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After Autopia: Visions for Light Rail in the Motor City

Lori Brown
*Syracuse University*

Brett Snyder
*Syracuse University*

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AFTER AUTOPIA VISIONS FOR LIGHT RAIL IN THE MOTOR CITY

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Acknowledgements

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Book Design:
Adrienne Eve Buccella
Taylor Hardee
Elvira Ibraimjova
Anthony Maiolatesi
Irini Zhupa

Design Studio Professors:
Lori Brown
Anne Munly
Brett Snyder

Editors and Advisors:
Lori Brown
Brett Snyder

Contributors:
Andrew Acevedo
Nathan Aleskovsky
Scott Bascom
Sara Berg
Nicole Blasetti
Adrienne Buccella
Lionel Carracho
Victoria Gueglio
Justin Halsey
Taylor Hardee
Elvira Ibraimjova
Andrés Jaime
Karantema Larbi
Sara Lee
Francena Ling
Thomas Lontine
Anthony Maiolatesi
Trevor Manders
Min Kyung Il
Marie Ochoa Villicana
Angelica Paleczny
Andrew Paul
Iari Pique
Thomas Poore
Dincer Svaskan
Bryan Scheib
Jeffery Stewart
Vera Tong
Shaobai Xu
Irini Zhupa

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Syracuse University Graduate School of Architecture

OCTOBER, 29 2010:

A chain link fence, an abyss of concrete, and years of solitude separated us from the breathtaking building standing before us. Some of us almost braved the fence – but the abyss? Instead we took the safer tourists’ route, which brought us to the front façade of the ruin. We were neither the first ones to visit this place nor the first ones to note its surnial quality – in fact an installation of landscaped gardens and a large painting had already done the job of remarking upon the monstrous and extravagant juxtaposition of Central Station. It was a modern day ruin, the kind that people pay good money to visit in Athens. This glaring, beautiful contradiction was the pinnacle in a series of similar examples at numerous scales. We took in the sight, tried to picture for a minute a bustling, booming city center. Here was an abomination of the urban condition – the visual screamed out all but “finished” – yet Detroit is a far cry from finished.

In trying to understand the elusive “urban” condition, why look at Detroit? After all, Syracuse University is within driving distance to New York City, Toronto, Philadelphia – all perfectly reasonable stages on which to set up a study of the city and the urban. However, the pedagogical tool of catalytic intervention requires a very specific stage and a very specific city. Urbanism is a broad, ethereal concept – this idea can concretize in a time and place. Critical changes are taking place in Detroit. The air is charged with anticipation and a spirit of rejuvenation. A changing city is where catalytic intervention thrives.

Detroit is where we looked to for old and new lessons about the urban condition. Detroit is the place where architects can best practice lively non-architecture, a vital skill in a city where there is little room for traditional building projects. At this time, in this particular changing city, who needs architects? Why build new buildings when there are 90,000 vacant ones? Detroit with its shrinking population means to redefine its essence and overturn old assumptions about itself and its spirit. The first step is envisioning new systems to keep up with its changing nature. The studio explores possibilities, using the transportation system as a channel through which to implement catalytic designs. The sites vary depending on the individual’s approach; similarly the designs often veer away from the core program when a compelling reason is presented.

This composition of graduate work is divided into six sections. These categories represent thematic similarities that emerged as the projects developed:

To remediate Detroit is to target ecological issues which plague many cities.
To disperse Detroit is to establish new networks of connectivity.
To centralize Detroit is to give it a new core and reconnect its communities.
To modulate Detroit is to channel the potency of production.
To re-appropriate Detroit is to reclaim areas of misuse in order to better serve the city.
To energize Detroit is to look at new means of sustainable energies which could be harvested from within the city itself.

