Investing in the Micro Community

By

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CONTENTS

List of Figures

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Abstract

This research uses extrapolation theory to understand how past actions effect the present, and through this lens how decisions made now will effect the future. This paper investigates how this theory informed design decisions in the late fifties and sixties. Extrapolation theory makes connections between science, technology, science fiction, and design work in regards to aerospace and rocket technology, chemical process, and cybernetics. Extrapolation theory permeates decision making at every level, causing exponential changes as ideas move through time and society. The focus of this research investigates the city of Detroit, MI, and how the sole focus on auto culture caused the growth and demise of a once prosperous metropolis. The design proposal looks at how shared investing of resources at a micro scale can catalyze change at a local scale.

1. Introduction

Architecture is a diverse medium that evolves over time. The choices of society influence the way in which architecture is designed. Architects study and explore new technologies to create structures that employ these new advances. Through the changes in technology and building techniques, the character of a period can be immortalized in history. The digital world shortens the distance between our neighboring countries and yet creates a new distance for our neighbors. The changes we are adapting currently are making an impact that can be felt at exponentially faster rates. The ensuing results, however, may not be known for years.

It is productive to understand the process of extrapolation through the history of a body of works. This paper uses the insights learned from this process as a point of departure to understand how extrapolation continues to be part of contemporary society and architecture, specifically Detroit, Michigan, and how this process can be used to develop a micro-community.

2. Extrapolative Theory

Extrapolative theory is the idea that what is being designed now will create the future, and ultimately what was dreamt of in the past has created the present that we now have. John McHale, co-founder of the Independent Group, couches the subject of the future as something the human population has control over. What is in the past ultimately effects the future and the more knowledge we have, the greater the options that are available to us. As Reyner Banham says "The world of machinery is the most wickedly accurate mirror ever held up to human nature, for it contains nothing of consequence that was not put there by men in execution of their desires and decisions." (Farnham, 117) What we understood at the time is reflected in what was then produced to fulfill that ideal. What is built is better than anything written because what is written is decided by the victors, and what is built in the past lingers on. Books can be easily burnt but buildings take effort to bring down, and still the pieces remain. Society's current status is based entirely on the history recorded.

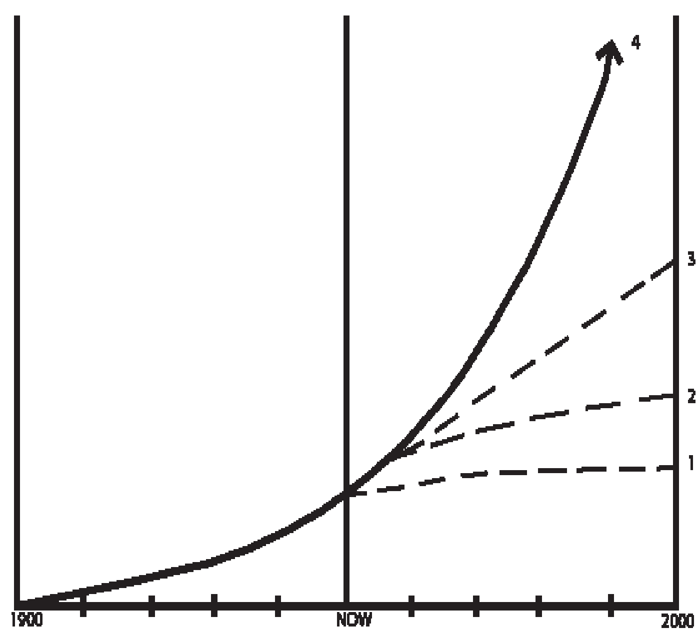


Figure 2.1: Extrapolative curve created by Reyner Banham. (Mchale, Farnham, 121)

The future is something that is speculated on at both the individual scale and the scale of the mass populace. At the national or global scale, the more ‘popular’ option is often the choice that will lead to a perceived better future. These are also the choices that get funded and brought to fruition. The truth of the matter is that now the future is dependent upon where the money comes from. The government invests in childhood education to provide an intelligent future generation. It also invests in weapons, robotics, computers and other varieties of technologies trying to best predict the needs of its inhabitants for the next 10 to 50 years. While the need was known in the past, the government only recently began investing in alternative energy sources and green technology to reduce our impact on the environment.

John McHale in AD 2000+ was already considering the global ecology and what technology of the future will do to it. “Our present level of technological operations already interferes substantially with the natural cycles of energy and materials in the biosphere within which all of our major life processes are toward outer space.” (McHale, “Toward the Future”, 6) Architecture has to represent society as a whole. It cannot be just an individual or local concern, it has to work on the global scale. New technologies must be evaluated on how they will affect the future. New materials and construction techniques should work both for building and the environment.

2.1 Possible futures

The possibilities of the future are both limited and limitless. The imagination is limited only by what we believe is possible. If we expand what we know to be true and to include the improbable then there are fewer limits on what is capable of becoming reality. In the words of Jules Verne “In spite of the opinions of certain narrow-minded people, who would shut up the human race upon this globe, as within some magic circle which it must never outstep, we shall one day travel to the moon, the planets, and the stars, with the same facility, rapidity, and certainty as we now make the voyage from Liverpool to

New York!" (Verne, 93) By having a goal we limit what we try to accomplish and as a culture we choose which are the most important goals. As we attempt to achieve these goals we narrow down the approaches until the best becomes clear, but we still limit the end product. AC vs DC current is such a choice. Both approaches produce electricity, but AC current is the choice for the outlets in a home. We are unable to use DC current to power most items because the power grid is not configured to handle that current. Another instance is the automobile engine, because the combustion engine was the main choice in the past, it has taken years to try and change the auto industry on even a small scale. The choices made in the past have lasting impacts on what we are capable in the future and in that way we are limited. It takes more to make changes on a large scale the longer we have one system. The lack of diversity is limiting. If multiple options are open then the future is far more open to other changes.

The future as far as architecture is concerned is intertwined with the future of technology. However "technology, of itself, should not dictate the forms of human environment, but rather be used by men to flexibly determine the kinds of environment of their choice." (McHale, "2000+", 64)   The problems that are attached to technology are not often evident right away. The advantages are perceived to outweigh those problems but not to everyone. The move from local worries to global worries creates disparity between the technologically advantaged and disadvantaged. The pollution caused by technological advances has affected the global ecology and that requires planning to create new solutions to those problems.

Buckminster Fuller's world game is a direct example of this idea. A computer simulation designed to allow various strategies to be input and tested for viability on a world scale, a new way to distribute resources to all the entire world population. On a global scale the separation between the first worlds and third worlds creates a problem to be resolved, however, we first have problems to solve within our own country. The haves and the have nots are separated on the basis of resources. We must close this divide if we wish to close the gap between the first and third worlds. If we cannot do for ourselves then we cannot do for others. By imagining a future that is better for all we open the possibilities for advancement.

2.2 Why Science Fiction is Important

Jules Verne and Isaac Asimov wrote based on science fact and made predictions that have come true. Furthermore, their ideas have made so much sense that scientists have chosen not to make changes 60 years later. The ideas that have shaped scientific thought, while fictionalized, have allowed for a possible future.

Jules Verne

Verne is credited as being the father of science fiction. He wrote *Twenty thousand Leagues Under the Sea* (1870) and *From the Earth to the Moon* (1865), works that describe technologies and events that would not happen for another one hundred years. In Verne's series *Les Voyages Extraordinaires,* he described skyscrapers, submarines, a variety of aeronautical machines, and even the moon landing. Verne inspired some of the world's most important scientists through his science fiction writings. In *From the Earth to the Moon,* Verne wrote about space flight. Through known scientific fact, he calculated what it would take to reach escape velocity and reach the moon. The story also had the first launch with small animals, that in the Apollo program were monkeys. Thirdly, Verne predicted the launch site just a few miles from the Kennedy Space Center. The size of the Verne capsule and the Apollo capsules were roughly the same as were the number of astronauts. Finally he predicted that the splash down would happen in the Pacific ocean and that they would be retrieved by the US Navy.

The question proposed by the similarities in the Verne launch and the Apollo launches is this, while the science is correct are the other similarities because of Verne's writing or because they were the best choices for each aspect? Were the scientists and politicians inspired by Verne and wished to emulate what he wrote or was it mere happenstance?

> *Verne has said that "everything one man is capable of imaging other men will be capable of realizing."* (Ley, 48)

Isaac Asimov

Asimov is the father of robotics. In his robot series he creates three laws that would be inherent in all robots. Sixty years later people who design robots comply with these laws. It is once again the question that do these laws just make sense and therefor are not subject to change or that the readers were influenced by Asimov and choose to emulate what was written.

Science fiction, science and architecture are an interlinking set of ideas that shape the world as we know and will know it. Science Fiction is the first stage of architecture evolution. Speculative ideas into the future shape the way we view the world and as such architects are subject to whims and ideas of the masses. Scientists create future technology that is often inspired by science fiction writers, who have extrapolated from the current science technology to create future uses, in a feedback loop. " SF [Science Fiction] does not merely anticipate but actively shapes technological futures through its effect on the collective imagination." (Johnson and Frenkel, 11) One of the clearest examples of how science fiction has changed our world is the Star Trek franchise. While it was developed in the 1960s many of the technologies shown have been created in the present. In the original series, the ground team could report back to the ship via communicators that were very much the basis for the original flip cell phones and Urhura's ear piece has evolved into the blue tooth device. From The Next Generation series we have the tablet, as well as early versions of the tricorder, and recently invented is the hypo-spray. Through the entire series is warp travel that has also recently been developed.

