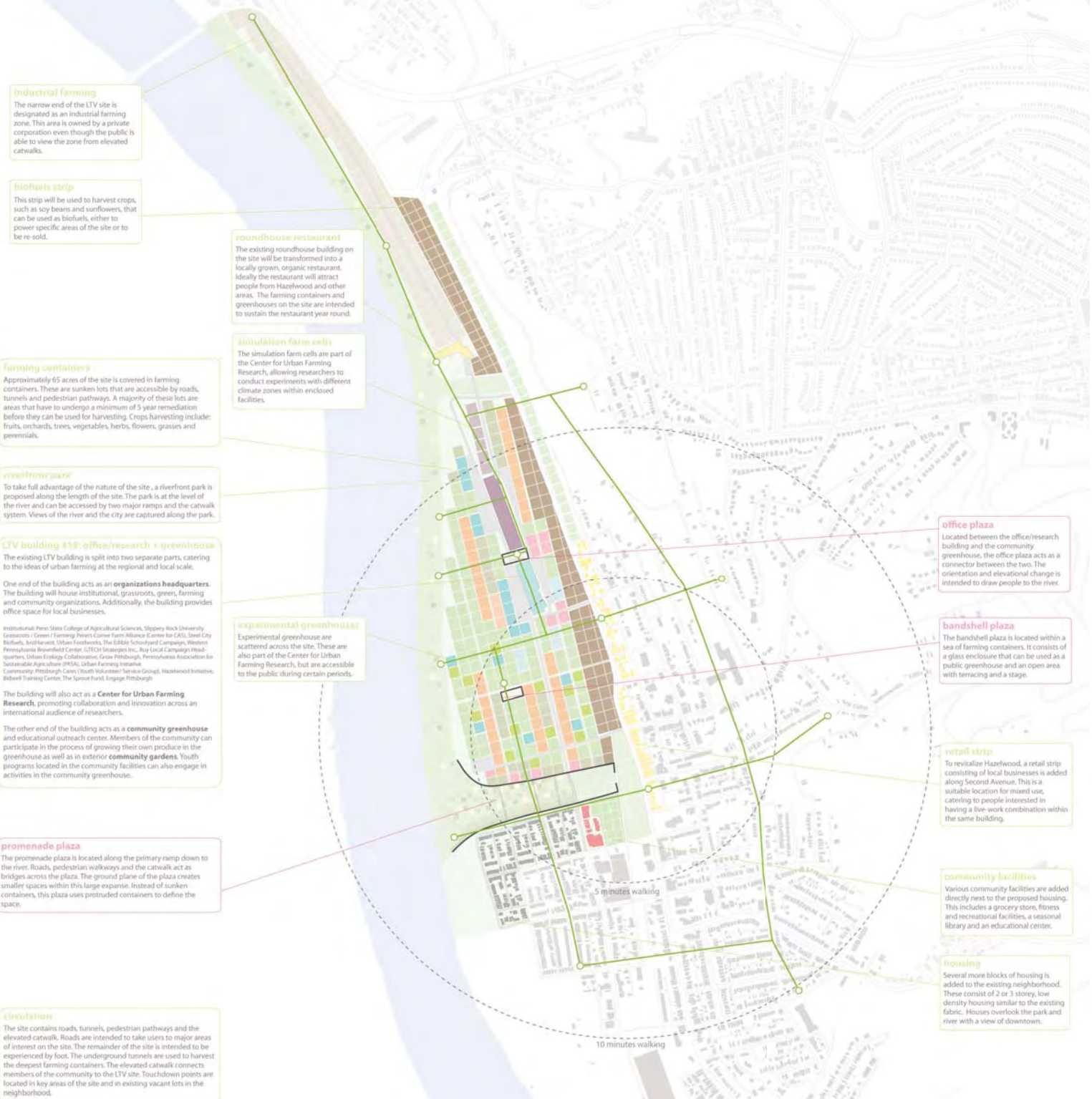
Figure 6. Farming diagrams: location and size of farms in Allegheny County; grocery stores, farmers' markets and stands in the city of Pittsburgh; types of produce found in local farms; photos of farmers' markets and stands.

Figure 7. User diagram showing circulation and interaction of urban farmers, office employees, researchers/graduate students, members of the Hazelwood community, and members of neighboring communities.

Figure 8. Quotes and comments from the second community meeting in Hazelwood.

Figure 9. Container diagrams showing methods for container distribution on site and container elevation.

Figure 10



1" = 300' site & neighborhood strategies

- Center for Urban Farming Research / Offices
- Simulation Farm Cells
- Experimental Greenhouse
- Industrial Farming
- Biofuels

urban		Retail
		Riverfront Park
		Public Plazas
local		Housing
		Community Facilities
		Community Greenhouse
		Community Gardens

Farming containers: Fruits / Orchards / Trees (Orange), Vegetables (Light Green), Herbs (Light Orange), Grasses / Perennials (Light Green), Flowers (Pink)
 access: Roads & Parking (Grey), Elevated Catwalk with Touchdown Points (Green)

The primary strategies for topographical alterations on the site include:

Immediate access to the river via a public riverfront park, a “container” system in which to sink 1/4 acre agriculture plots based on projected crops, and a system of elevated “catwalks” which provide users with views of the entire site, the Monongahela and the riverfront park.

Different programmatic zones and elements include: Privately owned industrial farming lots near the Hot Metal Bridge; biofuels along Second Avenue as a means to remediate and fuel the site; locally grown, organic restaurant where the roundhouse is located; farming containers cover 65 acres of the site, with a variety of crops such as fruits/orchards/trees, vegetables, herbs, flowers, grasses, perennials; riverfront park along the length of the site, bringing people to the river; Center for Urban Farming Research and Simulation Farm Cells as a means to promote urban farming globally; community greenhouse and farming to allow community members to interact with the site; three urban plazas that occur within the farming container system; Mixed-Use Retail Strip along Second Avenue to revitalize Hazelwood; community facilities include a grocery store, fitness and recreational center, seasonal library, and educational outreach center; housing is added to the existing neighborhood at a similar density to the existing fabric.

There are three levels of circulation: 10 tunnels for farming access; at grade roads for vehicular access; +20 pedestrian catwalks.

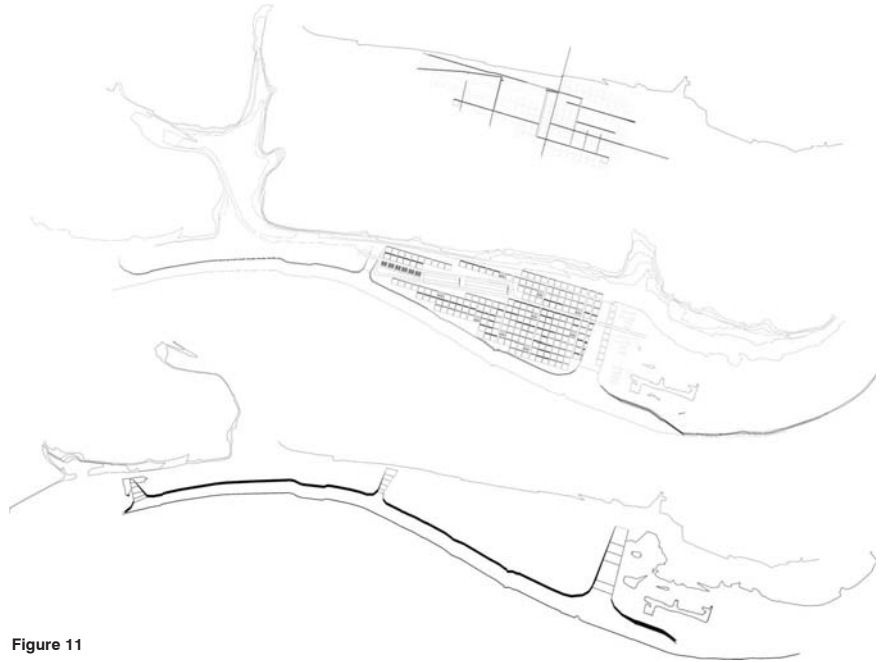


Figure 11

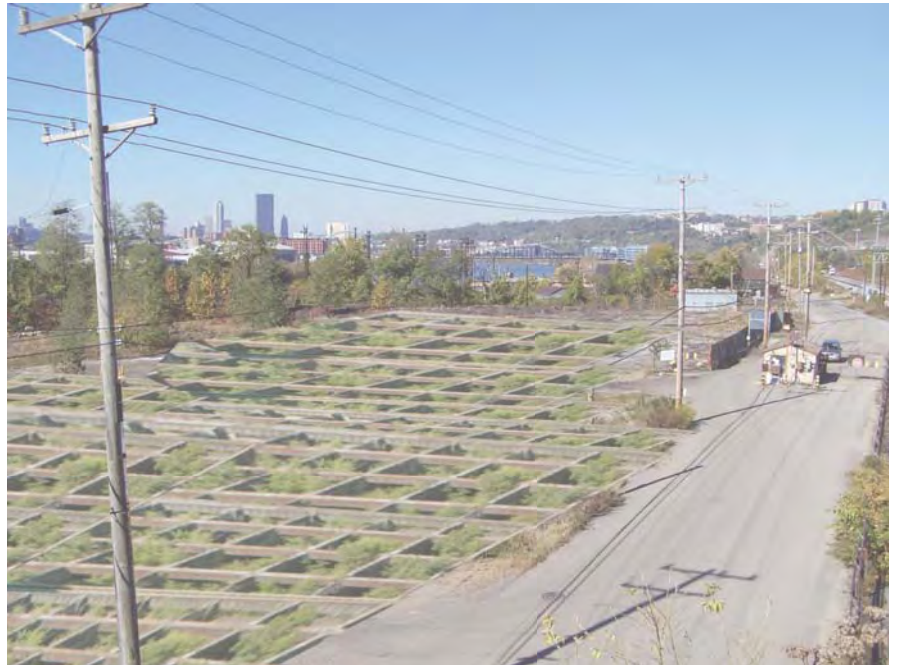


Figure 12

Figure 10. Site plan with callouts, showing different zones and programmatic elements of the project.

Figure 11. Aerial view of site delayed to show topography, container plots, and elevated circulation.

Figure 12. Concept montage showing aerial view of containers.

Office Park and Institutional Entry Plaza



Figure 13



Figure 14



Figure 15

Figure 13. Plan of Office Plaza.

Figure 14. Section through research/office building and community greenhouse that define the plaza.

Figure 15. Section through the length of the plaza.

Figure 16. Snapshots of the Office Plaza model.

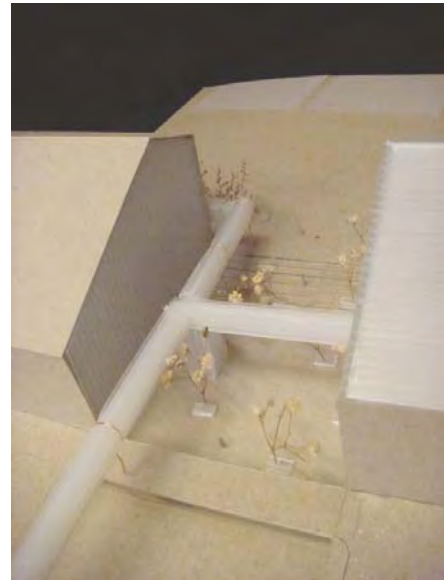


Figure 16

The Office Park and Institutional Entry Plaza occupies a significant location on the site. The plaza marks a very public entry point from Hazelwood and access from the most central parking on the site. The plaza offers a “nexus” for institutional workers, community members and Hazelwood residents in which to interact. The plaza provides access to both halves of Building 19 and to the tunnel and catwalk circulation systems.

Figure 17. Plans of the Bandshell Plaza, below grade and on grade.

Figure 18. Section through the length of the plaza.

Figure 19. Section through the glass enclosure in the plaza.

Figure 20. Snapshots of the Bandshell Plaza model.

Bandshell Plaza

The Bandshell Plaza is located in the center of the container lots. The plaza consists of two plots, one sloped down to a stage for outdoor concerts and performances and a covered area planted with shade perennials and a fern garden. These spaces will draw the public into the center of the containers. The plaza is also a central location and touchdown point for the tunnel and catwalk circulation systems.



Figure 17

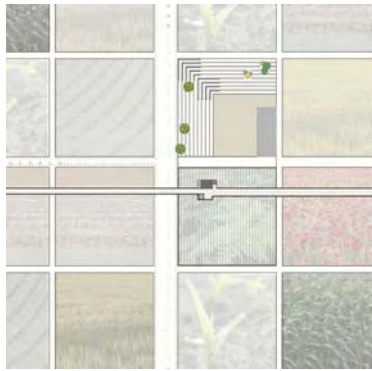


Figure 18



Figure 19

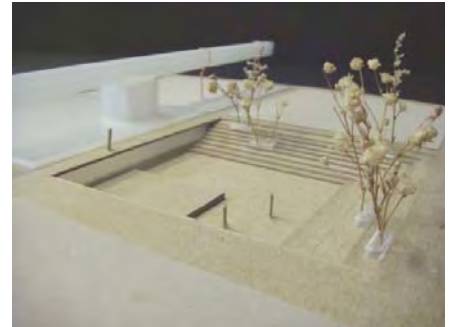


Figure 20



Figure 21

The raised walkways enable the user to walk at level with the tree canopy.

Figure 21. Montage of a fruit/orchard/tree container lot.

Figure 22. Plan of Promenade Plaza.

Figure 23. Transverse section through the plaza, showing terracing on one side and the retaining wall on the other.

Figure 24. Snapshots of the Promenade Plaza model.

Promenade Plaza



Figure 22



Figure 23

The Promenade Plaza serves a variety of functions on the site. The Plaza is a connector to the new retail space on Second Avenue, new housing extension for lower Hazelwood, and a reinterpretation of the containers in the main part of the site with extruded blocks of different materials.

The Plaza also creates a view corridor from Hazelwood Avenue down to the Monongahela River.

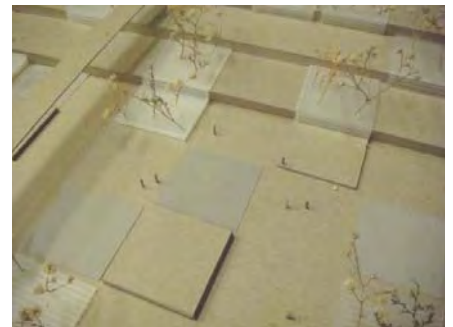
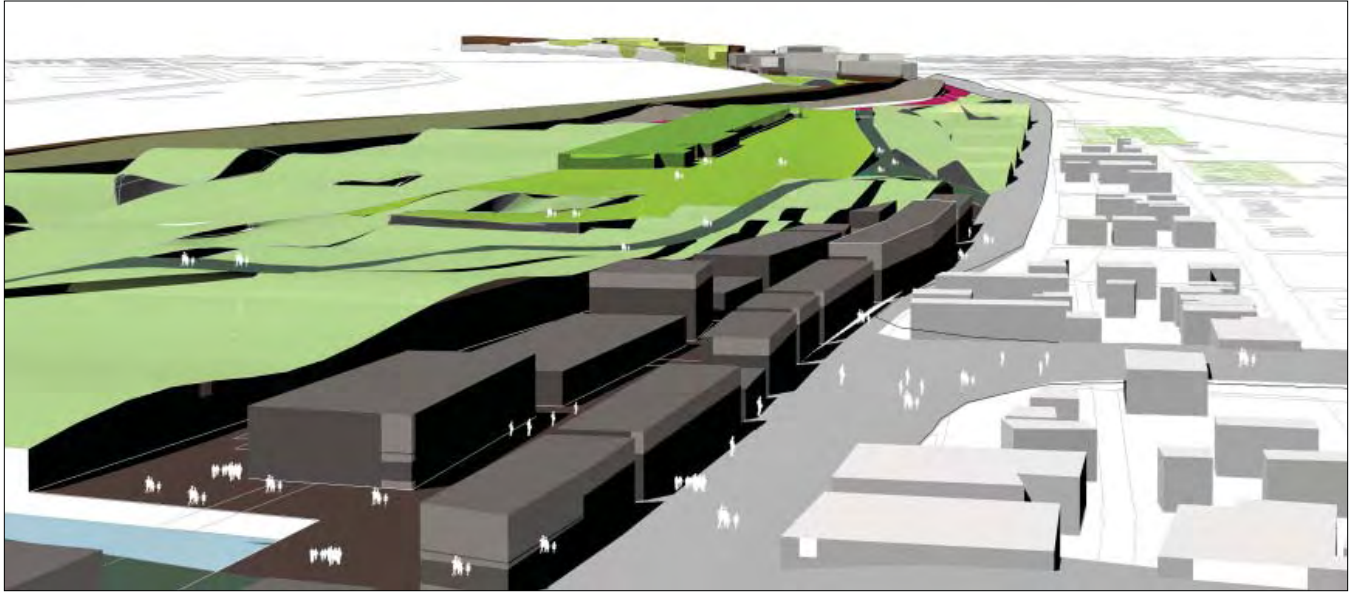


Figure 24



Think Globally. Eat Locally.