Central Station, the ruin, is a symbol for Detroit’s particular urbanism. It signals new beginnings. The studio is interested in seeking new definitions for urbanism; Detroit is poised on the brink of a sweeping urban revolution and promises to lead the search for this new definition.
As architecture professors in the 21st century, we had no firsthand experience of the Wild West, but it was clear we met its cousin on our first day in Detroit. If the American frontier was defined by a rugged individualism, a search for spurs, an environment with only a vague patina of law, and a breathtakingly open but hostile landscape, then this place, although not identical, was certainly similar. In the fall of 2010, huddled amongst Syracuse University architectural graduate students and faculty in a forty-degree industrial loft, we experienced first-hand both the abandonment abandonment and yet optimistic potential that is Detroit. Soaring above this semi-apocalyptic post-industrial landscape was artist/architect, Ellen Donnelly, who was presenting her work in the context of a city in visionary flux. As we watched our breath condense, we listened to Ellen, painting a picture of what this partially blank canvas would be like in the near future.

Ellen was presenting her “Bloomtown” Project to our students as an example of an off-the-grid, community based installation. Some parts of her vision were crystal clear: she was in the process of creating beds of uniformly colored plantings that would help fill the city’s vast voids—literally taking over the space empty lots between of former houses. Other parts of Ellen’s description helped illuminate the complexities of Detroit’s ills. Whose property would she be infringing on? Would this help create jobs for the city’s unemployed? How would her project deal with some of the racial inequalities that were bound in its premise (while architect, African American neighborhood)? What resources would be used? In short, how would this be a part of a city that had severed its complex relationship with the automobile through years of political and economic disenfranchisement.

We asked our students to think about urbanism and the role of design as a series of potentials that must negotiate urban conditions of contemporary American cities as exemplified in places such as Detroit. The studio proposed an exploration of spaces of contradiction and negotiation, exchange and communication, engaging synergies of networks and flows. If, as theorist Manuel Castells argues, three-fourths of the world population will live in “metropolitan areas of a new kind” by the middle of the 21st century, then architecture must engage and theorize anew its relationship to “the urban”.

Our group was interested in the potential of urbanistic moves that could have a catalytic effect. Specific projects and research ranged from exploring new materials for pedestrian sidewalks, to creating vast landscapes of energy producing algae farms, to rethinking the transportation system inherent to Detroit’s past growth and current decline. Primary to our research was the new Woodward Light Rail project, a proposal that received a federal stimulus grant that imagines a country with a viable energy plan and ecologically aware citizens. While students’ projects began with the current Woodward Light Rail proposal, students they were encouraged to re-think this initiative — either piecemeal or in its entirety. As completed, these projects deal in one way or another with a range of issues: a vast but shrinking city, automobile-oriented neighborhoods, an underutilized waterfront, an emerging urban farming community, a city of startling racial division and poverty, and a place with an overabundance of unused houses and industrial buildings.

While none of the projects presented in this catalogue offer comprehensive solutions for Detroit, our goal is to place these projects and their greater ambitions within a larger discussion of complex urbanistic strategies for 21st century de-industrialized American cities. These proposals are predicated on ecological visions of urbanism, focusing on relationships between infrastructure and emerging technologies, a combination of top-down and bottom-up processes, and concrete strategies with open-ended tactics. During this research trip we were simultaneously amazed at the twenty-something artists peeling apart houses through the artist collective Design 99 and the vision of Mayor David Bing who was elected on an unconventional platform that included right-sizing the city (in other words, downsizing the city by 10,000 houses). From the top upper echelon of Detroit’s government to its community-based activism, there is an inspiring amount of imagination and invention taking place throughout Detroit. And between these two ends of the spectrum, there were signs both of discouragement and great hope.

As the following projects developed we were also amazed at the complex questions that continue to emerge not only in Detroit but in other post-industrial cities, such as our own, Syracuse, New York. It is within this context that the following visions can serve as provocations towards new ideas of urbanism that accept the unresolved and constantly unfolding nature of the city. Architects must re-imagine their relationship to the built environment and the role we provide in the future of the American city.

— Lori Brown and Brett Snyder
Faculty, Syracuse University: School of Architecture
“Streetcars have sex appeal. It resonates with folks. ... Developers don’t write checks for buses.”