> *"Science Fiction is "Realistic speculation about possible future events, based solidly on adequate knowledge of the real world, past and present, and on a thorough understanding of the nature and significance of the scientific method."*--Robert Heinlein (16)

Architecture looks to the world around us and formulates ideas about what will be. It is speculation about politics, economics, and the ecology in the future that creates new designs. "To design our way forward through our present critical transitions, we need to adopt some more positive and operational indicators of the optimal conditions for the fulfillment of human life" (McHale, "Toward the Future, 7)

Rayner Banham, an art historian, finds that science fiction bridges the gap between art and technology. Specifically that technology has a limitless expend-ability that art is unable to see beyond an ideal end. To produce new technologies we have to predict what the world will want and need in the future. In Campbell's *Laws of Speculation* the first step in scientific process is the wish step. Specifically an idea such as 'I wish to fly'. The idea must be placed before science can take the first step in uncovering what to be developed. The future is what both the masses and the individual can imagine.

> "*Technology ensures that (much of) what was fiction becomes fact, the consumption of SF amongst geeks inspires the production of mimetic technologies, and popular science markets its facts like blockbuster fiction.*"
>
> --Martin Parker (275)

New ideas in science and technology which are influenced by science fiction lead to creative new designs in architecture. Archigram, Archizoom, Cedric Price, the Smithsons, the Metabolists, and Buckminster Fuller have all been affected by leaps in science and technology and in turn have affected technology. They have also created speculation on new ways to use the ideas.

2.3 How does Architecture Extrapolate: Case Studies

Architecture is one of the most physical examples of extrapolative theory in the world. Architecture showcases the decisions we have made, and immortalizes them over time. The pyramids and the Gothic cathedral both represent different periods of time and beliefs of those cultures. The monuments of time survive and influence the present and the future. The way we build, and the influences of technology, art, culture, and science are buried in architecture to be carried through time. Architecture is a slice of time representing the way of thinking, and what is important at a specific period of time. Architecture is a museum that spans both time and space. The understandings about our surroundings are encapsulated within design.

The pyramids represented a society that is influenced by the power of the pharaoh. Each pharaoh had to be better than the previous. From the stepped period of Djoser to the pyramids of Giza, each was built upon the past to create a better future for the current pharaoh in the afterlife.

Figure 2.2: Djoser's Step-Pyramid. (Monique & Alain Studentsoftheworld.com)

Figure 2.3: The Pyramids of Giza. (New Open World Foundation Architecture.about.com)

The Gothic cathedral represents a society immersed in religion, and the representation thereof. Designs were created to best represent God in stone and light. The transept and nave create a cross. The transept also runs east to west, moving the church from dark to light. Many aspects of the design reflect these ideas.

Figure 2.4: Abbey of Saint Denis. (Ordifana 75 Wikipedia.org)

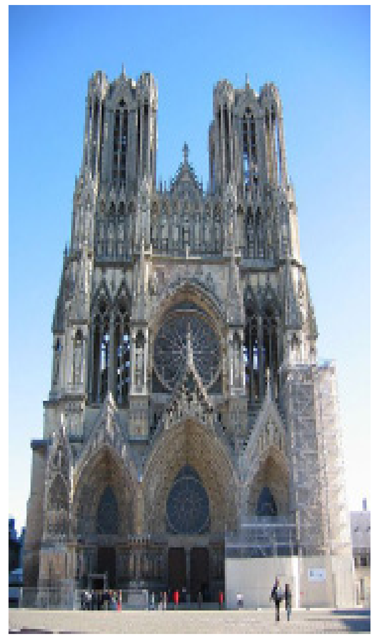


Figure 2.5: Notre Dames de Reims. (Yann Grossel Wikipedia.org)

Architecture has evolved over time and the process by which anything is built has been sped up considerably over the centuries. This is mostly due to new advances in technology. New materials are created, and new ways of building give rise to future architectural forms. The return of American soldiers from World War II led to an increased need for housing; this in turn led to the development of new ways of building and new materials to build with. The evolution of computers and the space race also influenced the way architecture was designed and built.

2.3.1 Aerospace and The Dymaxion House

The Dymaxion House was a solution to the housing problem by Buckminster Fuller. Drawing from the idea of the rocket the Dymaxion House was a lightweight structure that had a central core that contained all of the utilities. The house like a rocket or plane was designed for mobility. Using lightweight materials the house could be moved from one site to another once the utility core was in place. In order to maximize square footage the interior had movable parts so that the space was used efficiently.

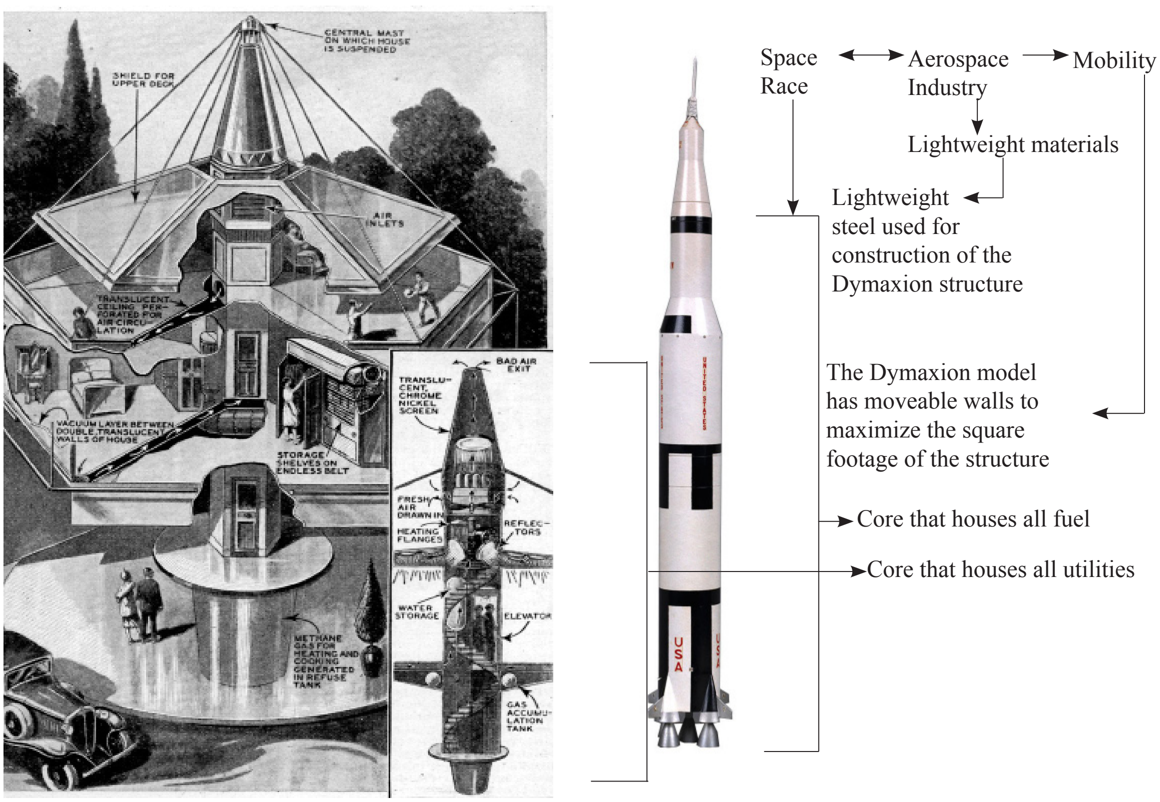


Figure 2.6: Relationship between the Dymaxion house and technology industry. (Davidzondy Davidzondy.com, National Archives of Austrailia Naa.gov.au)

2.3.2 The Houses of the Future

The House of the Future was the title of multiple attempts at creating a house made out of the new material at the time, plastic. Many companies began producing plastic products and tried to show all of its uses including creating homes. Disney and Montsanto paired together to create the House of the Future in Disneyland that they speculated could be the new residence of the nuclear family. Montsanto created a plastic shell for the home, then filled it with plastic furniture and other futuristic appliances to make living in the home easier including: sonic dishwashers, televisions, and microwave ovens. The shell was designed in multiple pieces that could be joined together to form the overall structure.

Another House of the Future was designed by Peter and Alison Smithson. Like the Montsanto house this was also designed from plastics. Where the Montsanto house was built from pieces the Smithson's house was mass produced in a mold for mass consumption. The combination of chemistry and technology led to the use of plastic forms. The plastic forms and vast consumerism of the time, led to the idea of mass production. The mass production and presumed consumerism of the home was theorized to create a very low cost due to the fact that the exact same form was created each time.

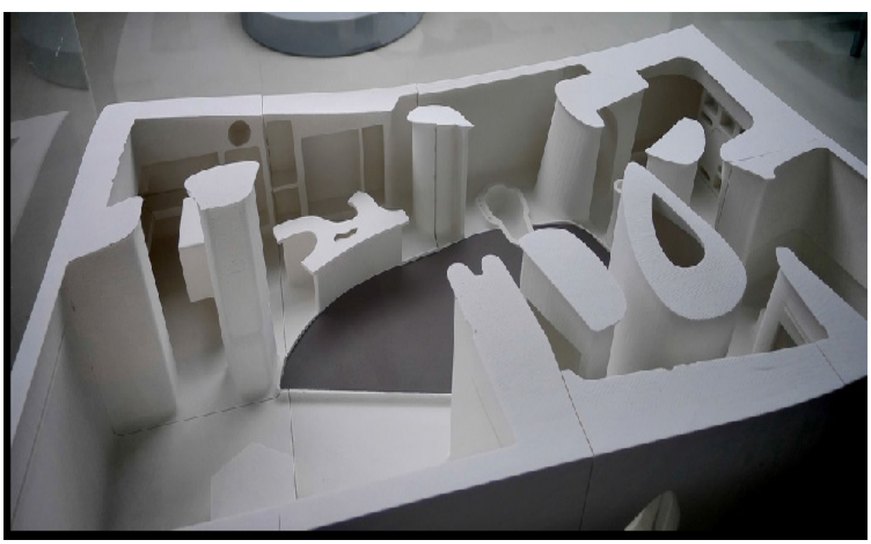
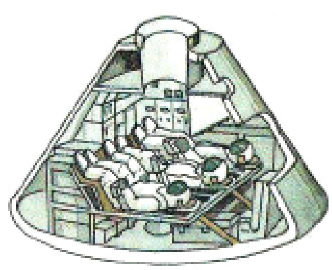


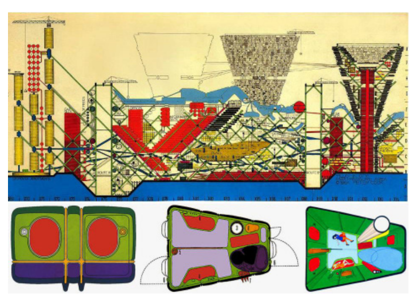
Figure 2.7: Smithson's House of the Future Model of the Mold to be used to create the house. (Klaas Vermaas Flikr.com/photos/klaasfotocollectie)

2.3.3 Aerospace and the Capsule Movement

The space race produced a new idea for a type of space. The Apollo capsule was designed to house three men for a trip to the moon and back. This capsule had to contain all needed systems for survival. This in turn led to Archigram's Plug-In City. The Plug-In City as an idea would consist of a set of structures to house various capsules. These capsules would be living quarters, recreational spaces, and all manner of spaces for an enclosed city. Through the use of robotic arms, various pieces could be plugged in and removed as needed.

