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DEMOLITION IN RURAL NEBRASKA: REVITALIZING FAIRBURY'S VACANT SITES

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DEMOLITION IN RURAL NEBRASKA

REVITALIZING FAIRBURY'S VACANT SITES

by

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DEMOLITION IN RURAL NEBRASKA,

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Small communities are the most affected from the population decline. This decline results in an increase in the number of abandoned buildings. Those buildings, if left uncared for, will disintegrate and pose an environmental threat to the communities that they are in. In rural areas, demolition without repurposing or redevelopment plans is the dominant solution for unoccupied buildings. Data from the U.S. Census and the Nebraska Department of Environmental Quality shows that the rural town in Nebraska with the highest rate of vacant sites in a rural town has occurred in Fairbury. Vacant sites are an inevitable result of sharp population decline. The city has a strong history; therefore, city leaders should propose a future vision for revitalizing vacant sites that will reflect its strong history. The city of Fairbury could set an example for other shrinking towns by taking advantage of vacant sites to activate its community. Existing infrastructure has a strong role to play in the proposed revitalization plan. The process of repurposing vacant sites along the safe school route could activate the community.

Dedication

To the city of Fairbury and all shrinking cities in the state of Nebraska and others all over the world.

Acknowledgment

Working on my thesis was one of the most challenging tasks I have undertaken. However, the gratification of having completed this project comes as I recall and acknowledge all those who supported me over the past two and a half years.

I want to express my deepest appreciation to my supervisor and mentor, Professor. David Karle, for his patience, motivation, and continuous support during my master's study. David is simply a brilliant mind with excellent teaching skills. His professional expertise and pioneering work on Urbanism are remarkable.

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I also have felt the warmth welcome of Lincoln's community and people. To the Lincoln family that welcomed me with open arms. To my advisor, Professor Sharon Kuska, who was guiding me and encouraging me. Also, I appreciate the help of the program coordinator Dana McIntyre. She helped me from day one. Moreover, the Jamal and Sana family made my wife and I felt home even though we are far away from our hometown.

Last, I want to acknowledge my family. My parents, Fatemah and SibghatAllah, who kept supporting me financially and emotionally, and praying for my success. My older brother, Ahmad, who helped me to sharpen my skills and deepen my knowledge. Ahmed was always there for me whenever I asked for proofreading or technical issues. Saving the best for last, my wife Sarah, who stood by my side through my graduate study journey.

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CHAPTER 1:

LITERATURE AND ANALYSIS

1. Introduction

The downward population trend of cities can be observed through the growing numbers of vacant sites and demolished buildings within these cities. For the revitalization of the community and enhancement of the quality of life, this thesis proposes a framework for such vacant urban sites that will create useful and pleasant activities for city residents. First, all current and future vacant sites must be located within the city boundaries. Second, neighboring vacant sites are clustered for potential development plans. After that, existing layers of the targeted city (e.g. zoning ordinance, parks, trails, attractions, etc.) are correlated with the vacant sites' map. At this stage, current and future needs in utilities or services are determined. Those needs are implemented on two levels: scenario and narrative. The scenario is the progress of development for vacant sites. The development could be implemented for the long-term or as intervals of short-term goals. The narrative is a story experienced through the history of the place by engaging in different activities or to enforce the sense of belonging by the implementation of micro-urban tactics. Micro urban tactics could be defined as a group of small landscape development projects with diverse activities linked through a theme on a single layer. This thesis proposes a framework to develop a revitalization plant for vacant sites in shrinking towns. Thesis question is How could towns use vacant sites to activate a community?

1.1. Overview

Buildings are being demolished all over the world for a variety of reasons. However, few knowledgeable architects have touched on the parity of construction and demolition. Jeremy Till, a notable architect, writer, and educator, states that “construction and demolition are closer than most architects would dare admit.” Cairns and Jacobs, as cited in (Tangeman 2017).

Demolition is perceived differently depending on whether the area is urban or non-urban. For example, when urban areas like Detroit suffer from city decay, scholars and specialists study and analyze it. According to the U.S. Census Bureau, Detroit lost nearly 25% of its population between 2000 and 2018 (Bureau 2010). Nor surprisingly, according to the Detroit Demolition Program, 19,275 buildings in the city have been demolished since the program began in 2014 (DetroitMI.GOV). Nevertheless, rural areas and small towns do not receive the focus they deserve when they begin to decay or depopulate.

Urbanism, as a movement and a way of research in architecture, encourages the focus on rural studies with the same attention given to dense urban areas. For the case of populated cities, whenever buildings are taken down, there are always plans for replacement or redevelopment (Cairns and Jacobs 2014). On the other hand, in rural areas, there is lack of resources to replace buildings or develop empty lots after demolition. Therefore, it is crucial to map the impact of demolition in rural areas to better understand urbanism in the context of demolition.

Demolition, when thought of in the design process, has positive impacts on society. This includes at least two aspects to focus on: the material itself and the

community. First, the process of demolition is a waste of material and resources which could go underutilized. Second, abandoned buildings --before being taken down-- pose a threat to the community as they are prone to structural damage, thus threatening the safety of the community. If the buildings are not demolished, small shrinking towns are left to deal with them. Therefore, thriving communities should be mindful of a possible Detroit scenario in the future.

In an attempt to identify a case study, I gathered and analyzed data about several shrinking cities around the state of Nebraska and conducted studies about the Great Plains broadly. In the end, data shows that rural or non-dense areas are depopulating rapidly and suffering from subtractions. This argument is not specific to Detroit or any other city. The point to be noted here is that many cities and counties share the suffering of demolition and vacant sites. In some cities, the population was reduced by half. Cities follow cycles of growth and shrinkage by time. History reveals that even big cities like London have been affected by subtraction at least once, and this phenomenon is obvious in other parts of the world.

I gained some experience from working on projects related to the urban boundaries of cities and towns, and have taken several courses relating to this subject. I am motivated to research the impact of demolition in rural or lightly populated areas.

To study the correlation between demolition and depopulation, demolished buildings in Nebraska were mapped using the Nebraska Department of Environmental Quality's database (DEQ.State.NE.US). The database contains demolition reports for each county. The reports were obtained to gather statistics. Looking at low, medium and high counts of demolishing reports per county, I selected the counties of Box Butte,

Buffalo, and Douglas, and intended to study the allocation of vacant lots after the demolition in each county. I found that Douglas County, the densest among study subjects, has the highest number of vacant lots. This contradicts the theory relating to redevelopment or replacement of buildings to the state of urbanism of the area.

At the scale of counties, the map does not show the full impact of demolition on rural communities. Zooming into the scale of community reveals a variety of aspects of demolition. According to the Legal Classification of Incorporated Places in Nebraska, a second-class city's population is between 800 and 5,000 people (Nebraska.GOV 2014). This gives the study more focus on the category of cities and population. The study shows a few extreme cases. In terms of decrease in population, the U.S. Census of 2010 and 2018 (Bureau 2010) show that the cities of Fairbury, Superior and Cozad had the highest percentage of population loss,decreasing by 7.3%, 6.5%, and 4.9%, respectively (Bureau 2010). Furthermore, the number of Asbestos Notifications of Demolition and Renovation in second class cities peaked in Fairbury with 152 notifications. Superior was second with 66. While Sutherland had 44 notifications. (DEQ.State.NE.US)

The city of Fairbury is the extreme case in terms of demolition counts and decrease in population. The city has a history of decreasing population for different reasons at different times. Despite its strong start and growth, the city has suffered depopulation for a long time. According to the U.S. Census, the city reached a peak population of 6,000 in 1950. Today, the population is close to 3,500 people. That dramatic population change resulted in a lot of abandoned buildings. (Bureau 2010)

Those abandoned buildings posed a danger until the city adapted its demolition program. The city had some help in financing the demolitions from different grants like

NSP and NAHP. However, the city has paid and operated most of the demolition costs from its own budget. On average, it is costing the city around $50,000 a year on average to demolish 10 to 12 buildings. To date, the city has demolished more than 80 buildings so far (Bielser 2019). Also, the city is planning to demolish 80 more abandoned buildings in the future. This gives the city an opportunity to take advantage of vacant lots resulting from abandoned buildings.

In order to find the perfect opportunity, the inventory of the city is visualized in a variety of layers. Fairbury started with a railroad station. Currently, it grew to include the intersection of the two highways, Nebraska Highway 15 and US Highway 136. The new development in the town takes place in the north part of the city. The new development in the town is primarily in the northern part of the city. The most recent comprehensive development plan for the city was done in 2013 (Associates and Consultants 2013). The plan was developed by Olsson Associates and Marvin Planning Consultants. This plan draws the city's existing condition and future vision and needs.

The city's comprehensive plan includes maps of zoning ordinance, trails, parks and a safe school route. In order to propose an architecture program, the plans were correlated in layers with vacant sites in the city. Layers of attraction and parks walkability are mapped to supplement the future decisions. In addition, the safe school route connects city owned sites and has a perfect opportunity to revitalize surrounding areas. Every map and layer of the city tells a story. There is a need for activities for children and families in the city, especially around schools. (Associates and Consultants 2013)

The goal is to provide the city with a place that children can enjoy in a safe environment on their way to school and back home as well as providing residents with an atmosphere where they can use those places in lunchtime or for families in the evenings. This safe route is designated by the city's Park and Pool Study (Associates and Architecture 2016). If the city feels the need to provide children with a safe route, it becomes important to build a journey through the route from home to school and the way back. First, we should acknowledge that the safe school route is missing children-based activities. According to Geoffrey Thun and Kathy Velikov, infrastructure, ecology, and logistics have revolutionized urban formation. The perfect opportunity is waiting to be taken. The infrastructure as the safe route exists alongside the ecology part as vacant sites. The opportunity of serving community rather than logistics here is to link those to have a better journey for this side of the town and the purpose of providing children and adults with a safe and functional environment.

This process requires phases and scenarios. In Phase I, city leaders would continue demolishing abandoned buildings. In this phase, the study proposes revitalizing the safe school route as there are several vacant sites located on the route. On the school route, there are 9 current vacant sites and 7 future vacant sites (Bedlan 2020). Those sites help children and families for better quality of life. For Phase II, all abandoned buildings would be demolished. Finally, for Phase III, the city would be repopulated and grow again.

The case study focuses on Phase I, revitalizing school safe route, and the methods of its development. After choosing to revitalize vacant lots located on the school safe route, there are variety of projects and architecture programs that can fit into children's

journey from home to school and back. Pick the right architecture program based on the size of the lots, the environment, and users to come up with an inventory of programs to select the best fit for each lot in the safe school route.

It is important for children to experience a safe environment through engaging in a friendly atmosphere when walking to school in the morning or back to home in the afternoon. The variety of programs and locations are related to the safe route. This relation creates an essential sense of safety for parents and their children. The vacant lots are categorized based on the relation to their surroundings. They fall generally into three zones: West corridor (north downtown). North corridor and Center corridor (school).

Each of those corridors has a theme that fits into the grand narrative of the child's journey between home and school. The West corridor is located north of the historic district. The historic district has a theme of family and weekend with multi-users driven. Moreover, the North corridor is north of the school and connects the north side with the south side of the city. Finally, the center corridor is located next to the elementary school. This location is the center of the safe route and has several lots. Taking advantage of the location as well as city-owned lots in this corridor will have a positive impact on children who walk through the route.

There are five current vacant lots and one future lot in the center corridor. One of the current vacant lots is owned by the city. Starting with this specific lot for its characteristics, propose three different alternatives.

For the city of Fairbury, now is the best time to seize the opportunity and plan ahead for potential future population growth. The city can take ownership of this situation and use the urban environment to create an attractive atmosphere that is safe. The

proposed architecture framework is one possible alternative. However, the city could activate its community by implementing different activities in different locations. The most important position this study reveals is that vacant sites should be revitalized to meet the community essential needs of a better life.

In conclusion, for rural Nebraska and the rest of the world, with the decline of the population in rural areas around the world, more and more towns are facing the threat of vacant sites. This threat can be understood in the context of urbanism. This could be an upside to the decline. Revitalizing blighted areas is not limited to giving life back to the area. However, it also brings opportunities for more redevelopment. We must take ownership and make a difference in these communities to stabilize the balance between rural and urban. This is essential for the stability of life in rural areas. Although the example implemented in this thesis is Fairbury, it should trigger successive investigations of revitalization plans to repurpose vacant sites in other shrinking communities.

To Fairbury, this thesis encourages the city to further consider repurposing vacant sites for the goal of activating the community.

1.2. Theory and literature review

Urbanism is the study of urban status. Consequently, what is urban and what is rural has always been debatable. Mapping urban and rural areas reveal the difference between the two, as well as the aspects which link them. The discipline of architecture should be involved in the classification of urban status. This will yield a better understanding and an improvement to a better situation than what happened in Detroit. Cities are dynamic, so in the time of their bloom, fading out must be taken into consideration. The potential of studying demolished buildings as an example of city subtraction is very important for the future of urbanism and architecture.

Neil Brenner, a political geographer, refutes the assumed measures put down by the discipline to distinguish between urban and non-urban areas. Most popular definitions of urban areas (ex: Kinsley Davis and Hertz Golden) rely on a cutoff threshold for population density. However, according to Brenner, that is a flawed measure because of a number of reasons. First, there is almost no agreement on the threshold value worldwide, let alone inside the U.S. Another challenge, Brenner points out, is the line splitting between urban and non-urban areas. (Brenner 2015). It is rather a degradation of the urban status to a non-urban one through an intermediate area (see Figure 1). So, the primary way urbanism is recognized is not realistic. Challenges introduced by Brenner are discussed further with examples in the following paragraphs.

The cut line in population density to define rural and urban is not fair. Listed thresholds are mostly unjustifiable, since a minimal change in population density and the threshold changes the way an area is identified. Different thresholds, when tested, gave a wide array of percentages of population in either urban or rural areas. For example, in

1991, only 23% to 31% of China's population was living in urban areas based on one designation, while 74% was living in urban areas based on another designation (Brenner 2015). Such existing thresholds might falsely make it seem as if the whole world is undergoing an urbanization movement. However, there are transformation rates between both realms, i.e. urban and rural. Thus, the world is further than presumed to be fully urbanized (Brenner 2015). Surely, there should be more to urban and rural than just the density of the population or thresholds.

Buildings in rural and urban areas are being demolished all over the world. When a building is demolished it affects rural areas more than urban ones. That is because low density areas don't have as many resources and capabilities to redevelop or replace a demolished building as urban areas do. Still, urban areas are affected by demolition too. The effect of depopulation was not taken care of in rural areas before, despite its frequent occurrence. However, when a noticeable depopulation event hit Detroit, scholars and architects were urged to investigate the phenomenon. In short, communities and cities have been affected by demolition. The lack of redevelopment or replacement of vacant lots is a sign of depopulation, which significantly affects smaller communities.

Rural

Rural areas contribute highly to the continuation of urban lush life. Agriculture, which is a major source of nourishment, more often takes place in rural areas like the Great Plains. There is more to rural than providing to urban. Rural areas cover a larger part of the world, at least larger than what it takes the credit for. Perhaps, even, a larger part of the world than urban areas (Tangeman 2017). The argument above reveals the importance of rural areas. Therefore, a balance must be kept between rural and urban

areas for two reasons. First, to sustain the stream of resources; and second, to maintain a larger land area that is habitable. Therefore, a balance needs to be kept between rural and urban areas.

Furthermore, the movement of the rural population to urban areas causes a surge in demand for essential life needs. A catastrophe that could be led to the consumption of all resources is triggered by eliminating the mentioned balance, which is dangerous for the future. Whereas population decentralization will provide the required sustainability, it also yields a better distribution of resources. Researchers believe that densely populated cities will grow denser in the future because many prefer living in urban areas. Brenner, on the other hand, agues with that belief by expressing the lack of evidence that the current era could be named the Urban Age. (Brenner 2015). That could mean the world is becoming more urban, however it should attract attention to retrieve the balance.

Sometimes subtraction in cities start extremely slow for people to even notice, unlike Detroit where it did not take too long. Sometimes subtraction happens rapidly and affects the economy, the community and the city on multiple levels which makes it difficult for the subtracted cities to recover and thrive again. Thus, understanding the ways in which it affects the city brings us closer to a solution that is sustainable and logical. Ultimately, the causality of demolition because of rural decay is beyond obvious, as evidenced by the lack of redevelopment plans and resources. Mapping those towns and the resulting vacant lots after demolishing buildings helps as a tool to better understand demolition in the context of urbanism.

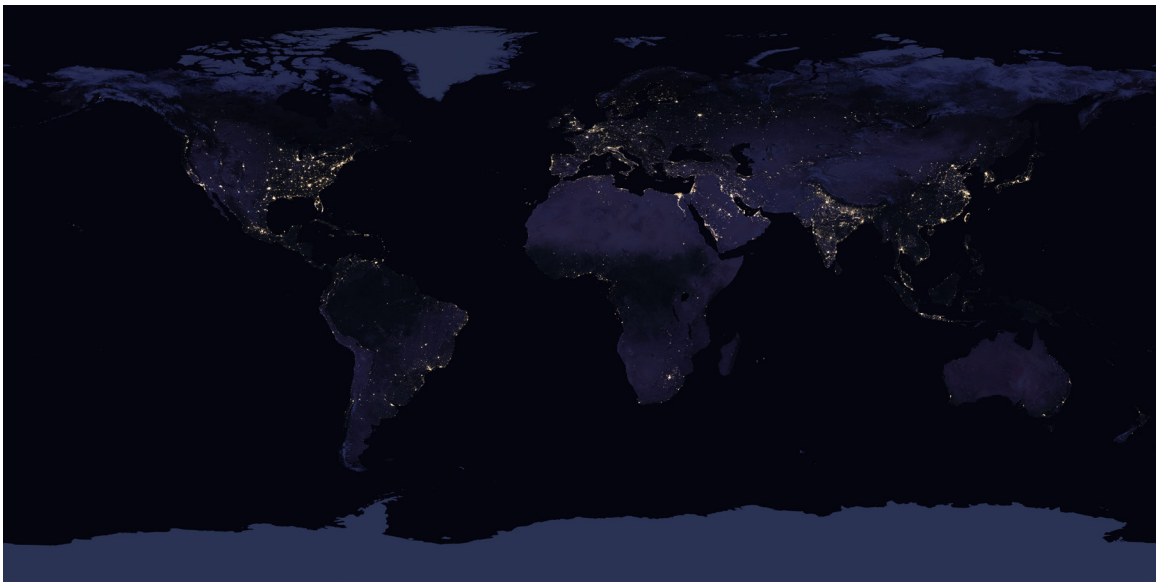


Figure 1 Earth at night shows thread connecting the light dots, urban, those threads are the rural (Stevens and Roman 2016)

1.3. City Decay

Depopulation leading to city decay is analogous to a disease taking life out of a city. However, Stephan Cairns and Jane Jacobs emphasize on the importance of city decay with regards to architectural advancement. Even though it seems destructive at first, city decay does allow for development and construction in the future. (Cairns and Jacobs 2014)

Urbanized areas require agricultural products sourced from rural areas as explained in the previous section. There is a direct correlation between the population and the density of a city from one side and the amount of agriculture required to sustain the city itself. While big cities are getting bigger, small towns are getting smaller and rural areas are shrinking even more. This imbalance disturbs the supply of agricultural products, and that might spike the proportion of demand to supply of resources which is risky.

The subtraction of cities is affecting both urban and rural areas. However, the impact is felt more severely in rural areas like rural Nebraska. Depopulation is typical in rural Nebraska as Caitlin Tangeman, in her Master of Architecture thesis, stated (Tangeman 2017). A crucial factor that could push a community to depopulate and further cause city decay is the dependence of the community on one industry. If the industry shuts down or moves, the community is left to its fate. Can we “understand” declining communities, in an effort to save them from future demise? We can take advantage of depopulation as an opportunity to build, to bring architecture to the conversation of demolishing.

The discipline of architecture studies the surroundings before designing a building. Factors such as weather, views, and noise are considered before a building is designed. So, we should study the surroundings when a building is demolished as well. Specifically here, study those factors to rebuild vacant sites.

In addition, rural and urban areas are distinguished at many levels. A common concept among people of urban better than rural mentally, intelligence or other. That make rural areas feel isolated or separated from urban ones. Because the market of buildings is not attractive for architects, there is not enough research on rural areas. Most of the research and study in architecture focuses on the problems and solutions of only urban areas. In conclusion, demolition is occurring both in rural and urban areas with it being severe in the former.

Making a decision to demolish a building does not just raise the concern of wasted material. Cairns and Jacobs mention also the return of investment on the commercial value (Cairns and Jacobs 2014). In addition, urban city decay doesn't occur very often, whereas small towns are shrinking rapidly. Depopulation happens in a city once in its lifetime, and eventually the city can survive. In contrast, small towns are shrinking every year on a massive scale. Therefore, redevelopment should be thought of as a prior step to demolition, especially for small towns.