-Len Brandrup
Director of Transportation, Kenosha, Wis.
THE EVOLUTION OF TRANSPORTATION

1900

1925

1950

2000
The downsizing of Detroit’s auto industry created a widespread job loss surge that left many residents of Detroit jobless and quickly fell below the poverty line. The map above shows the apparent salary differences between the northern suburbs and the city.

There are two bus systems in Detroit. The main DDOT bus system which covers a majority of the city. Smart bus system is exclusively for the commuters from the suburbs. The racial tension between the suburbs and the city residents cause the bus stops to be in different locations throughout the city.
BORDER CONDITIONS

Proposed Grand Ave. light rail stop intersects current Amtrak passenger lines. Adding 16 hourly commuter cars to the existing schedule will increase reciprocity between the city and surrounding neighborhoods while adding transit jobs and boosting economic growth along the transit corridors.

8 mile’s "Berlin Wall" required by FHA in 1940s

Mack Ave. and Wayburn St. Goethe St. between Alter Rd. and Wayburn St. Brooks St. between Alter Rd. and Wayburn St. Korte St. between Alter Rd. and Barrington Rd.
Many cities dump untreated sewage into the lakes when it rains because they have antiquated pipes that also carry rainwater, overwhelming their treatment systems.
“Pollution is nothing but the resources we are not harvesting. We allow them to disperse because we’ve been ignorant of their value.”

- R. Buckminster Fuller
  Architect and Engineer
The cities along the Great Lakes coast discharge untreated sewage into the lakes every time their treatment system becomes overwhelmed from handling both sewer and rainwater. Storm water runoff combines with the sewer water, leading to constant leakages and floods.

Surface permeability studies revealed that downtown Detroit suffers from a lack of permeable paving. The current palette is very limited: brick, concrete, and asphalt with a very limited use of green space.

The lack of storm water management has many negative effects to the city. The combination of storm water and sewage increases the cost of the purification process, therefore increasing the cost of water to the citizens of Detroit.
“Re-Paving Detroit” seeks to employ storm water management strategies as a means of remediation and as a way of relieving the sewer system load. The research led to the design of permeable modules that could strategically and slowly overtime replace the impervious modules of downtown. These modules would enrich the downtown materials palette. They would include: green surfaces, permeable concrete and asphalt, and torn up rubber. Woodward Ave and the light rail line is the spine from which these modules branch off. The Woodward light rail line acts as a storm water collection system, and dumps filtered water into the Detroit River. The green rail line shrinks the size of Woodward Ave, limiting the large number of cars that come downtown to encourage pedestrians to use the light rail.
RePaVing Detroit
IRINI ZHUPA
WATER RECLAMATION WALL SYSTEM A
Detroit has been known for its isolation and devastation. A new light rail system promises re-densification of the city through centralization of transportation. The light rail cannot in itself create that change, but only through the integration of a radical new rippled street park line. Can the light rail draw in the residents, while providing new spaces to allow for the densification of activities along Woodward. These rippled streetscapes will provide a space to re-establish a series of tree species to replace those that have died from disease over the past two centuries, reinstating the canopic qualities that once lined the streets of Detroit. Materiality for the streetscape will come from the reuse of tires into rubber mulch and concrete removed from Woodward into concrete paving. The incorporation of the rippled streetscape into the Woodward light rail will create a fanciful space that would reinvigorate Detroit with a child-like wonder.
RIPPLED STREETSCAPES
ANGELICA PALECZY

W. Brentwood St.

McLean St.

Grand Blvd.

Winder & Henry Sts.

SECTIONS ALONG WOODWARD AVE
B Park Isolation
C Tactics for Slowing Down Traffic
D Revitalization from Tree Diseases

1950
sudden oak death
2001
2004
maple tar spot

valley forge elm
sugar maple
black cherry
hawthorn

new harmony elm
linden
pagoda
maidenhair
yellowood
katsura

american basswood
yellow birch
eastern white pine

straight (current) curvilinear (proposed)

plan section
speed
run-off
wind

Woodward

C
E
D
A new light rail is desired to better engage neighboring communities in Detroit. The planned Woodward light rail is accessible only along the north-south route. Communities located east of Woodward are severed by a massive stretch of abandoned, toxic industrial land.