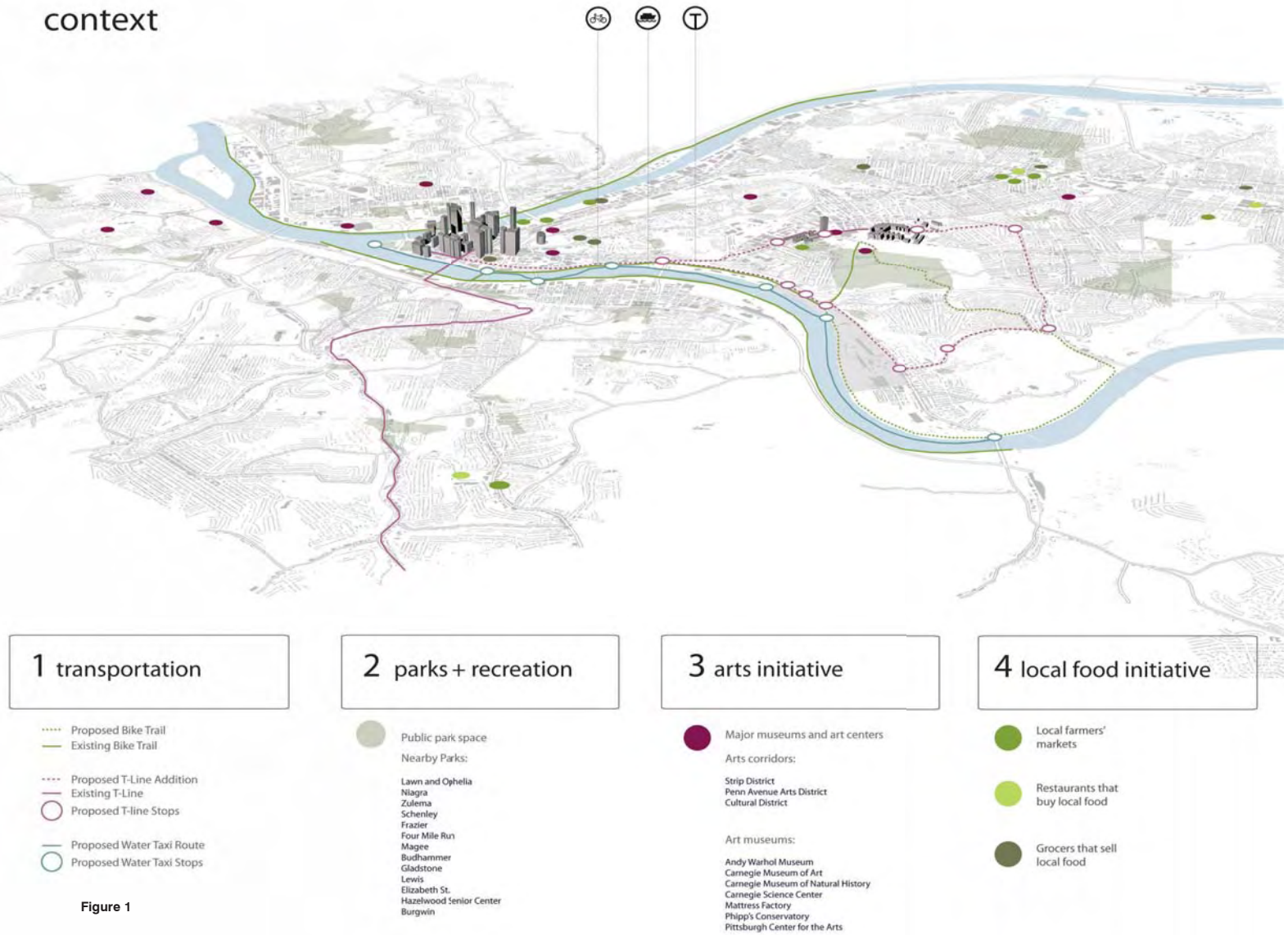
Zach Hartle and Michelle Lopez

Urban Laboratory

STUDIO A Robot City

Jonathan Kline, Professor

context



Urban centers can no longer be viewed as strictly built, commercial developments. There is an increasing desire to incorporate landscape into urbanism. Urban agriculture feeds off of this principle. We should grow food near the highest density of people. The benefits of this practice, though, go significantly beyond the reduction of transportation costs. Other environmental aspects include a greater care for the land and fresher, healthier food. If the land that surrounds an area is the

same land that is used as a food source, people will likely be more conscious of the way they treat their land. Likewise, the greater social connection people have with the production of their food, the more concern they will have in its production. As a result, locally produced agriculture will likely be more sustainable, as it will avoid the techniques of the big agribusiness processed commodities. Through promoting locally based agriculture, open land will be valued and conserved,

people will be provided with healthier alternatives, and regions will become self-sufficient in an uncertain global environment.

It has been estimated that the average American meal travels 1500 miles before reaching the table, while most food sources can be found within 100 miles of their demand. The most political act we do on a daily basis is to eat locally as our actions affect farms, landscapes and food businesses. Do you know where your food comes from?

PRODUCTIVE LANDSCAPES

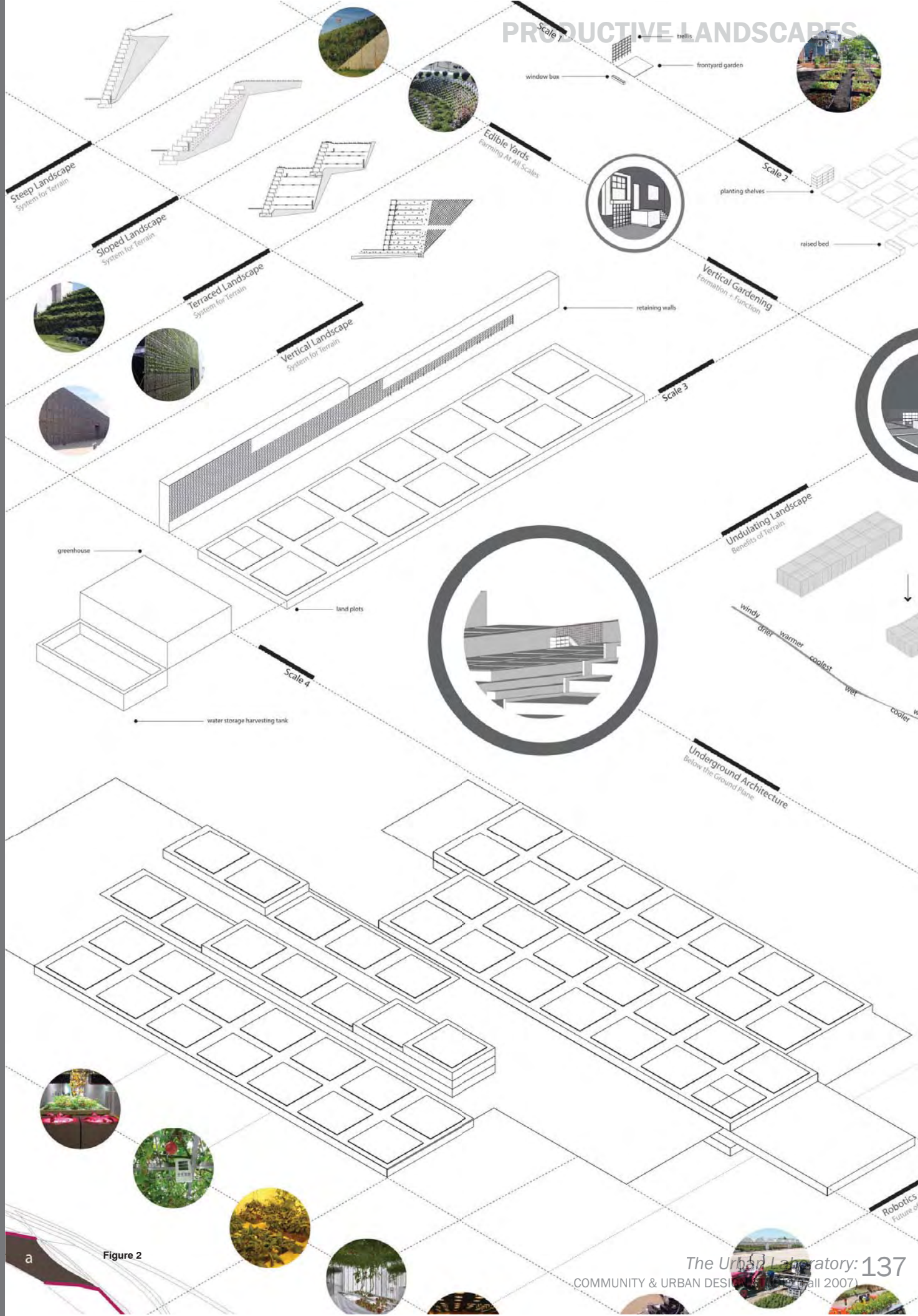


Figure 2

PRODUCTIVE LANDSCAPES



Figure 3



Figure 4

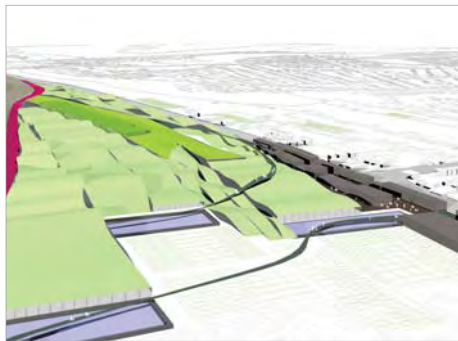


Figure 5



Figure 6

Public promenade:

By incorporating a public promenade that meanders along the river's edge, we are creating a pedestrian system that is afforded views of the site, the Hazelwood community and downtown Pittsburgh. The path itself varies in width along its length, allowing for places to gather and numerous entrance points. At some points along the path, terrace-like seating folds away to offer spectators a great view of the recreation fields. Visitors exiting off the numerous water taxi stops can immediately enter the promenade.

Connection to universities and collaborative research:

One of the major assets in Pittsburgh is the extensive network of universities and colleges. Due to the robotics research, both academic and corporate, that we envision occurring on the site, we feel it is imperative to have a physical link between the universities in the vicinity, in particular Carnegie Mellon University. A few of the advantages of collaborative research include rapid technology transfer to maintain advantages in manufacturing and productivity, reciprocal access to extensive libraries, and access to knowledgeable research personnel.

It has been estimated that the average American meal travels 1500 miles before reaching the table, while most foods sources can be found within 100 miles of their demand.

program

-  Agricultural Production
Land Plots
-  Agricultural Production
Community Plots
-  Academic Research
LTV Building, Edible Schoolyard
-  Biofuels Research
Robotics, Biotech
-  Park + Recreation Space
Track, Field, Gym
-  Commercial Corridor
Galleries, Farmers' Market
-  Business Research Park
Technology, Collaboration
-  Throughway
Train, Vehicular Traffic
-  Woonerf
Pedestrians, Parking
-  Public Promenade
Boardwalk, Trails, Bikes
-  Water Taxi
Docks, Riverfront, River

Scale

1 inch = 200 feet



Figure 7

Figure 1 Context Map

Figure 2 Systems Diagram

Figure 3 Verbal Framework

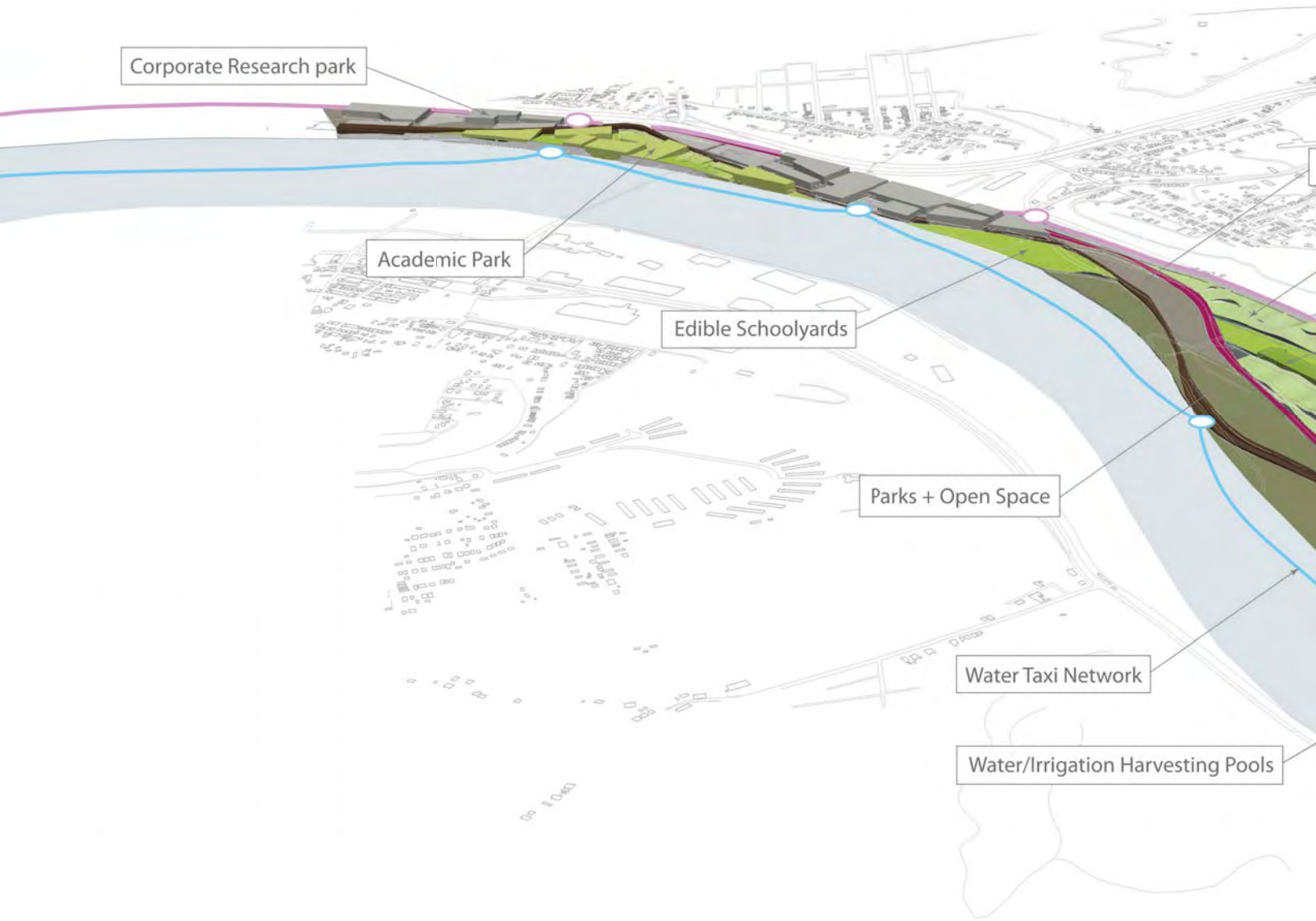
Figure 4 Site Usage
Diagram

Figure 5 Overview showing
lower portion of site and
community land plots.

Figure 6 Aerial of collabora-
tive research development.

Figure 7 Site plan of the
main framework.

PRODUCTIVE LANDSCAPES



Vacant lot policy:

In an effort to address the current vacant lots in Hazelwood, we are not allocating any space for residential living on the site. It is our vision to transfer some of the design principles from the site, including the creation of community gardens and public art installations, to the vacant lots

throughout Hazelwood. In addition, as part of our continuing arts initiative, we plan to encourage local artists to buy or rent homes/apartments in the community as a means to acquire inexpensive live/work/display space.

Recreation:

Currently, Hazelwood has limited connection to athletic fields and general recreation spaces in the area. The riverfront park provides numerous athletic fields as well as indoor workout spaces to broaden the facilities available in the area and create a new, year-round asset for the city of Pittsburgh and its residents.

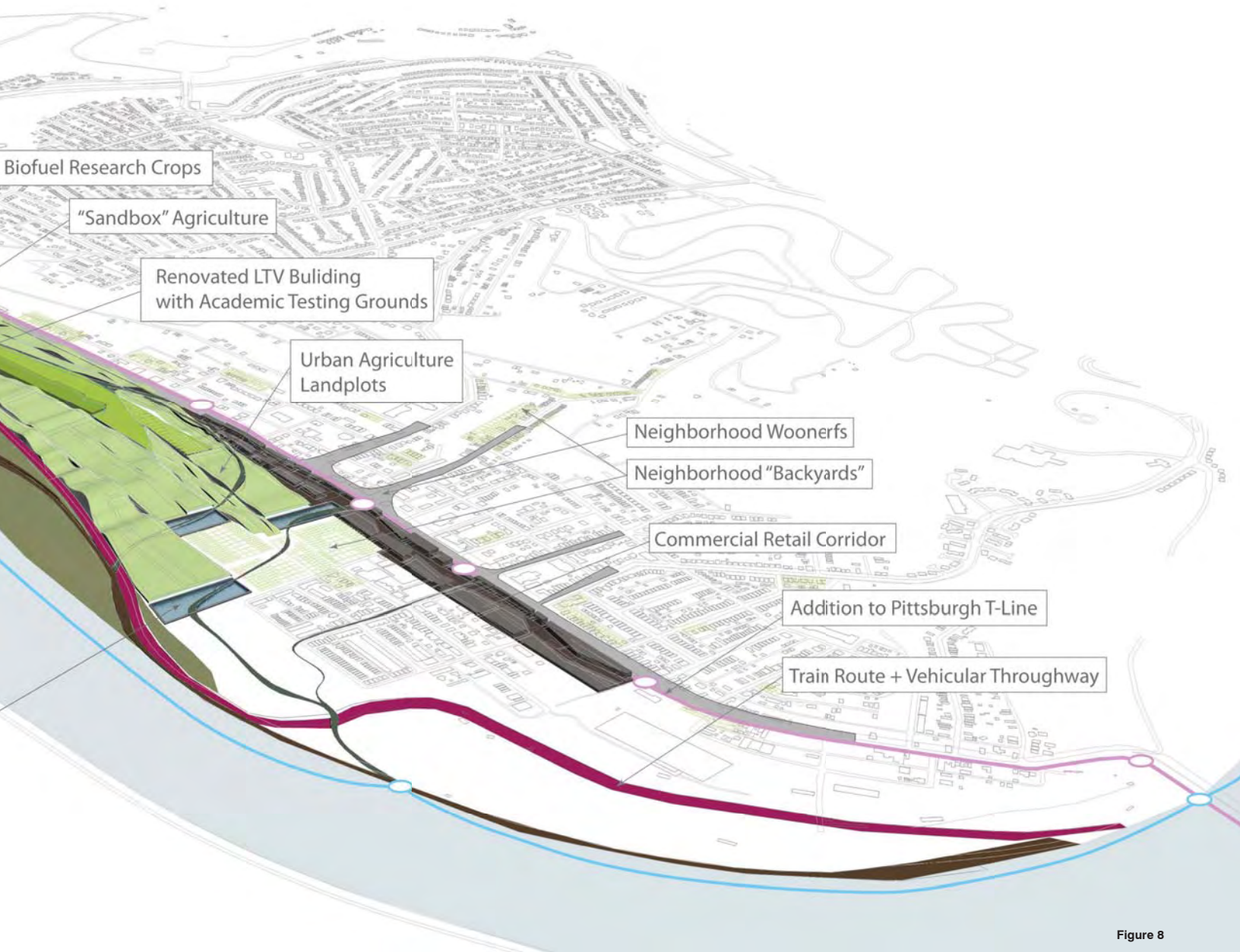


Figure 8

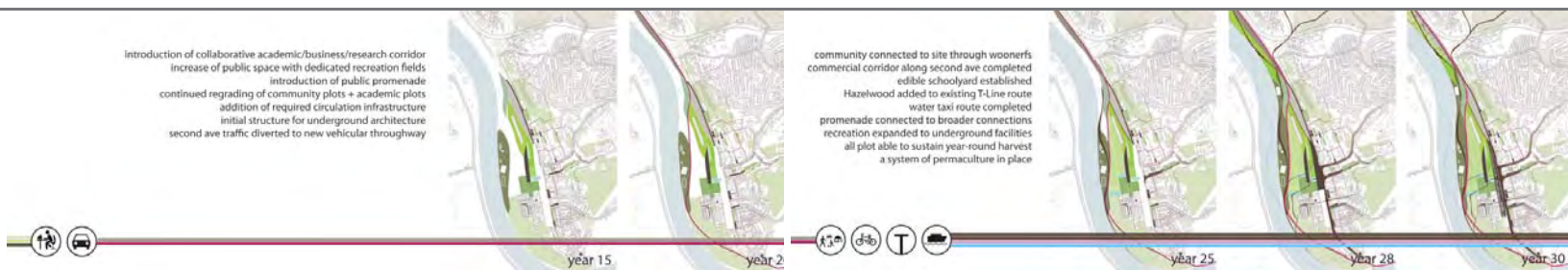


Figure 11

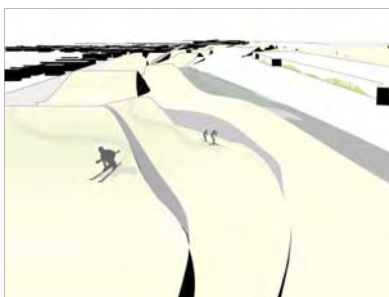


Figure 9

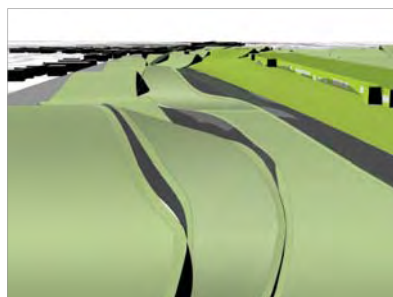


Figure 10

Figure 8 Aerial of entire site.