The new typology spawned a series of buildings created out of modules, that while not as advanced as Archigram's speculation do in fact exist and work. Computer technology at this point in time was not advanced enough to create the ideal plug in city. Further examples include Moshe Safdie's Habitat '67 exhibit, which stacked repeatable forms, creating a variety of groupings, balconies, and openings in a modular formation. In addition to this was the Nakagin's Capsule Tower, a hotel that used the modular formation of Habitat '67 and the idea of a capsule to create a stackable tower out of concrete and steel, that could be replaced by new capsules when needed.





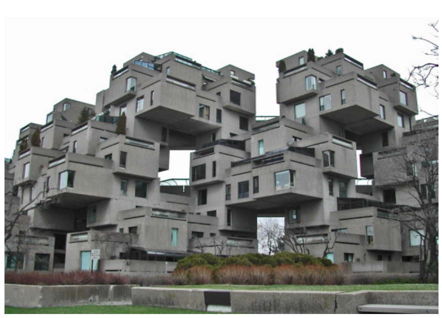


Figure 2.8: Apollo capsule illustration. Above far left. (D. Sassier www.geschichteinchronologie.ch

Figure 2.9: Archigram Plug-In City. Above left. (Peter Cook Essential-architecture.com)

Figure 2.10: Safdie Habitat '67. Far left. (Bridgette Meinhold Inhabitat. com)

Figure 2.11: Nakagin Capsule Tower. Below left. (Kirainet Kirainet.com)

2.3.4 Montreal Expo '67

Buckminster Fuller was an interesting architect who wanted to change the world through architecture. He wanted " to make it possible for anybody and everybody in the human family to enjoy the total Earth without any human interfering with any other human and without any human gaining advantage at the expense of another" (Massey, 476) The geodesic sphere at the Montreal Expo 67 is a large scale example of his "Garden of Eden". This idyllic space was climate controlled by a computer and augmented by air conditioning, two advances made in the scientific community post-war. The computer would create a closed loop of information, by using sensors embedded in the lightweight frame. Information about both the exterior temperature, sun position and interior temperature would determine where shades would be open or closed, and fans either on or off, to try and mimic the human body's way of maintaining a stable internal temperature.

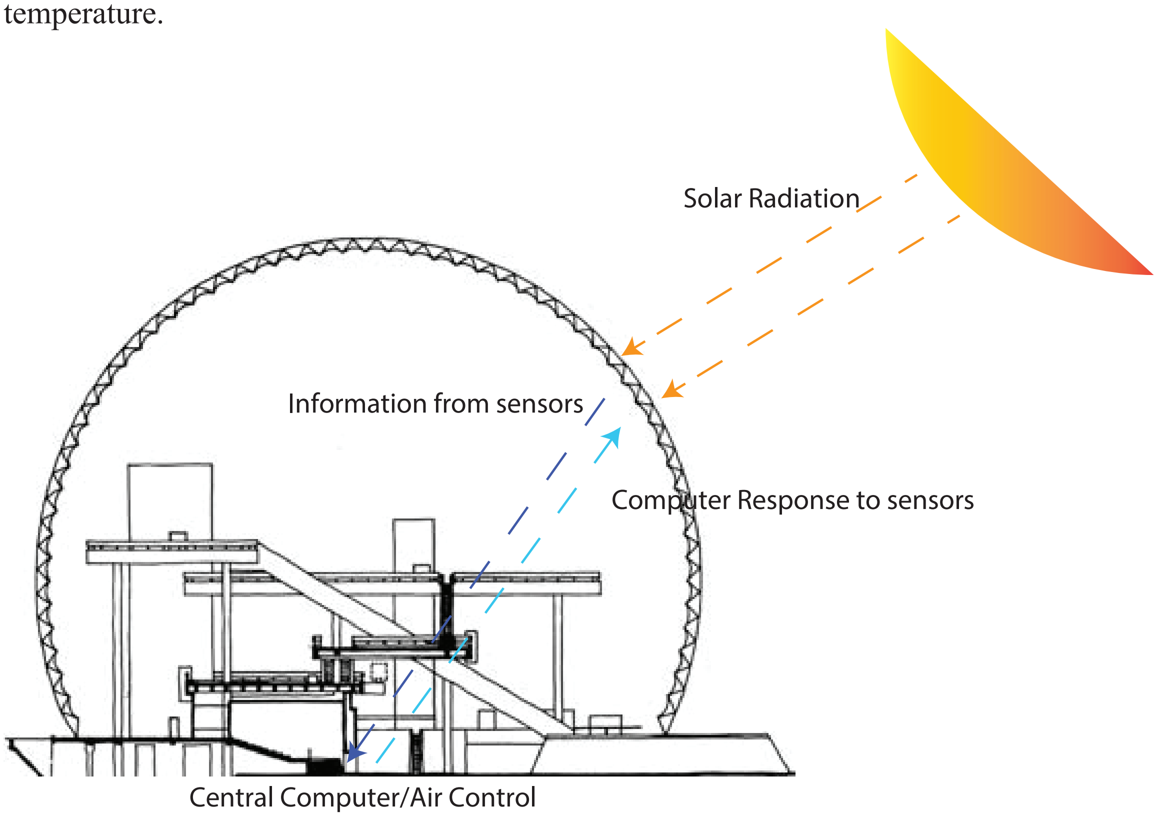


Figure 2.12: Fuller's Expo '67 Internal and External Energy Transmission. (Buckminster Fuller 467)

3. Urban Culture

Urban culture includes the way people use a city, and the way they interact with both the buildings and the open spaces. “Architecture is not something physical that is added to buildings. Because it only appears indirectly, architecture is not contained in objects or things, although it depends on them.” (Willis, 83) Architecture like a city is an idea not entirely a physical object. The city is a group of buildings and open spaces, if one building is taken away, it is still a city, just as parts of a building can be taken away and still have architecture. Urbanism is not only related to the city but also the town and the neighborhood. It is a quality that transcends the size of the community, and rests solely in the expectations of the individual.

> *“The city is always a goal, particularly appealing to young adults, or to those starting over. It is the end of a journey, the realization of the fondest hope, the place to make it big.*” (Willis, 90-91)

The idea of the city represents what could be for an individual. It is the multitude of future prospects for a person. The placement of individuals in society determines how the city is viewed. The merchant in the Victorian era had a far different set of interactions than the aspiring actress living in New York City now. Free time is spent in different ways interacting with a variety of people.

Urbanity has changed over time. Urban areas have always been places of power. Urbanity now is not just related to the physical manifestation of a community but also to the global community through the digital world. Through the use of the digital world, the traditional association of power with urbanism is no longer set in stone. Centers of power can be created in what have been rural areas with ease via telecommunication technology. What has been true does not always need to remain the same. The distribution of power in the form of urbanism can be rearranged at will to best accommodate the needs of society.

3.1 Detroit: Agriculture to Auto-culture

Cities evolve in a variety of ways. Older cities often move from an agriculture basis to an industrial basis, where new cities often spring up around certain industries. The problem with cities surviving on one industry is that when that industry becomes outdated, the city begins to fail. Detroit began in agriculture and grew around auto-culture. Many people lived in the city until cars became affordable to the larger population. This freedom spurred the growth of the highway system to connect one city to another, creating an environment of personal transportation. The auto industry freed the population from the whims of the rail industry but shifted that reliance to cars and gasoline. By having a personal automobile, a person can travel at their leisure. Businesses could venture further out of the city confines because larger populations could be found in the suburbs. The growth of the ideal suburb became the problem of urban sprawl. This sprawl limited the agricultural areas, in an area that was once grossly rural.

3.1.1 Immigration and the Growth of Detroit

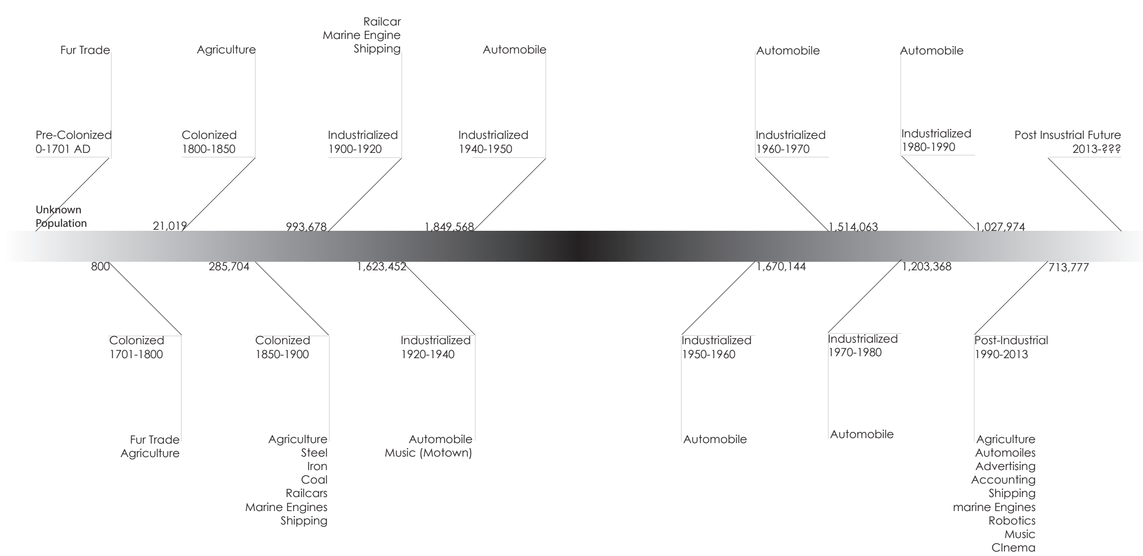


Figure 3.1: The rise and fall of the population of Detroit as well as the main industries during those time periods. (Author Generated)

Prior to 1670, Detroit was unknown to the European world. It was discovered by French missionaries on their way to the mission in Sault Sainte Marie. In 1701, Detroit was settled as Fort Pontchartrain du Détroit by Antoine de la Mothe Cadillac. In order to increase the population of Detroit, France offered free land to its people as an incentive to move. By the time Detroit was turned over to the British following the French and Indian war in 1760, the population was 800, and one of the largest cities between Montreal and New Orleans. In 1783, the British ceded control of Detroit to the United States, but it still remained under British rule until the Jay treaty in 1796.