Merge Points attempts to remediate this land by looping the light rail, burying the toxic waste, and flooding the streets to make a system of canals and thereby introduce a plastic urbanism to the otherwise abandoned industrial zone.
MERGE POINTS
NICOLE BLASETTI

Detroit, 1804

Detroit, present day
(current scheme: Woodward Avenue light rail)

Detroit, future
(proposed scheme: East Grande light rail)

typ light rail stop
light rail route, phase 1
light rail route, phase 2

typ light rail "hub" station

EQUILIBRIUM OF THE WATERWAY A
HOUSING, TRANSIT, AND PROGRAM MAPS B
PHASING C

1 2 3 4

water level, typ
original grade
“Mass transit brings our communities together. If we’re serious about boosting southeastern Michigan’s economy, then we have to have a workable public transportation system.”

- Rep. Marie Donigan
The Transparent City uses desire lines as guidelines to create an architectural language that will engage the emptiness and transparency of Detroit through a multi-purpose intervention. The Woodward Light Rail transit HUB will be a building that hosts programmatic elements concerning the critical situation of Detroit, as well as working itself as a new reference point for the city, thus generating a new focus on Woodward Ave.
THE TRANSPARENT CITY
ANDRÉS JAIME DISPERSE

Marilyn Wheaton. Quote taken from Reimagining Detrato Mocad Hub Site

Light Rail Stops
Intervened empty lots
Safe Zones created
Light rail path
Relation between architectural elements, such as the Light rail stops, parks and the main HUB

URBAN VODS A
DESIRE LINES B
PROBLEMS: LACK OF URBAN INFRASTRUCTURE C
PROPOSED INTERVENTIONS D
COLLECTIVE CONNECTIVITY

BRYAN SCHEIB

Isolated Education Connective Nodes Collective Education

desire line flows > cut and elevate field> fold and depress in response to desire lines>
desire line flows > spliced surface > inhabitable space>
desire line flows > spliced surface > interaction mixer>

Woodward Light Rail & Half Mile Walking Radii

CONCEPT DIAGRAM A

DETROIT HIGH SCHOOLS & STUDENT POPULATION DENSITY B
WOODWARD LIGHT RAIL & HALF MILE WALKING RADII C
EDUCATIONAL INSTITUTIONS: EXISTING CONDITION D
FIELD LIFT E
SINGULAR STRIATION F
UNCONTROLLED STRIATION G
CONTROLLED STRIATION H
This project explores the practice of overlapping systems and the latent opportunities found in the urban moments created within these overlays. Each specific site condition is applied with a reactionary design implementation to provide a new frontal identity to the site while also aiding a specific faltering curriculum element. Simple maneuvers and multiple linkages to primary education centers by means of the Woodward Light Rail will provide convenient after school programs and facilities for students and community members alike. Reciprocal connections within this urban campus will allow students of all schools in the system to connect at the provided nodes to take advantage of programs not inherently provided at their own schools.
Kyung Il Min