Figure 9 Site usage in winter.

Figure 10 Undulating land plots.

Figure 11 Phasing Diagrams.

PRODUCTIVE LANDSCAPES

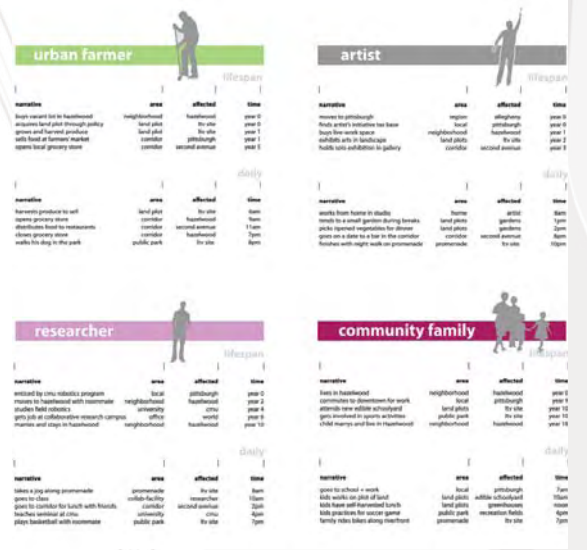


Figure 12

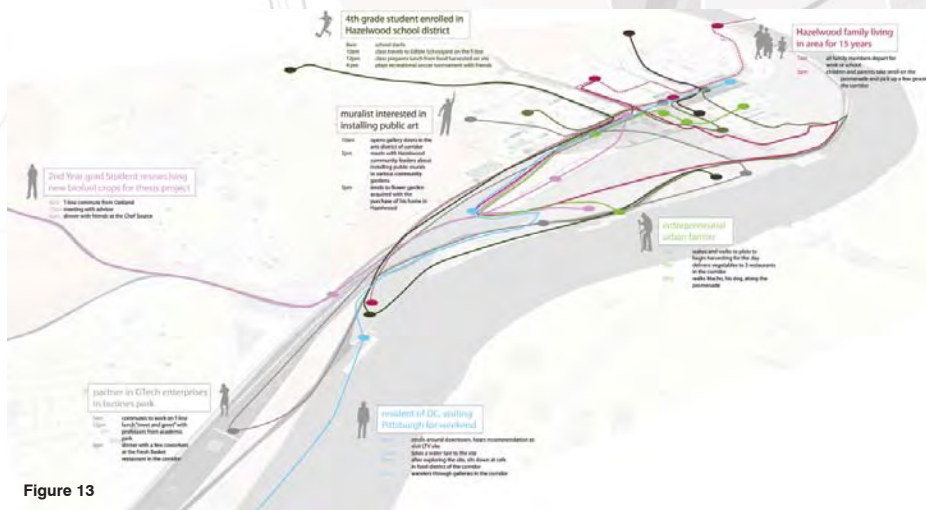


Figure 13

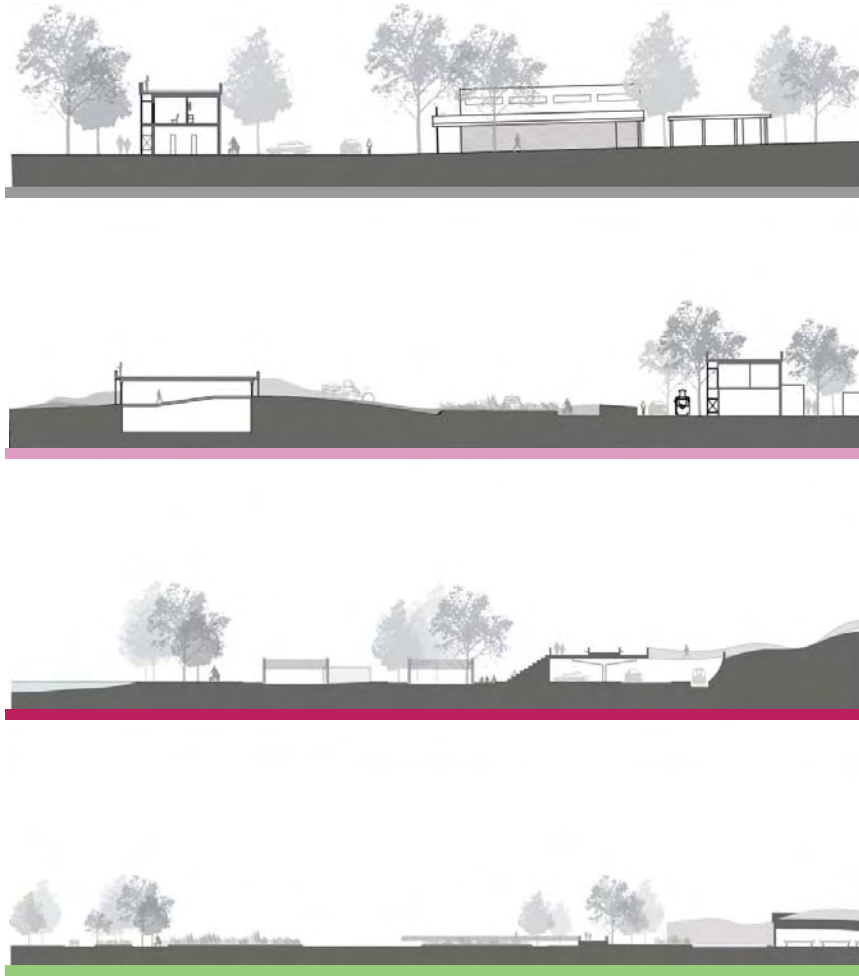


Figure 14

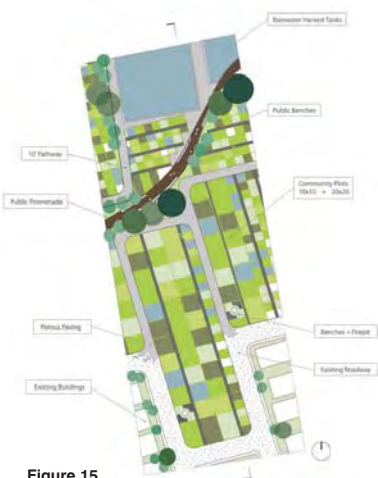


Figure 15

The primary intent of our project was not to simply design a space that would facilitate urban agriculture. Instead, the project aimed to introduce a system that would promote the full idea of permaculture through various scales and through various users. This systems-based approach was explored through a detailed look in plan and section, which highlighted a specific portion of the design relating to one of the selected site occupancies: artist, research, community member, and urban farmer.

Figure 12 Daily site usage by various users of the site.

artist, researcher, community member, urban farmer.

Figure 13 Site user map mapping paths of various users.

Figure 15 Focus plan for urban farmer.

Figure 14 Site user sections:

Figure 16 Exploded axonometric of site and program.

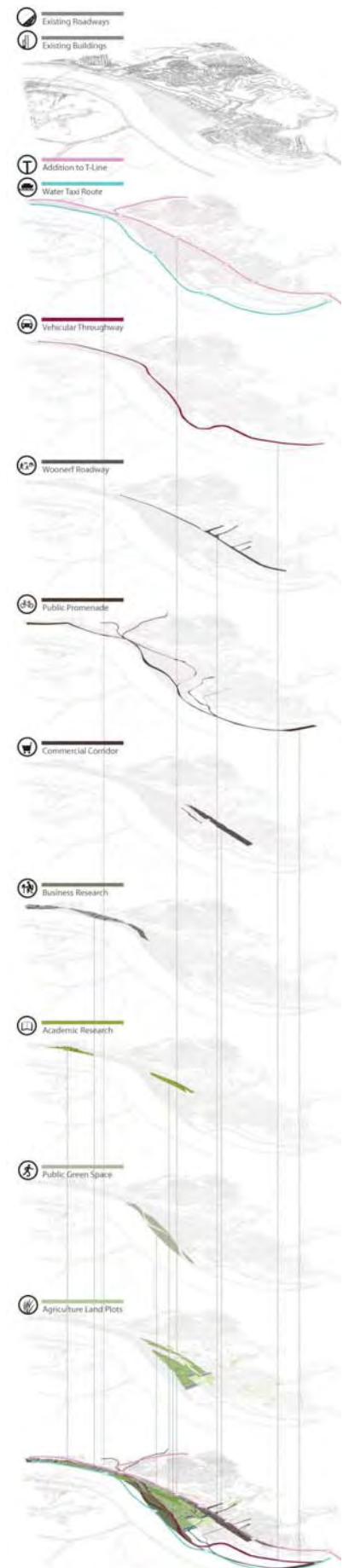


Figure 16

RESEARCH & COMMUNITY



Establishing a Green Network Integrating Community and Research Through Public Space

Nikki Debolski and Christina Lynch

Urban Laboratory

STUDIO A Robot City

Jonathan Kline, Professor

Throughout the early study of the site and surrounding neighborhoods, it became apparent to us that in order to accommodate research and development programs on the site, it would be necessary to effectively find a way to integrate those programs with a community that could be considered their polar opposite: an economically depressed working-class community. Since we wanted to accommodate both user groups on the site, our major design goal developed into addressing the difference in user groups and utilize the urban form to effectively integrate the two.

Throughout our study, we developed five urban design strategies that were the catalysts for our design. Two of those strategies were the most important, and the other three served to strengthen the goals of the main two. Our first strategy is to address and integrate the two user groups of the site: the working class community of Hazelwood and the professional-level researchers from the universities or other research groups. It became our goal to redefine the term "Research and Development." In order to accomplish these goals, we decided to institute a program of innovative research and development, which focuses R + D

on a smaller scale and is defined through housing space, research space, and public space. Possible housing programs include live-work spaces for individual researchers, possibly in a subsidized format. Research programs include catering to research companies who want to operate in smaller spaces or are smaller companies themselves (including startups). Also, facilities could accommodate individuals, possibly in a garage-style layout. Public programs may include the creation of storefronts for companies who have products to sell, or smaller gallery-style spaces for exhibition. Also included in public programs are interactive spaces, where R + D has exposure to the community.

As a means to accomplish the implementation of this program in the context of the site, we are focusing on the development of a green network on the site which connects the existing Hazelwood community with the riverfront. Our second urban design strategy orients these paths on the site and places along them these innovative R + D programs. By developing these paths into desirable public spaces, we are encouraging daily interaction with a variety of R + D programs for the community.

In order to make the site development appealing to more than just those in the immediate region, we have placed seven public attractors throughout the site, nodes of development that each have a public and research aspect. They are as follows:

Figure 1 Urban Design Strategy / Integrating Research and Community

Figure 2 Urban Design Strategy / Establishing a Green Network

Figure 3 Urban Design Strategy / Public Attractors

Figure 4 Urban Design Strategy / Economic Stabilization of Second Ave

Figure 5 Urban Design Strategy / Transit Hub



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

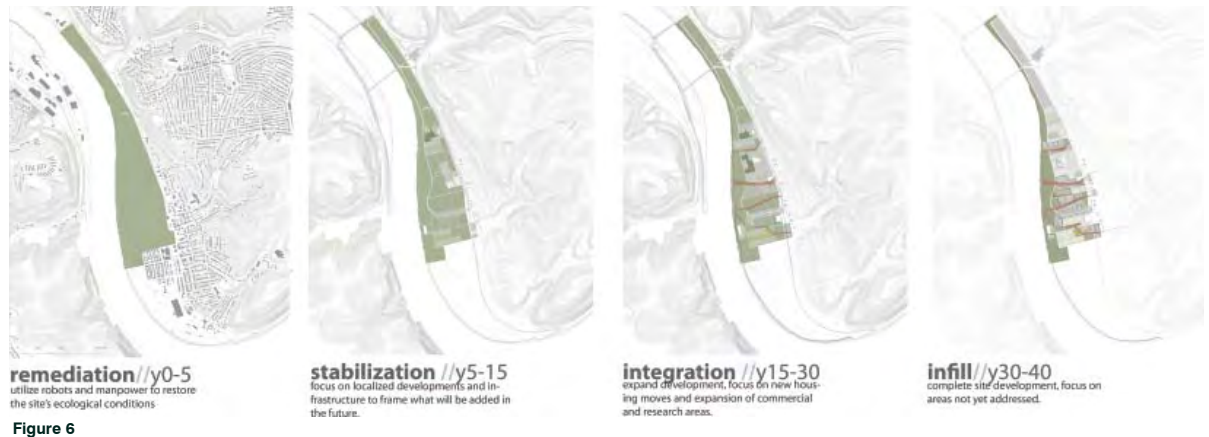


Figure 6

robot city//vision

pioneering initiative that **unites the best of industry and community** in a field setting that facilitates, calibrates, and drives development//translate engineering and **robot visions to real life applications**//reinstalling **pittsburgh's preeminence in technical expertise**//people and robots will work for both each other and the land without the limitations of constrained laboratories//essential to the **future of robotics**//persistent, uncontrived field work//**robots as tools for site development** and maintenance of the almono site//agenda for site includes shaping land, seeding, cleaning, + security//robots to become relevant, reliable safe, independent, and **useful coworkers**//robot city will evolve technologies and tools to **overcome the social and technological barriers** that thwart the adoption of robots by markets and by society//initiative to **green robot city** (symbolic reclamation and a bright future)//**junction hollow line**: a vision for an automated people-mover system that would shuttle between cmu and the almono site using existing track and ultra-light rail personal rapid transit cars//**encourages connectivity** between oakland and the almono site, and possibly beyond to the monongahela riverfront, downtown, and south side areas//**junction hollow bikeway** will provide enjoyable good-weather transportation between oakland and the almono site//provides a direct route between oakland and hazelwood//**prime location** to connect **three significant areas of the city of pittsburgh**: oakland and cmu, the almono site, and downtown pittsburgh//process of robot city is a pioneering initiative that unites the best of technological **research with an urban community** in a field setting//offers unparalleled research and real world

community//needs

a need for **infrastructure** along second avenue for errands/walkability//**"if you building infrastructure people will come"**//**"something needs to happen"**//no schools for the children of young couples//hazelwood to come together: **1 instead of 45***//potential along second avenue//**green space + centralization**//currently not much business there//coffee shops, ice cream, etc//hazelwood greenway is good//olympic sports/pittsburgh tech center//liveable neighborhoods//**"why develop in one area when there are a bunch of old, empty houses?"**//no sensible entry way//hazelwood has the **largest greenway in the area, but people do not know about it**//boardwalk along river//industry//green buildings alliance//we have a market for it//bad reputation for safety//light rail//use **hazelwood as a hub** for downtown, oakland, ken-nywood, and the airport//stimulate and diversify hazelwood//riverfront is a key point//**"hazelwood can become bigger than shadyside"**//views of downtown//bigger library//connection from the community to the site//extend housing (presuming it is going to stay)//apartments with balconies for views/home-businesses//shuttle to get people up the hill, maybe an incline//**attract all income brackets**//more **middle class** people//recreation areas//swimming pools, basketball, gyms//after school programs//exercise for young people//boat dock//connection to Lisa furnace trail//rebuild second avenue//no **woomera**//light industrial research//green businesses [wind turbine, recycling, etc]//**opportunity for all levels of employment**//get rid of fucked up billboards//

Figure 7

A regional attractor located near the Hot Metal Bridge which could include a high-tech recycling facility or farm market. A transit hub which connects existing bike trails and proposes new light rail lines that extend to Oakland and run alongside the site to the south and east. Develop the roundhouse into Robot City's primary attractor building. A riverfront display center in which R+D programs can display their products and the public can utilize the space as athletic facilities.

A technical school which enjoys an exclusive partnership with the on-site R+D programs as a training center or employee bank. A water access facility which allows for R+D programs to operate there as necessary and also creates a public launching point and docks for the community. A community center which is also the light rail transit stop and serves as the terminal point where the existing neighborhood meets the site.

“Integrate R+D with the working class community of Hazelwood.”

Figure 6 Envisioned phasing of framework implementation.

Figure 7 Defined community needs and robotics vision.



site is extremely important for this region to help alleviate some of the traffic problems that currently exist. It is our plan to create better connections among bike trails that converge in that area and to make allowances for the light rail system to be the primary mode of transportation.

Our plan layout focuses on placing the Innovative R+D programs along our four paths that cross the site [defined in orange]. These paths are oriented to capture as many varied experiences as possible along their length. The path itself will not serve only as a pass-through, but is large enough to accommodate a variety of functions or gatherings, in addition to making allowances for possible interactive testing areas. There will not be any completely private zones along their length, but since it can be assumed that researchers may want a more controlled environment to conduct their testing, possible barrier types include a small change in the ground plane to prevent movement to a certain area, or planting to discourage access. Other than the areas defined by the paths, we are making the assumption that the site will develop as needed. Portions of the plan that have been grayed out are areas that we have defined in a certain way [see building program diagrams to the left], but could be adjusted as needed to accommodate certain demands. The area highlighted in purple is an area on the site that could either be given to the adjacent Pittsburgh Technology Center for their expansion, given to Robot City as a private testing facility, or developed as needed in the future.

In creating the paths, we chose to define four typologies

The final two urban design strategies are smaller-scaled interventions based on the needs of the community. First, our goal is to stabilize the Second Avenue business corridor in Hazelwood through selective intervention, and then once it has stabilized, to extend a new retail corridor onto the site along an extension of Hazelwood Avenue. Secondly, the institution of a transit stop across Second Avenue from the

“These paths... capture as many varied experiences as possible.”