Demolition of Buildings

Demolition is a subject that was overlooked by architects for years. Now it is time for architects to dig deeper into it. A few attempts were made by architects in the past to reuse the buildings. However, there are several ways to take down a building.

Subtraction and deconstruction is to take out the a building in stages. That is in favor of taking advantage of all materials. Some deconstructed material can be reused or redirected for other purposes while others can be recycled. However, this process requires time and money. On the other hand, demolition doesn't take time and it is relatively cheaper than deconstruction. Tangeman debates the cost of deconstruction versus demolition. There are many government programs to support and fund recycling like HUD, EPA and SAT. Moreover, there is a tax reduction in case of donating recycled building materials to charity. That tax reduction covers the cost of deconstruction and pays more in comparison to demolition. (Tangeman 2017)

Furthermore, there are a few projects and proposals from architects for this phenomenon. Some architects think of demolition in the design phase on a rural scale. It addresses depopulation in rural areas and enables future projection and solutions. There are different aspects of designs and approaches, some of which focus on the environmental side while others focus on the human side.

Stephen Cairns and Jane Jacobs discuss the life and death of a building; Can we refrain from creating buildings which use valuable resources and effort to be constructed, only to see the buildings' architecture decline at the end, not taking advantage of all valuable resources? Besides looking into buildings ready for demolition, the design process should consider all stages of a structure's life, from execution to renovation and deconstruction. Thus, end of life for buildings have not received the attention they deserve.

> Cairns and Jacobs write, "What does demolition mean for architecture's sense of itself and the fare of its creative output? demolition annihilates architectural

> fantasies of permanence. it pulls down architectural creativity made manifest in-built form. it erases the material referent of a building's circulating meaning." (Cairns and Jacobs 2014)

Buildings are vacant for different reasons. For instance, Plymouth, Montserrat, and Pripyat, Ukraine and Kennecott, Alaska are abandoned cities. What should we do and study to understand this phenomenon? Architectural perspective is the solution.

Architects vary in handling and dealing with dying buildings. In historical buildings like the Ise Shrine in Japan and others in Rome, the window frames and balconies were reused. Case Vecchio in Verona in Italy has been remodeled and repaired over the course of its history. (Handa 2016). Richard Harding watt 1842 - 1913, an English architect with other professional architects, took buildings that had to be taken down through a contractor, and re-purposed and reused them. Other architects take the buildings down. However, In Detroit's case, the architectural solution was not involved from the outset.

Age of a building is relatively short. Materials on the other hand reform and change. When a decision has been made for demolishing a building, Carin and Jacobs necessitate a redevelopment plan before the demolition action takes place (Cairns and Jacobs 2014). I would like to consider the following questions:

- Is the author's opinion always right?
- Is the decision of demolishing always well studied?
- Is demolition occurring only after redevelopment is already planned?

The argument is the case where the city and community doesn't have the luxury of making the decision of demolishing after planning a redevelopment. I would like to

study demolished buildings in the case of abandonment, when the lot of demolished buildings are left vacant without an obvious plan or development.

Demolition doesn't spare small towns. It occurs in urban and rural areas. Demolition is not the ideal solution to city decay. Therefore, it needs to be studied and analyzed more. The potential impact of this study is to understand demolition in the context to urbanism, as well as to rethink the process of design. This need is confirmed by Jeremy Till as demonstrated in the introduction (Tangeman 2017).

Moreover, materials are going to change in the future. We already have recyclable building materials as well as recycled building. There is a considerably low percentage of recyclable material currently used in construction. Owners and contractors are not opting for recyclable materials. That means the majority of buildings that were built in the past or the ones currently under construction and those going to be built in the future are built using nonrecyclable materials. These buildings need a proper solution. Studying the amount of trash from demolished buildings reveals the importance of avoiding or reducing trash production. By mapping the stages of trash, can we understand what happens to it? How better it can be dealt with? Furthermore, I am interested in how is community, people or city is dealing with the story of demolished buildings and the afterlife of that building? And how the community as a whole can be involved in that vacant lot.

"Demolition must be understood as architecture's mortal enemy." (Cairns and Jacobs 2014)

Architects use mapping as a tool to understand the fabrication and the layers of the city. The methodology of mapping is going to give the study its conceptual

framework. When a building is demolished in a dense area it doesn't take a big percentage of the footprint of the built-up area despite the opposite effect of the same event to rural areas. This comparison should be addressed in the context of urbanism.

Post Demolition Allocation: Vacant Lots

Authors can argue for the replacement of a building before the building is gone. However, they have not considered cases where the replacement is not attainable. In the case of rural Nebraska, there are many post demolishing vacant sites. It is assumed that there is almost always redevelopment after a building is demolished. This is one of the assumptions that Brenner argues: "Urban field presupposes certain underlying spatial taxonomy" ... "despite all the disagreement about many issues". (Brenner 2015). It might be the case in growing cities or communities. However, that is not true in depopulated communities and decaying cities in rural Nebraska.

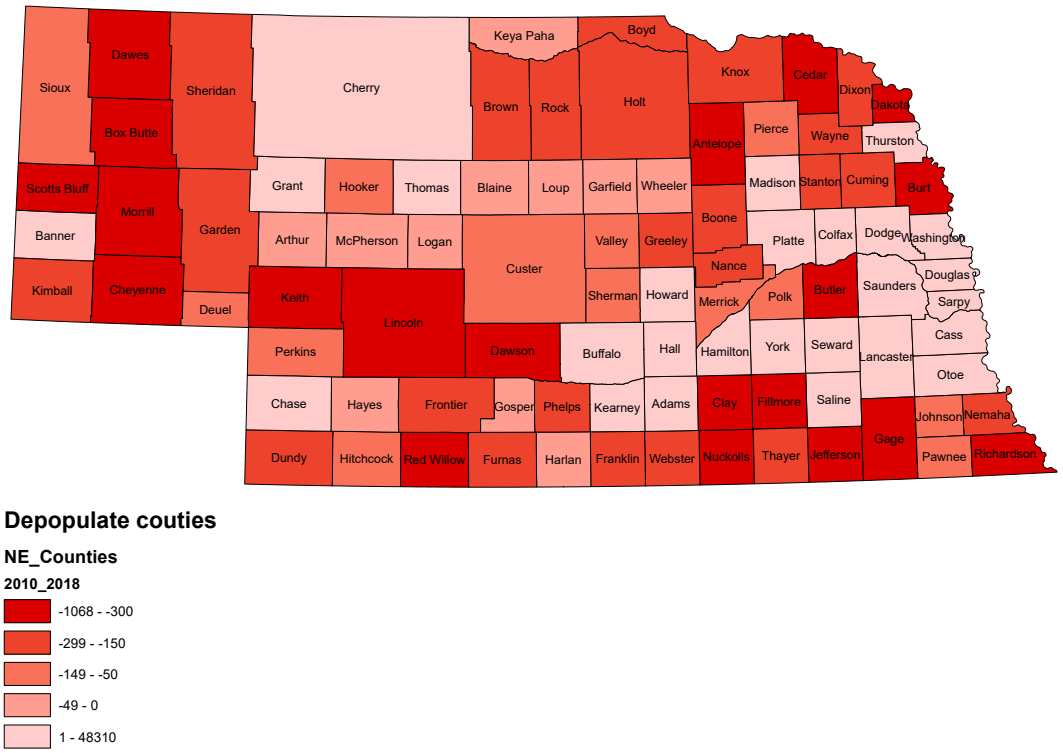


Figure 2 mapping depopulated counties from U.S. census data from 2010- 2018 GIS

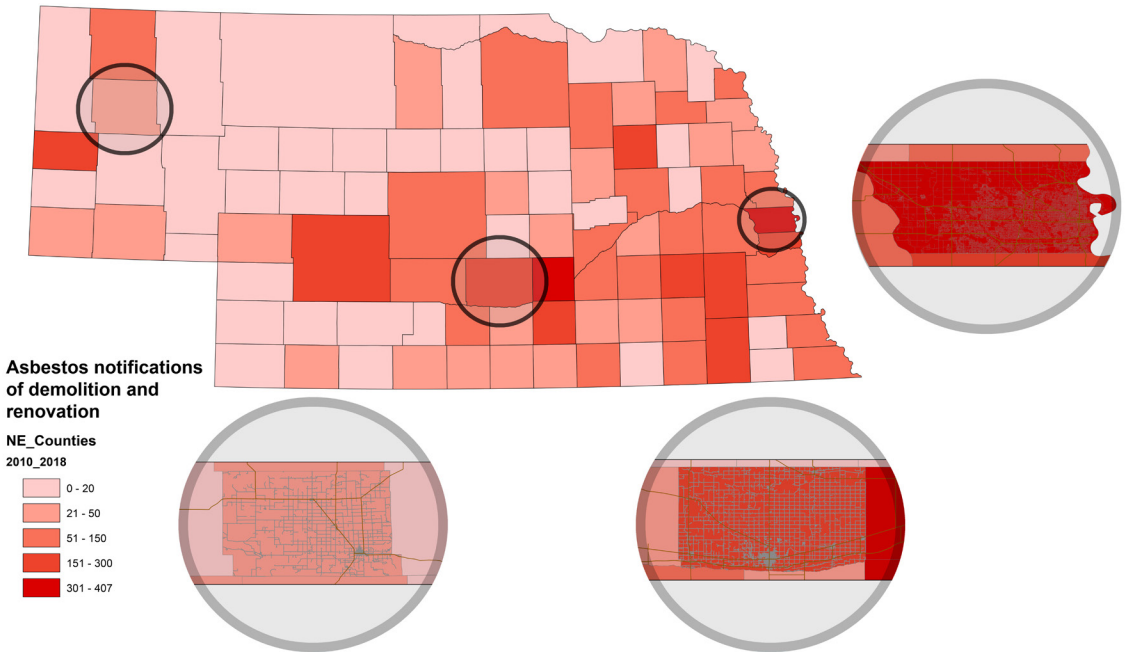


Figure 3 select three counties from different category to understand and correlate with other aspects of de-populating GIS

1.4. Used Data and Resources

To study population change in order to uncover city decay in Nebraska, U.S. Census Bureau data has been used to identify and analyze the declining population in the state by county (Bureau 2010, 2018, Catalog 2015, 2016). Comparing population in the last 10 years shows a decline in population in several counties. Most recent data published by the U.S. Census was used, 2018 and 2010 (see Figure 2).

Rural Nebraska is depopulating rapidly. In the last 10 years, most Nebraska counties are declining in population. Six counties, like Lincoln and Cheyenne, lost more than 600 people. Moreover, several counties, like Box Butte, and Jefferson, lost around 500 people each.

Mapping demolished buildings assists in understanding and studying its impact in the context of Urbanism. Nebraska Department of Environmental Quality data shows Asbestos Notification of Demolition and Renovation (DEQ.State.NE.US). Those notifications can be looked up by county, and in each county by date. After mapping the data using GIS, the map shows the number of reports in each county in the last 10 years. The highest number is in Douglas county, which is 405 notifications and the lowest is 0. There are several counties, like Arthur, that don't have notification on record. Moreover, most counties have a significant number of notifications.

Case studies have been selected for further analysis. Three sample counties have been selected: Douglas county, which has a high number of notifications, Buffalo county in the middle, Box Butte county with low notifications count(see Figure 3). Demolished buildings in the selected counties have been mapped. The gathered data is for a duration of 10 years; from 2009 till 2018. Total population from United States Census Bureau for

the same period has been compared (Bureau 2010). It has been observed that a higher number of notifications corresponds to higher population counties.

Gathered Demolition Locations

The Nebraska Department of Environmental Quality has a database of Asbestos Notification of Demolition and Renovation by County, which can be accessed through their website (DEQ.State.NE.US). Each notification contains a variety of information. information that was used in the analysis are: demolition and renovation type, building type, building age, and building address. Demolition and renovation type is used to filter out buildings which are not taken down. Building type, whether commercial, residential or public facilitates, help to better understand the community. Building age helps to identify extreme cases and odd situation like if young building is demolished. Building address is used to locate demolished building and further investigate vacant lots. The next section will detail mapping and analysis tools.

ArcGIS

Each of the 93 counties in Nebraska was mapped in GIS with the number of notifications for a period of 10 years. The map was used to select the three mentioned sample counties. Using the addresses in the notification document, all reported buildings were allocated using the Allocation tool. After filtering demolished buildings, recent satellite pictures (Google Earth and Apple + Google World maps) were consulted to find out which of the lots are still vacant and which have been redeveloped (Maps and Earth).

1.5. Case Study

As discussed, demolition occurs in rural and urban areas. To have a better understanding of demolition and how it effects depopulation, urban and rural area are included in this case study. Omaha, for example, is a dense and populated urban area, but still demolition takes place in some parts of the city. Moreover, there are vacant and undeveloped lots after demolition.

First analysis of Nebraska Department of Environmental Quality data shows Asbestos Notification of Demolition and Renovation database is to show the number of demolition and renovation reports in each county (DEQ.State.NE.US). The results show higher number in counties with higher population.

The first three counties with the highest number of reports are Douglas County with 407 reports, Hall County with 332 reports, Buffalo County with 288 reports. These three counties are also the biggest counties in terms of population with 566,880, 61,607, and 46,615 respectively, according to the 2018 U.S Census (Bureau 2010). That shows the correlation between reports and population. Also, those counties have the biggest cities in Nebraska like Omaha, Grand Island, and Kearney. However, the study is to find connection with demolition, which is still missing.

There are several counties that have no record of any reports in the database. For example, Arthur County, with a population of 460 and Keya Paha County, with a population of 810. Those counties are small in population. Thus, they don’t have any report of demolished buildings.

Box Butte County

Box Butte County is rural and is depopulating. The biggest cluster of population in the county is in a small town. This might be a good case study (see page 25). However, the city that has the highest number of reports and the highest number of demolitions is Alliance. The city has a population of just above 8,000 people. Also, the number of demolitions is 17 reports. Most of those sites are redeveloped and four sites are vacant. So, this is still not a good representation of vacant sites in shrinking communities. (Bureau 2010)

Buffalo County

The county in general is rural with a spread population that is scattered in small towns. According to the U.S. Census, the population has been growing 7% in the past 10 years with a population of nearly 50,000 in 2018 (see page 26). The biggest city is Kearney, which has the highest number of reports. This case is also a case of large population and large number of demolitions. (Bureau 2010)

Douglas County

Douglas County is urban. It is also growing. Most of the vacant lots are owned by the city of Omaha. Which might be used for land banking. The city of Omaha has several programs for vacant sites that the city owns (see page 27). The county's population is growing. According to the U.S Census, the county has been growing 10% in the last 10 years with a current population of 566,880 in 2018. (Bureau 2010)

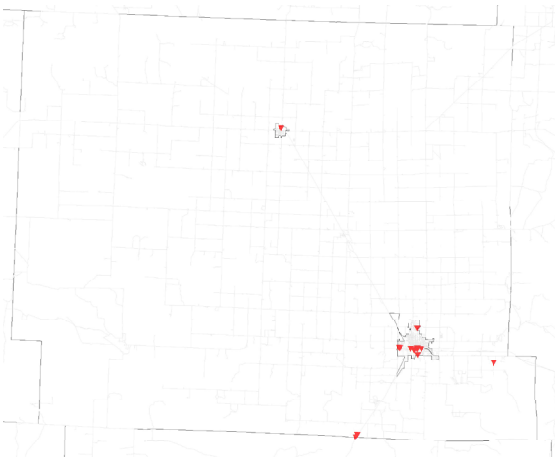


Figure 4 Box Butte county, allocate vacant sites from NDEQ list of notification of demolition GIS

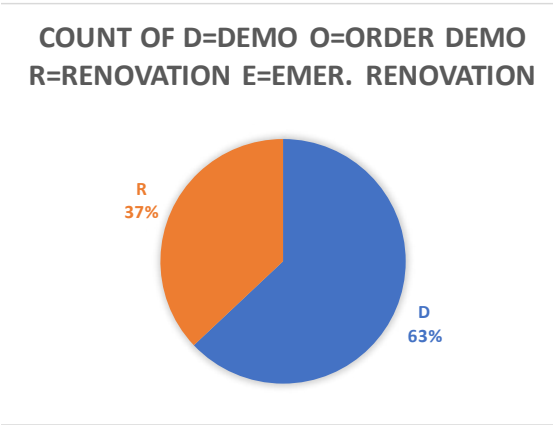


Figure 5 Ratio of demolition to renovation in all reports

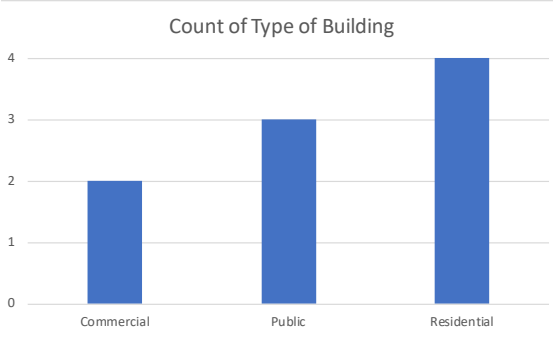


Figure 6 count of demolished buildings and its type

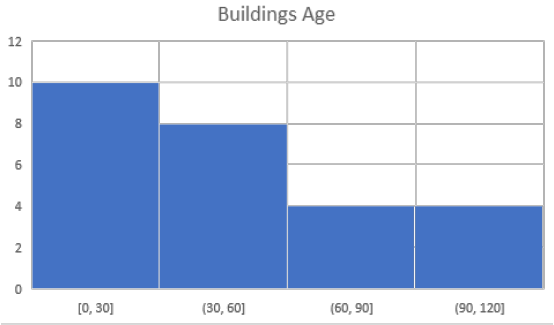


Figure 7 Demolished buildings count by age

Box Butte

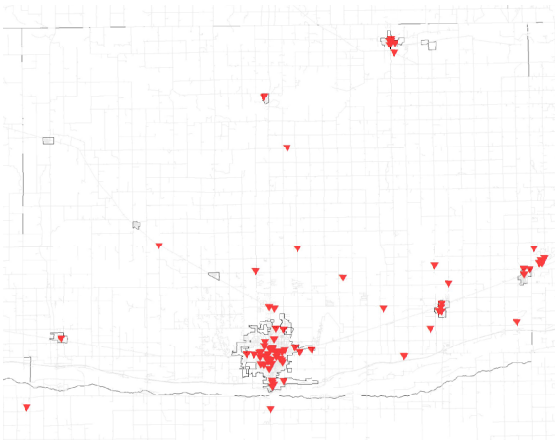


Figure 8 Buffalo county, allocate vacant sites from NDEQ list of notification of demolition GIS

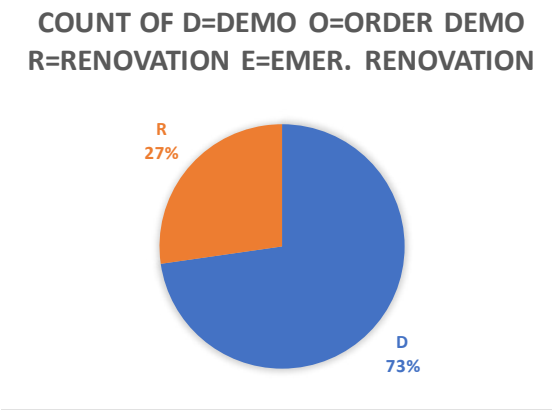


Figure 9 Ratio of demolition to renovation in all reports

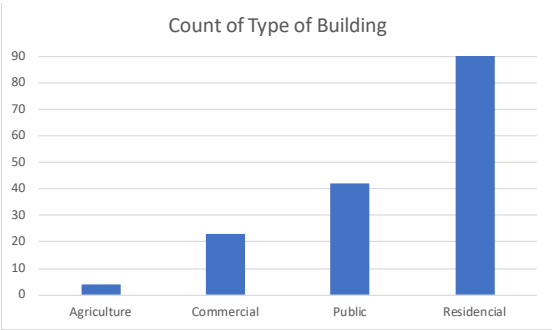


Figure 10 count of demolished buildings and its type

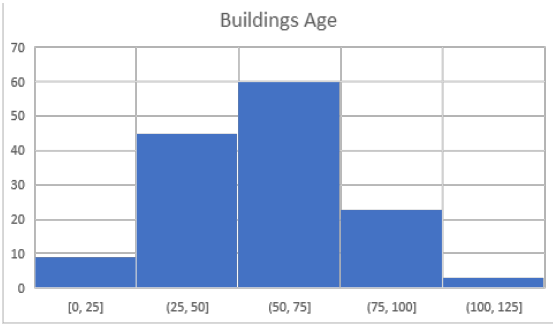


Figure 11 Demolished buildings count by age

Buffalo

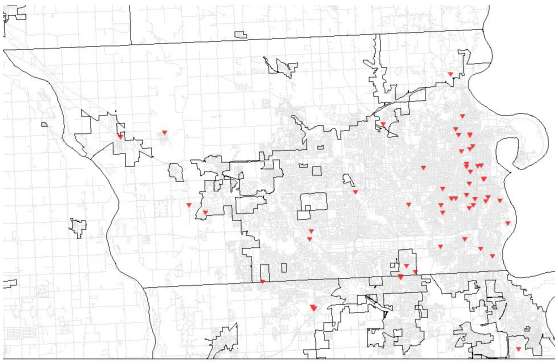


Figure 12 Douglas county, allocate vacant sites from NDEQ list of notification of demolition GIS