In 1805, a fire destroyed most of Detroit causing it to be rebuilt. Inspired by this Detroit's motto is "We hope for better things; It will arise from the ashes".

1800-1900

Until the completion of the Erie Canal in 1825, the state of Michigan was reported to be unusable for farming. After the completion, however, surveyors came and divided the land into parcels and townships for farming. Detroit provided an access point to the Chicago Road and the Monroe Pike. The southern third was the first portion of Detroit was the first to be settled for farming wheat and wool, the states cash crops. The population, due to the settling of the land, grew from 21,000 in 1800 to 286,000 in 1900 according to the census. The population increase consisted of many European immigrants including the: Irish, Germans, Polish, Dutch, and Finns. Each established its own area of the city, much like the gangs of today, the Irish lived in Corktown, and the Greek in Greektown."In 1860, 85% of the population depended upon agriculture for its livelihood." (Michigan State University: Department of Geography)

Also during this period the underground railroad helped many slaves move to the abolitionist north. One of the major crossing points was through Detroit across the river into Canada because it was the shortest way across the border.

Due to the large amounts of iron ore found in the upper peninsula and coal near the boarder with Ohio, Detroit became a large manufacturer of iron and steel. Michigan produced cast iron stoves, wheels for rail cars, ships, and marine engines. The largest employers at the time were railroad car manufactures. In 1892, several large companies merged to become Michigan-Peninsular Car Company.

Detroit also manufactured large steamboats to move people and products around the Great Lakes. "Michigan's work in iron, steel and marine engines would carry the state into the new century's interest in automobile manufacturing" (Michigan Historical Museum)

1900-1910

Henry Ford began his empire by creating carriages; by 1899, he had started his first auto factory in Highland Park. At this point in time it was an independent city outside of Detroit that was later engulfed by the city. Ford's use of the assembly line to craft cars inspired both General Motors and Chrysler (The Big Three). All three corporations sited their headquarters in Detroit making it the car manufacturing capital of the world. At one point there were over 100 car companies in Detroit.

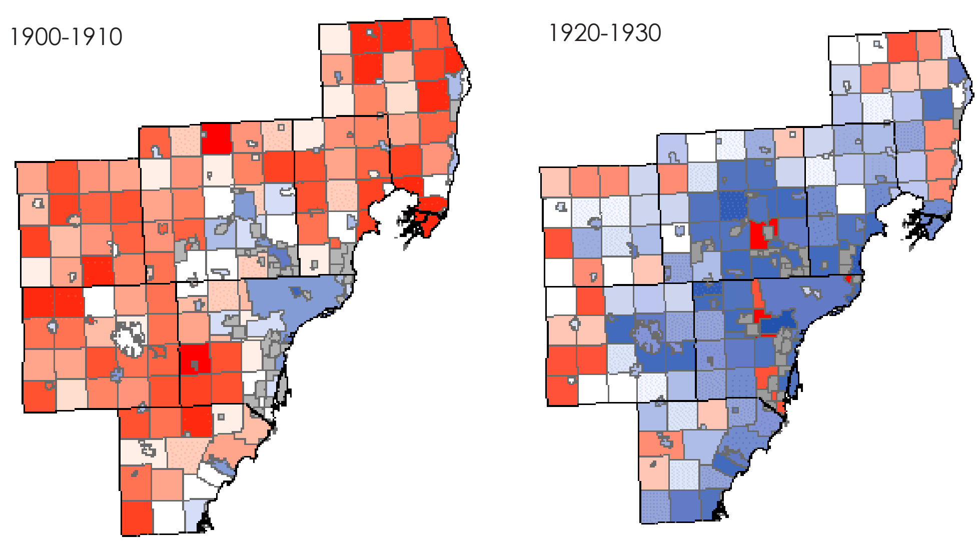


Figure 3.2: Population Growth and Loss from 1900-1930.
Blue Represents growth, red, loss. (Shailesh N. Humbad Somacon.com)

Due to the increase in factories, a new wave of immigrants moved to Detroit to fill the new jobs. Chrysler, in order to increase production and the amount of people buying cars, began changing the design each year, creating an image for people that induced them to buy more, keeping many people employed year after year.

Until the 1920 to 1930 period, there was a lack of mass transit for those working in the factories. During this period of time a streetcar system was put in place and was the largest in the United States. This allowed people to no longer live just in Detroit proper but begin to create suburbs surrounding the area. Also due to the 18th amendment prohibiting the sale and consumption of alcohol, 75% of illegal liquor came from Canada. Both the Ambassador Bridge and the Detroit-Windsor Tunnel were completed by 1930 which helped facilitate the import process.

Between 1930 and 1940, the number of people living in the downtown area of Detroit was relatively stable, but more people were moving into the suburbs. This was predominantly a migration of people who had lived in Detroit for a while and had the money to move out of the city while the new immigrants lived in the center. Many people were immigrating from the southern states due to the increase in jobs and the perceived job security. Trade schools were set up to teach new workers how to work the machines without taking valuable time off the line. Also during this period was the creation of the UAW (United Auto Workers). The union stages sit down strikes at all three of the major plants shutting down production for days at a time.

The 1940s to 1950 saw a small growth in the population in Detroit due to World War II. From 1942 to 1945, the major car companies ceased production of automobiles and instead produced tanks, jeeps, and planes for the war effort causing the allies to deem Detroit the “Arsenal of Democracy.”At this point in time one third of the population of Michigan was living in the city of Detroit.

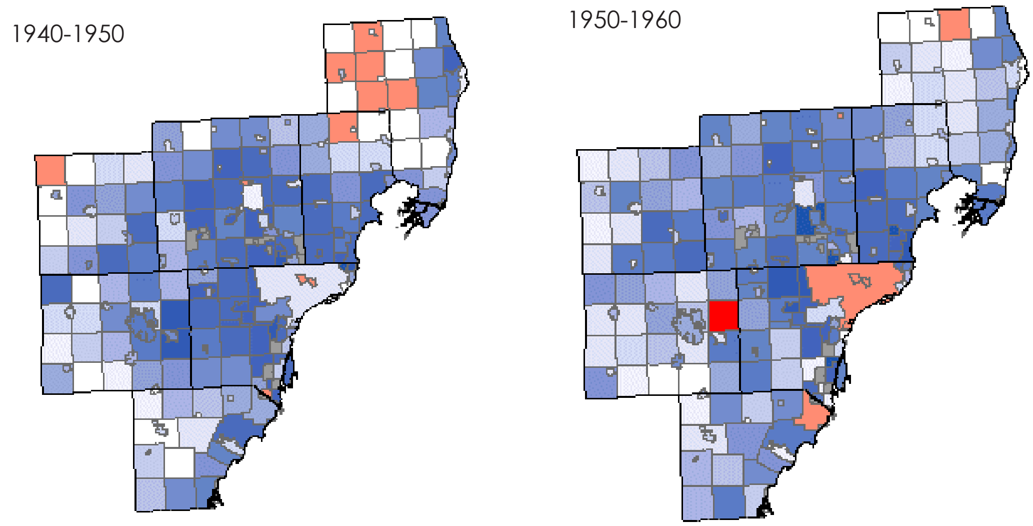


Figure 3.3: Population Growth and Loss from 1940-1960.
Blue Represents growth, red, loss. (Shailesh N. Humbad Somacon.com)

The 1950s to 1960 saw a decline in population for the city of Detroit while the suburbs grew in size. During this period, several highways were completed allowing workers to live further outside of the city, while the streetcar system was dismantled within the city.

At this point in time, Detroit's entire economy was reliant on the success of the car. "In the nineteenth century, we were very diverse, and then we, in effect, put all our eggs in one basket," says Joel Stone, curator at the Detroit Historical Society. (Swaminathan)

At the end of the fifties both the Packard and Hudson Motor Company plants closed loosing over 70,000 jobs. Despite the fact that the big three were opening more plants they were out in the suburbs causing a migration of those that were able.