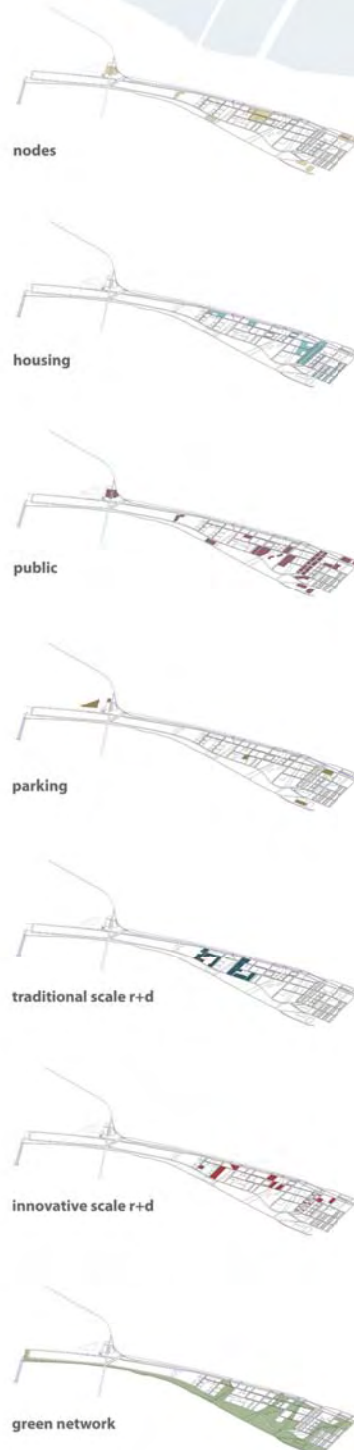


Figure 9



Figure 8



Figure 10

Figure 8 Sample Sections through the paths.

Figure 9 Axonometric diagrams showing various building / space uses.

Figure 10 Aerial view of four path typologies

Figure 11 Focus plan

Figure 11



Figure 12



Figure 13



Figure 14



Figure 15

that can be utilized to dictate their implementation on-site. The path has a direct relationship with retail space in an area such as the Hazelwood Avenue extension. We are focusing on the public realm and the promotion of street life and activity in this typology. A second typology is a direct relationship with housing. In this typology, we will encourage that the path be treated like an extension of the front yard as a shared green space. Possible safety measures could be included as needed. A third typology is a direct relationship with water. This typology occurs at the terminal points of each path. There is a focus on activity and recreation, with areas of planting to create smaller zones of activity. An additional focus is on the riverfront views. The final typology is an indirect relationship with research programs. In order to make allowances for both public testing and private zones of testing, the path will include soft barriers as necessary to either encourage or discourage access to certain areas immediately adjacent to research facilities.

Figure 16

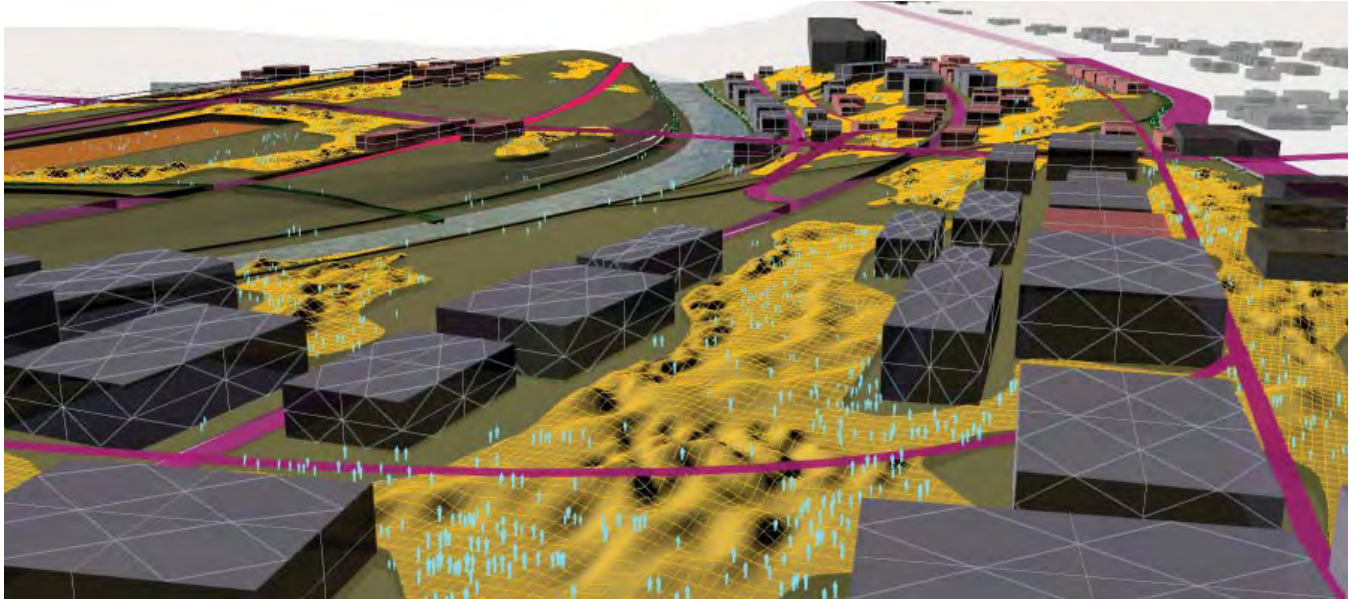
Figure 12 Waterfront Typology Perspective.

Figure 13 Retail Typology Perspective.

Figure 14 Housing Typology Perspective.

Figure 15 Research Typology Perspective.

Figure 16 Conceptual model of program and densities.



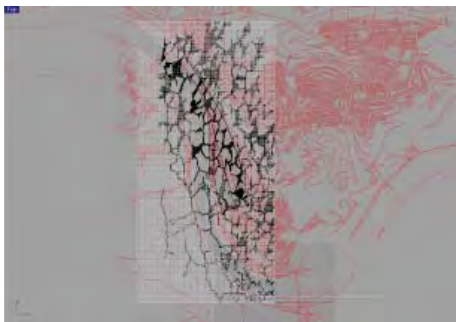
Robo Topo

Danny Orenstein and Amanda Marsch

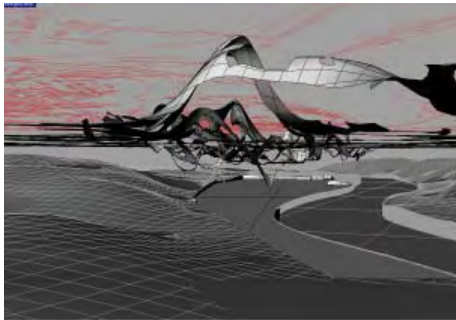
Urban Laboratory

STUDIO C Possible Publics

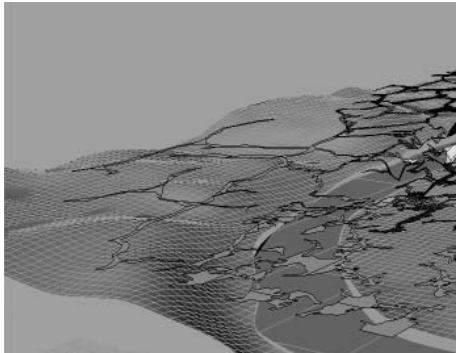
Rami el Samahy, Professor



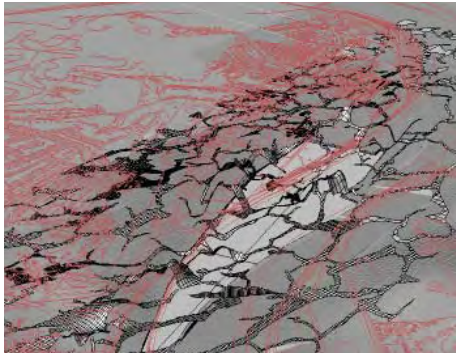
Thinkpiece Image 1



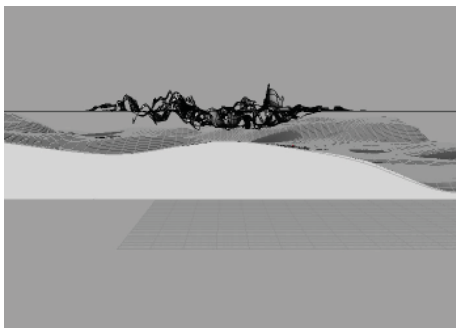
Thinkpiece Image 2



Thinkpiece Image 3



Thinkpiece Image 4



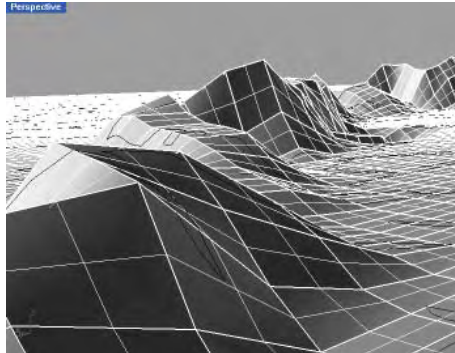
Thinkpiece Image 5



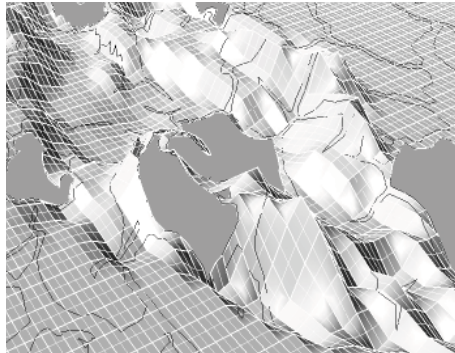
Precedent Photo One



Precedent Photo Two



Thinkpiece Image 6



Thinkpiece Image 7

The “Thinkpiece,” which acted as the genesis for our conceptual process, arose from interest in the site’s abandoned steel culture as well as the aesthetic networks created by natural and manmade impact on terrain. Our model became a three dimensional diagram of interest areas which boasted a large amount of found objects whose traces became elevated, while areas which fell completely devoid of cultural history (i.e. the Carnegie Mellon Robotics site) began to sink. The images to the left of cracking mud and tire tracks served as a model for the language of the Thinkpiece. This applied topography, while not focusing on the same topics as our final solution, provided a framework for conceptually approaching our artificial topographies.

The Thinkpiece led to a further investigation of a mechanically responsive topography that would change based upon the density of occupants on the site. Instead of beginning at the level of the master plan, we focused our efforts on the scale of an individual lot, since vacant properties are a frequent occurrence within the Hazelwood neighborhood. Working at this scale allowed us to meet the identified needs of the residents, which were based on our own observations and the feedback from the first community meeting. Our hope was that through individual



wave field
SCENARIOS AT WILSON
FOR STUDY



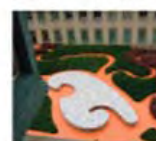
safezone
SCENARIOS AT WILSON
FOR STUDY



cutting corners
SCENARIOS AT WILSON
FOR STUDY



kraus campo
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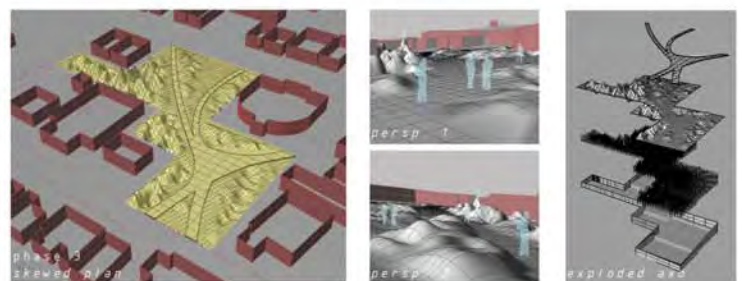
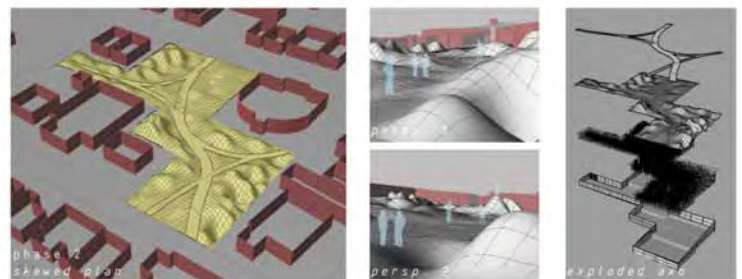
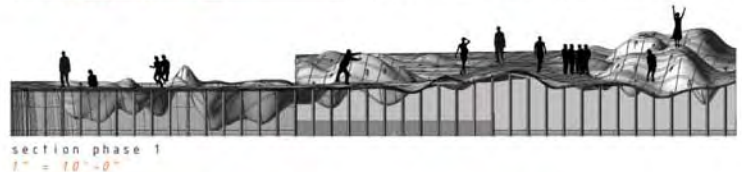
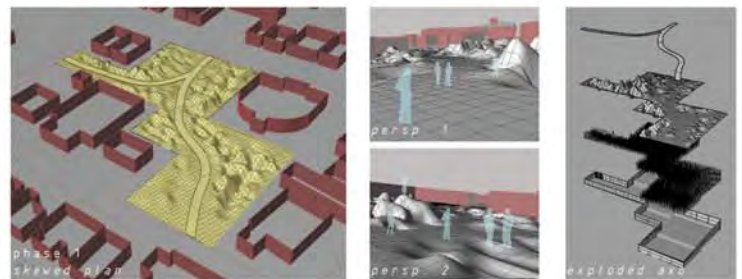
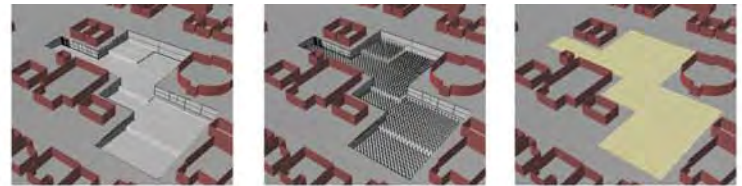


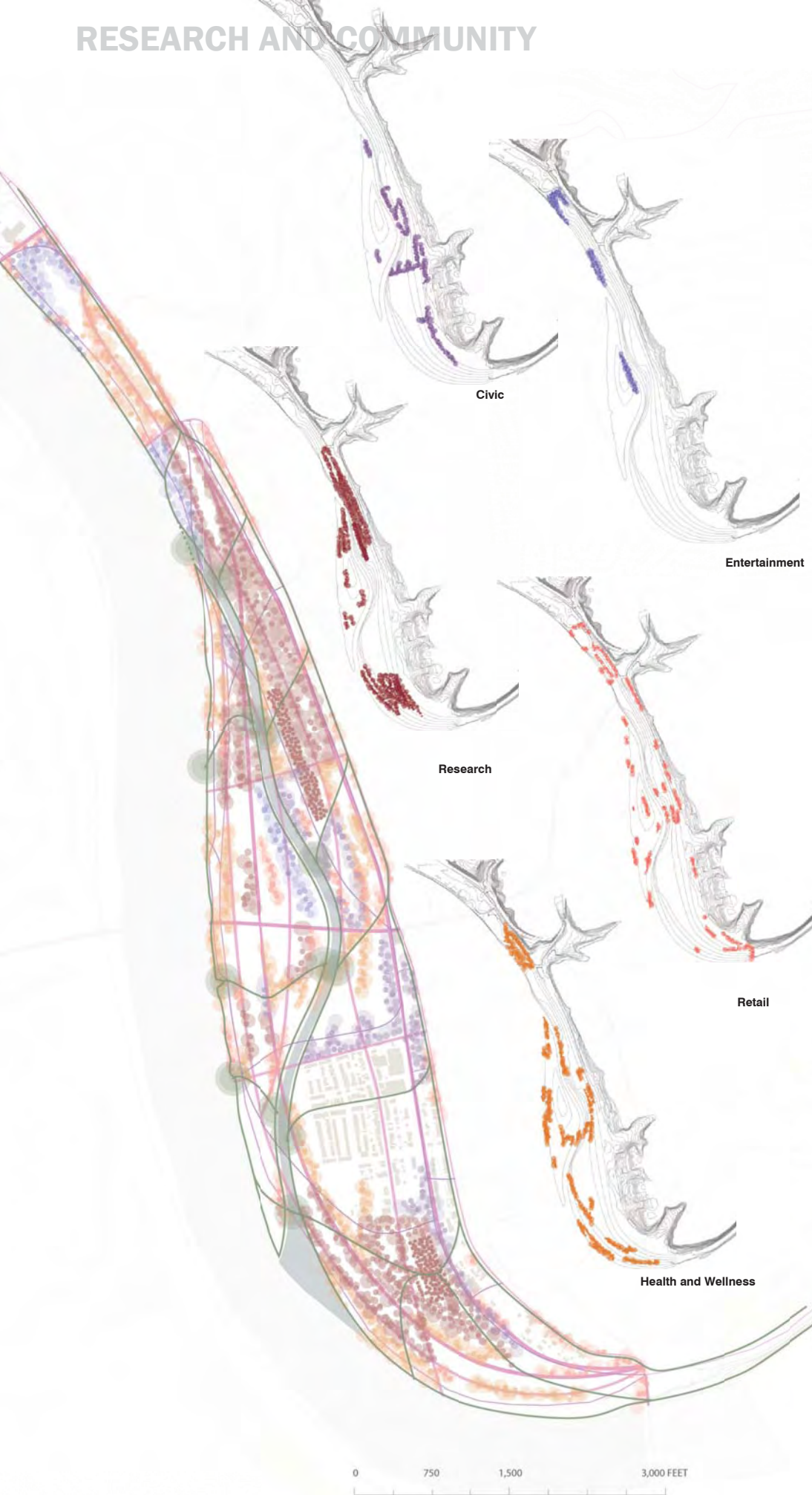


interaction with and attention to the smaller sites, these interventions could help to generate a sense of ownership and encouragement that the members of the community currently lack.

We began to examine precedents which exhibited a level of dynamism and involvement which we associated with our envisioned topography. The motion of this new landscape would be based on levels of occupancy. Where the land became densely inhabited, it would become flat. Conversely, less occupied areas became more varied.

Research into human wayfinding and path-making gave insight into how the topography may respond through a series of phases.





(right) The city of Pittsburgh is plagued with major infrastructural problems. Rainwater drainage is combined with the sewage. When there is 1/10th of an inch of rain, this system floods and pours sewage into the rivers which surround the city. Several of these “combined sewage overflow” points are found on our site.

We chose to implement a mechanized recycling system which works threefold -- it pulls trash out of the river, collects rainwater runoff from the surrounding community and filters trash into an existing recycling plant on the site. This eases the burden on the sewage system while recycling waste.

Along with issues of watershed and the possibilities provided by the recycling system, we laid out an infrastructure based on circulation and transportation. Second Avenue thru-traffic is currently one of the largest problems on the existing site, creating a division between the neighborhood and the ALMONO site and therefore from the riverfront, as well as destroying opportunities for local commerce to thrive due to pedestrian-unfriendly conditions. We redirected Second Avenue through the central north-south axis of the former LTV site and bisected it with a continuation of Hazelwood Avenue that extends westward across the river to join with Becks Run Road. A series of smaller roads and paths between the major roads and waterways further subdivide the site.