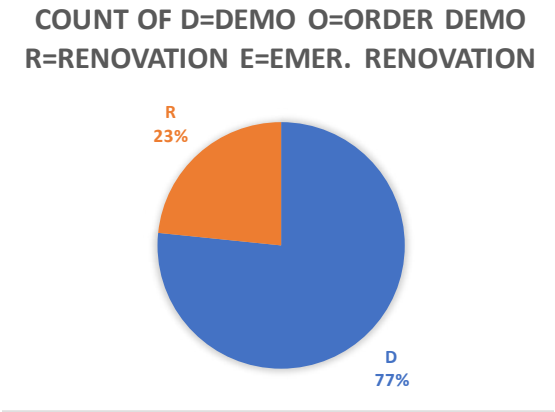


Figure 13 Ratio of demolition to renovation in all reports

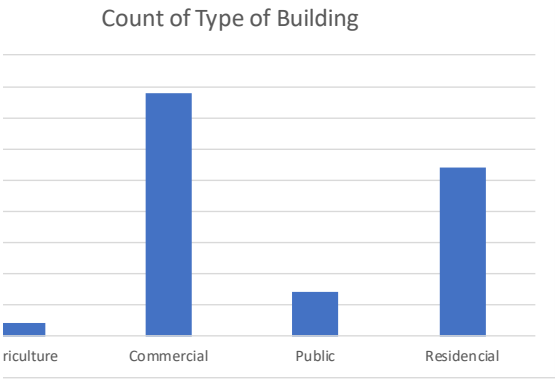


Figure 14 count of demolished buildings and its type

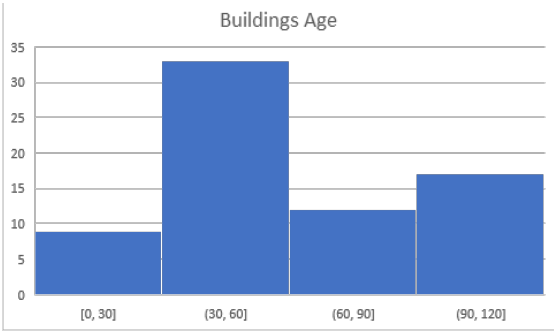


Figure 15 Demolished buildings count by age Douglas

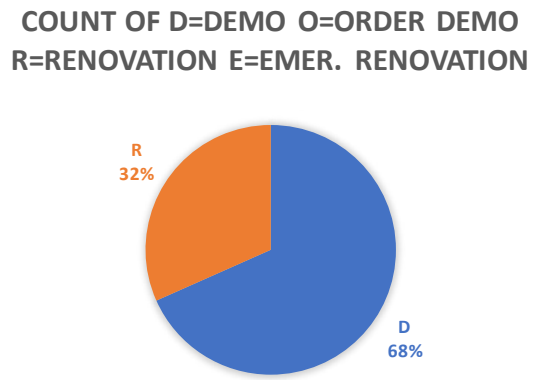


Figure 16 Ratio of demolition to renovation in all reports

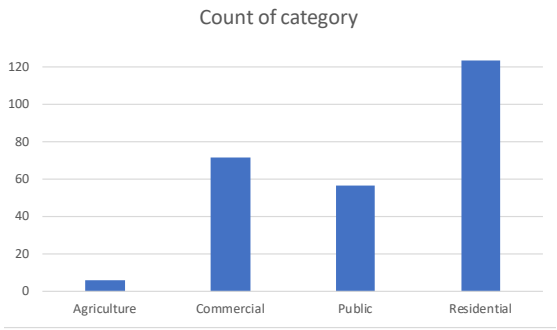


Figure 17 count of demolished buildings and its type

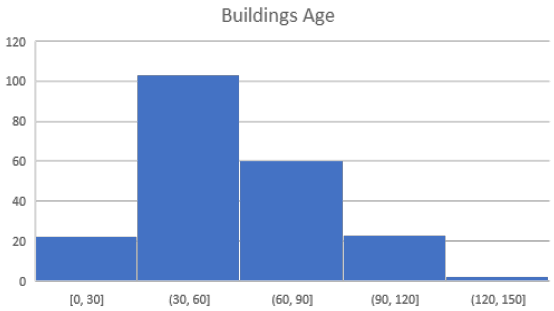


Figure 18 Demolished buildings count by age

All 3 counties

1.6. Communities

The study is looking for cases where the population is decreasing and where there are a lot of demolition reports as a sign of city decay. The first county is Box Butte. The county has fewer reports and a smaller population. Most of the reports are in the biggest city in the county Alliance city. The city has 16 reports (see Figure 19) and a population of 8,070 in 2018 according to U.S. census. Two of the 16 are demolition reports and the sites are still vacant. Those 2 sites are vacant without any redevelopment (see Figure 20). The rest of those sites have been redeveloped. (Bureau 2010)

Moreover, Buffalo County has several cases of small towns with some demolition reports and they are Gibbon, Ravenna, and Shelton. Gibbon has 9 reports (see Figure 21), which has a population of 1,886 in 2018 according to U.S. census. Four of those 9 are demolition reports (see page 34). It seems like there is demolition in the town, but the study carries on to the next town. Ravenna has 8 reports (see Figure 24), and a population of 1,369 in 2018 according to the U.S. Census. Four of those 8 are demolition reports. Shelton has 11 reports (see Figure 25 and Figure 26)and a population of 1,055 in 2018 according to the U.S. Census. All of those reports for demolition. It seems all those towns are similar. However, most of those demolition has been redeveloped. There is one case that looks different which is in Shelton. (Bureau 2010)

This specific case of demolition has been reported in the news. The Grand Island Independent newspaper published an article titled: “After 90 years, Platte Valley Academy tearing down campus.” This is a massive scale demolition in the building footprint and its impact on communities. The demolition was in 2010 when the city had a population of 1,059 according to the U.S. Census. It shows that the city didn’t lose much

of its population after the loss of the college. The college was a big contributing factor to the city's economy and workforce. However, comparing this case with the loss of major industries in Detroit, MI and Youngstown, OH, shows that the population of the city is relatively constant (Bureau 2010). In Douglas County there is no report of demolition in rural areas.

Those examples and case studies have different types of demolition. However, none of them has been demoed on a large scale and decreased in population at the same time. Communities and small towns are the target of this study.

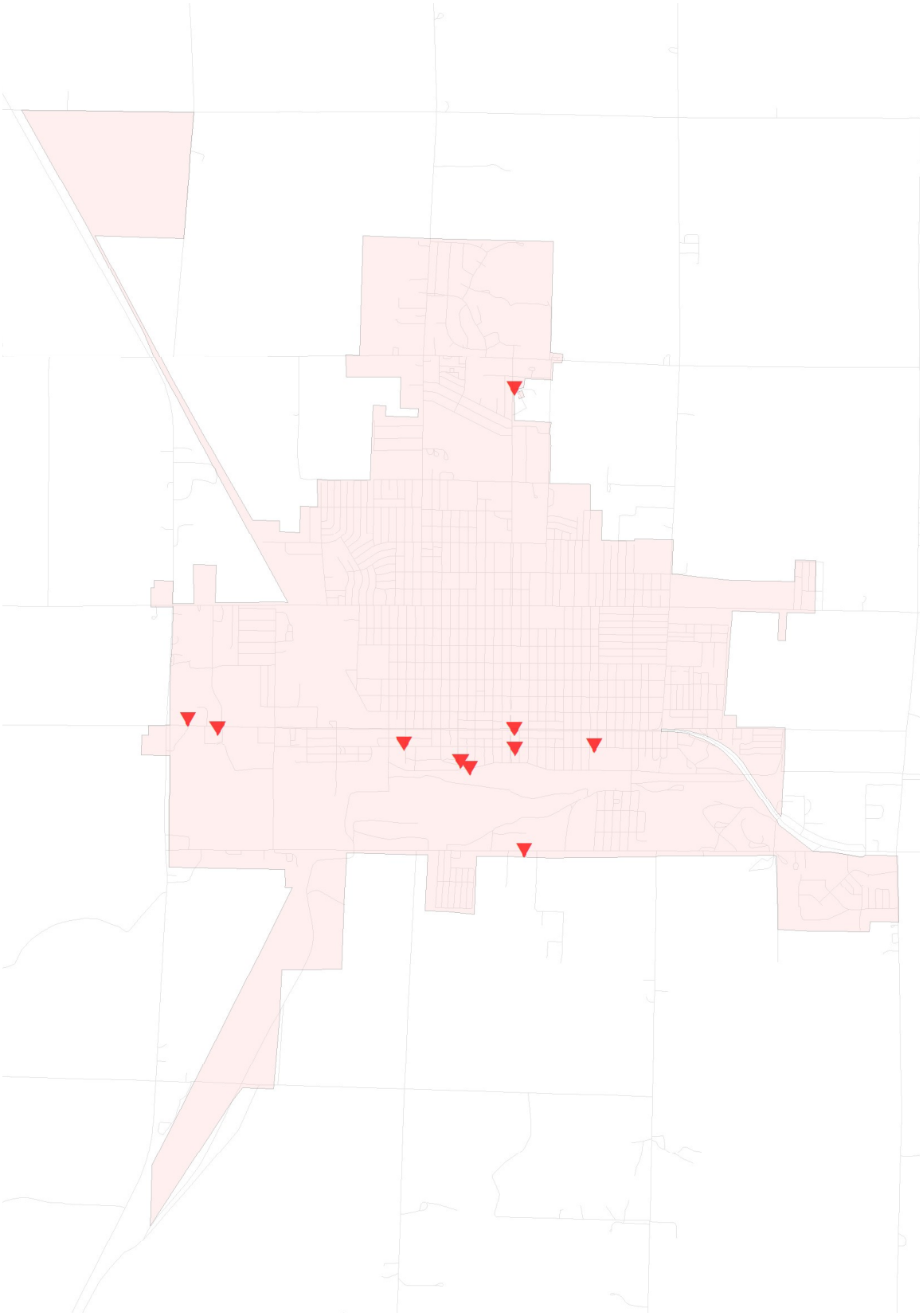


Figure 19 City of ALLIANCE: 16 demolished buildings GIS

Figure 20 one vacant lot resulted from demolition. The lot in the industrial zone inside a railroad facility (Maps and Earth)

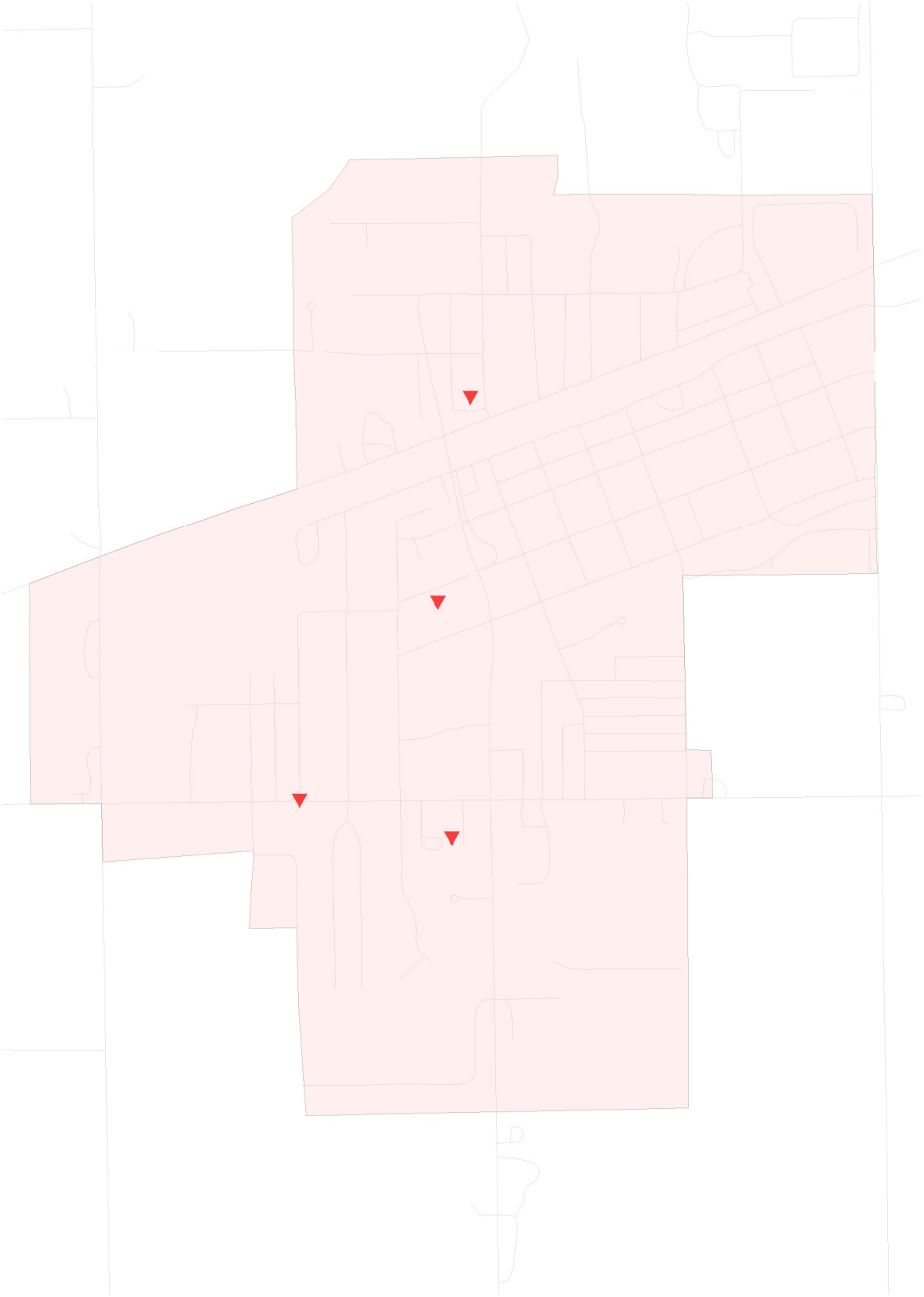


Figure 21 City of Gibbon : 9 demolished buildings GIS

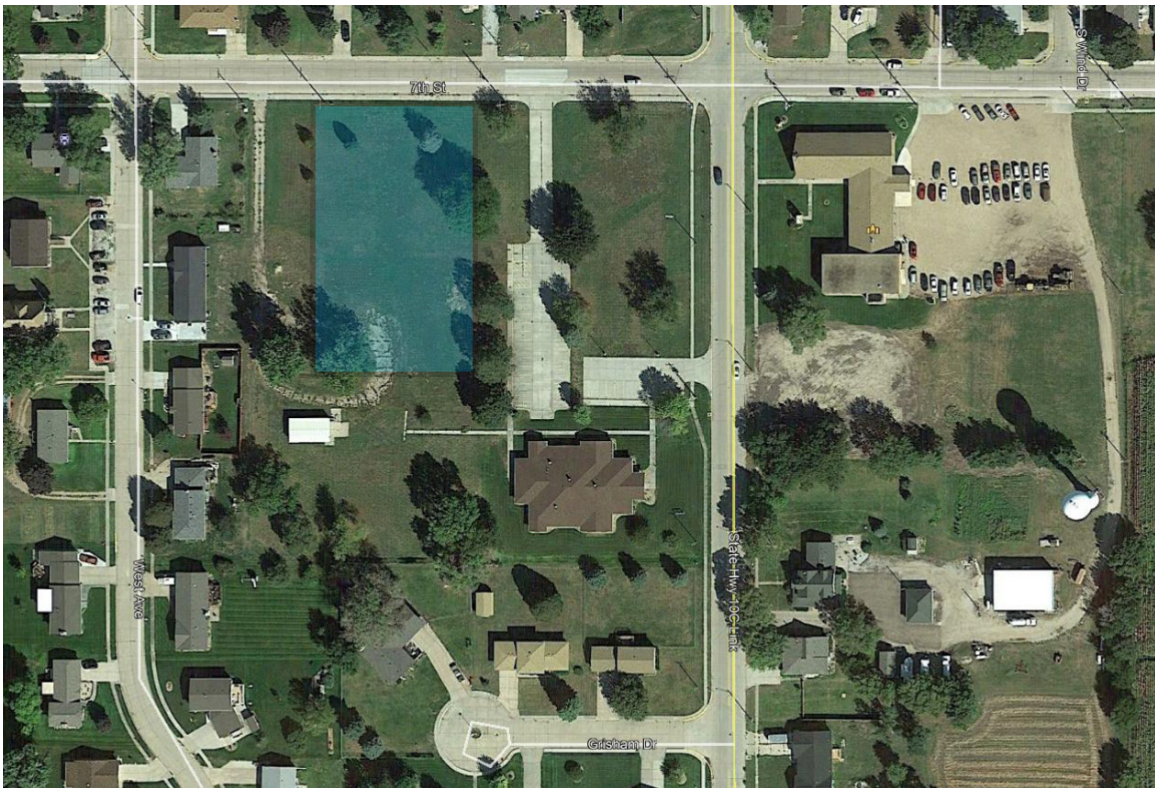


Figure 22 vacant lot in residential area (Maps and Earth)

Figure 23 vacant lot in residential area (Maps and Earth)