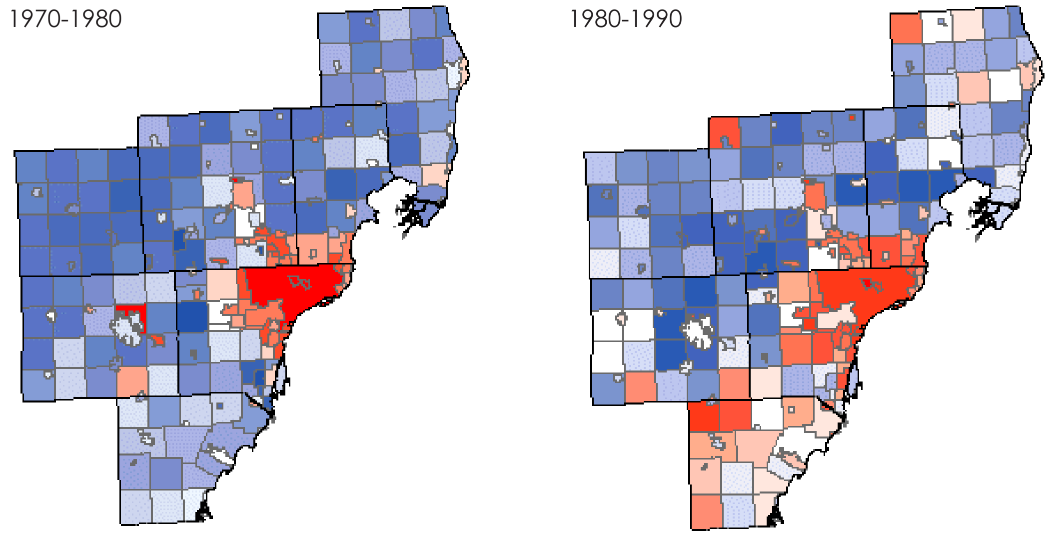


Figure 3.4: Population Growth and Loss from 1970-1990.
Blue Represents growth, red, loss. (Shailesh N. Humbad Somacon.com)

By the 1970s car manufacturing jobs were still there, but the production of new cars were not filling the need of the American public. For a country already in a downturn in addition to the oil crisis of the 1970s smaller more fuel efficient cars were what the public were looking for. Unfortunately for the USA that is what foreign manufacturers were creating and not the domestic.

The 1980s saw the first stages of the post industrial city. In 1983 The Hudson's Department Store closed down signaling the end of an era. The large building had been a staple in Detroit for almost 100 years. Workers forced out of jobs during the 1970s could not get new jobs and the cost of cocaine was cheap. "Cocaine destroyed what was left" (Temple) During the 1980s oil prices went down to pre-oil embargo prices. The big three put all of their efforts into creating the SUV. This kept the industry around until the 2008 housing crash. People could not afford their houses, so could not afford luxuries like gas guzzling cars. Because of the bad economic situation that the country found itself in, sales went down 33% and the big three could not get credit to save themselves. By putting all of Detroit's assets in one industry, they doomed themselves to calling on the federal government for a bailout as the resultant effect would have been catastrophic on the global scale. Despite the bailout in Detroit 33.8% of the population live below the poverty line.

Detroit has been described as the “economic Katrina” seeing the same type of damage as New Orleans but without the FEMA assistance to pull themselves out. Detroit is the first truly post-industrial city in the United States and must reinvent itself to survive.

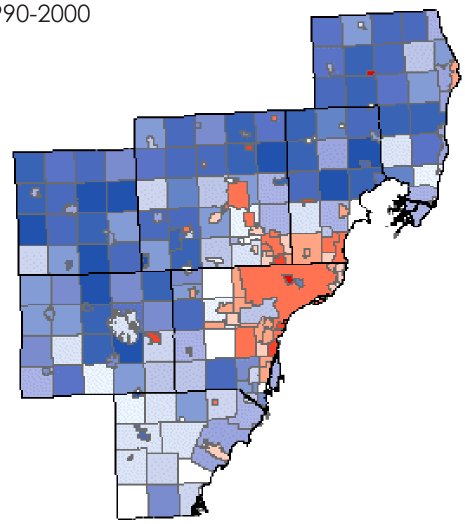


Figure 3.5: Population Growth and Loss from 1990-2000. Blue Represents growth, red, loss. (Shailesh N. Humbad Somacon.com)

“[As] rational as all this sounds, it hangs on a grotesque misunderstanding of Detroit’s predicament. Despite its ghost-town image, Detroit’s population density is still actually rather high by American standards. The city is half again as dense as Portland, Oregon, substantially denser than the booming Sunbelt cities of Phoenix, Houston, and Dallas, denser even than Pittsburgh--all of them places that adequately fund city services. Detroit’s problem is not underpopulation, but brute poverty, something that the grossly overstated efficiencies of shrinkage won’t alleviate ... And for all its anti-sprawl rhetoric, shrinkism is extravagantly wasteful from the larger perspective of metropolitan land use. It hollows out the dense core of metro-area settlement under the assumption--the ugly, unstated postulate of shrinkage--that decent people can’t be enticed to live there. As city districts are razed and emptied, development is shunted, as usual, to cornfields on the exurban frontier, where people drive everywhere and nowhere--that’s the green part of the equation.”--Will Boisvert (Lindsay)

3.1.2 New Industry

The post industrial city has to find a way reinvigorate and reinvent itself in order to survive. Despite Detroit's tumultuous past, those living in Detroit have the belief that like the city's motto,"We hope for better things; it will arise from the ashes", Detroit will recover at least in part. There is no expectation to once again reach a population of 1.5 million people, but wish to stop the exodus and return at least 15,000 by 2015. The city aims to draw in a population of upwardly mobile under 35s. The goal is to bring in a younger population, that will establish themselves and create families to further increase the population.

While Detroit is still tied to the auto industry, and will not change in the near future, Detroit has begun to diversify its portfolio. Auto makers are still headquartered here, but they have begun to change. The big three my have lost service jobs but they are gaining research jobs. To prevent the loss of global buying the big three have invested in alternative fuels for cars, ways to make fuel go further and "most of the world's suppliers of auto parts, such as Delphi and Guardian Industries are also located in Detroit". (Detroit Regional Chamber of Commerce)

Previously a large percentage of work in Detroit fell into the manufacturing sector, this has changed. Now 75% of the labor force belonging to non-manufacturing jobs. Robots control many of the processes used to assemble automobiles, leaving more technical jobs in the auto industry. Interestingly enough Detroit is one of the top five financial centers in the United States and the "Big Eight" accounting firms are also located here. There are even a few robotics firms starting in the region.

Detroit is the world headquarters of automakers GM, Ford, Daimler Chrysler, and Volkswagen of America. Beyond that, however, are the headquarters for Kmart, The Budd Company, Federal Mogul, Compuware, and American National Resources. Due to the Big Three, there are multiple advertising firms also located in Detroit. Many businesses that are located in Detroit still have much to do with the auto industry, even if indirectly.

Economic Incentives

In order to create interest for corporations some parts of Detroit are designated as Michigan Renaissance zones, which require little to no tax if you move there. Detroit also has a federal empowerment zone. Businesses within this zone are eligible for federal incentives. Other opportunities available for businesses moving to Detroit include: state level tax-exempt revenue bonds, loans and grants as well as a brown field redevelopment program, grants and fixed financing for small and medium size businesses. In addition to the economic incentives to businesses, Goodwill has created a program for jobs, where old houses that are too dangerous to still be standing, are stripped of the valuable materials and torn down. These jobs provide a sense of self worth to the people living in Detroit while tearing down uninhabitable buildings to provide new space for future development. An additional economic incentive is provided through Quicken Loans. Quicken runs a small business boot camp "Bizdom U", that provides information on how to start a small business, how to get funding, and other business basics. Provided that a company completes the boot camp and base their start-up in Detroit Biz U offers financing opportunities of up to $100,000. (Hughes, 2011)

Commercial Shipping

Detroit has existed as a point of entry for shipped goods since its existence. In the 19th century, Detroit was an easy way to enter into the heart of the country without traveling across land to reach the Chicago Road and Monroe Pike. Later the Port of Detroit was a point along the Erie Canal. In the 1960s the Saint Lawrence Seaway opened. The Port of Detroit connects both the seaway and the Great Lakes. Due to this access and the United States/ Canada Free Trade Agreement, Detroit is a major international market. The Greater Detroit Foreign Trade Zone, the largest zone in the country, processes $2 billion annually. Also, due to the proximity of Detroit to Windsor, Ontario, Canada, more foreign trade passes through this port than any other in the US.

3.1.3 Urban Agriculture

Subsistence Farming

Necessity is the mother of invention, or in the case of Detroit... innovation. The vast amounts of vacant land due to the mass exodus, and the fact that 33% of the population are living below the poverty line has created the existence of community farms in the urban setting. Detroit is showing itself as the "national leader" in urban farming, because, while academics thought about urban farming as an option for extra food, Detroit was in desperate need. Without the help of outside corporations, the people of Detroit began creating their own agricultural areas within the city to supply themselves with food at a low cost.

Figure 3.6: Urban Farm in Downtown Detroit. (Andy McGlashen Greatlakesecho.org)

Urban Farming is a corporation that helps community gardens. They have moved their headquarters to Detroit in an effort to help Detroit return some of the urban grid to agriculture. Their vision is “to affect a paradigm shift in the way that our world approaches food security and financial security. Urban Farming™ is a holistic global vision that sees a future in which good health, innovation and productivity are an inherent part of our lifestyle” They see community gardening as a step to helping the world. They empower those who have the need for food security and give people a sense of community pride that has been seriously lacking in Detroit. The goal for Detroit is specifically to triple the amount of land cultivated in the city every year.

Industrial Farming

Hantz Farms takes urban farming in a different direction. John Hanzt has spent his life in Detroit and has a vision to remake the city. Given that the city of Detroit was once the fourth largest in the country, the availability of land makes Hantz idea plausible. He claims that the Hantz Farms will be the world’s largest, for profit, urban farm when completed and will be contained within the city limits.