In the spirit of the “Possible Publics” studio, we determined five relevant types of program that would fit within the larger infrastructure and best serve the needs of both the Hazelwood and surrounding communities: Civic, Entertainment, Retail, Robotics Research, and Health & Wellness.

0 750 1,500 3,000 FEET

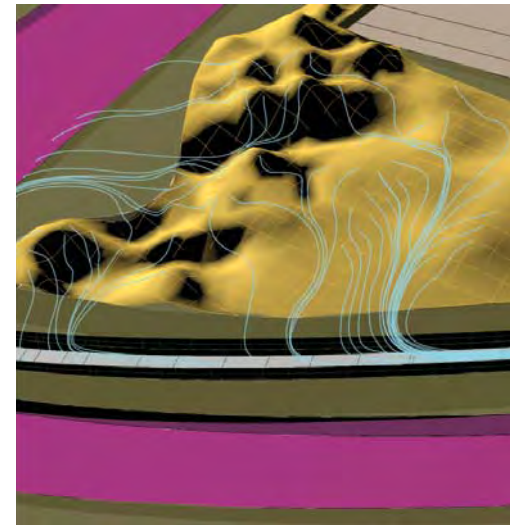
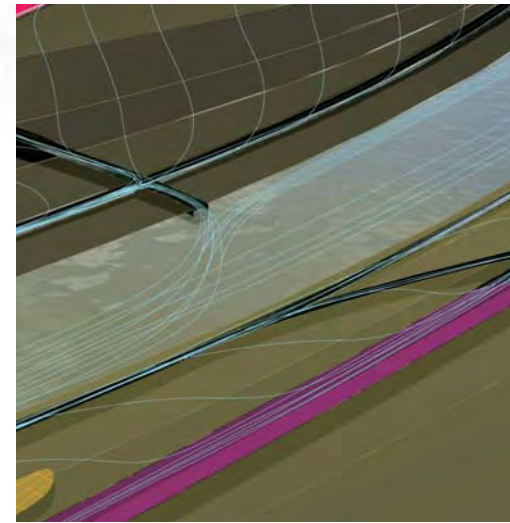
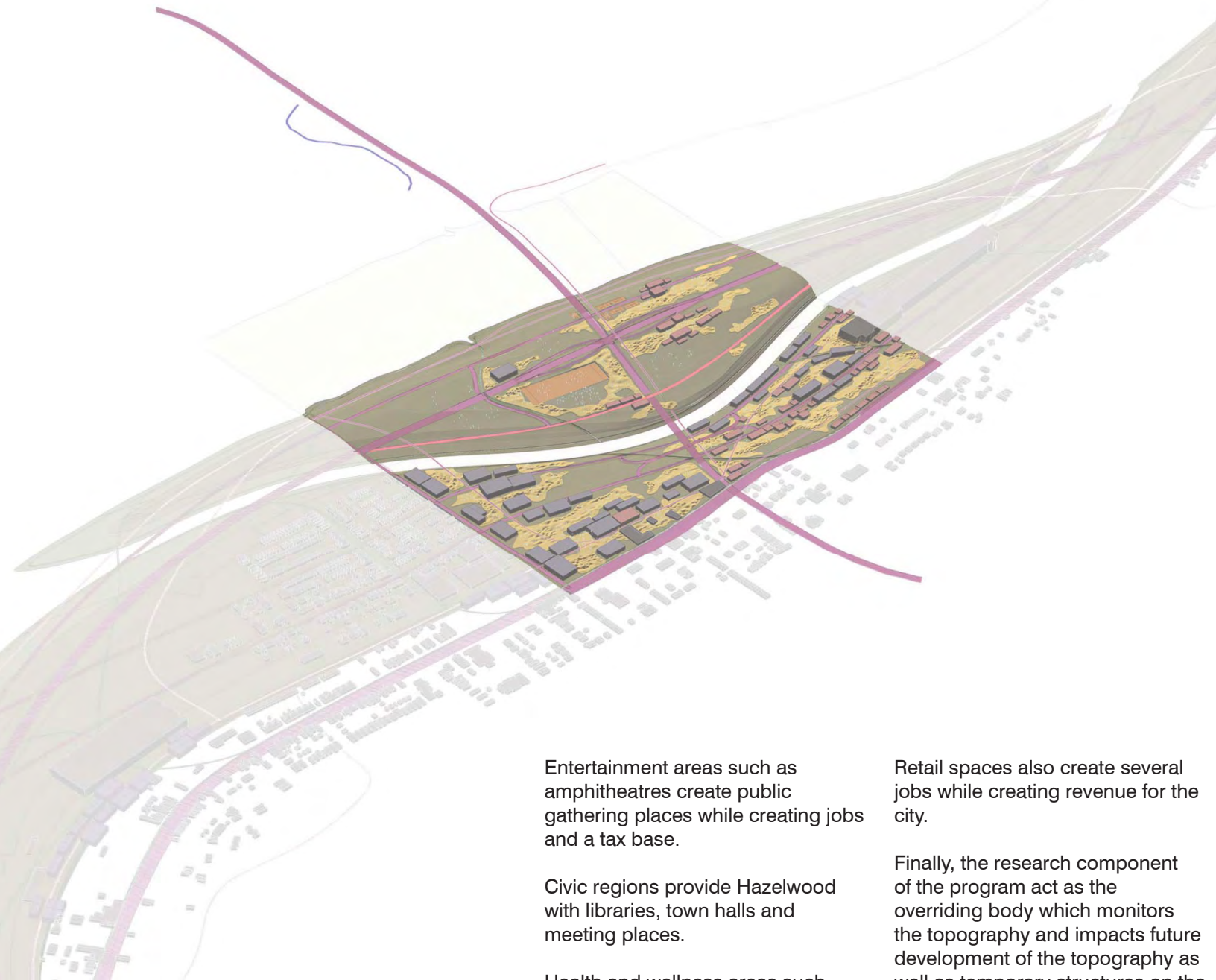


Figure 8



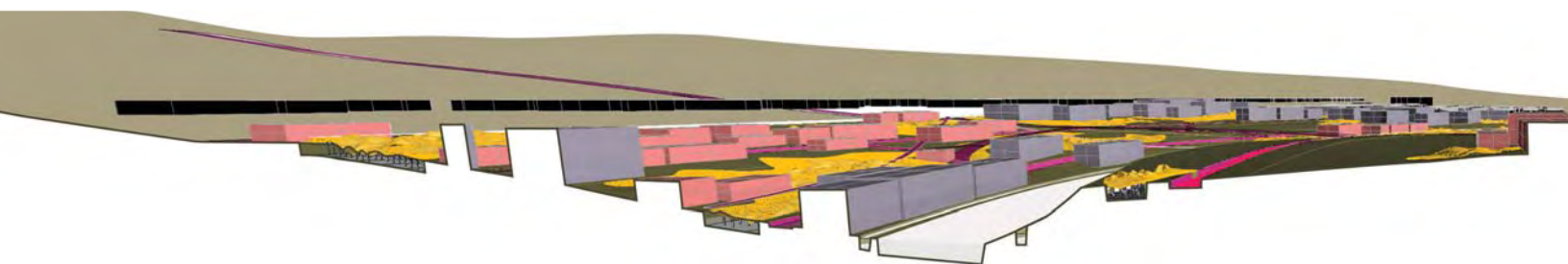
Entertainment areas such as amphitheatres create public gathering places while creating jobs and a tax base.

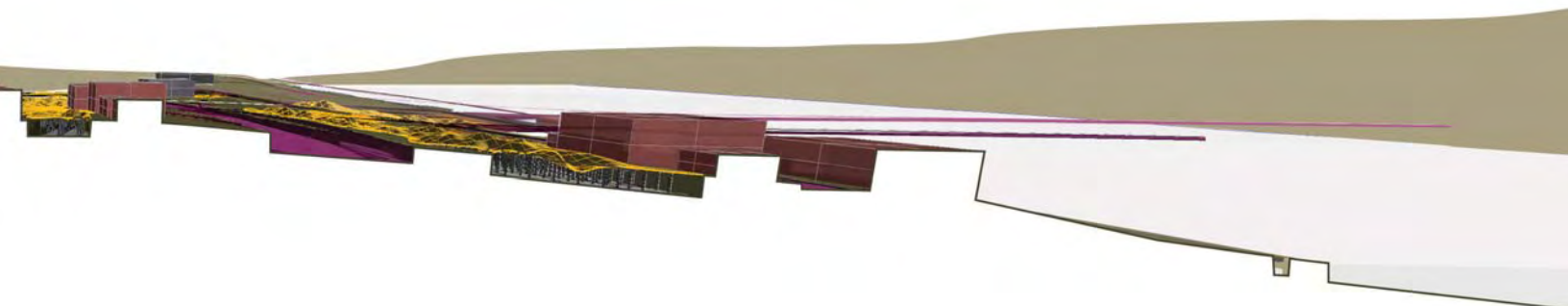
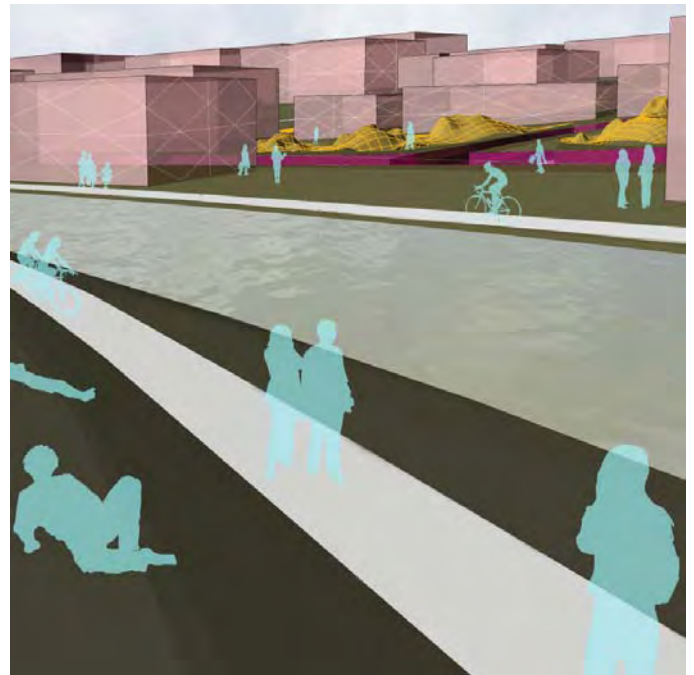
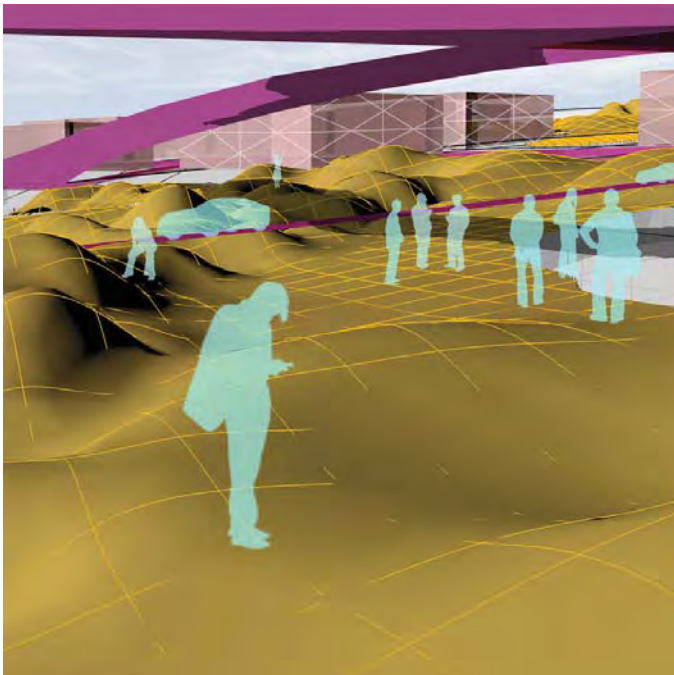
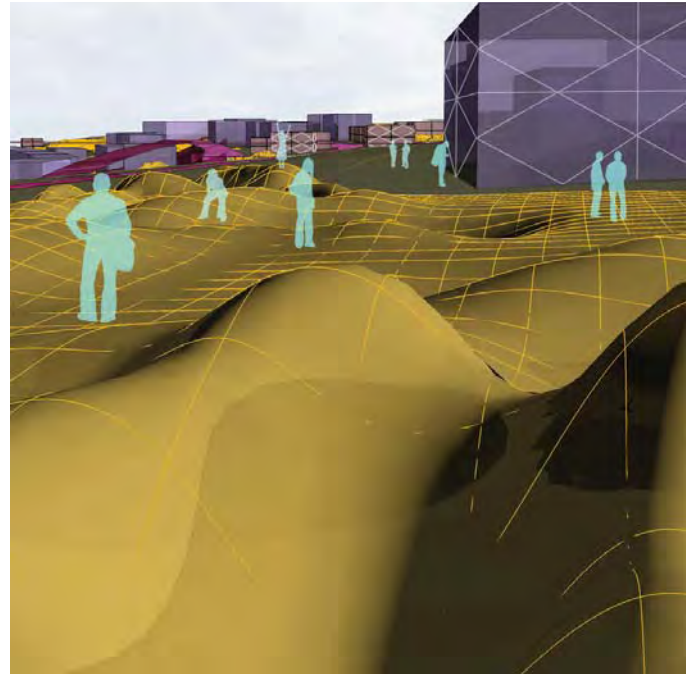
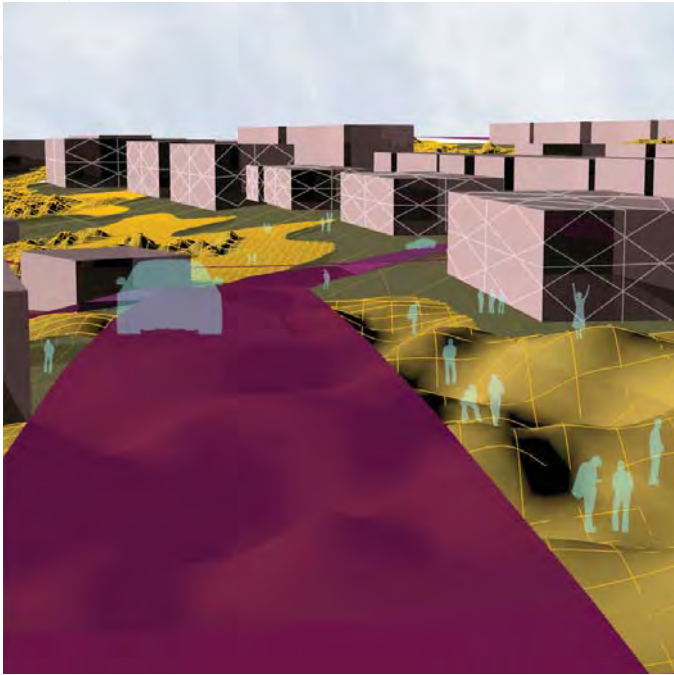
Civic regions provide Hazelwood with libraries, town halls and meeting places.

Health and wellness areas such as playing fields and circuit tracks help provide spaces for intramural activity while promoting a healthy, outdoor lifestyle.

Retail spaces also create several jobs while creating revenue for the city.

Finally, the research component of the program act as the overriding body which monitors the topography and impacts future development of the topography as well as temporary structures on the site.







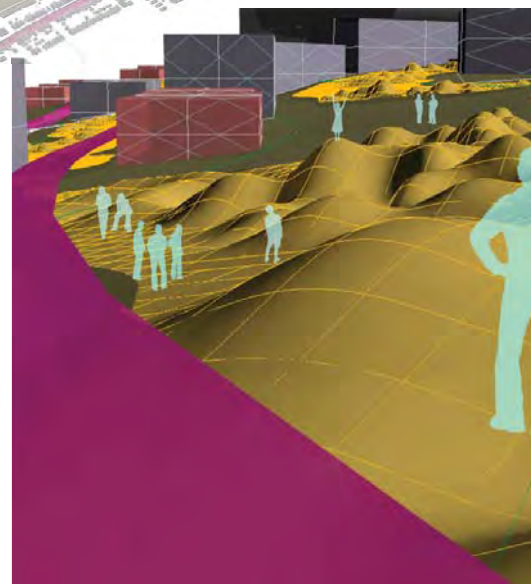
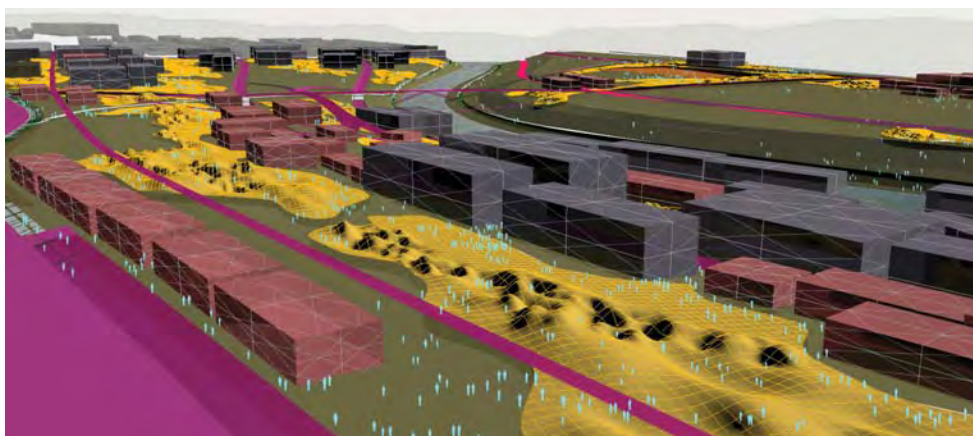
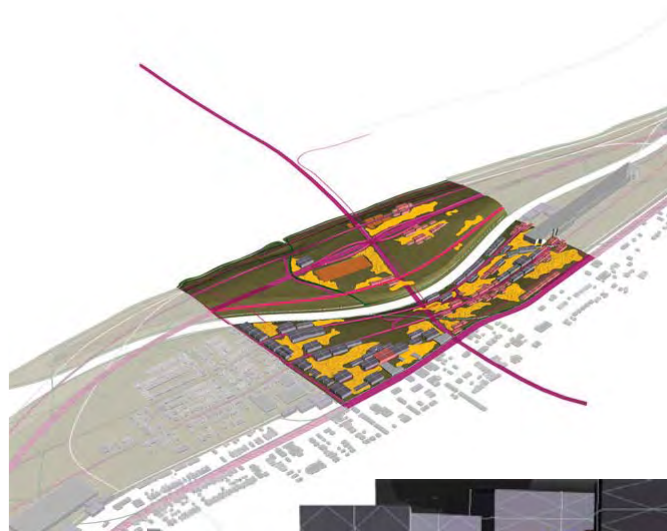
(above) This model shows how infrastructural elements interact with the artificial topography in a give-take, elastic relationship.