The Chicago Board of Trade trades 80% of the global food transactions on the electronic trading platform. In Detroit, the New Trading Platform will act as a catalyst to enrich the local economic network. With the development of this new network, a Detroiter will have access to more locally grown and produced food as well as to community activities which will revolve around the new trading network hubs.
Local Specificity | Regional Identity attempts to mediate the physical and metaphorical boundaries between the city of Detroit and the surrounding suburbs to create a more cohesive regional identity through the implementation of a new public transit system. Socio-economic, as well as racial demographics are sharply divided by the city-limit lines. Yet with 77% of the available jobs in metro-Detroit on the suburban side of those city limits and most of the regional civic and cultural institutions still located within, Detroiter’s and suburbanites are continually crossing these boundaries. The proposed Woodward Light Rail project (which ends at the city limit of Eight Mile) does not go far enough to address these inherent tensions between Detroit and its suburbs. Instead, a system of commuter and regional trains should be implemented on the existing Amtrak/commercial track.
The new commuter train system utilizes existing Amtrak stations as well as establishes new stations at other areas with high concentrations of employment. The project relies on a programmatic kit-of-parts based on transit-oriented development, believing that all necessary facilities and institutions should be within a 20 minute walking radius of the transport station. Each of the locations, both existing and proposed, are analyzed to find the missing programmatic pieces resulting in three various scales of design implementation based on the need of each locality. In this way, a similar logic is distributed throughout the region where each of the interventions is programatically autonomous, yet contributes to the larger regional transportation strategy through the implementation of an iconic and performative “wrapper” which allows the stations to be completely “off the grid.” The wrapper serves as an identifying element that enables the user to recognize the station as a piece of the larger system. Local Specificity: Regional Identity attempts to address the specific needs of the commuter beyond basic transportation under an umbrella identifiable form, mitigating the boundary between city and suburb in his or her perception.

**METRO DETROIT EMPLOYMENT DISTRIBUTION MAP A**

**PROGRAMMATIC KIT-OF-PARTS B**

**AMENITIES WITHIN 20 MINUTE WALKING DISTANCE OF POTENTIAL STATIONS C**
“If a city has rapid mass transportation, it will hold together and renew itself. If it does not have a means of rapid travel, it will decentralize and the obsolete will be forsaken and left to fester and blight.”

- Sidney Waldron
Detroit Rapid Transit Commission
THE LIGHT RAIL: ARSON DETERRENT SYSTEM

SARA BERG

Abandoned houses along Woodward Ave. are at high risk for arson. Fires started by arsonists can spread to houses where people still live. The Light Rail establishes a system around these vulnerable areas, where light can act as the catalyst for safety. Adding light into these zones of scattered vacancy can act as buffering system for would be arsonists.
Peeling Woodward Ave. in order to make room for recreational attractions. Woodward Ave. becomes a line of catalytic hubs that allow for interaction between Detroit’s youth and business classes. The transit line builds off of the fans already heading to downtown Detroit for the current attractions. Aligning these programs aims to unite Detroit through the spine of Woodward.
Woodward Ave. has been known to physically, economically, and as a consequence socially divide Detroit in half. Therefore, the main purpose of the Woodward Light Rail Transit hub is to act as a central point for urban development in Detroit through the provision of recreational activities such as a unique pedestrian and cycling experience that engages the transit system as well as its surrounding landscape.
CENTRALIZING DETROIT'S DEVELOPMENT

VERA TONG

DESIGN CONCEPT A

- Woodward Ave.
- Site situated within Woodward Ave.
- Hub Design

Woodward & Evergreen Cemetery
- 8-lane road
- 4-lane road

Maximize Service Area
- Introduce Parity and Connectivity
- Designate Paths for Pedestrians and Cyclists
“Modular structures may facilitate evolutionary change.”

- Leland H. Hartwell
  Molecular Biologist
**DEPLOYING CREATIVE SOLUTIONS:**
**UTILIZING ADAPTIVE INFRASTRUCTURES IN DETROIT**

In its current condition, Woodward Avenue between downtown and 8 Mile Road is littered with approximately 50 vacant and underutilized spaces, ranging from over-sized parking lots to empty parcels and even derelict structures. Vacancies in Detroit have become the focus of artists, both domestic and international, representing a new frontier of urban renewal in this blighted city. Becoming a veritable palette for creative statements and grassroots initiatives, such as Tyree Guyton’s Heidelberg Project and Ellen Donnelly’s Bloomtown, Detroit’s future relies on a synthesis between bottom-up initiatives by local residents and top-down approaches provided by commercial and governmental interventions. Interestingly enough, both of these aforementioned projects have received funding in the form of grants from the Black Rock Arts Foundation and the Kresge Foundation.

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**Steel Frame**
- Welded and assembled locally in Detroit.
- Structurally robust and able to stack up to 3 levels.