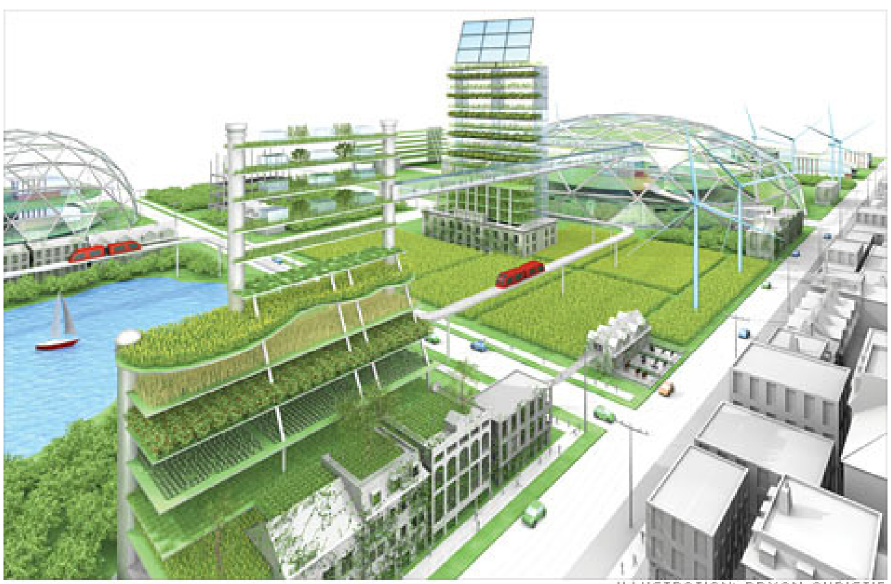


Figure 3.7: Possible Configuration of a Hantz Farm. (David Whitford Money.cnn.com)

3.1.4 New Buildings and Historic Preservation

New Buildings

To interest new companies to Detroit, the city itself built stadiums for the Lions and Tigers in the city limits. The Campus Martus was completed in 2000 and houses Compuware, one of the worlds largest software development companies. Three casinos opened in Detroit, and the Detroit Symphony Orchestra renovated Orchestra Hall as well as the Max M. Fisher Music Center, a multi-million dollar, state-of-the-art music education center. In addition to the new buildings there is the updated Detroit people mover. This system has been in existence since 1966. In 1975 it was limited to the downtown region, and now in 2013 it will be connected to the Woodward light rail system.

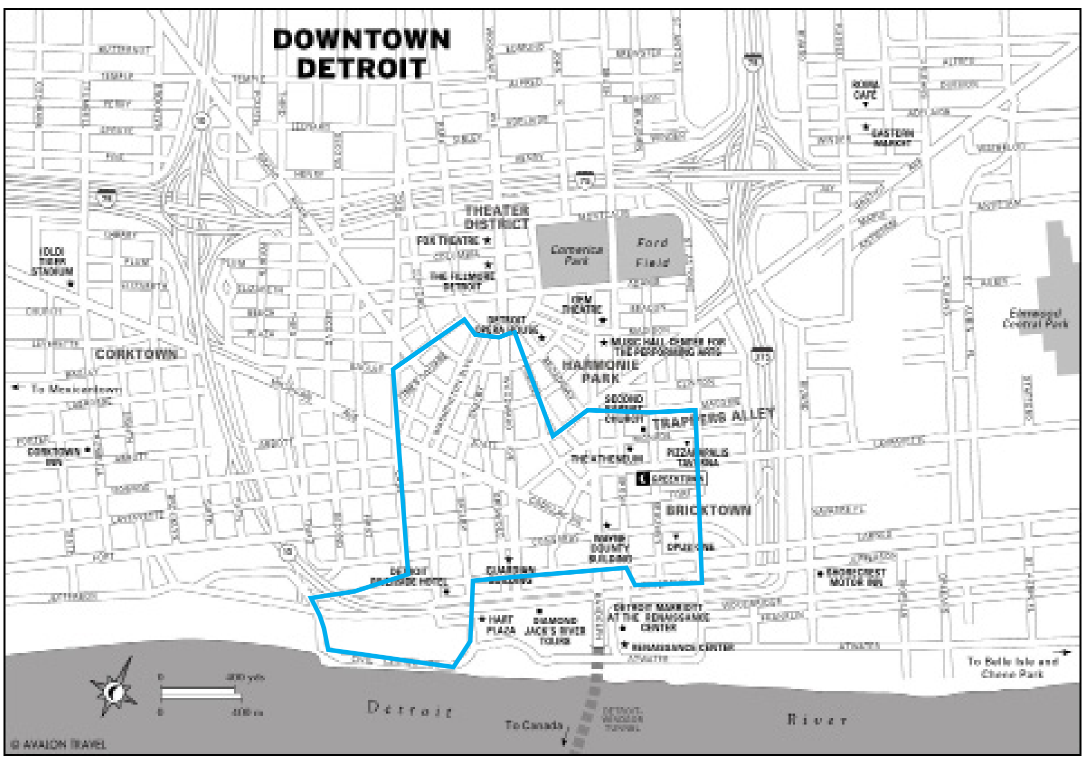


Figure 3.8: Map of Downtown Detroit. Each Star represents a theater. The Blue line shows the route of the people mover. (Avalon Travel Moon.com)

The Theater District

The Theater district in Detroit ranks second only to New York City. The theaters are mostly in downtown and midtown Detroit with a few interspersed in the neighborhood area of the city. The city has theaters from the small 192 seat Century Theater to the 5000 seat Detroit Fox Theater. Many of which are historic theaters that have in fact been restored to their original grandeur. The oldest of these is the Century Theater(1903), which was orginally a gathering hall. The Gem Theater was created as an addition in 1928. It is the largest structure ever moved on wheel, and reopened in 1999. The theaters are some of the largest tourist attractions in Detroit.

Historic Preservation

Detroit has a rich history. As a growing community until the 1950s, buildings from many decades coexist and are still in use. Many buildings in Detroit showcase styles of buildings that have placed them both on the state historic register as well as the national historic register. These areas serve as important anchors in the community. They are unable to be demolished, and there are many groups that rehabilitate or preserve them. The areas which surround them are not desolate, some of them are the most thriving areas in the city. They provide marketability for new housing areas nearby and create neighborhood identity, which reinforces the sense of community in the surrounding populace.

3.2 Community Dissolution

Ruins are the visible symbols and landmarks of our societies and their changes, small pieces of history in suspension. The state of ruin is essentially a temporary situation that happens at some point, the volatile result of change of era and the fall of empires. This fragility, the time elapsed but even so running fast, lead us to watch them one very last time : being dismayed, or admire, making us wondering about the permanence of things.--Yves Marchand & Romain Meffre (1)

There have been many factors related to the vacancy of Detroit. The race riots and drastic hemorrhage of jobs beginning in the 1950s are the biggest factors. Once the population hemorrhaged, that which was left behind and vacant created large swaths of urban decay and the limitation of public utilities. The Ruins of Detroit stand in place of a once prosperous city, and leave a reminder of what once was and could be again.

3.2.1 The Race Riots

One of the biggest problems facing Detroit is the racial divide that has been affecting the city since the mid 1800s. The first race riot happened in 1863 during the Civil War. This riot lead to a full time police force in Detroit. For awhile tensions eased between the races. However in 1943, a second riot broke out. Due to an increased numbers of jobs in factories because of World War II more people were moving to the city. However, the discrimination that African Americans felt in the south was not much better in the north. They paid more to live in smaller spaces that were in worse areas of town. They faced police brutality and job discrimination, as well as discrimination in their everyday contact with white workers. This conflict was eventually settled when federal troops entered the fray. The third and final race riot happened in 1967 and is reported to have been the third bloodiest and costly riot in the history of the United States. Governor Romney was forced to declare a State of Insurrection to receive federal aid. This gave Detroit the distinction of being the only domestic American city to have been occupied by Federal troops three times.

Because of the migration of African Americans to the north for manufacturing jobs, and their inability to get housing in good areas, and lower pay they were unable to move out into the suburbs in high numbers. The divide has been seen for more than four decades, and there is no way out. 8 Mile Road stands as the demarcation point, those that live there cannot get out, and based on the way Detroit is portrayed no one wants to move in. If Detroit is to rebuild the racial divide will be just one change to be made.