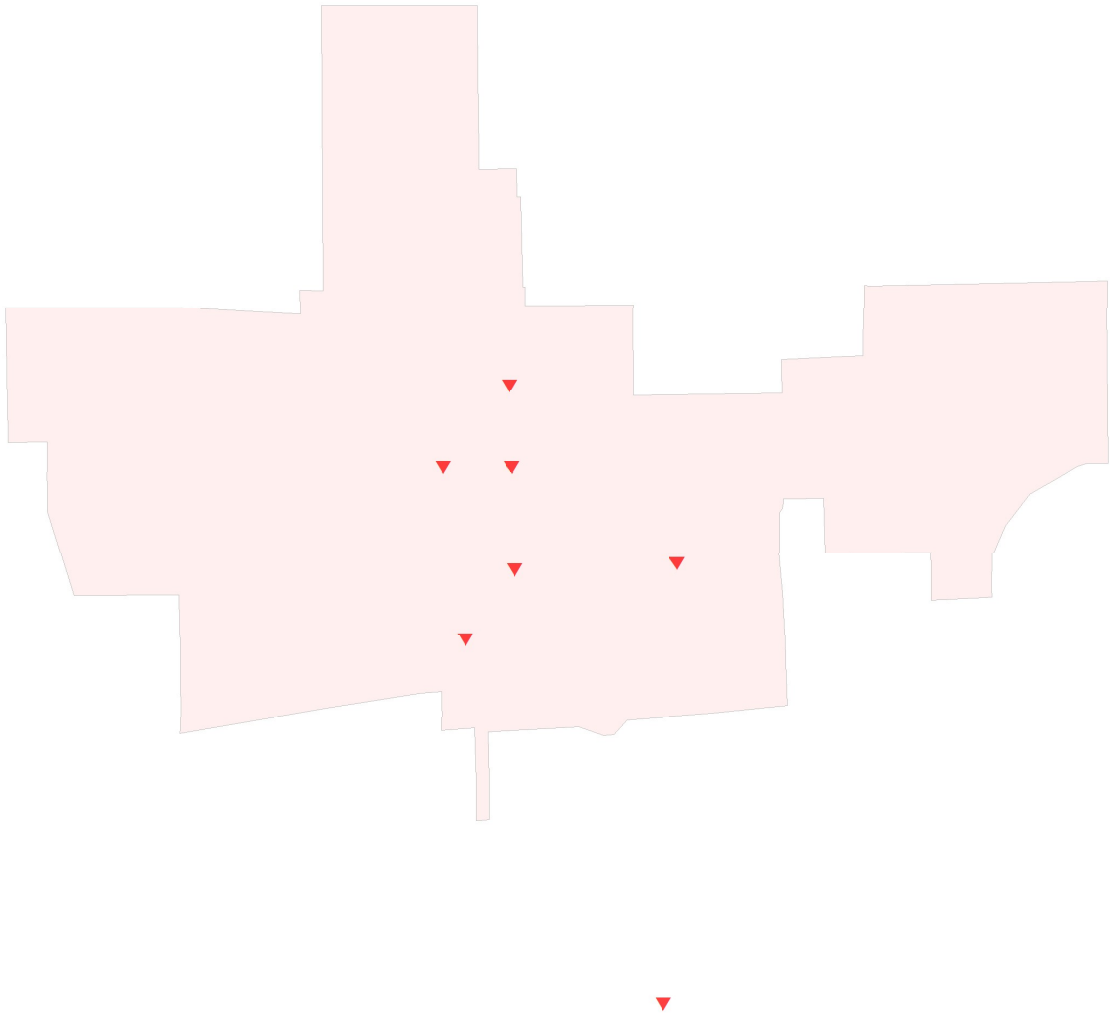


Figure 24 City of RAVENNA: 8 demolished buildings GIS

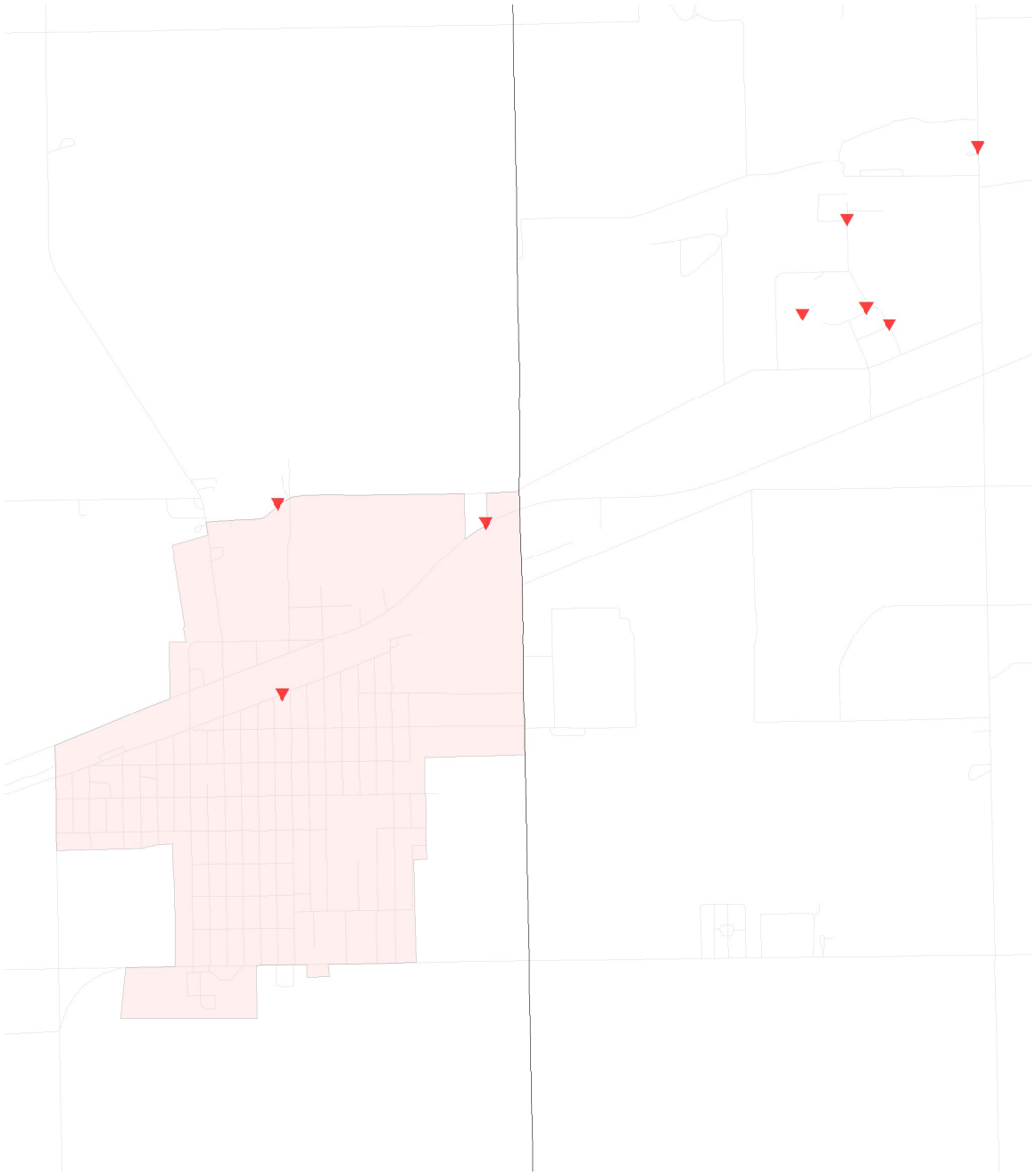


Figure 25 Village of Shelton: 11 demolished buildings GIS

Figure 26 vacant lot at the edge of residential area next to industrial (Maps and Earth)

1.7. Analysis of Vacant Lots

The focus of the study is vacant lots after demolition, specifically within city limits. Larger, growing cities like Omaha are taking advantage of abandoned buildings for land banking. This might be one of the advantages rural communities can consider.

Moreover, vacant lots are often located on the edge of urban zones. They might be reallocated after a while to another zone. Sometimes, residential zones can be swallowed by industrial or commercial zones, sometimes. In the case of a zone expanding into another zone, is the community involved even at the city level? Or does it depend on the market?

1.8. Plan of Action

Before getting into future work, there were several assumptions and theories connecting demolished buildings in rural communities and its depopulating. For instance, the assumption that more agricultural facilities are being demolished in the wilderness or outside city limits. Another assumption is that demolition occurs as an indication or measurement of depopulation as well. These assumptions do not reveal the mystery of demolition. As previously observed and as will be reported in successive stages of the thesis, the first assumption is not true; at least for the studied samples. Furthermore, there was no conclusive evidence to either prove or deny the second assumption, and there is a need for further investigation.

The data provided by the Department of Environment and Energy as well as other available resources can give us a better understanding of demolition in the context of urban versus rural. We are at the edge of scientific discovery. As we move in a rapidly

paced world, it is crucial now more than ever to support rural communities and sustain rural communities.

There are two ways that this work can be continued. The first approach is to study each town and its loss of buildings. Vacant lots can be analyzed in a way to see if the zones they belonged to have changed, from residential to commercial, for example. The second approach is to study more counties and more communities and compare them for analysis. Most rural counties in Nebraska are depopulating. What the study of demolition can contribute to the approach of city decay and urbanism? Even though rural depopulation is normal, extreme cases can be found for further analysis and investigation.

Analyzing data at the county scale has not been beneficial for the process. In order to have a better understanding of vacant sites and shrinking communities, we must apply the study to the community scale instead of at the county scale.

CHAPTER 2:

CITY SCALE

2. City scale

The data shows the number of reports in each county. The scale of county do not reveal shrinking towns in population and buildings. So, the study continues on different approach; the city scale. R Studio is a software that designs programs. This tool is important to read the pdf report files. The database has a lot of files that can be located by county but does not show cities. Since opening each file to transfer information is time consuming, R Studio Script is written to read all pdf files and locates all important information in one organized file. The program allows pdf files to be transferred to Excel files. Now, data can be analyzed on the city scale. There are many cities in the state of Nebraska. In total, there are 530 local governments or cities. The study also is looking at small towns. So, we had to put a threshold to narrow down the list. The selected category is second class cities (Nebraska.GOV 2014) (see Figure 27).

Nebraska 2014

Incorporation Class	**Population in CI**	**Number**
Metropolitan Class City	300,000 or more people	Omaha
Primary Class City	More than 100,000 & less than 300,000	Lincoln
First Class City	More than 5,000 up to 100,000	30
Second Class City	More than 800 up to 5,000	117
Village	100 up to 800	381
	Total	530

Figure 27 NEBRASKA INCORPORATED PLACES BY LEGAL CLASSIFICATION

2.1. Small towns

We already have the filter of “shrinking” or “depopulating” cities. Adding another filter is logical and efficient to narrow the list down to the targeted case study. It is also helpful to add the architecture discipline into the equation. It is crucial to understand the impact of depopulation in the architecture realm as the urban fabric shrinks and decays. The state has a breakdown of local government by population. This is a useful tool to take advantage of. So, the last two categories in that list is second class city and village. If we took those two groups, we still have a lot of cities to filter for further investigation.

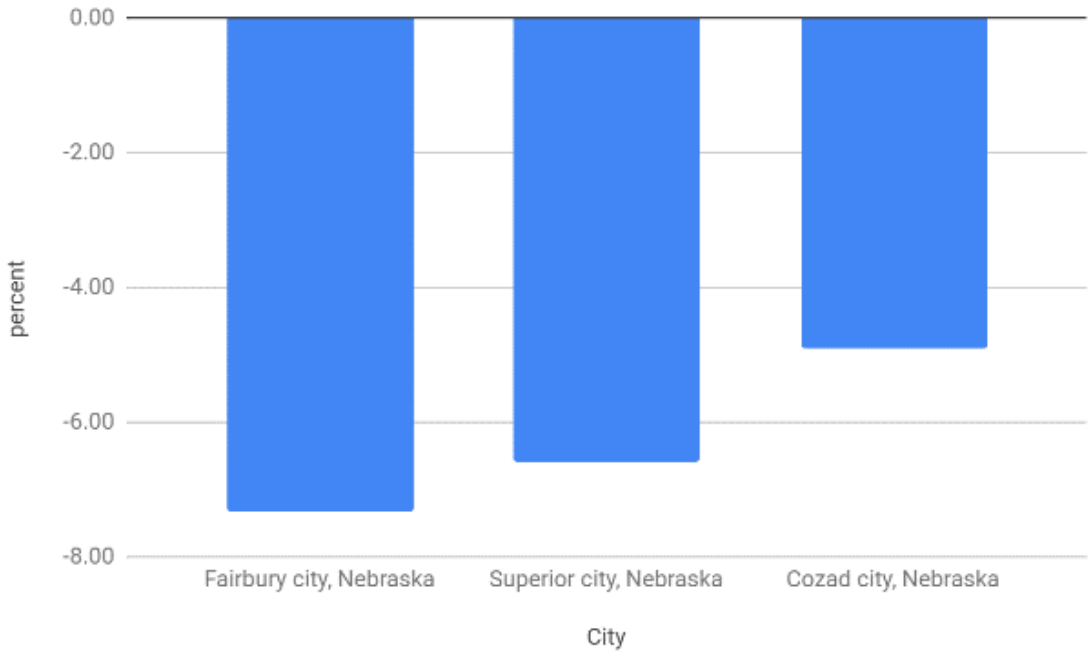


Figure 28 population change from 2010 - 2018 from U.S. Censes for a few towns

Applying two filters, depopulating and less than 5,000 population, gives us a lot of results. First is depopulation. U.S census data and population changes from 2010 to 2018 shows a very sharp decline in the population of most of the cities. Applying the other filter for towns less than 5,000 people, we can see 4 abnormal communities that

declined more than others (see Figure 28). Fairbury has lost 7.3% of its population, Cozad lost 4.9%, Superior lost 6.5%, and Neligh lost 5.1%. The population of those cities is between 1,600 and 4,000. After studying and analyzing U.S. census data, we are looking for any correlation between those extreme cases and the demolition reports. (Bureau 2010)

Eliminating and filtering the data has given us a clearer image of cities with highest demolition reports. Cities that are under 5,000 people, shrinking and have a high number of demolition reports are (see Figure 29):

- Fairbury 152 reports
- Superior 66 reports
- Sutherland 44 reports

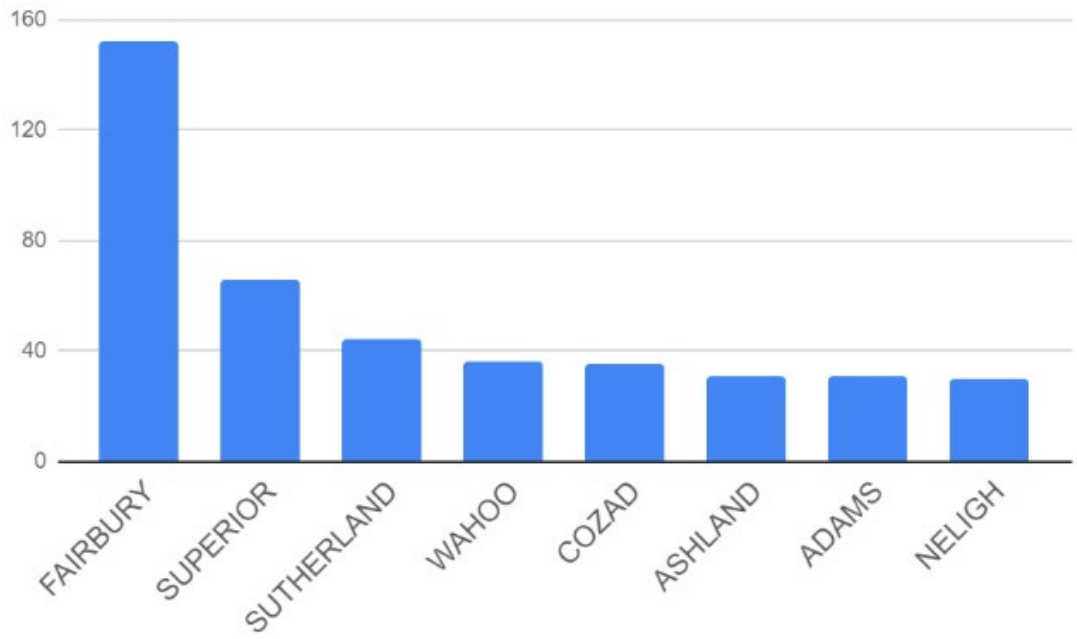


Figure 29 number of notifications in small towns

Two of those mentioned cities experienced sharp declining in population. Moreover, Fairbury has shown a unique and extreme case in all those measures. Fairbury as a case study will enrich the thesis on many levels. It is the most extreme case that we

can investigate all aspects of depopulating shrinking cities as well as architecture in the urban context.

The city of Fairbury is the extreme case in terms of demolition counts and decrease in population. The city has a history of decreasing population for different reasons at different times. Despite its strong start and growth, the city has suffered depopulation for a long time. The city reached peak population in 1950 according to the U.S. census with more than 6,000 people. Today, the population is close to 3,500 people. That dramatic change resulted in a lot of abandoned buildings. (Bureau 2010)

Fairbury

The city of Fairbury has been declining in population for a long time (Review 2020) (see Figure 30). The city is located at Jefferson County and is its county seat.

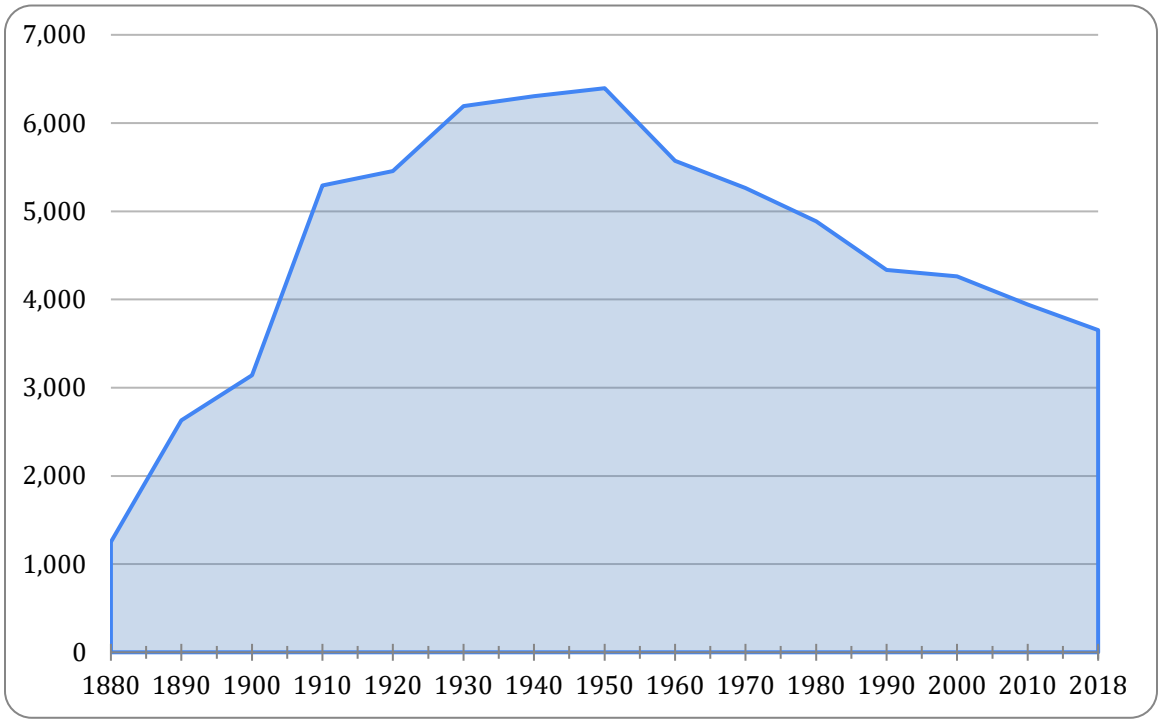


Figure 30 population changes in the city

2.2. Town's history

The city was founded on the projected route of a railway and grew after that to be the seat of Jefferson county. There were several major industries in the city throughout its history. Now, the city now is still declining from the withdraw of those major industries or their closedown (see Figure 31and Figure 32).

Figure 31 boutique shop at previously heated building's – taken Nov. 19.19

Figure 32 previously Fairbury Junior College, apartment building now – taken Nov. 19.19

2.3. Demo grants

There are grants for demolition from different levels. At the federal level, for instance, there are some provided from the United States Department of Housing and Urban Development (HUD) and the United States Environmental Protection Agency (EPA), at the state level, in Nebraska, there is the Nebraska Department of Environmental Quality (NDEQ).

2.4. Fairbury's demo strategy

The city has taken advantage of those grants and demoed some of its abandoned buildings. However, the city paid for more than half of the demolition buildings (see

Figure 33). The city now has its own equipment and has a plane to demolish all abandoned building.

Figure 33 THE FAIRBURY JOURNAL-NEWS 06/16/2010 (Admin 2010)

2.5. Current situation

In 2013, The city has published the Fairbury Comprehensive Development Plan (Associates and Consultants 2013). The city has been developing the plan since. The city has demolished 88 buildings and has another 86 buildings are slated to be demoed in the future. The comprehensive development plan analyses the city map in several layers. The current condition map (see Figure 34) is analyzed for correlation with vacant sites current and future is mapped (Bedlan 2020). Starting with a map of vacant sites (see Figure 35, Figure 36,and Figure 37) and allocating those vacant sites with other layers like major industries (see Figure 38), zoning ordinance (see Figure 39), schools (see Figure 40), safe school route (see Figure 41), trails (see Figure 42), parks (see Figure 43) and walkability (see Figure 44) to look for advantages of those vacant sites with each layer (Associates and Architecture 2016).