**Radiant Heating**
- Heating system integrated within the floor.
- Can also be used to cool in the summer and provides water for plumbing.

**Roof SIPs**
- Structurally integrated panels make for quick and sturdy components that can be prefabricated locally. The panels are ample insulated.

**Wall SIPs/Concrete Floor**
- Structurally integrated panels fit into frames, allowing for the envelope to be modified.

**Sliding Glass Panels**
- Large glass panels allow for ample sunlight and views. It also gives artists and entrepreneurs exposure to the public eye.

**Sliding Shutter Panel**
- Allows the occupants to control sunlight and provides privacy, especially for domestic configurations.
Where does creativity live?

By incorporating a hybridized system along the proposed light rail route, critical infrastructure in the form of deployable prefabricated studios can be delivered along Woodward in order to densify vacant and underutilized lots with critical social infrastructure provided by artists and designers. The components include modified chassis to carry the prefabricated studios and a tri-fold gantry crane. The specialized chassis would run articulated with the standard light rail vehicles and uncouple at each site identified along Woodward. Once on site, the gantry crane unfolds and engages semi-permanently to receive and send prefabricated studios.

The goal of the deployable prefabricated studio is to establish a new infrastructure in Detroit which can adapt to the changing needs of its residents. Accommodating domestic, commercial and creative programs, this new urban ecosystem allows residents to determine a future for the motor city. Utilizing locally accessible materials and constructed using modular and prefabrication techniques favored by car manufacturers the studios can be easily produced and distributed. Practically, the site of the light rail along Woodward avenue takes advantage of denser zoning conditions, including commercial, education, health care, mixed-use and athletic venues. Symbolically, the placement of these enclaves along the Woodward light rail line emphasizes some of the more redemptive institutions supporting Detroit.
Graffiti is inherently skinny.

It may interact with 3D space and reference broad social contexts, but it is still physically thin. Additionally, some graffiti, especially that of street artist BANKSY, is remarkably site specific. This project draws on both these qualities in an effort to reclaim some of the thin residual spaces left by the excessive proliferation of non-pedestrian hard-scape.
In Detroit, approximately 80,000 houses are going to be demolished.

To produce safe and dense neighborhoods along Woodward Avenue, it is crucial to redefine the existing zoning condition. Combining business and residential areas along the avenue creates a safe and convenient transportation environment. New zoning regulations make it possible to create a multi-purpose residential building which allows for housing on top and commercial on the bottom. This dense combining block will help to revitalize Woodward Avenue.
The city of Detroit has been divided in many ways. 8 Mile road, the northern border of Detroit, is known for being a factor in dividing the city from the northern suburbs. Since the auto industry in Detroit has rapidly declined in the past decade, thousands of citizens are forced to leave the city to find other jobs. These people are going north, past 8 Mile road, to the suburbs.
These abrupt migrations of thousands of people have left scars in the city of Detroit. Vacancy of buildings and residential structures has gone up, causing an increase in crime rates and a decrease in home value in the neighborhoods which aren’t vacant. There needs to be something done which can begin to diffuse the divide between the northern suburbs and Detroit.

These injections will help to serve as hub stops for the light rail, as well as other transportation nodes such as bus stops. There will be a direct connection between the individual injected markets and the transportation system at large. This is crucial in order to diffuse the divide by providing incentives for the residents of the suburbs to come back into the city.
Detroit would benefit from investing in a kit-of-parts which can be assembled and reassembled to create forms in different spaces amongst otherwise vacant buildings. This approach will alleviate some of the issues associated with vacant builds.