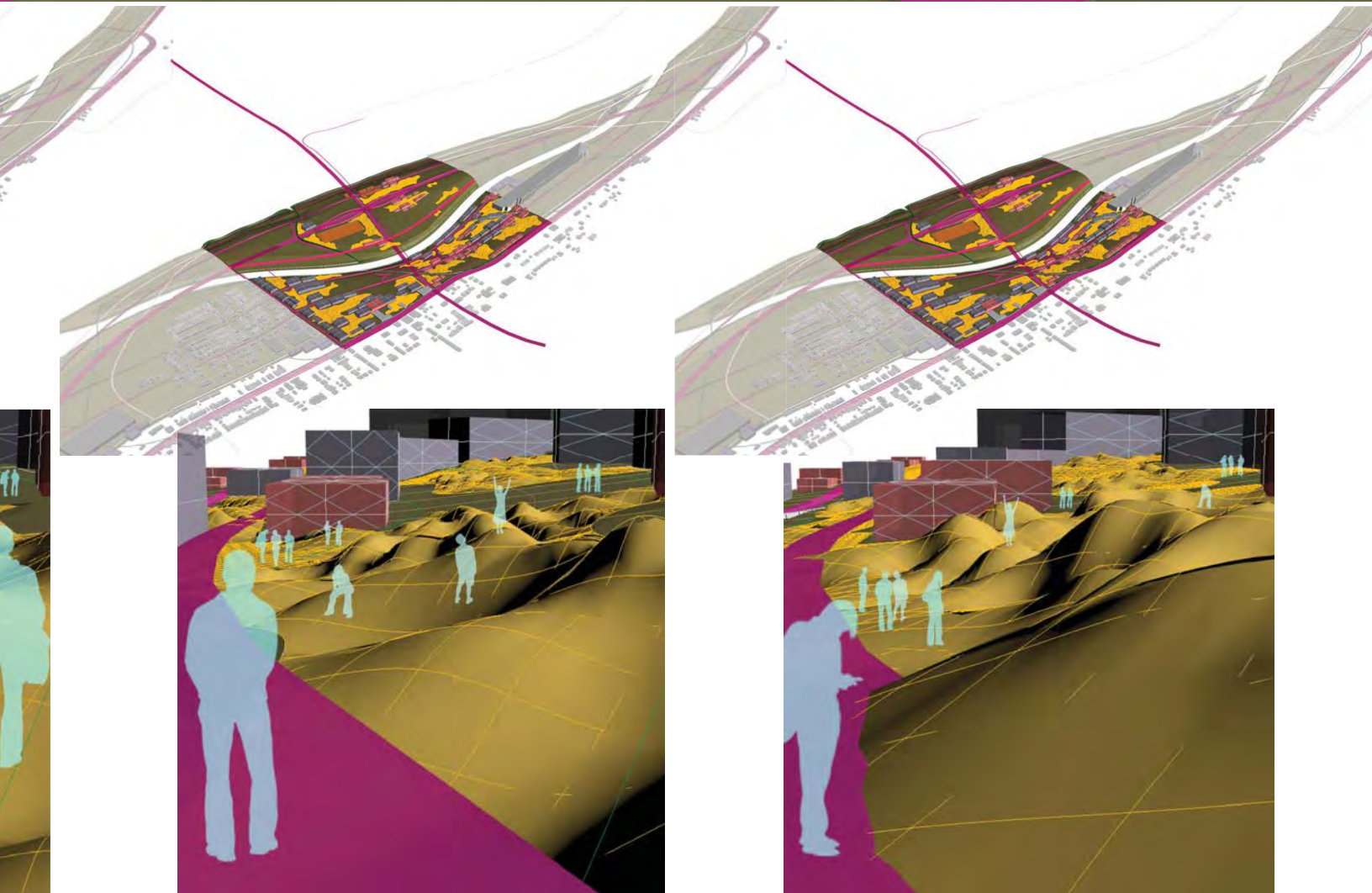
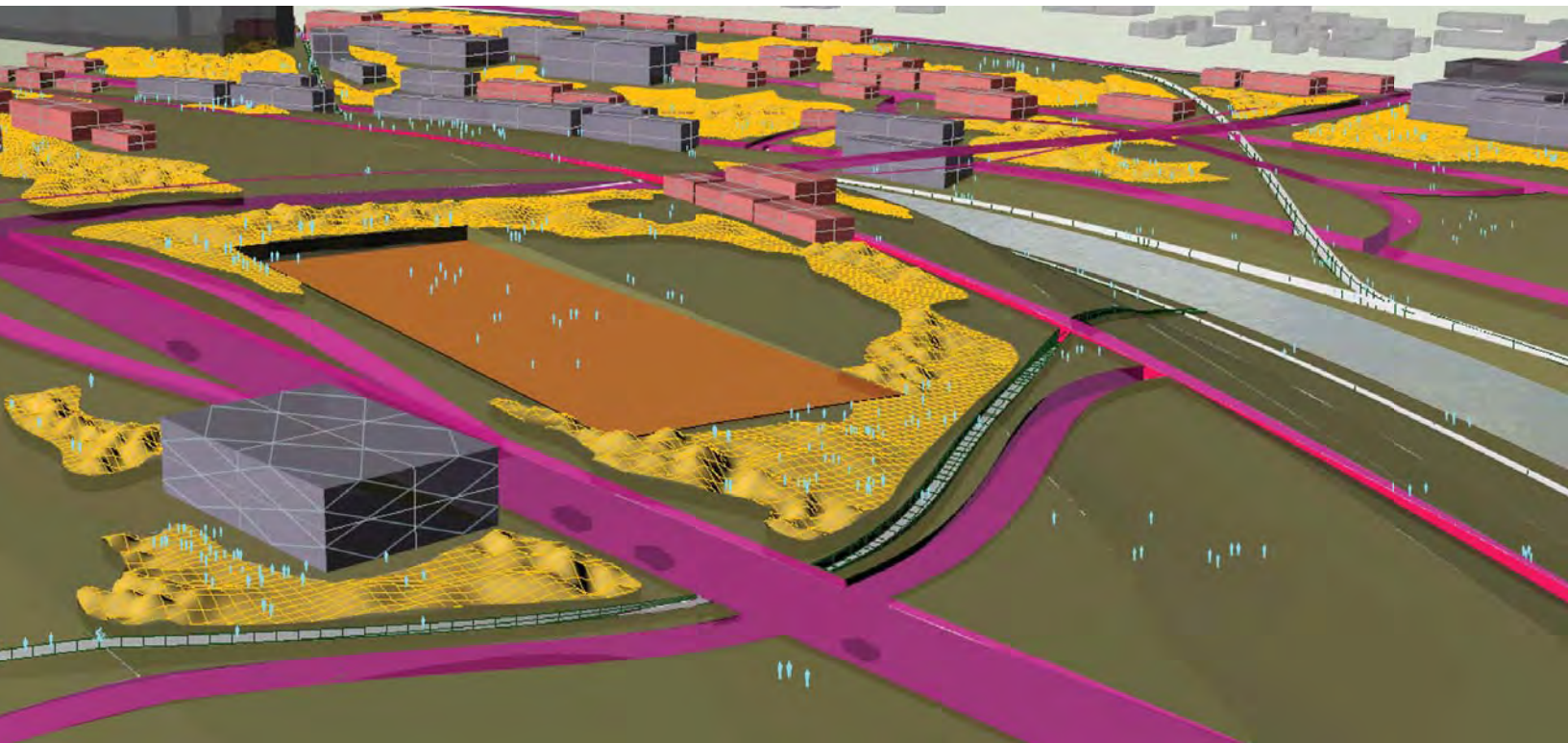


(left) The working model demonstrates how greater occupancy (represented by the presence of the hand) causes the surface-level topography to flatten through a system of dowels and tempurpedic foam. When “unoccupied”, the topography returns to its unaffected, varied state.



(right) The new topography is implemented across the site in phases, beginning in small patches which gradually “grow” together as time goes on and occupancy of the site shifts and increases.







Robot City

Jim Washabaugh and Daryl Gleiche

Urban Laboratory

STUDIO A Robot City

Jonathan Kline, Professor



The site is a large, flat expanse of land that straddles the border between the community of Hazelwood and the Monongahela River. Sitting at a crucial interface between the older, crumbling community and the river, the site has a significant amount of importance in terms of how it may eventually serve as a gateway to the river and the growing plethora of possibilities for river-related activities, while simultaneously helping the community of Hazelwood adapt to a future without the historic mill enterprise that once employed thousands of residents. The Caen Industrial Works in Caen, France, was reviewed in depth as a precedent for growth. The project relies on an acceptance that the surrounding community may not necessarily support much in the way of future development, at least not in the immediately. As a result, the project as proposed by the architect Dominique Perrault, strives to achieve a level of simplicity where a grid of “Almost Nothing” takes the stage, providing distinct regions for small scale agriculture until such time as there is an increased demand for space, in which case development can begin to take place on the largely barren site. There are only a few elements of “hard-scape” that are, themselves, only possibly considered as such given the relative context of the intervention. They include a few structures on the site remaining from its last incarnation as a steel mill; a riverwalk that is

heavily wooded; and a series of thin, light pathways that segment the site into the smaller districts. The similarities of the original site at Caen, which was stripped almost completely barren of its previous context, to the site in Hazelwood led us to consider an approach that was somewhat light in terms of land usage and considered carefully the reality of the community of Hazelwood, which has incredibly high vacancy rates and low demand for new structures. Noted within the Hazelwood community was a strong, rhythmic grid that happened to repeat at almost perfect five-hundred foot intervals along its critical streets. We began to expand on that grid, extending it the length of the site. However, a stronger and more complex language was sought for the grid, as it was desired to begin to confuse the grid structure in ways which would begin to generate a mix of connections and less predictable patterns between pedestrians and automobiles. This drive was inspired by an analysis of the Hazelwood community which revealed a strong, largely unrelenting circulation grid with a patchwork quilt of buildings within, many of which have been slowly demolished or removed. To achieve this complexity, the grid was snapped along Hazelwood Avenue and re-oriented roughly twenty degrees off-axis, to generate a new grid.

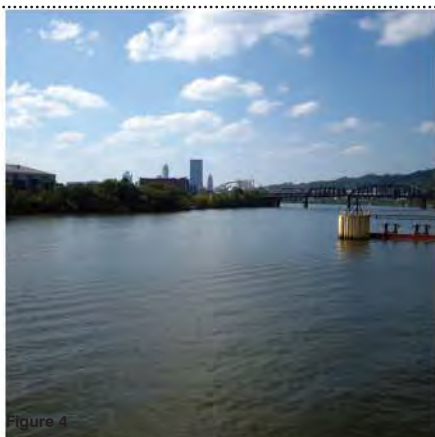
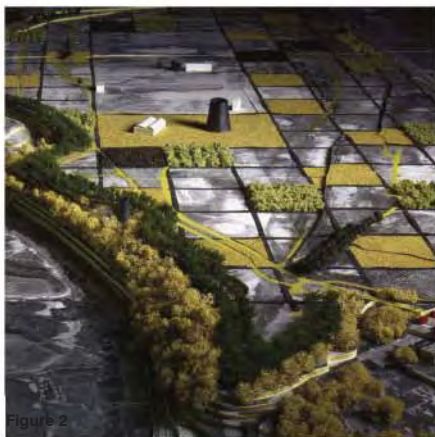


Figure 1 Caen Industrial Park aerial photograph: notice strong grid structure, lack of large-scale permanent development.

Figure 2 Caen Industrial Park model view: further exemplification of lack of permanent development.

Figure 3 Caen Industrial Park plan view: the site straddles the region between the city center and the rural countryside. Begins to give an idea of the potential for development in very vague, broad strokes.

Figure 4 View toward downtown Pittsburgh from within the site. This view had become an important connection to the grids.

Figure 5 Finalized grid structure. The highlighted region is Hazelwood, with the darkest lines highlighting the connections between the grids on the physical site itself.

Figure 6 Grid toward Downtown, highlighting the relationship between the grid structure and the purely visual connection to the city center.

Figure 7 Grid in alignment with Hazelwood, highlighting the connections drawn between the grid structure and the existing urban network of streets in Hazelwood itself.

Figure 8 An early attempt at generating a grid structure.



Figure 1

Figure 5

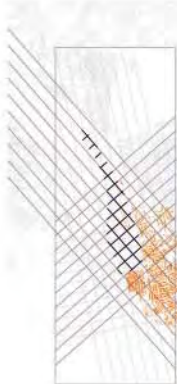


Figure 6



Figure 7

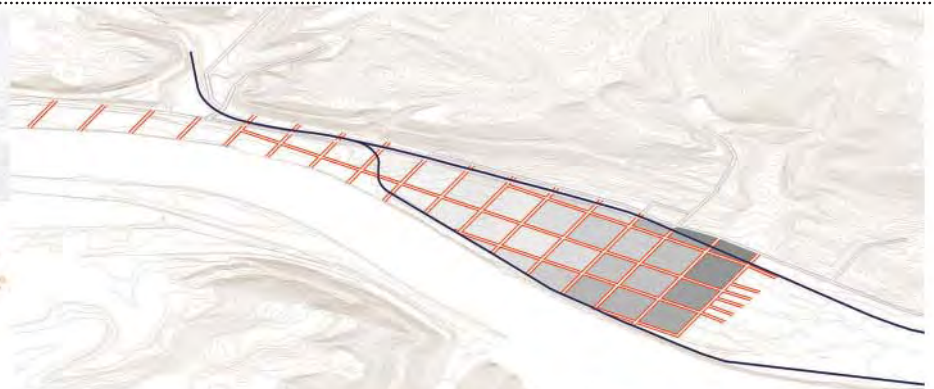


Figure 8

Figure 9 The overall plan is to create a single, large structure with branching arms to accommodate various programs ranging from housing (in yellow) to retail (in orange/salmon) to research (in red/purple). The remainder of the site is to be left largely vacant and planted with a series of trees to explain the grid structure without any hardscape.

Figure 10 As can be seen in this plan, the existing Second Avenue is to be re-routed to the other side of the tracks and ducked into a tunnel at the northern most end of the site, and the old section closed off to vehicular traffic so as to allow a connection to the existing greenway located on the hillside. This will allow for a smooth continuous loop of greenway to slip through the G-Tech/testing fields and toward the riverside, using the tree-lined grid structure to avoid passing through potentially dangerous and busy segments of fields.

Figure 9

The final form began to blur the distinctions between which of the grid lines became pedestrian-only and which became automotive-only, with a dose of low-speed and low-density mixed streets thrown in. The aim was to produce a series of streets that would connect into the existing fabric of Hazelwood without sticking solely to the Hazelwood grid and becoming a square network of completely straight-forward streets. Instead, the automotive streets begin to kink,

brought about by the connection between Hazelwood Avenue along the Hazelwood Grid and a new street brought across it from the Downtown Grid as a connection from Second Avenue. All the streets begin to mirror this kink, leaving the remaining regions free for pedestrian walkways and avenues. All of this grid structure begins to allude to a greater, overarching organizational structure that begins to define more than simply regions of space, but functions as

well. Given the context of a robotics-oriented research and development facility, it was chosen to allow the existing Building 19 to remain in place. Despite its slightly contrary angle to the grid structure, the simplicity and sheer massiveness of the structure begins to allude to other ways similar to the grid structure in which this site could begin to be defined, with a research and development-based structure acting as a spine of sorts for other functions to feed off of. The

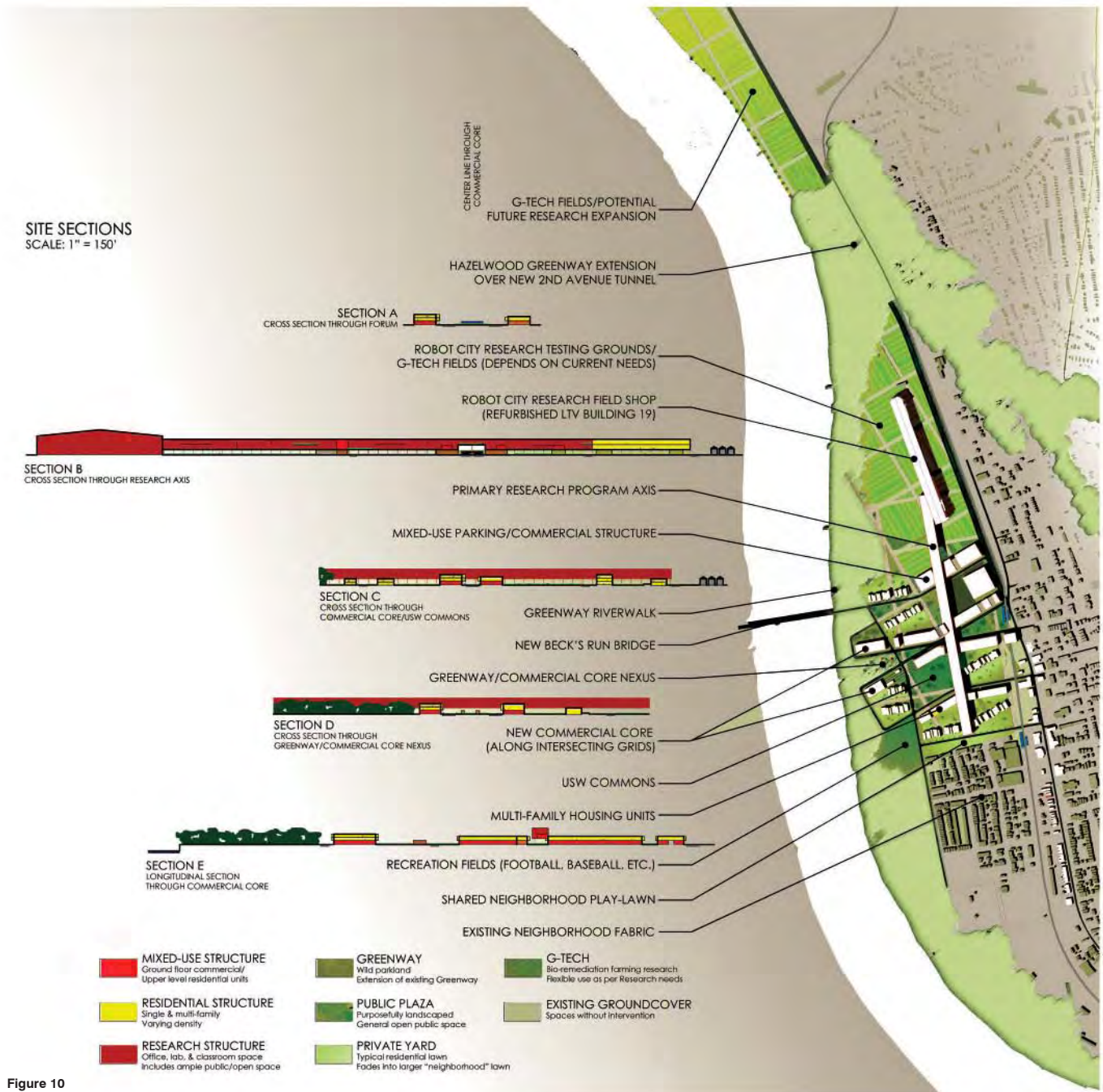


Figure 10

result is a massive building elevated twenty-five feet above the point on the Hazelwood grid which comes nearest to passing through the central meeting point of the two grid forms. The elevated structure stretches 2500 feet out from Building 19, swallowing the path below it and reappropriating it as a means of access into the larger structure, allowing large ramps to swoop up from the path and surrounding grid lines and enter the building from below. This

large research and development structure is flanked by a series of arms, whose purposes transition between a mixed housing facility for students, visiting professionals and local housing needs at the end of the building nearest to the existing residential core of Hazelwood; a retail core along Hazelwood Avenue aimed at generating ground-level interactions between neighborhood residents and researchers as well as re-directing the current commercial

corridor away from Second Avenue and more toward a river-bound core; a research office building whose facade is composed of small offices backed by a larger parking facility to meet the demands for parking. To help alleviate parking troubles, it is understood that the current rail line will be rehabilitated to accommodate Light Rail vehicles, connecting this facility to those who may find the most value in it -- the institutions in Oakland. The remainder of the site



Figure 11

is to be a mix of uses, with voids in the more direct vicinity of Hazelwood being filled in with independent housing units and the rest of the landscape divided between G-Tech and research needs, allowing a large, flexible series of spaces for both residents to explore freely without many constraints. The phasing system for this plan entails initially allocating the land for the greenway, G-TECH Strategies as well as the



Figure 12

research facility. This will allow the site to immediately become useful as these programs are all fairly soft in their application and involve very light frameworks to support them, allowing further steps as planned out in careful detail. The second step is to begin construction of the roadways and begin to demark the pathways, as well as turn over the existing railline to Light Rail uses. In this phase, the grid structure begins



Figure 13

to become apparent as the paths are etched into the landscape. After, and perhaps as, this step is finished, the first piece of architecture begins to be called out, in particular, the long axis structure from which later buildings will spring. This structure is of tantamount importance as it represents the foundation of a new industry in the neighborhood, that of research and development, and allows the process to begin very early on in the

Figure 11 Phase one in which the basic transportation grid is set up, allowing for further development to occur over and around it. Also, in this phase, both G-Tech Strategies and the Robotics Institute are permitted to freely use the site, preventing it from sitting for any further period of time without any tremendous use. The softscape that both research teams employ are readily worked with and around, allowing for a maximum of flexibility. Also at this time the current railway is rehabilitated for Light Rail use to Oakland, which will act as a catalyst for future development by virtue of quick and easy transportation to and from the site for the majority of its users., largely Oakland-based.