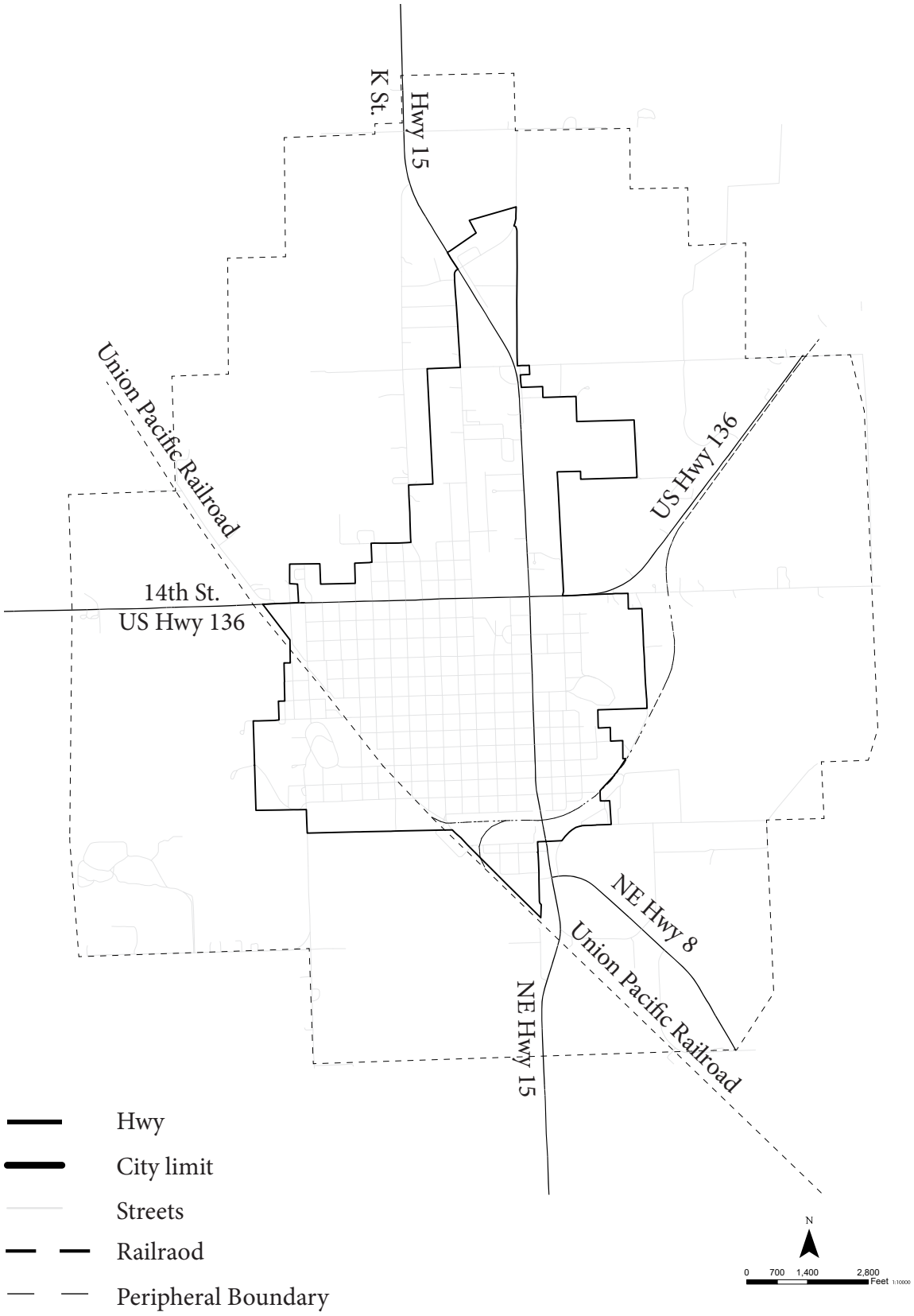
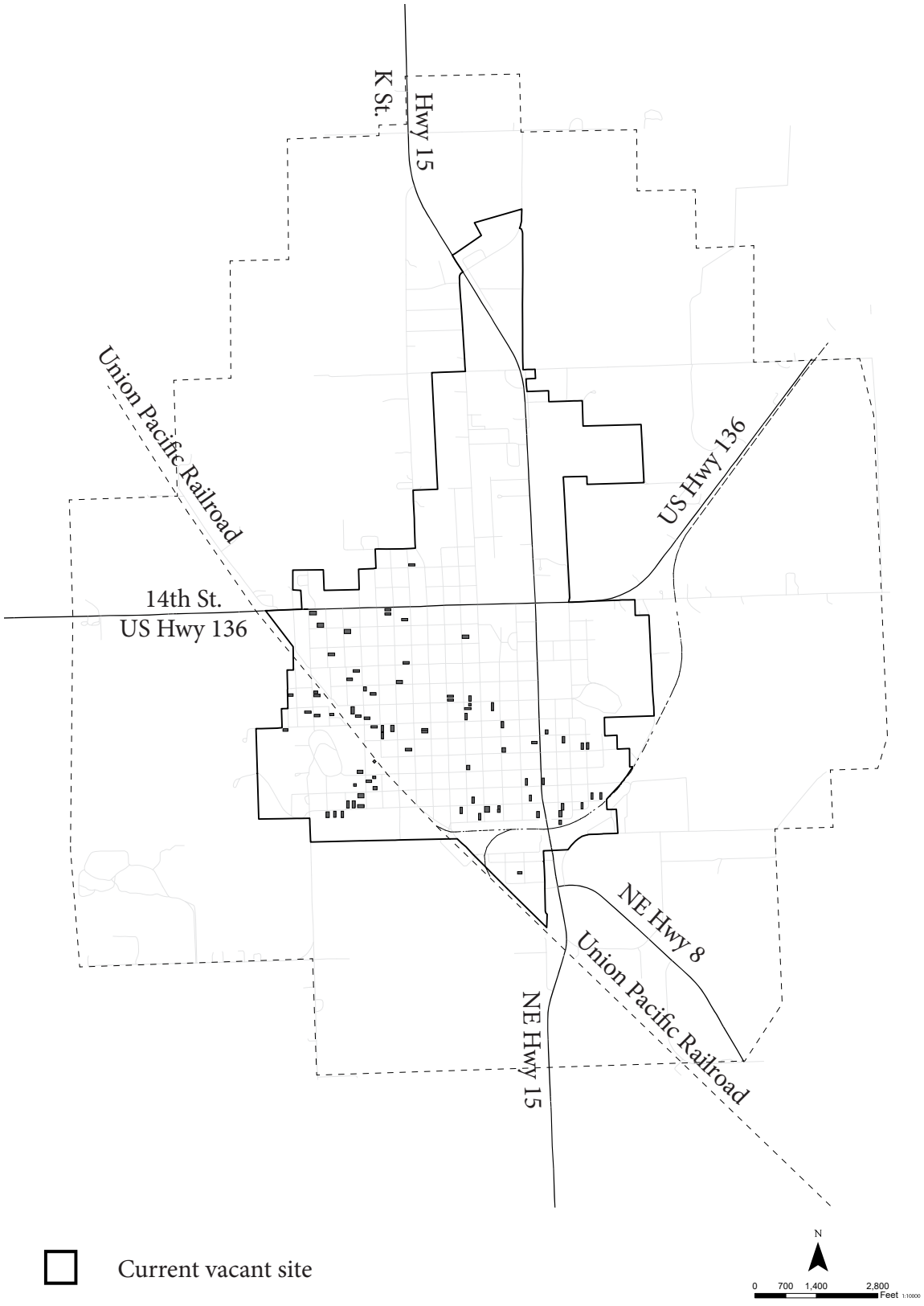
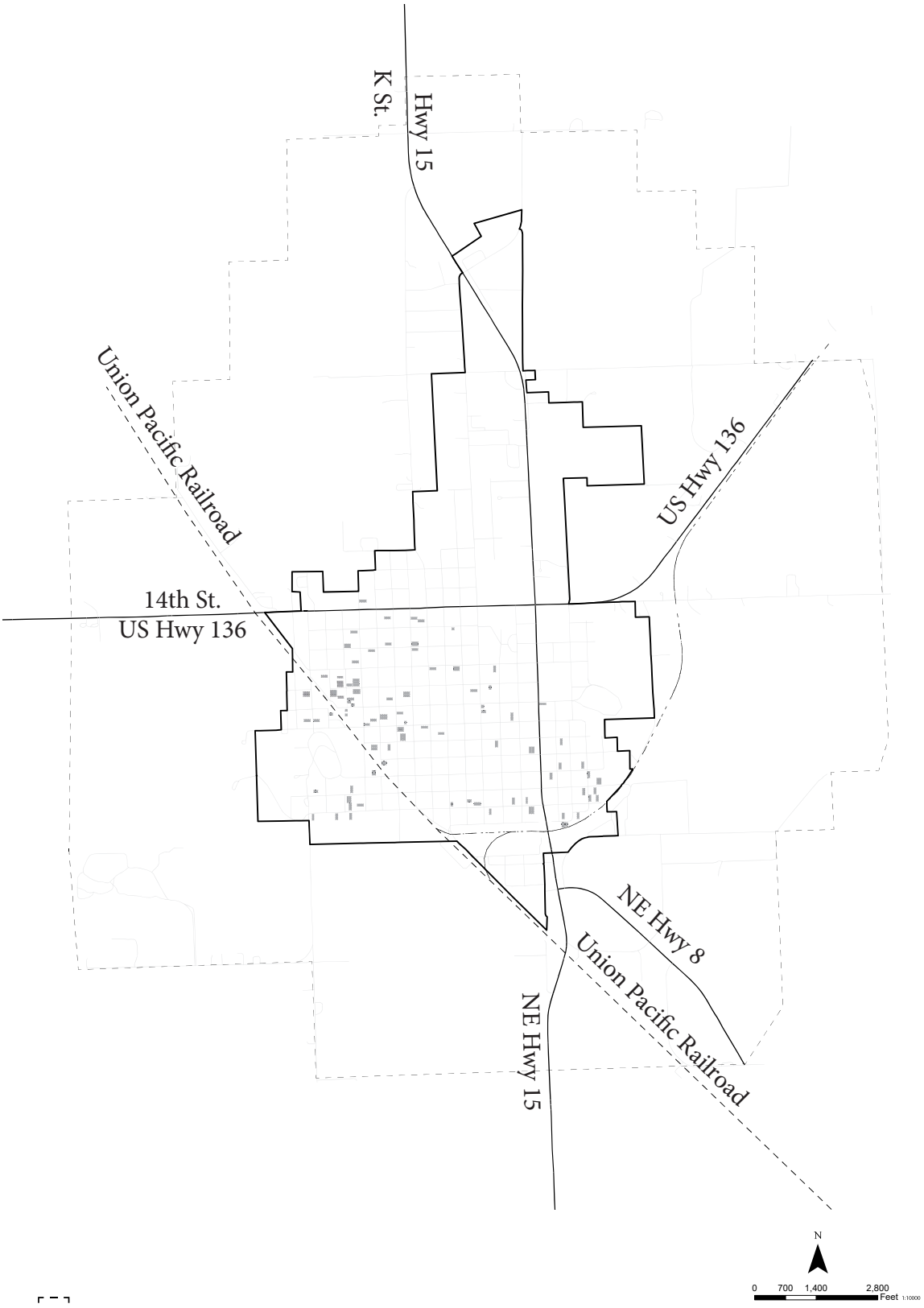