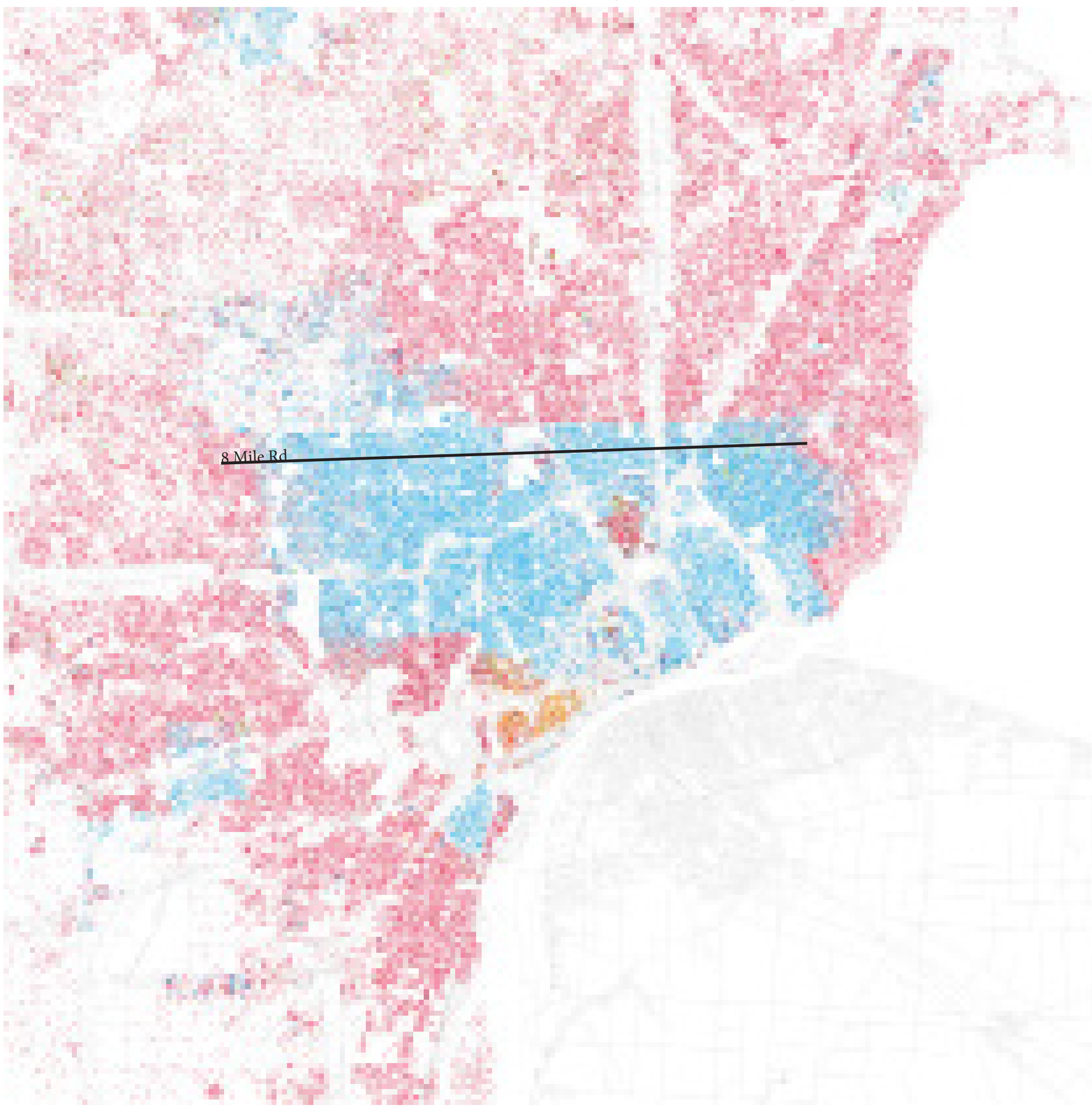


Figure 3.9: Map of ethnicities in Detroit. Below 8 Mile road African-Americans make up most of the population. (Eric Fischer Flikr.com/walkingsf)

3.2.2 Urban Decay

Since 1950 Detroit has lost over 1,000,000 people. The mass exodus has left a little more than 40 square miles vacant, more than any other U.S. city. Due to the lack of funding in Detroit, police cannot patrol all areas of the city. They focus on communities that do not only have one or two residences leaving homes that were once prime real estate to crumble, or worse be burned to the ground after whatever can be scavenged had been found.

Figure 3.10: Map of vacant land in Detroit. (Hantz Farms Foodurbanism.org)

Detroit is an area where there are more permits to demolish than to build. In this case the row houses in some areas sit back to back yet in others there are large vacant lots where other buildings once stood.

Figure 3.11: Open tracts of land in downtown Detroit. (Academic Connections Acaconnections.wordpress.com)

3.2.3 Schools For Sale

The Detroit Public School system is the largest in the state. They currently serve 66,000 students. This does not include the charter schools and those operated by the Archdioceses of Detroit. The school system is running at an $83.9 million deficit.

Since 2005 more than 30 schools in Detroit sit vacant. 29 Schools closed in 2009 alone. Of all of the schools closed 85 are up for sale, and not for specific amounts of money, but name your price. The schools have been stripped of what could be saved and then closed up with bars on the windows and metal plating on the ground floor, but not the upper floors.

The closing of schools is an unfortunate necessity when you have a city without funds. One of the biggest problems with closing schools is the lack of programs. Those without activities from schools or after school jobs find other endeavors for themselves. They will burn buildings just to see what will happen or deface buildings knowing that there is no one to stop them.

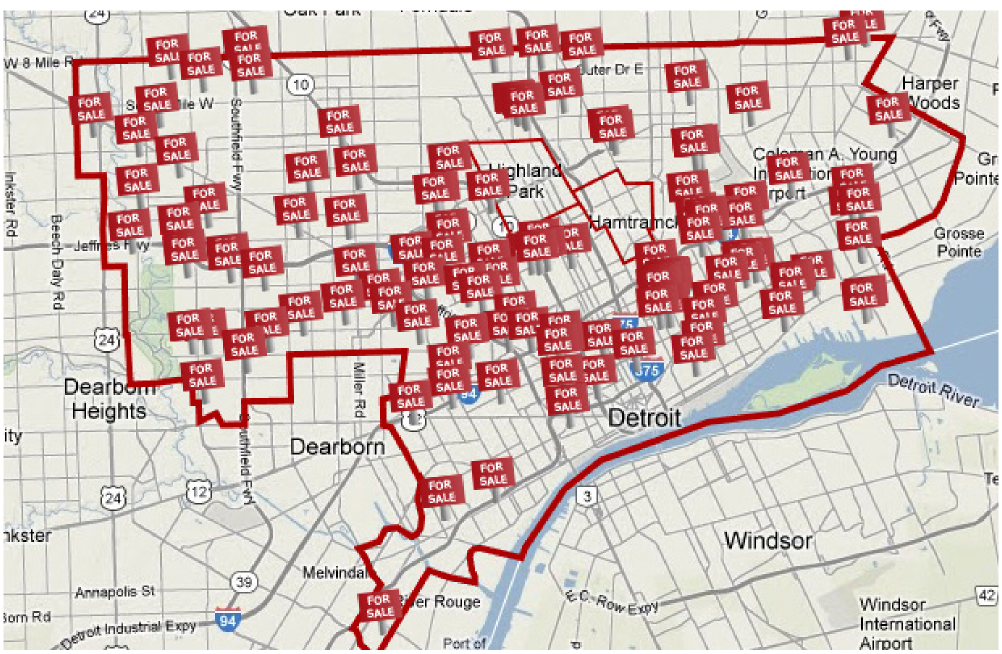


Figure 3.12: Map of Schools for sale in the Detroit Metropolitan Region. (System D Systemddetroit.com

In 2006 Detroit schools reported that only 24.1% of their students were graduating. The lowest graduation rate in the country but the 11th largest school district. However, between 2009 and 2011 they received $200,000,000 in stimulus money from the U.S. Department of Education. Most of the money went to Title 1, “The purpose of this title is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments.” (U. S. Department of Education) The stimulus money increased Detroit’s graduation rate from 24% to 62% in just a few years.

3.2.4 Brownfield Sites

A final problem in Detroit is the leftover spaces. As land was abandoned, no thought was given to the problems left behind. Pollution from auto plants and gas stations, has contributed to the pollution problem in Detroit. Some has washed into the Great Lakes System via the Port of Detroit, and some pollution has soaked into the ground. Brownfield sites are enormous and need remediation in order to function as viable sites for inhabitation.

4. Design Criteria and the Role of Extrapolation

The role of extrapolation in today's society is the same as it has always been: to evaluate opportunities and choose the best for the future. What is considered a negative may in turn become a positive if treated correctly. The negatives must at least be acknowledged before a design may evolve. Combining aspects of both sides of Detroit can result in an increased population as well as an increase in industry.

What changes will be implemented by augmenting the way people think about the use of agriculture and architecture. Simple changes in the way people live can catalyze change at a much larger scale. Choosing solutions to basic problems can pave the way for solutions to much harder issues.

This design seeks to create a micro community within the city limits of Detroit. By focusing on a limited area, small changes can have large impacts. It will allow for the growth of small nodes of independent populations to thrive, in ways that the city of Detroit had in the past. Decisions regarding the future of Detroit must be made now, as it is at a critical point in time for the city. Will the population continue to leave with no hope of a return as the surrounding infrastructure continues to collapse on itself, or will incremental steps avoid this possibility?

4.1 What is a Micro Community

According to E-Power Marketing a micro community is "a niche of social networks focused around a specific interest". Micro communities are smaller in nature compared to more popular social networks like Facebook. This applies in the real world as well as the digital world. A micro community, like a neighborhood, is a section lived in by a group of people with distinguishing characteristics. It has a central specific focus for the group of people living there.

The idea of a micro community has become a new way of reinvigorating society. Technopoles are areas where the surrounding community revolves around one business area, specifically in the technology industry. Kingston, NY is such a community. Tech startups reside in the now named Digital corridor with about 500 digital entrepreneurs. By creating an economy of micro businesses with a variety of clients, they reduce the chance of a city becoming a ghost town if the only industry leaves the city. This has become an ideal solution because it offers the power base of living in the city without the price tag of city living.

5.The Design Strategy: Investment in the Micro Community

The main emphasis of the design is the combination of programs currently in place, the availability of the site and the use of current technologies. The Quicken loan program Bizdom U provides a unique opportunity to redistribute power and renew a population in desperate need. The loss of automotive manufacturing jobs has left a population in need of invigoration but without a specific direction on how to actually make it happen.

Due to the nature of small businesses and their startup needs, the design proposal is to share resources to minimize cost and new land development. The closing of schools in Detroit is due to both a lack of population and a lack of money. For the city to maintain the schools it must take away resources from other areas in need. With 85 schools and educational department lands for sale, it makes economic sense for small businesses to pool their resources, and receive a larger site than they could afford on their own. For the city of Detroit, they gain both monetary wealth due to the sale and a growth of population due to a group of small businesses joining together. Through a network of similar sites the populated sections of Detroit will increase around micro hubs of industry and redensify the population between downtown Detroit and its more populace suburbs.

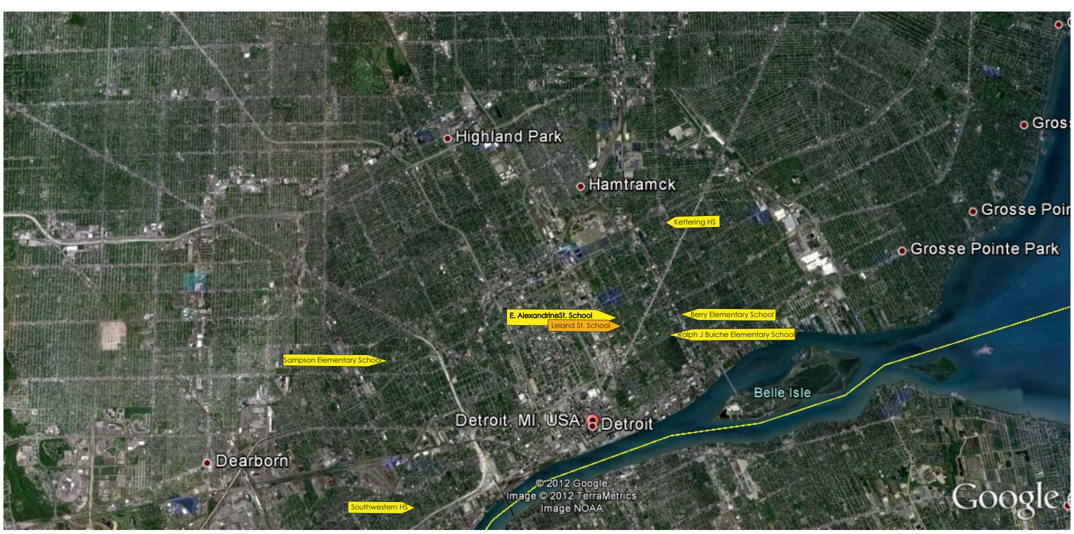


Figure 5.1: Map of Detroit with possible future network hub locations. (Author Generated)

Pressure dealing with the use of resources creates inventive responses to societal conditions. Openness and collaboration between various agencies build new tools for change. The collaborations has led to the belief that small actions can create an effectiveness that large bureaucracy can prevent. The distinctions between communities, draw people in and connect them to a place, while creating starting points for change. These changes solidify the identity of a place and people.