Figure 12 Phase two in which the primary research building and Building 19 are constructed/rehabilitated. This promotes an early presence of research-based development and firmly anchors the site as a research hub. The building begins to interact with the community on a very base level, largely by standing isolated on the site, though not isolated from it. It is expected that the facility will attract the attention of the residents, but will begin to be accepted as part of the site and soon part of the neighborhood as the area picks up activity and notoriety within the region as well as sitting in the path of the newly-opened access to the riverfront along the underside of the structure.

Figure 13 Phase three in which the rest of the structure continues to develop and the site begins to fill up. At this phase, it is anticipated that demand will have risen for housing and space within the community as the research facility draws more attention. The housing units at the southern end can be completed, creating a demand for local commerce that the retail corridor along Hazelwood Avenue can begin to use to kick up local, small-scale development such as laundromats and grocery stores. Further development can begin to take place that allows for smaller, single-family homes to begin to fill in the remaining spaces, allowing larger parklands to be freed up for local use.



Figure 14

site's history. It also has the benefit (or perhaps immediate detriment to the residents) of pronouncing such in a rather bold fashion, lending the notion of strength and security to this development that the more genuinely soft-structured facilities could not otherwise yield. This begins to be dampened over time as additional structures are added to the complex, first forming the residential end to supply a constant supply of students

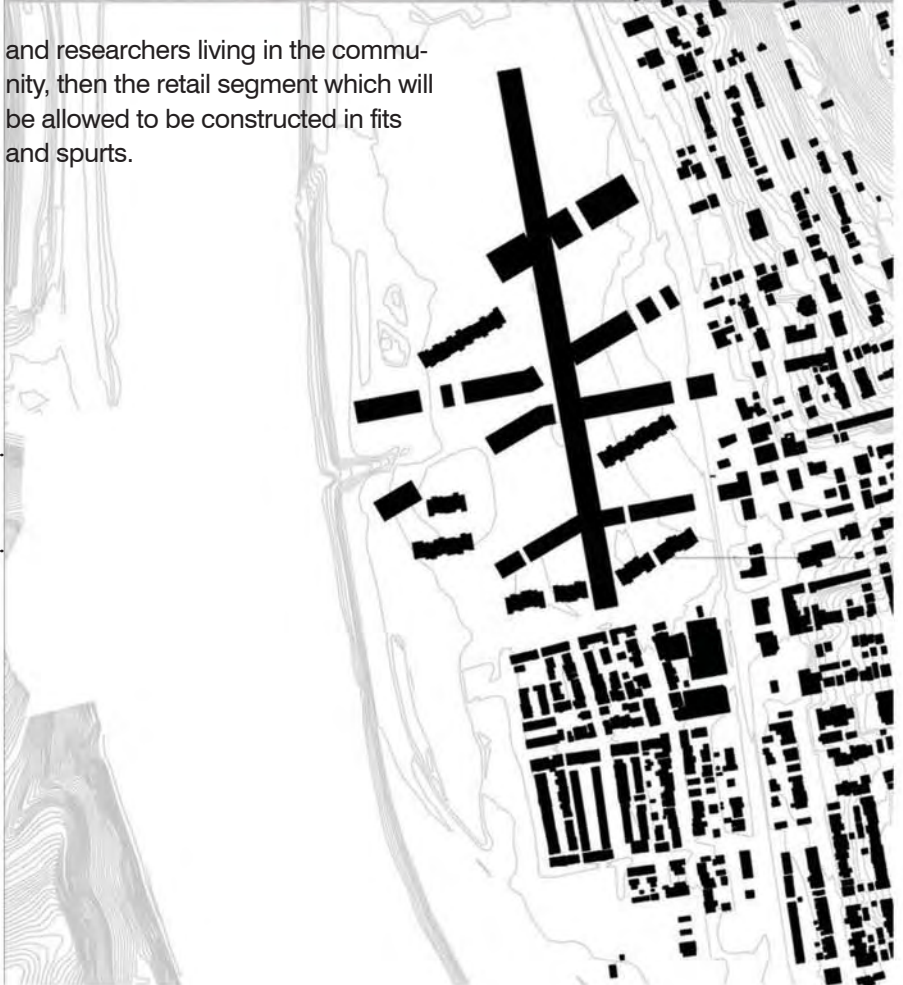
Figure 14 Circulation after the basic transportation structure is in place.

Figure 15 Figure-ground study of the proposed complex in relationship to the existing context of Hazelwood with the reference to downtown called out.



Figure 15

and researchers living in the community, then the retail segment which will be allowed to be constructed in fits and spurts.





Decentralized Robotics for Urban Evolution

Thomas Gonzales and Chang Zhang

Urban Laboratory

STUDIO C Possible Publics

Rami el Samahy, Professor

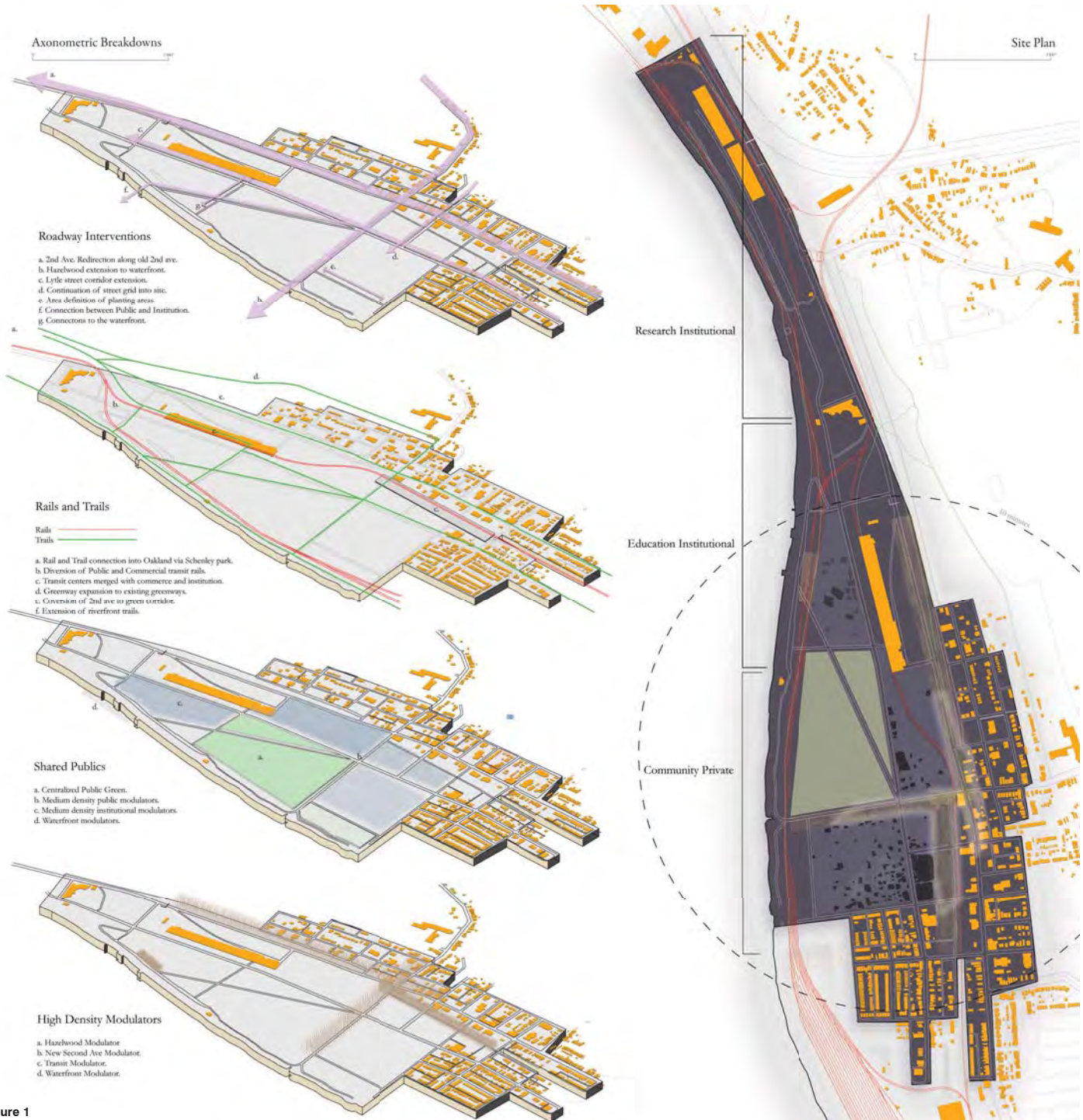


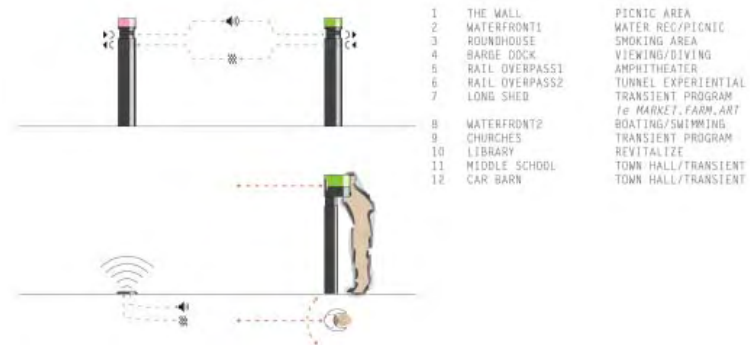
Figure 1

In approaching this project, we examined the urban form as it exists at large. The urban form, as it exists today, is disconnected from its context in the world. While technology, jobs, and the ways we as humans interact have been in a fluctuating pattern since the invention of the computer and even before (though not quite as quickly), the urban fabric of cities has been unable to change with such a frequency. It is this issue that we have chosen to address.

Hazelwood has several issues today that keep it from becoming a vibrant, welcoming district of the city. One of the larger issues of the area is the fact that Second Avenue has become a throughway for commuting traffic between the downtown area and the suburbs. Another problem is that the Hazelwood neighborhood is disconnected from the rest of Pittsburgh because of a severe lack of infrastructural public transit. These two problems have led to the

stagnation of the Second Avenue business district, as well as the insular way the community has developed.

To address these very real issues, we decided that some changes in the hard infrastructure of the place needed to be implemented. In order to take advantage of the Monongahela waterfront and the LTV site, we chose to divert Second Avenue to its original position on the LTV site, and to implement a public rail transit system on the existing LTV rails



on the site. We then began to think about the ways that we could improve more than just the hard infrastructure through our urban intervention on the brown field.

Our first reaction to the site was to develop a series of grids. One of them was the physical infrastructure of Hazelwood extended and imposed graphically onto the site. Another was the regional grid, which connected Hazelwood to its neighboring communities conceptually. Finally, there was the grid of 'events' on site, which we determined by selecting several points on site that created interesting and personal experiences (i.e. industrial ruin, waterfront greenery, remaining buildings).

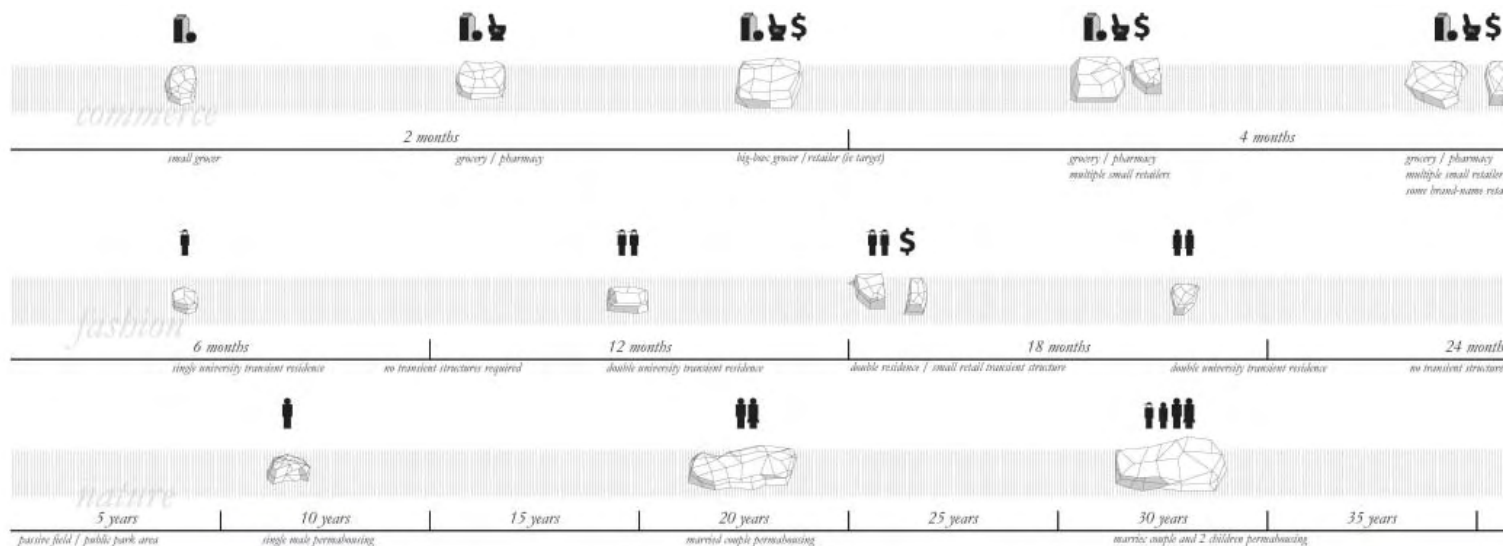
Once we'd developed our grids, we came up with a final grid of digital networking, an increasingly more important one. Using the concept that this digital network has the ability to virtually shrink space, we decided to attempt to do that, pulling further places closer to the site.

First we created a system of 'sensory nodes,' which would be placed around the site and into Hazelwood and other communities, and they would transmit sensual environments from different areas, seemingly bringing them closer through smell and audio pumped through the nodes. Next we moved into a more urban solution, incorporating a superstructure which would be able and suited to changing dynamically within a modular system. Looking at Cedric Price's Fun Palace, we chose to try and improve upon it, creating enclosed and unenclosed urban space on different site locations.

This began our exploration into the concept of accelerating urban evolution.



top left: digital wheat
top right: sensory nodes
second from top: hexagonal
superstructure simulator
bottom right: rectangular
superstructural modulators



In order to accomplish the goals we had in mind for the project, we knew that we would need something other than a set megastructure capable of only simulating certain types of urban program- retail and cultural- we moved on in iterations, designing first for retail and cultural spaces that would change with occupancy, and then moving on to megastructures that bridged accross streets, creating commercial districts around them while allowing them to still be used by traffic of any kind.

After exhausting the options that a superstructural 'modulator' could provide, we began thinking of ways in which

After several sessions of trying to decide how the system might work mechanically, and becoming increasingly more frustrated, we settled on a system of mechanical cilia that we would be able to 'plant' on the site, and that would be able to interact with itself and human occupancy to create all types of urban program and space.

We struggled for awhile with the concept of 'program on-demand,' and the horribly broad range of options that a system like that would create, and decided that some rules would need to be put in place for this system to function.

We came up with a system of rules for how the

shown in the diagram to the right, the system works on a myriad of time scales, ranging from fashion to nature from fastest to slowest.

At the top of the page we show the ways in which the system reacts to three different scales of time and occupancy. The top is a 6-month scale showing the way a commercial development might change over that span; the second is a 3-year scale showing transient program growth and change; the bottom is a 60+ year scale showing the birth and death of a family.