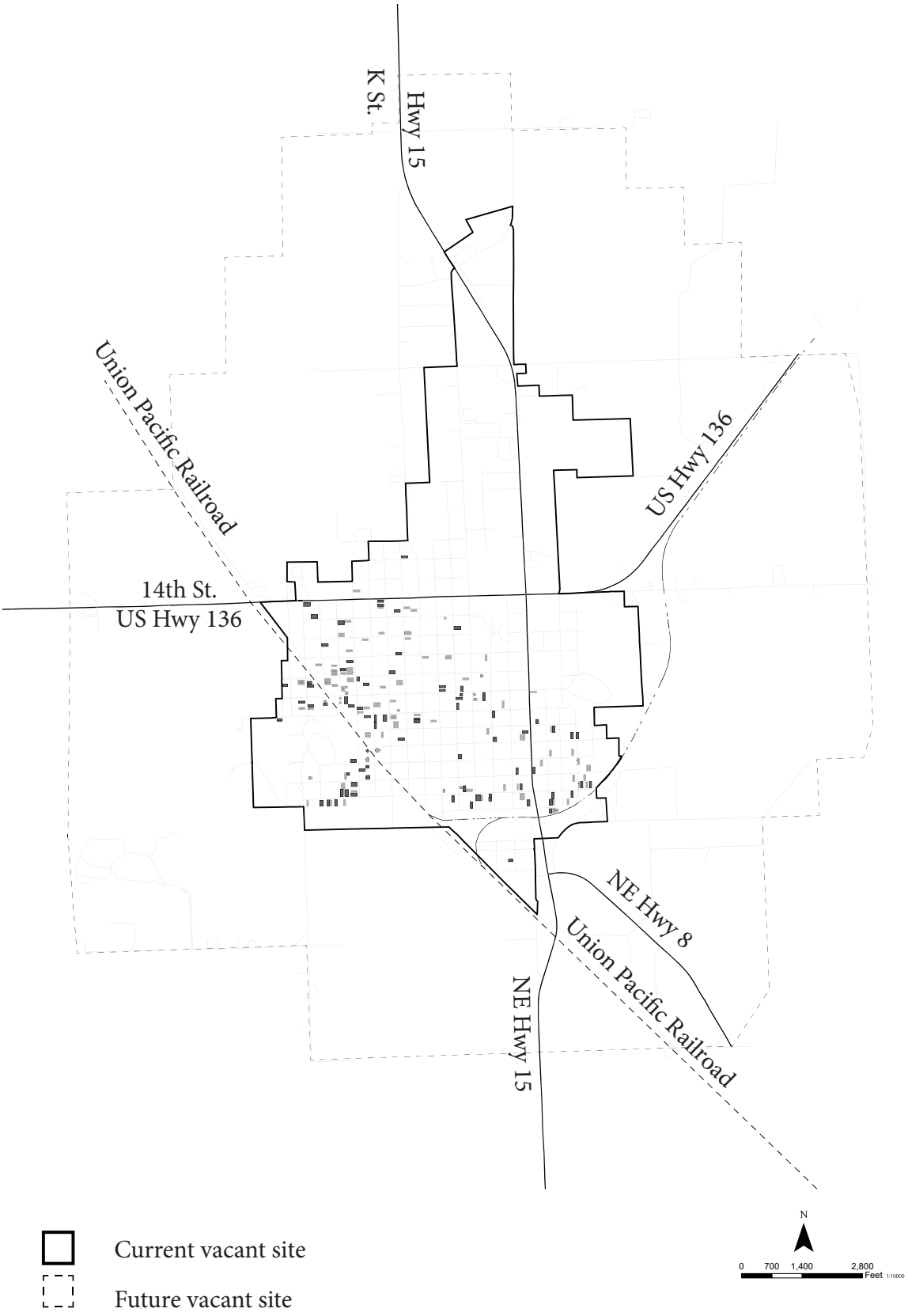
Figure 34 the city of Fairbury



86 sites
Figure 35 current vacant sites



80 sites
Figure 36 future vacant sites



166 sites
Figure 37 current and future vacant sites

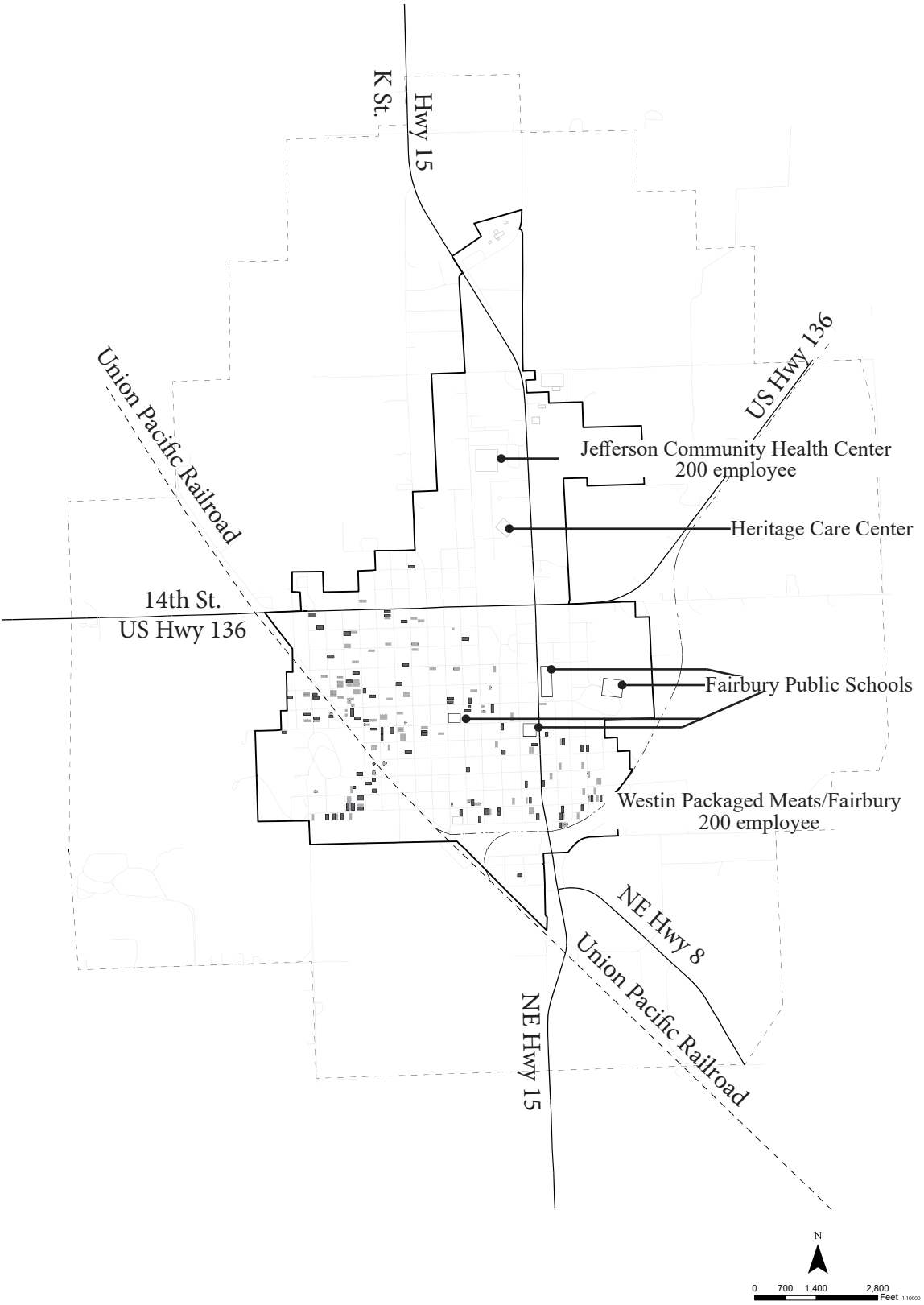


Figure 38 major industries

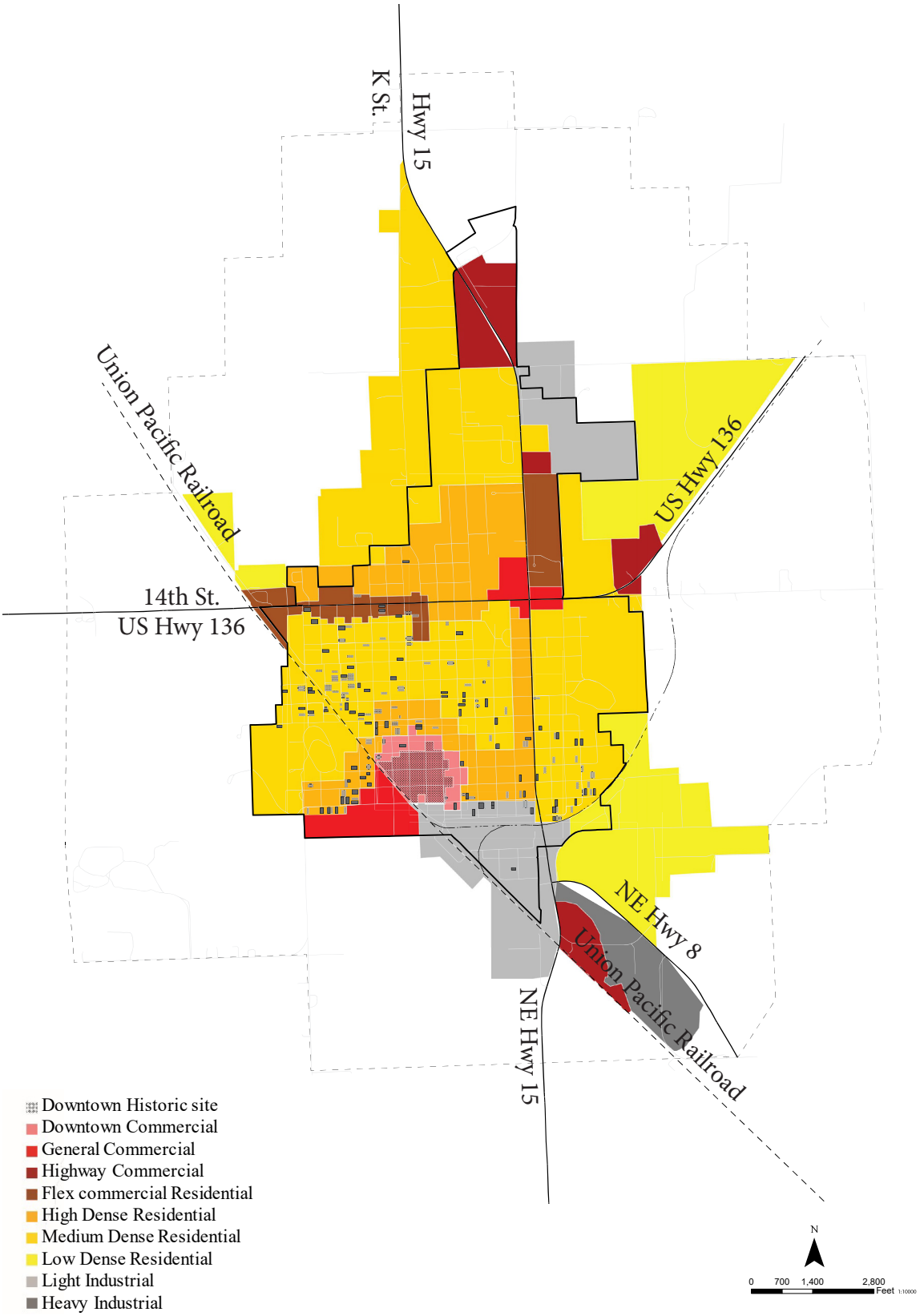


Figure 39 Zoning ordinances

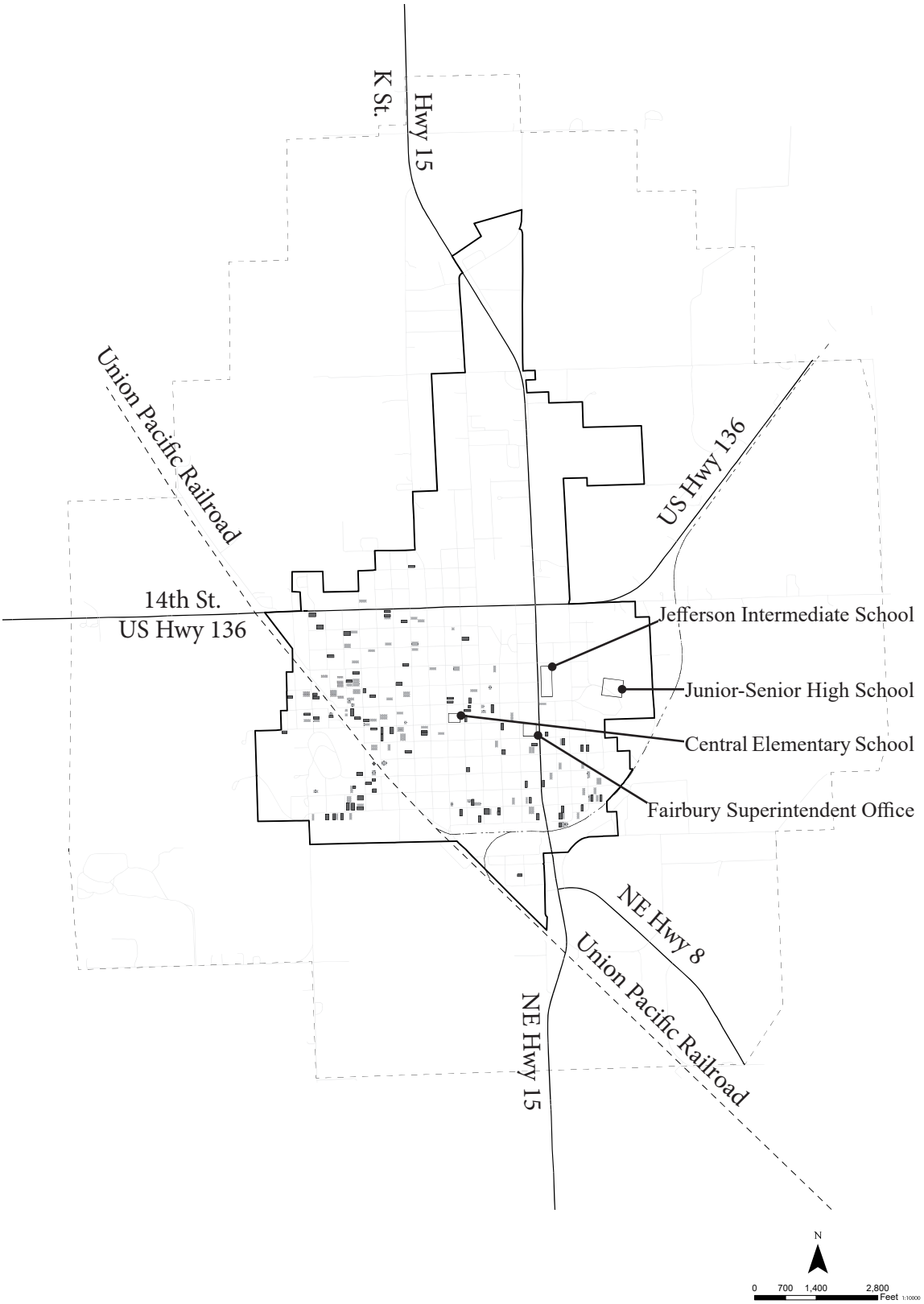


Figure 40 Schools

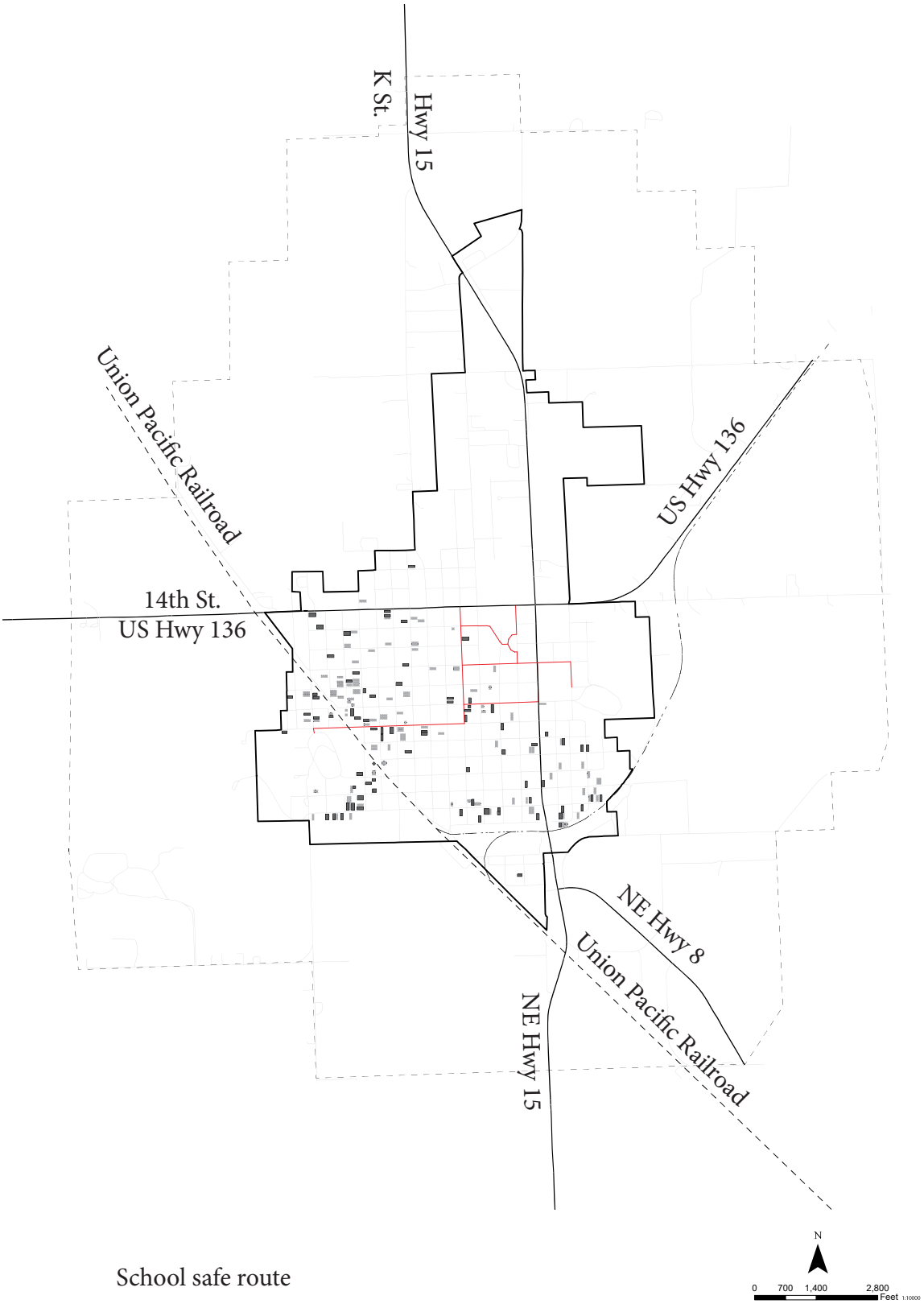


Figure 41 school safe route

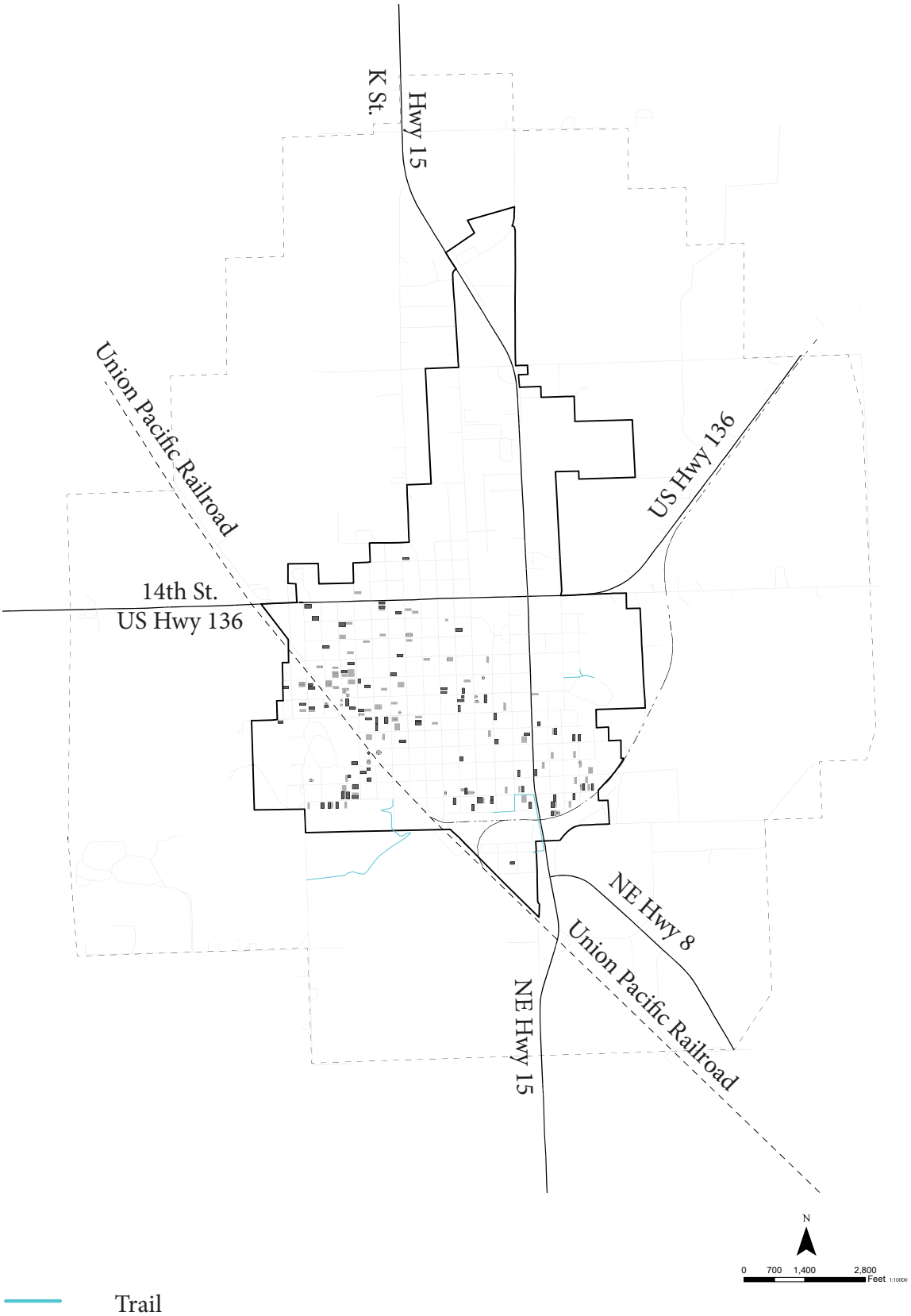


Figure 42 Trails

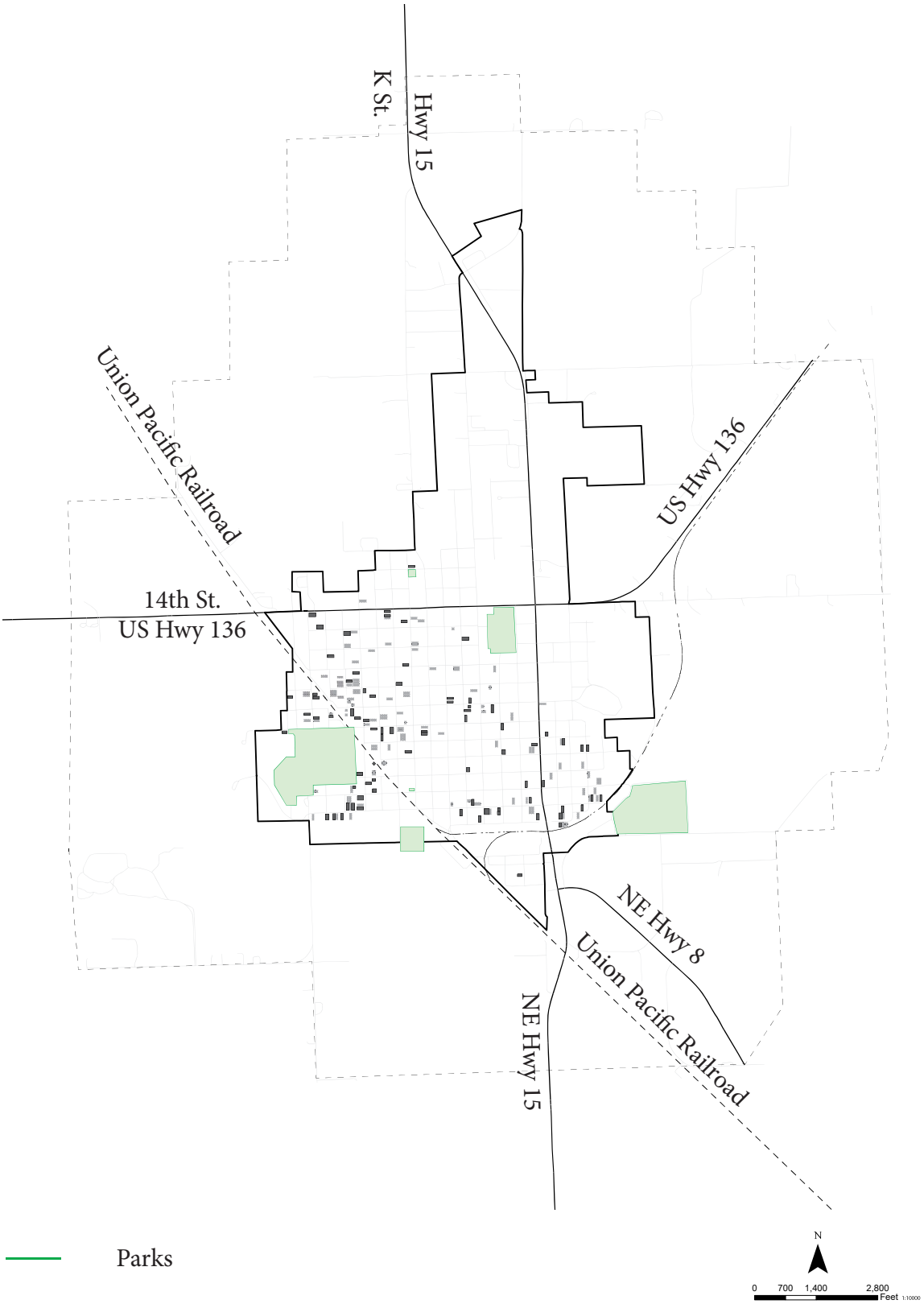


Figure 43 parks

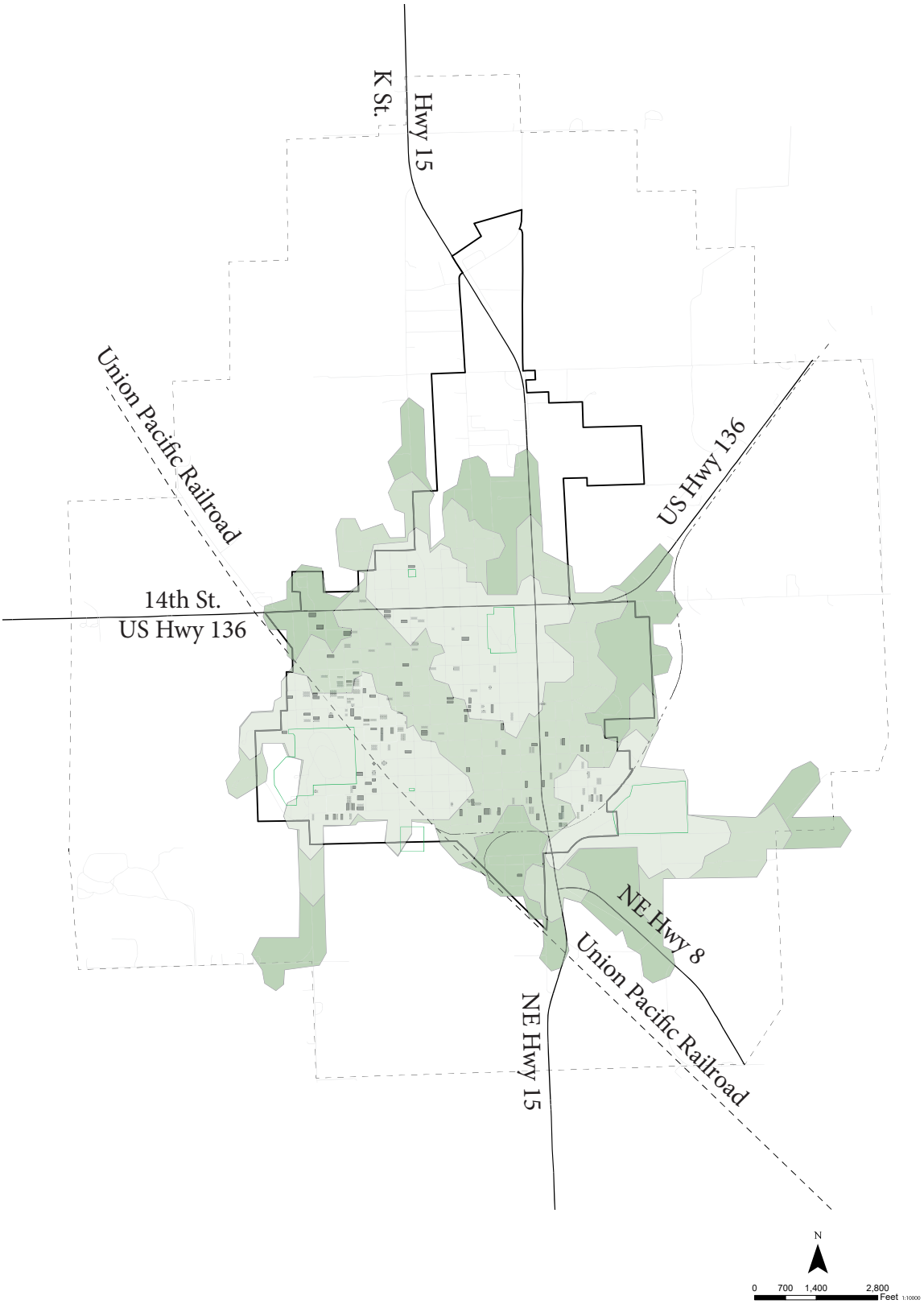


Figure 44 Park and walkability

2.6. Plans

Implementing techniques in the urban to enhance the experience of the environment in the city for its residents.

Urban acupuncture

Tactical urbanism

CHAPTER 3:

FAIRBURY

3. Fairbury, NE – town inventory

Meeting the mayor

The city's mayor, Homer Ward, is a friendly welcoming person. I met him at the historic downtown district coffee shop (see Figure 45). He sat with me for more than an hour and answered my questions. He gave me a brief history of the city. Also, Mr. Ward has a plan to fix the abandoned building problem in the city with a vision.

Figure 45 Meeting Fairbury's mayor Mr. Homer Ward

Meeting with the city administrator

The city has a plan for the abandoned building. It is already started to demo a lot of them. I schedule a meeting with the city administrator to ask about the city's future plans for the vacant lots. The city is thinking of completing the current phase which is to continue demolishing abandoned buildings. There is no plan after that for the vacant sites. (Bielser 2019)

3.1. Demo process

Demolition process differs from city to city, from community to community. For example, some cities, like Sidney, Nebraska, deconstruct abandoned buildings (Tangeman 2017). Other cities tear the buildings down and throw the materials away. The city of Fairbury takes the whole building down after inspection of asbestos. That's because in most cases there have no material to be re-used or recycled. The abandoned buildings and their materials are beyond repair. The city has its own equipment. It also pays and operates the process of demolition.

3.2. Vacant sites

The city has 88 vacant sites. These vacant sites are a result of abandonment. Although some of the sites are vacant and legally belong to their owners, who have not showed up. Some of the sites are being used by their neighbors (see Figure 46, Figure 47).

Figure 46 Lot acquired by its neighbor's

Figure 47 Lot is used as a playground

Moreover, other sites have been acquired and are still vacant, but most of them are left without a plan.

First look

There are a lot of vacant sites. Furthermore, there are a lot of abandoned and dangerous buildings still standing and on the brink of collapse (see Figure 48).

Figure 48 Some of the abandoned building that is waiting to be demolished

3.3. Other shrinking cities' strategy

Cities are giving land for free. Others have a program to attract people to live there and buy land.