5.1 Projected Growth due to Investing

If one business on its own wishes to purchase space, it must choose an area that is already developed in order to accommodate the needs of its employees. On the other hand should a group of businesses join together then they can choose what employee needs to prioritize and meet those needs of their own volition. The ability for the businesses to grow will not be limited by a preexisting community, but instead will be open to expansion, in otherwise sparsely populated areas.

Figure 5.2: Possible uses and growth of this neighborhood. (Author Generated)

In choosing multiple sites in the area surrounding downtown Detroit multiple types of businesses can group together in areas of their choosing. Shared resources mean that as a group's needs grow, new businesses can build in the surrounding area on an as needed basis. This reduces the need for large chains and promotes other small businesses to join the community. As the needs of the businesses grow, so too will their micro community.

The size of the site also offers the unique opportunity to redesign the surroundings to fit the needs of the new community. By choosing a school where the surroundings have become vacant, new uses for the open tracts can be found. Previously residential areas can be rezoned as mercantile spaces or for smaller schools. Other tracts can become power generation fields, agricultural areas, or open green spaces designed for communal use. Each new hub would be designed around the needs of the hub and its associated community.

5.2 Urban Agricommunal Living

To design for the future, the headquarters would not only be a hub for business but also for community. Instead of a reliance on imported food, the hubs will capitalize on Detroit's reputation as a leader in urban agriculture. By developing the land surrounding the original schools as agricultural plots, the hubs could produce a portion of their own food, allowing co-ops or smaller grocers to provide other necessary consumables at a lower rate. This would help reduce the cost of living for those who are below the poverty line, as well as the new employees. Each company would aid in the production of food on the communal land, connecting the new employees to the community.

Housing

The housing for the employees can grow in stages surrounding the hubs, reducing the need for cars. As the businesses expand more housing can be built at both the single family and multifamily level. By expanding at a rate equal to the population expansion, the amount of vacant land and new housing used could be maximized to reduce the environmental impact of any new construction.

Transportation

By building around the new hubs and within walking distance, the use of cars can be reduced, possibly to a car-sharing venue. Implementing a car-share reduces the cost of living while maximizing the mobility of a younger generation. Combined with possible new mass transit routes, the new hubs will reduce dependency on oil. They will also reduce the amount of new paving on the sites, reducing water runoff and pollution.

Pollution

Not all pollution is attributed to the brownfield sites. In some cases it is the air and water pollution produced by cars and factories in the area. By sharing transportation the amount of pollution used by a person is reduced. In addition this reduces the size of construction of future homes due to a lack of garage. With each car parked in a lot for use by everyone, a solar collecting roof can not only reduce pollution by the reduction of hardscape that washes pollutants into the ground but also can proved energy for either the other buildings or for the cars.

Also, by zoning specific areas for power generation, agriculture, and open green spaces, pollution is reduced. Creating power on site reduces what must be taken from the power grid, reducing the amount power plants must produce. Agriculture and open green spaces reduce the amount of carbon dioxide in the air. The green areas clean the surrounding areas and create a much healthier community.

5.3 Agritech Park

The first Agritech Park would be located on Leland Street. This school has a large original footprint that allows it to house a larger program than some of the other hubs. It will connect the community to the hub via agriculture. The community will also be able to access communal spaces within the building. These spaces will house programming that while not necessary for a community, will be beneficial for the growth of the hub.

Agriculture for all

Each of the hubs connects agriculture and architecture. The ground is drawn to the roof of the hubs via the communal areas. Each of the different headquarters can have a green roof that is unique to the company. While each company may choose what to grow and how the space is designed, they are all accessible to the other occupants from the inside and well as to the surrounding community from the outside.

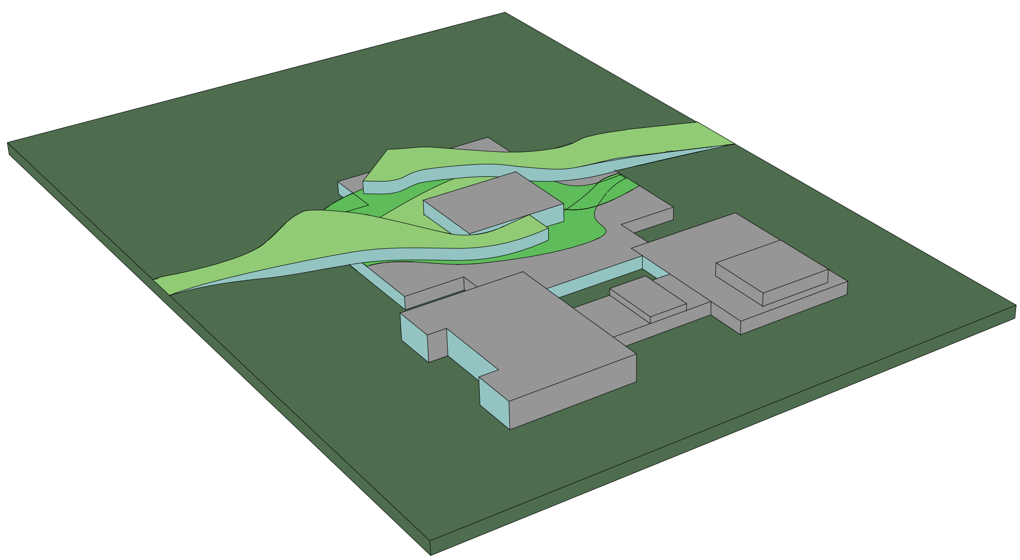


Figure 5.3: Leland St. Site. The current building is in grey and the additions shown in green representing the green roof. (Author Generated)

The Walkable Roof

The convergence of the buildings, as well as the roof additions create a walkable roof that provides an open space to the public. Landscape or hardscape areas can be used to move from one area of the building to the other as well as walking within the building, encouraging the mixing of residents and employees.

Communal Spaces

Communal space is not just a whim but a necessity for the growth of a community. By creating areas where the local community can join together, ties are created. The distinction of one community from another creates launching points for growth. By combining the new hub with the community space, the distinction between work and play diminishes. The new hub houses spaces that are in need but not necessary for life. They improve the quality of life in the area, and provide resources for the area that are otherwise outside of their reach.

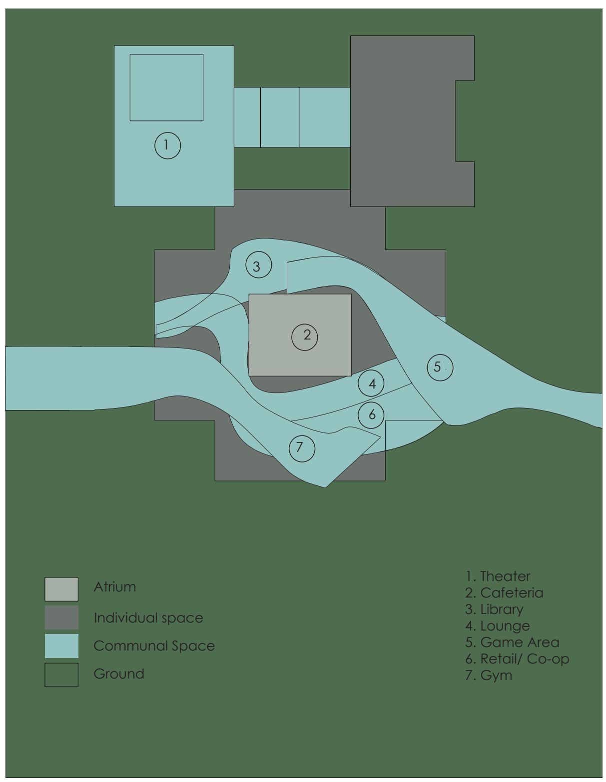


Figure 5.4: Possible uses for communal areas in relation to the ares of the hub for each start up. (Author Generated)

The Small Business

Each small business will occupy part of the building not in use for the community. By separating work from play via curved semitransparent walls, the employees from one business can connect with employees from another as well as local community members. The separation is solid yet open to exchanges of ideas. It is open to the outside yet a closed environment, dependent on its members and the surrounding areas. The addition of the small business into the local economy will provide not only growth but new employment opportunities. This can mitigate the problem of unemployment and people living below the poverty line.

Conclusion

The collaboration of ideas from the current government, along with new technologies and existing buildings can produce unique results for the future. By combining ideas of openness with shared cooperation, community growth can take place.

The proposal of sharing resources for catalyzing change was analyzed from both a historical perspective as well as from a current point of view. By knowing what has caused problems in the past, these issues can be avoided to prevent future problems of a similar nature. While new problems may arise from other solutions, the architectural response addresses issues of growth and the reduction of current problems at a small scale.

Investing in a local economy at a micro scale brings in new populations, new businesses, and new jobs to stimulate growth on a small scale. By implementing multiple versions of this solution, larger growth can take place and effect change across a variety of situations and locations.

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