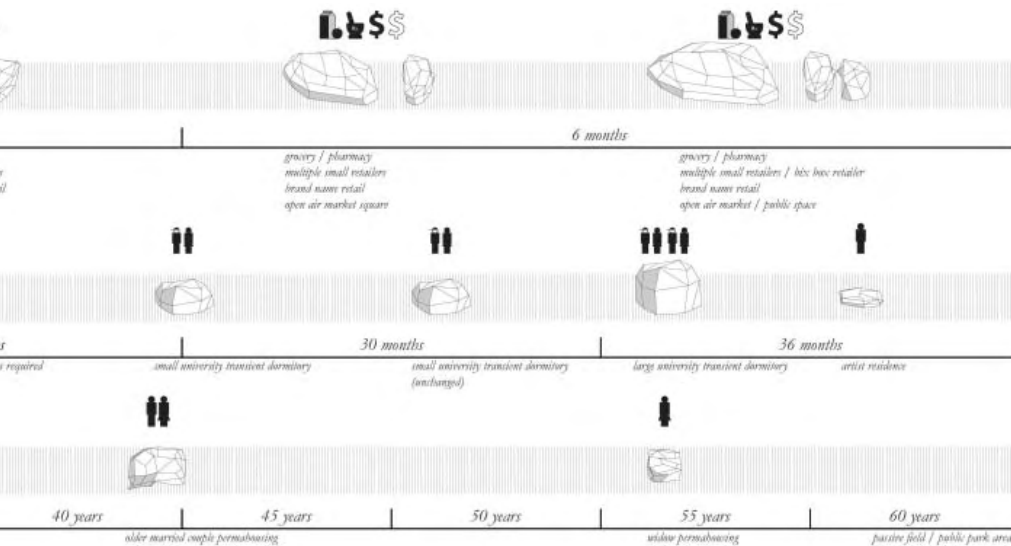
We also addressed the human scale of interaction on the right side of this spread.

moving on to occupancy situations while it's in not its state.

The bottom of how the able to c when activ taken look second a river where into reside

top: life and death di
right: rates of urban
far right: rules for int
bottom: medium der





systematic
rates of
change

occupant; and a group
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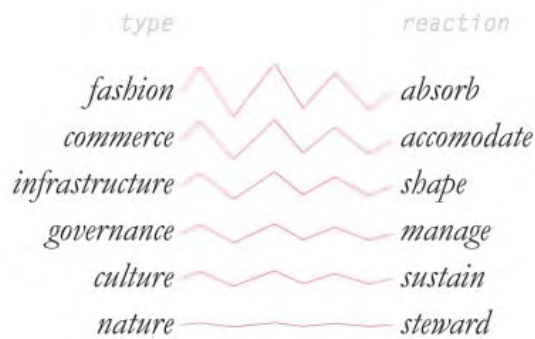
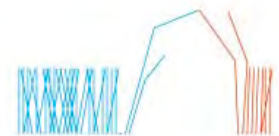
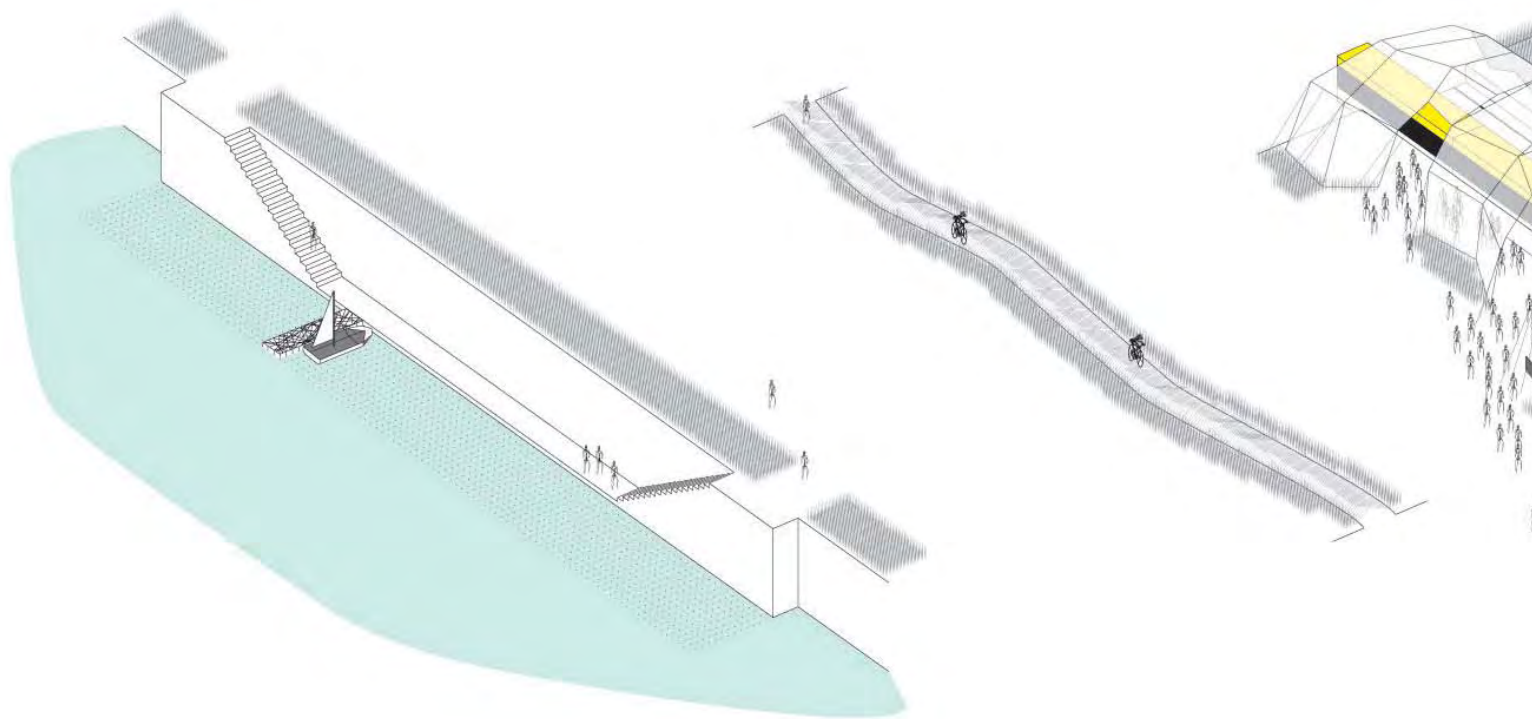


diagram
fluctuation
interaction
density section

source: How Cities Learn by Stewart Brandt





hour 1
growth is
activated



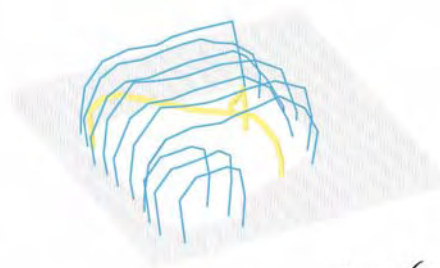
hour 2
floor flattens



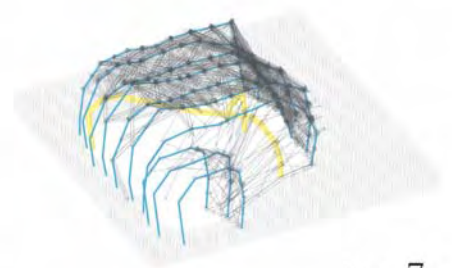
hour 3
infrastructural
growth begins



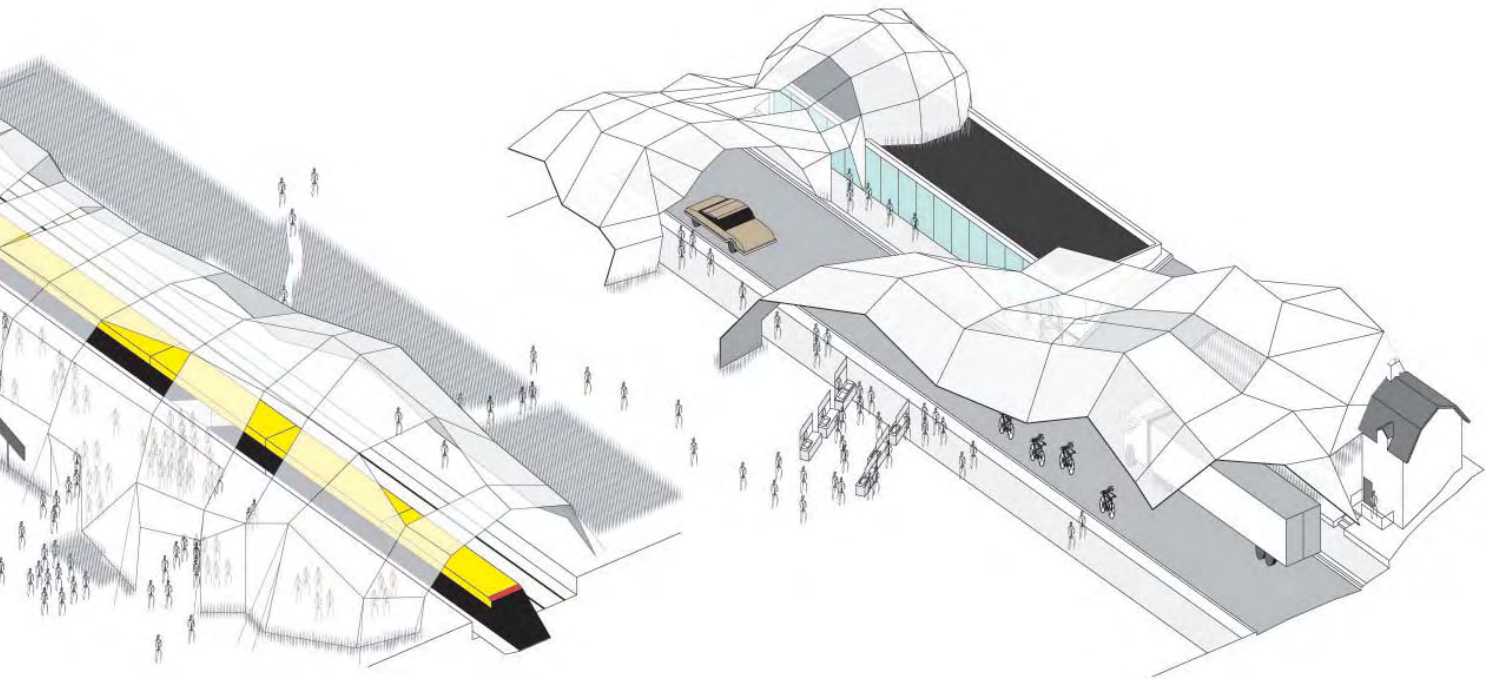
hour 5
structural
growth begins



hour 6
structure
complete



hour 7
enclosure
growth begins

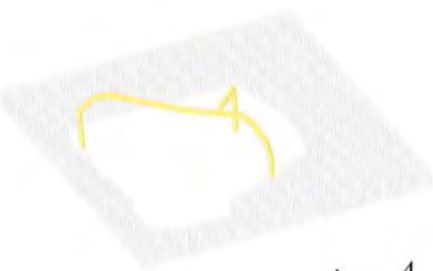


Urban Modulators are classified into two densities and arranged as seen in the first layout and are targeted at differences in infrastructural needs, traffic needs, and usage density.

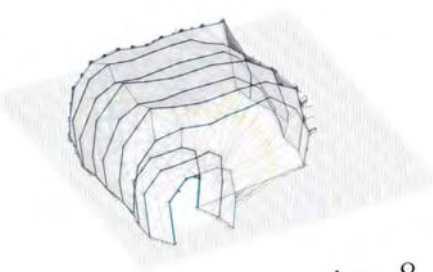
Various forms of such modulators are seen in this layout. In the upper drawings, examples of growths around various densities of urban usage are displayed. It can be seen that as urban modulators respond to traffic and rates of commerce, a variety of development may occur on site based on conditions of use.

Images at the left exhibit stages of growth at the independent scale. Once spaces are claimed as occupied, enclosures will spawn based on an input of expected need. Need will then be gauged as relative to spatial and economic needs of neighboring units to determine size of growth and future alterations of enclosure.

Pattern of potential growth as well as a perspectival view within a medium density field are shown in the final page. Settling patterns are centralized along major boulevards of commerce and is further reflected in zones of public usage.



hour 4
infrastructure
complete

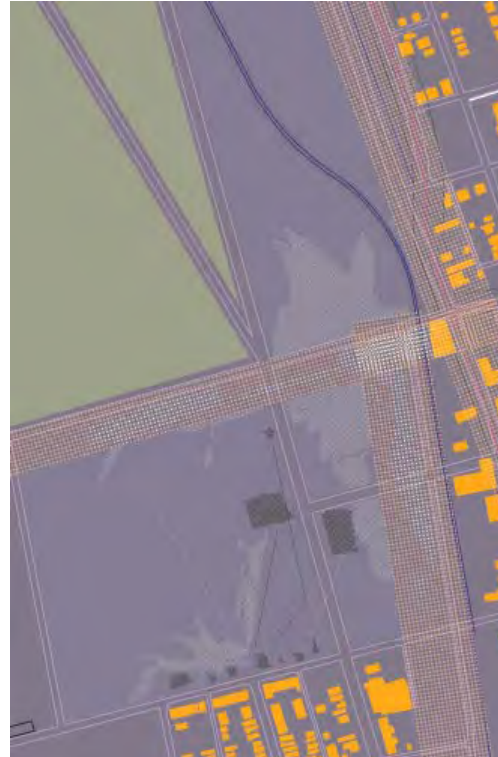
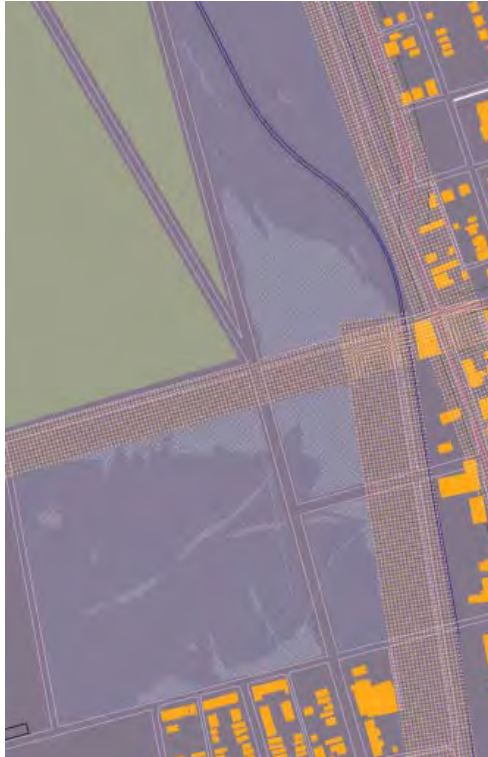


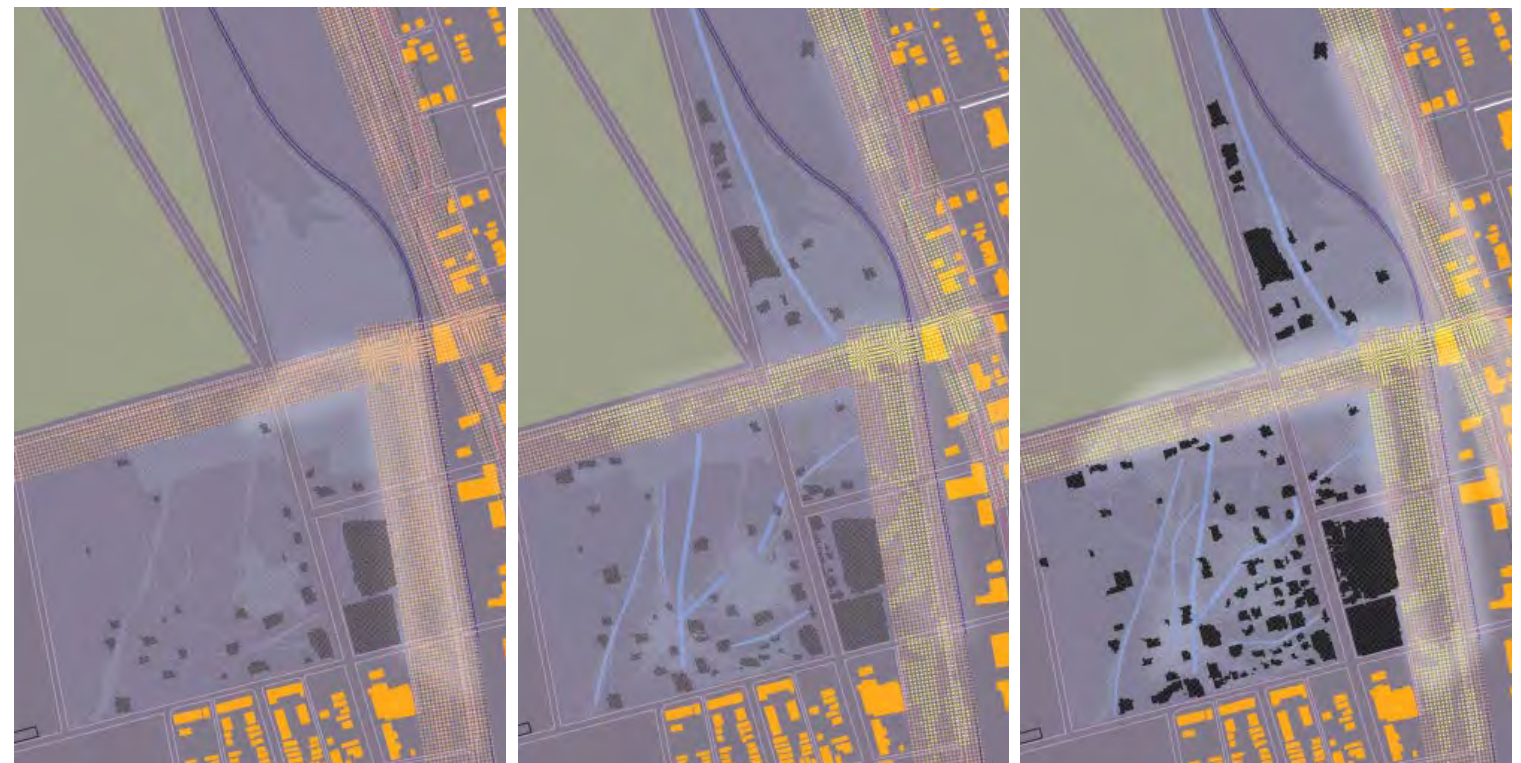
hour 8
enclosure
complete

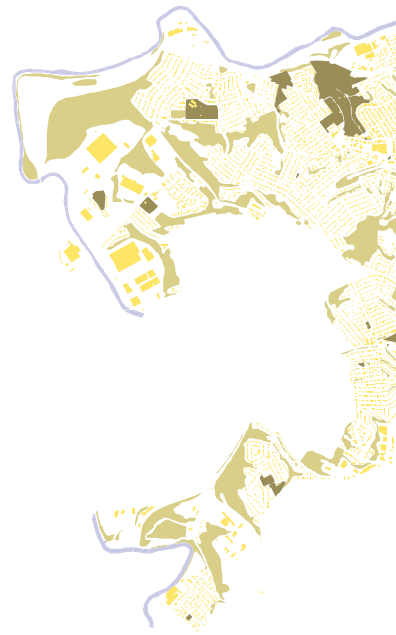
top: moments of densification
left: growth by occupation



top: the train station
bottom: snapshots of development (animation)







The Urban Laboratory Community & Urban Design Studio
School of Architecture, College of Fine Arts
Carnegie Mellon University

Produced by Remaking Cities Institute, Carnegie Mellon University.

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