Mow to own program

Some cities, like Beatrice, NE and St. Louis, MO have programs of mow to own (BeatriceDailySun.COM 2019). The program has a list of requirements like taking care of the vacant lots next to yours and mow it regularly, and after a while, the lot becomes yours. According to St. Louis program of mow to own, the 'Mow to Own' Program is designed for City residents who wish to acquire a vacant lot owned by LRA. The

program also says that, after twenty-four months, if there are no findings of violation from the City's Forestry Division and no complaints, LRA will remove the maintenance lien and the owner will own the property (STLouis-MO.GOV).

3.4. Layers and Inventory

The goal of this step is to put a strategy to find lots with an opportunity to bring a better environment for the city's residents and their wellbeing using the three basic layers of urbanism which are infrastructure, ecology, and logistics. Geoffrey Thun and Kathy Velikov state in Infra Eco Logi Urbanism about the three layers of every city that can be connected and analyzed to find opportunities and links (Thün et al. 2015). The authors talk about the three aspects of urbanism, Infrastructure, Ecology, and Logistics. The idea is to take advantage of the existing infrastructure to create a logistics system in the ecology.

The most important idea to relate to Fairbury is to take advantage of different aspects to link them to create a better life. Those vacant lots have a connection to each other. We can take advantage of those links by putting the city's layers to understand and connect the vacant sites network.

In order to find the perfect opportunity, the inventory of the city is visualized in a variety of layers. Fairbury started with a railroad station. Then, it grew to include the intersection of the two highways, Nebraska highway 15 and US highway 136. The new development in the town takes place in the north part of the city. The most recent comprehensive development plan for the city was done in 2013 (Associates and

Consultants 2013). The plan was developed by Olsson Associates and Marvin Planning Consultants. This plan drew the city's existing condition and future vision and needs.

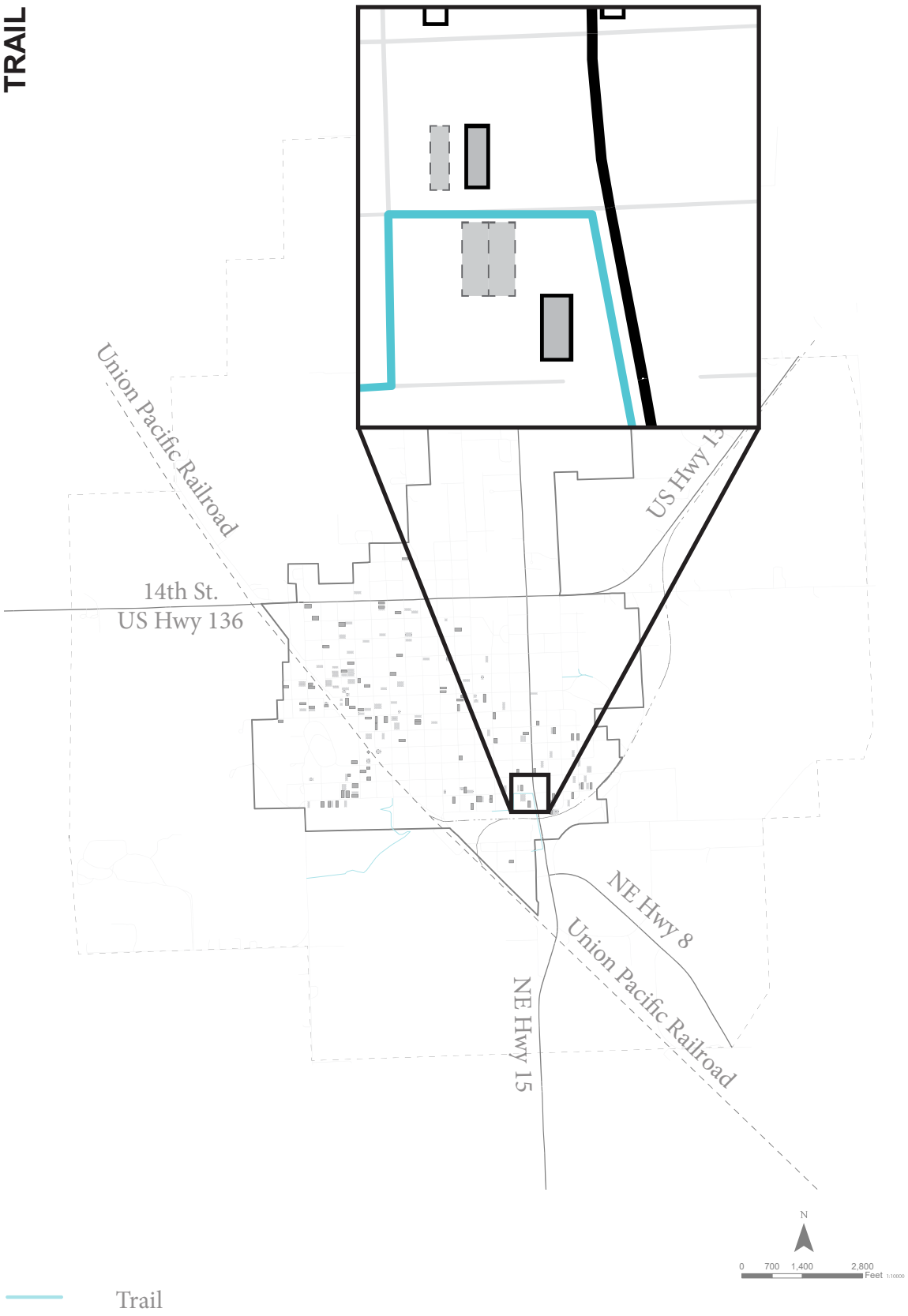


Figure 49 vacant sites could be utilizes for trails

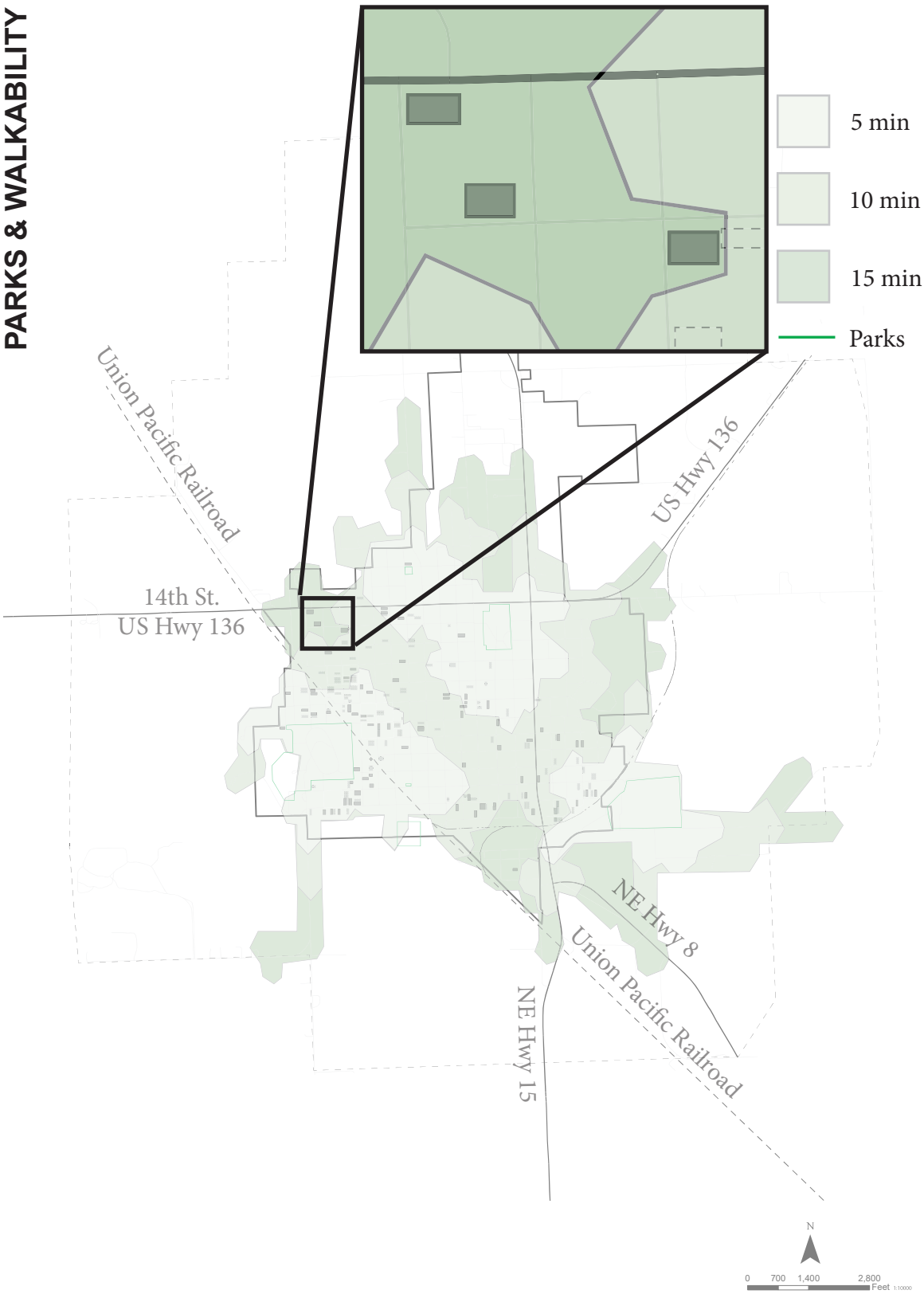


Figure 50 vacant sites could be utilizing for parks and walkability

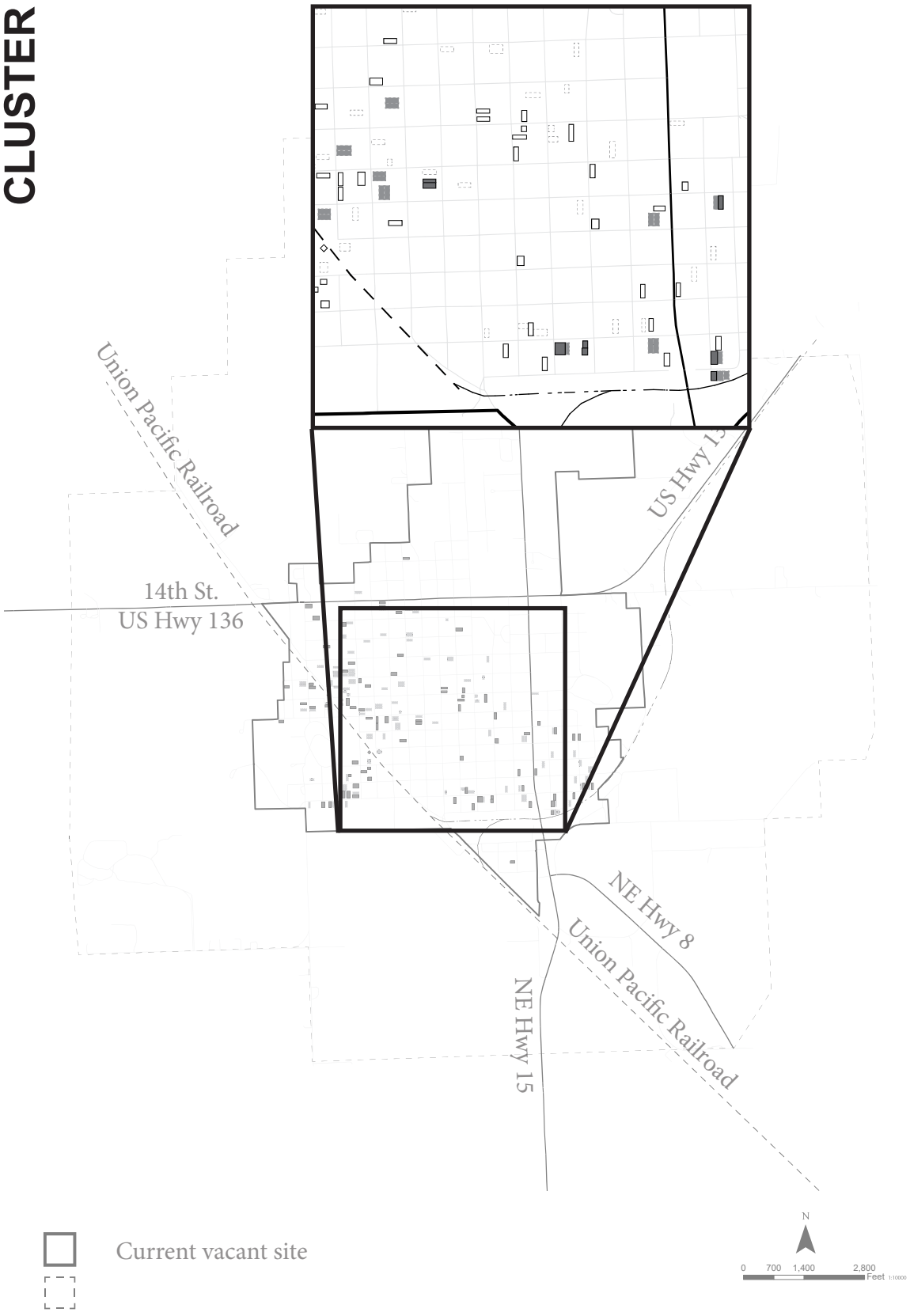


Figure 51 vacant sites could be utilizing for clustering

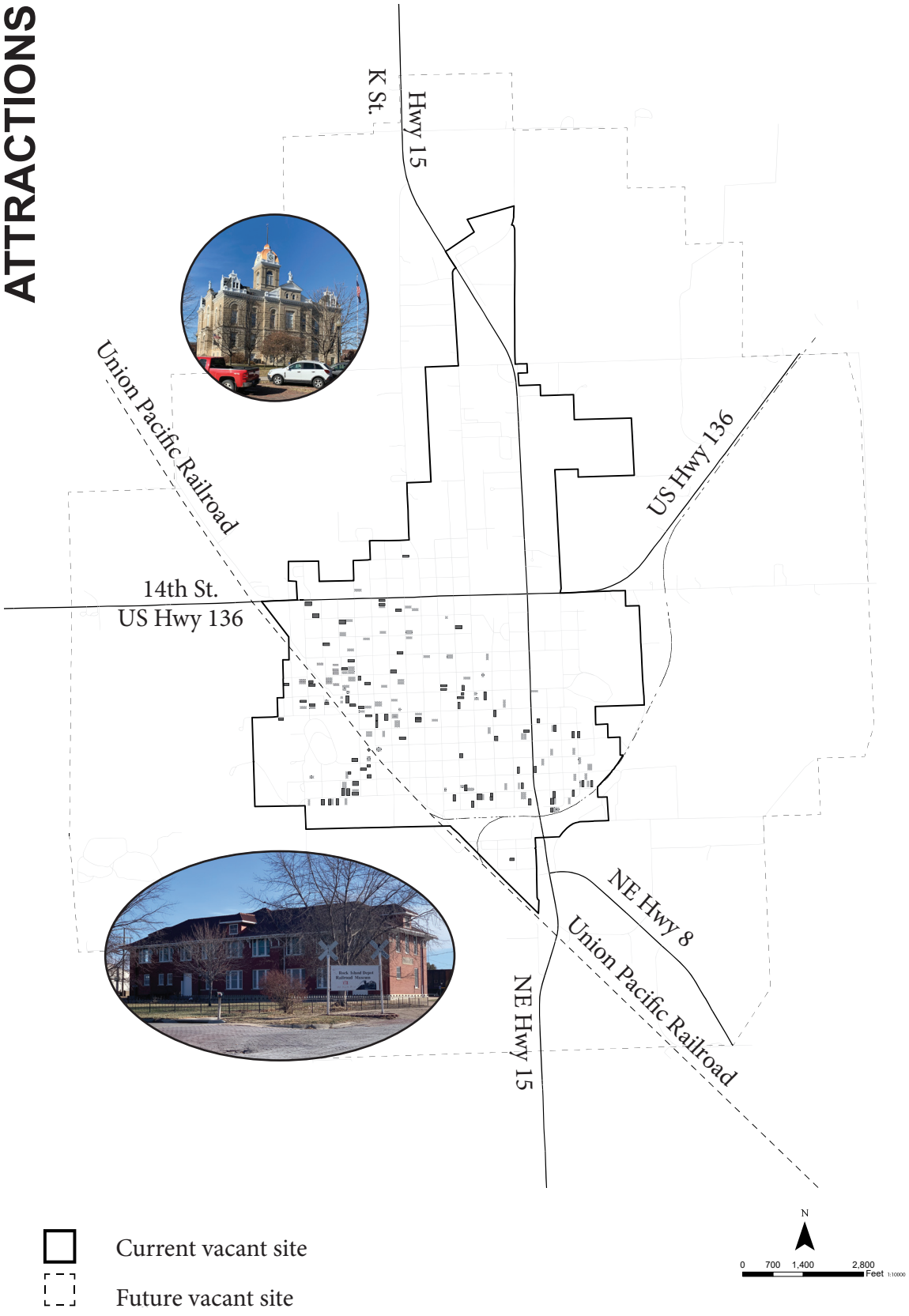


Figure 52 vacant sites could be utilizing for attractions

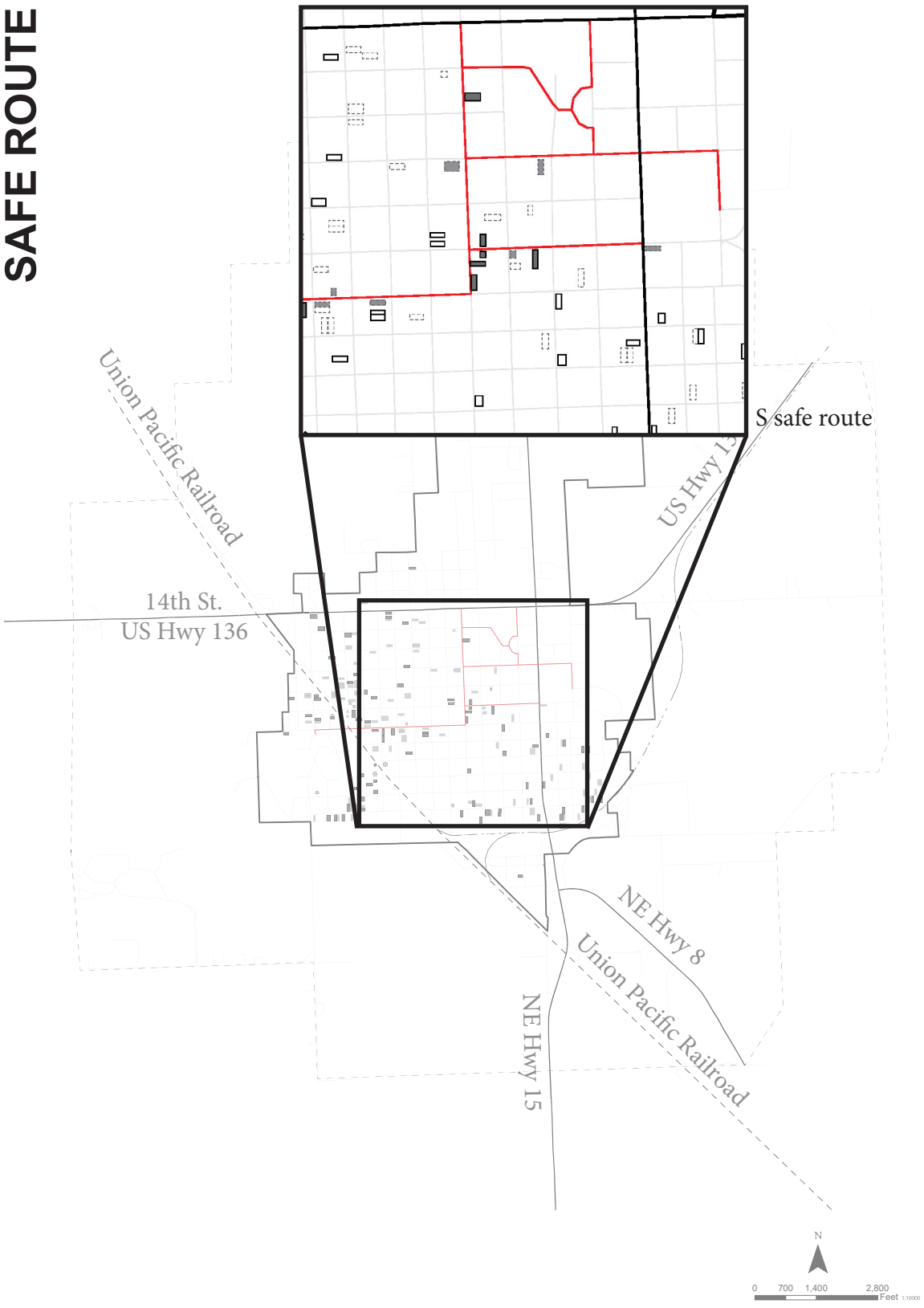
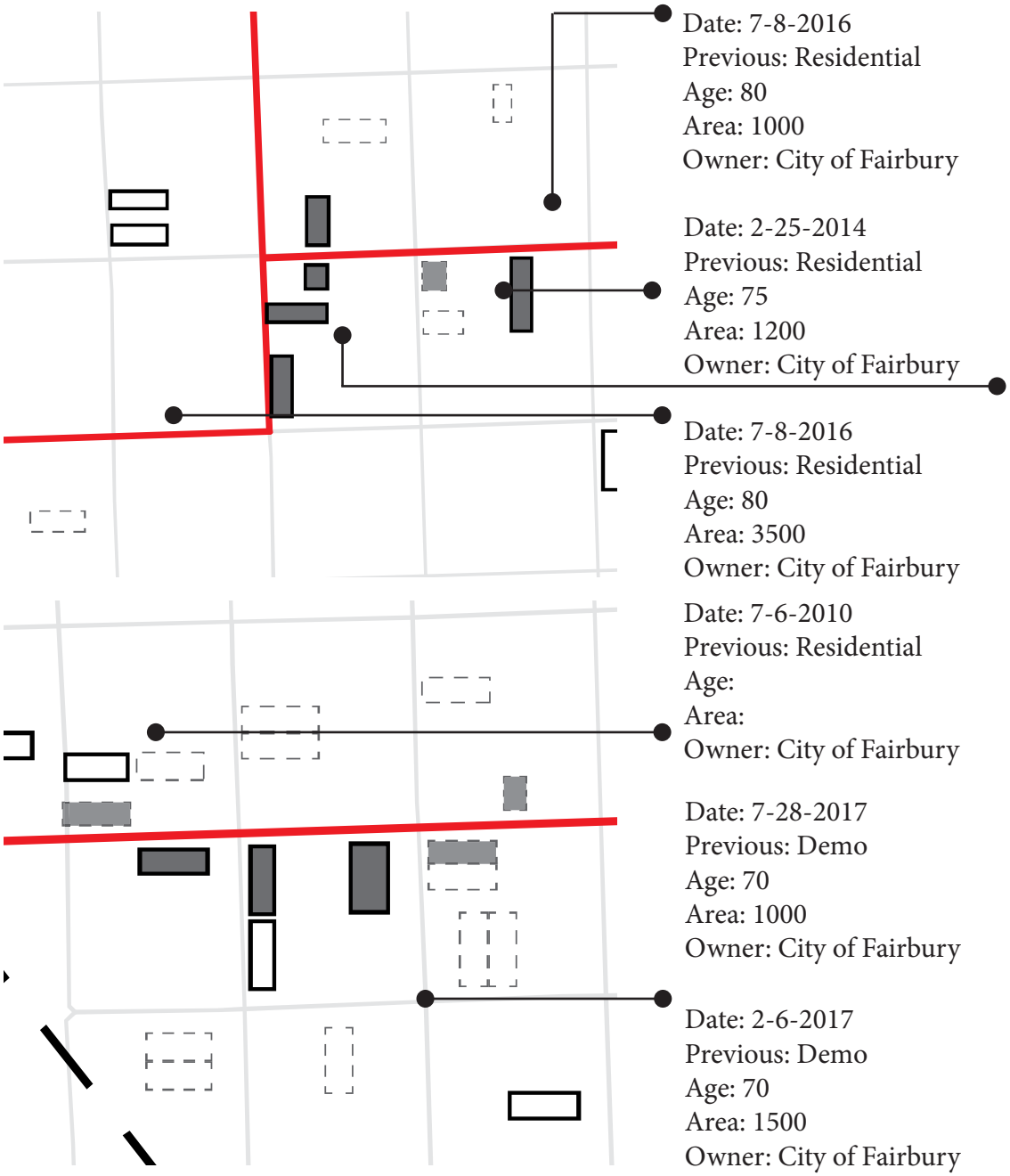