When assembled, this kit-of-parts will be able to provide space for programmatic activities explicitly pertinent to that location. Social infrastructures will be inserted in varying locations along the Woodward corridor providing much needed services to Detroit’s population. By being adaptable to change, this design proposal achieves a level of longevity in planning for Detroit’s future and prevents planned obsolescence. The proposal is conceived as a reactionary architecture to exist without the threat of becoming obsolete.
A Good Place looks to utilize open space for architectural experimentation, and interacts collectively with its adjacent sites. A Bad Place, or any other architectural intervention generally uses open space for architectural implementation, and interacts pervasively with its adjacent sites. A Good Place will use extremely large plots of land that remain undeveloped around the halo of existing factory buildings. It will temporarily use the existing factory as an architectural warehouse for storage, while preserving the exterior and interior landscaped. The new program is placed on a track that will slide in and out of the neighboring plots of land, which will develop a temporary and minimal built infrastructure.
The units enter the landscape and interlock with each other and the site foundation. This creates a new floor plate from where the existing roof structures meet the inside of the factory. The boxes retract out from their holding stations and fill the voids left over by the undeveloped plots of land, in one case compressing the large balloon that then inflates the landscape.
In the past 10 years, major development has occurred in downtown Detroit due to the construction of the two stadiums. Along with the stadiums, condominiums, restaurants, and parking spaces were created to compensate for the growing number of sports fans. Even though Detroit is one of the few cities in the United States with four major sports teams, there is a lack of public recreational areas within the city limits.

1999
The First Unitarian Church, the location of the proposed Hub

2005
After the stadiums were built, a cluster of condominiums were built nearby to draw more residences closer to the city.

2010
More housing units are created in the same area.

2015
Due to the growing interest in living closer to the stadiums, the number of housing units has increased in the same area, which makes the location of the Hub ideal.
Located on Woodward Avenue, next to newly developed condominiums is an abandoned church called the First Unitarian Church. The idea of the hub is to re-use the empty church as a social meeting ground, and provide a service to the growing neighborhood/sports fan. Rather then creating a building from scratch, the project recycles an existing historical building which will reduce time and money in its construction. Connected to the church is a gymnasium with a retractable roof and wall that changes the space based on the weather/season and social need of the gym. The gym is connected, but is set back from the site so the church is shown as the major entry point of the building.
How can this transportation project become an opportunity for making Detroit a walkable environment?

The population of Detroit is very skeptical and discouraged about changes, especially big changes that promise to "solve the economic dilemma". That is the reason why the agenda of this project is to generate maximum impact with minimal input. Therefore, the project aims to discourage the use of the car along Woodward Ave and to solve the unsafe streets intersections while simultaneously generating a valuable public space and circulation experience. The program will be divided into three main stops. The vacant lots along this avenue will hold temporary recreational amenities that will be replaced as the area regains value with retail space, offices, restaurants, bars, among others.
All along the avenue there will be a bike lane separated from the street by a buffer of high trees and bushes. The main bike access ramp up to the bridge connecting two opposite corners with each other will start and end in that buffer zone so that the entrance and exit of the ramp are controlled, providing the sensation of riding through the trees. At the top of the bridge there will be parking space for bikes. The bridge will also be accessible by all who just want to enjoy the promenade and the peculiar views of Detroit. Under the bridge necessary residual program includes administrative offices, waiting area, public restrooms, employee restrooms, a cycle center and a meeting area where a book swap system (with donated/abandoned books) will take place, connecting that way the three stops.
Regenerate Detroit directs the light rail through neighborhoods with the highest vacancies, highest number of buildings to be demolished, and the highest crime rates along Gratiot Avenue from the city center. The hubs are strategically located at primary intersections of principal roads that link Gratiot Ave to Woodward Ave, a major route and hot spot of economic activity in Detroit. Using bus services to connect the hubs to existing social infrastructure in close proximity to one another, the aim is to create a chain reaction of activities and micro social and economic hubs throughout these communities to revive them.
The developed McNichols hub is located in zipcode 48205, a neighborhood characterized by no social infrastructure and a large number of youths under the age of 50. There are a lot of public schools here, most of which have had their art programs cancelled and more than 80% of the residents are motorcar-less, mostly car pooling. Minute but strategic insertions are made using an existing building. A walkway referred to as the Social Link connects the light rail stop to the existing building feeding the abandoned structure with life. The link expands to contain program—a business incubator to encourage small-scale business, an information technology lab and a food and music bazaar. The existing building is inserted with spaces for a neighborhood art program to restore the lost art programs in the public schools.

**KORANTEMAA LARBI**

**COMMUNITY ACTIVATORS**

Community activators are injected into site to replace & regenerate lost art programs in public schools and small scale businesses.

**SITE PLAN AND STRATEGY A**

**HUB SITE AND FOUND MATERIALS B**

**COMMUNITY ACTIVATORS AXONOMETRIC C**

**SOCIAL LINE FOOD STANDS D**

**SOCIAL LINE LIGHT RAIL HUB E**

**INTERIOR SOCIAL SPACES**

**EXTERIOR SOCIAL SPACES**
“We’ve embarked on the beginning of the last days of the age of oil. Embrace the future and recognize the growing demand for a wide range of fuels or ignore reality and slowly—but surely—be left behind.”

-Mike Bowlin,
Chairman and CEO of ARCO (now BP)
DOUBLING INFRASTRUCTURE

Present Status | Separated struggling Cities

Future Results | Unified Mega-City

Wind Guiding Form

Turning Radius for light rail

Information Kiosk

Automated ticket booths

Automated ticket booths

Storage and maintenance

Heavy Rail platform

Storage facilities

Mega regional

Electric heavy rail

Regional Light rail

Local Bus

Local Bike/ Small transportation

Elevated High speed

Electronic Light rail

Underground Bus station

DOUBLING INFRASTRUCTURE

TAYLOR HARDEE

ENERGIZE

SUPERIOR

HURON

MICHIGAN

ERIE

ONTARIO

Single Factory Economy evolving from an old Rail system

NNE

ENE

NE

ESE

SE

SSE

SSW

SW

WSW

W

WNW

NW

NNW

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With Detroit’s vacancy and struggling economy, the investment of a new transportation system must understand the importance of its own financing and foundational stance. Doubling Infrastructure takes this into consideration by basing itself on a renewable energy source. This is a response to the unsuccessful city structure found in the shrinking rust belt regions, as well as a comment towards the contemporary globalization of the world. In a time of complete connection through technological tools, the scale of the city does not fit its contemporary time period. What if the “city” refers to an entire region? What problems, but more importantly for Doubling Infrastructures, what solutions will come out of changing the scale of the “city”? 
VACANCY WILL LEAD TO ENERGY

ELVIRA IBRAGIMOVA

There are 375,000 houses in Detroit. Out of these, over 90,000 are vacant lots. Mayor David Bing’s plan is to demolish 10,000 vacant buildings over the next three years. Overall, the demolished houses will yield roughly 5 million tons of debris. Waste-to-energy plants reduce the volume of the original waste by 95-96% and are currently one of the cleanest and most efficient means of energy recovery.

The project takes 9 large scale vacant lots along Woodward Avenue - the buildings are retrofitted into waste to energy plants which supply power to the light rail and the houses in the surrounding neighborhoods. There are 2600 houses per square mile in Detroit. With 90,000 vacant lots in Detroit, the project has the potential to power this area or an even large area with the added municipal solid waste produced daily by the city. The project has an unlimited life span.

A waste to energy plant uses incineration to boil water which powers steam generators that produce electricity. The incineration, boiler and turbine steam generators are housed within the shells of the existing buildings. The cleaning process takes place outside of the building. The resultant flue gases are highly acidic – One way to reduce this problem is through the use of lime scrubbers on smokestacks.
As the gas flows along the different stages of the cleaning process, the pipes begin to form and enclose spaces which can be used to house a program—program which can imbibe Woodward Avenue with a new pedestrian friendly character and can reflect the changing meaning of Detroit’s nature. The iconic image of the emitted flue gases which has long held highly negative connotations can be redefined, reinterpreted and redesigned to act as a performative icon of sustainable energy. By bringing the flue gas cleaning process onto Woodward Avenue, the project brings attention to how Detroit’s problem of vacancy can be turned into a long term resource for the city’s electricity needs.
“The world is being forced—not in 10 years but today—to choose between feeding people and feeding cars.”

- Ernest Callenbach
Author