Figure 53 vacant sites could be utilizing for safe school route



Safe school route study

Figure 54 some details of vacant sites at the route

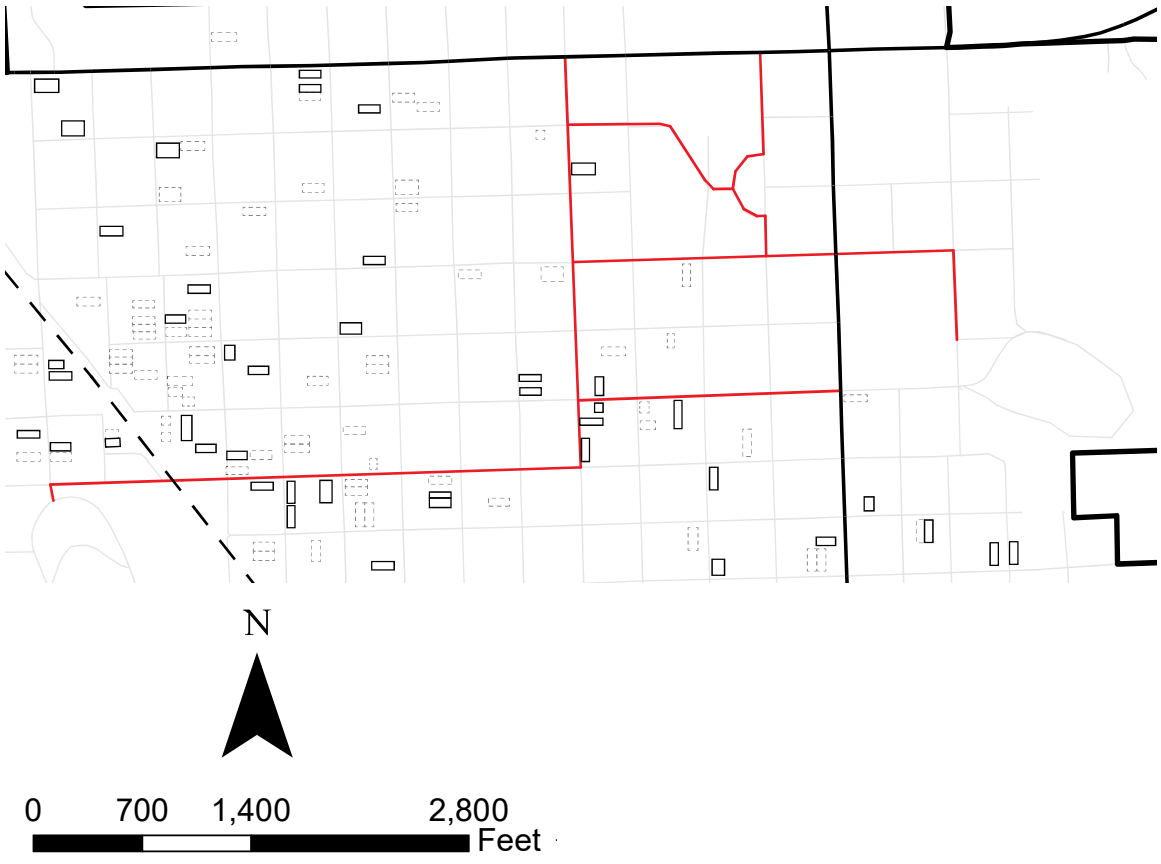


Figure 55 safe school route

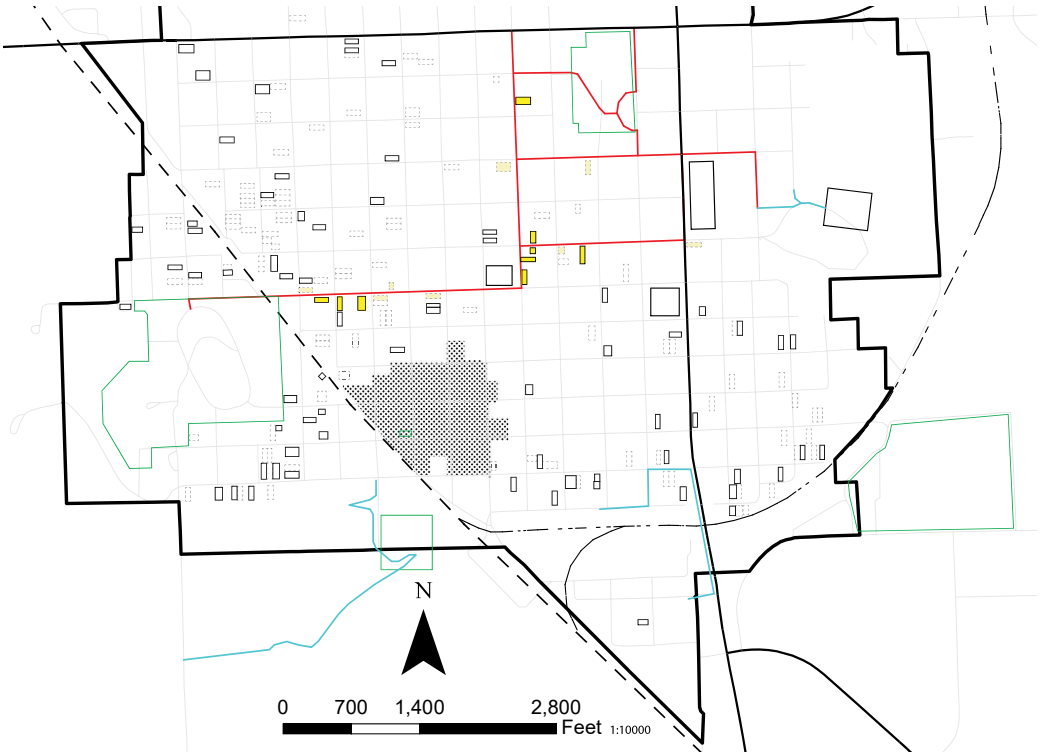


Figure 56 zoomed safe school route for current and future vacant sites

Layers outcome

There are a few chances and opportunities that the city can take advantage of between those layers. First, trail layer has a few vacant sites that are at the trail in the south (see Figure 49). Second, park and walkability layer reveal that there are a few vacant sites out of the walkable distance from any park (see Figure 50). This means that those sites could be repurpose as a block small park. Third, cluster layer shows several potential site clusters (see Figure 51). Some could cluster three neighboring sites and two for others. Fourth, attraction layer shows vacant sites near attraction (see Figure 52). The city has several attraction spots that vacant sites could be repurposed like in Jefferson County District Court Clerk and Rock Island Railroad Depot. Fifth, safe school route layer is correlate with school and downtown historic district (see Figure 53). This layer shows the most promising impact for revitalizing vacant sites to have the biggest impact on community. Sites on the safe school route has been analyzed and categorize for further studying.

Lots and programs

The targeted layer of all of those mentioned before is safe school route (see Figure 54) (Associates and Architecture 2016). After choosing the lots that have the most impact on the city and life in it, it is important to study the option before assigning a program in a lot for a proposal (see Figure 55 and Figure 56).

From Fallow

Jill Desimini wrote a book called *From Fallow*. The book is a collection of 100 ideas for abandoned properties. The chosen collection is analyzed and documented in order to explain each case of abandonment in its context and the benefits of those architecture programs for the community.

The author is a landscape architect and associate professor at Harvard's Graduate School of Design. Her current research investigates design strategies for abandoned landscapes (Desimini 2019).

This source is very important to this study as it gives the study the frame of systematic methodology. The book states a specific explanation of each lot situation from different aspects like input, environment, user, and size. Inputs clarify duration, cost, labor, and maintenance. Environments illustrate sun, climate, water, pollution, element, topography, and ground. Users specify demographics like child, teen, adult, and elder. Size accounts for the size of an object, 0.25 acre, 0.25-1 acre, and larger. Those categorizations are used to help choose the best program on the lot.

Those ideas can help us choose the program and select the right program based on a methodology. The projects in this collection can be categorized in several ways. The

most important factors of categorization are size, users, and environment. Some projects take an area of 1 square mile. Filtering those large size projects to have projects that can be utilized and implemented in the size of vacant lots in the city.

In order to select the one project that best fit a lot, some measures were taken in consideration. There are 100 ideas of projects that can be used to fit vacant sites. The map of the vacant sites in the city shows the location and size. After filtering the size of the lot, the smallest property is slightly above 6,000 square feet and the largest property is almost 13,500 square feet. After filtering the size of property, the remaining ideas of the initial 100 are around 40 different projects. Adding the two filters of users and history of the city gives the project a purpose and meaning.

The needs of community should be understood through evaluating the current situation. The city has a variety of activities at the edge of the city and outside. In order to provide children a safe school route, they must experience the sense of safety by walking in a friendly atmosphere with appropriate and essential activities. There are some children activities far from the children's safe walking distance from school to home.

Existing playgrounds and parks for children are far from schools. The closest place for children is McNish Park, which is in the north side of the safe school route. The park provides a variety of options for adults like a Disc Golf Course and Tennis Court. On the other hand, there are a few options for children like Playground. Moreover, activities and parks for adults are scattered in several parks that are accessible for adults using cars. While children must go with parents to be able to use other facilities that were built specially for children. For example, there is no mini golf for kids in the city.

After evaluating the current condition of the lack of children's-based activities, vacant sites should accommodate children friendly environment to give them a feel of safety.

CHAPTER 4:

REVIVE SAFE SCHOOL ROUTE PORPOSAL

4. Safe School route

Safe school route is a very important component in every city (see Figure 57). The purpose of this route is to give children and students the ability to walk across town in a friendly environment and safe path. The city of Fairbury has a designated safe school route mapped. (Associates and Architecture 2016)

The safe route in Fairbury starts form schools in the middle of the city to the west and east sides of the city. It also goes a little bit to the north side, where most of the residents and new development are.

It starts at the high school and goes across highway 15 with the middle school. After that it spreads either north to McNish Park or to the elementary school and then goes to the other part of town to Fairbury City Park.

Vacant sites at the route

There are several vacant sites on this route. 17 sites are located along the route. Nine of those sites are current vacant sites. The rest are future vacant sites form the city's list of abandoned buildings that are going to be demolished (Bedlan 2020).

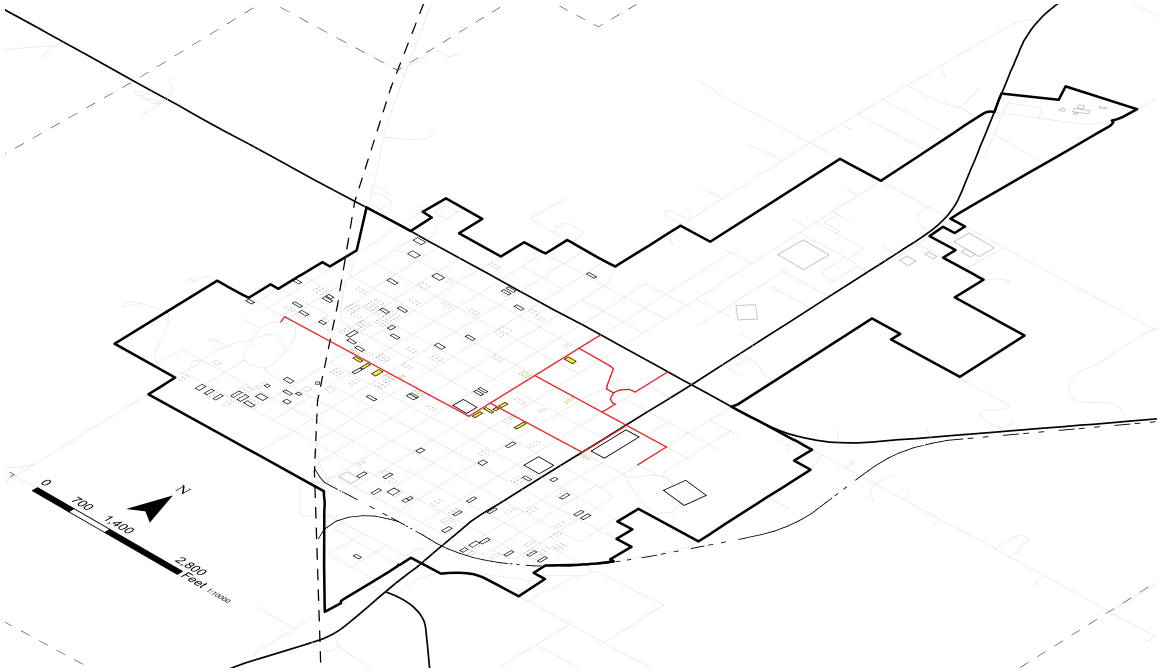


Figure 57 city map and safe school route

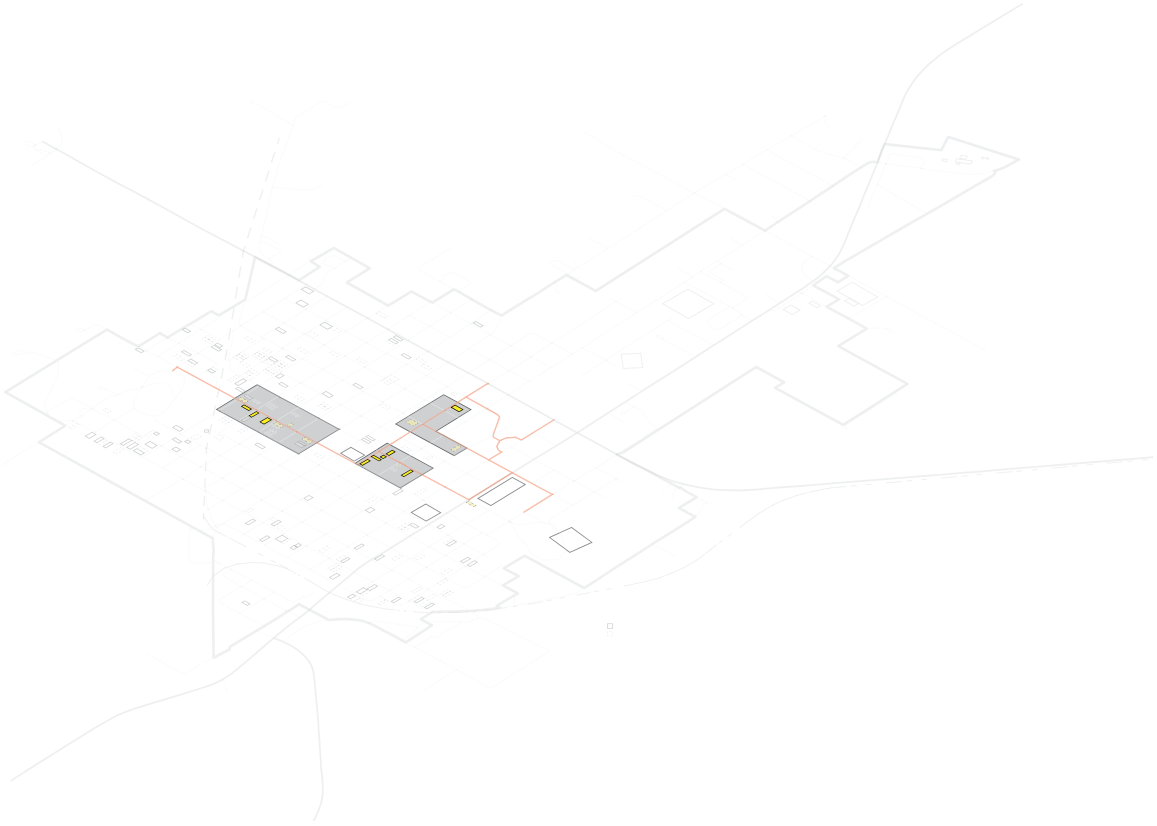


Figure 58 categorize vacant sites by location in three groups

4.1. Importance – goals

Those sites could give children and surrounding residents a better experience and feel of safety. Given the current situation and future plans, a proposal has been mapped for the goal of revitalizing the route and to give the children a safe walkable environment by implementing a small program that enhances the overall safe experience. It is also important to have the parents' point of view in choosing the best fit.

4.2. Spatial correlation with sites

Analyze vacant sites which are located along the safe route. The safe route goes through different types of environments and different kinds of zones. The path is divided into three zones to fit in the grand story of the walking path (see Figure 58).

scenarios

Repopulating
Phase III

After 15 or 20 years, when the town start growing again those lots can have several scenario

safe school route

Future vacant sites
Phase II

2030 all buildings is demoed

By 2030 population projection indecates decreasing in population

future vacant sites to be developed

Demo

Current vacant sites
Phase I

2010 Fairbury started demo

By 2020 total of 86 buildings has been demoed
on average of 7/Y

Urban acupuncture

Methods
key characteristics

Size -
5k sft, 10k sft, more
Environment -
climate, element, ground
Poeple -
children, teen, adult, elder

Framework

4.3. Phases

The city is halfway through the phase where all abandoned buildings have been demoed. So, what next?

Phase I

Demolish abandoned buildings.

Started in 2010. By 2020, 88 buildings will have been demolished. This amounts to an average of 7 buildings a year.

Revitalize the safe school route.

Phase II

Continue demolishing abandoned buildings. By 2030, all abandoned buildings will be demolished.

Phase III

In this phase, whenever the population starts to grow back, redevelop those vacant sites. There are two scenarios:

First scenario prioritizes developing residential project in those lots first.

The other scenario is to develop other lots around it.

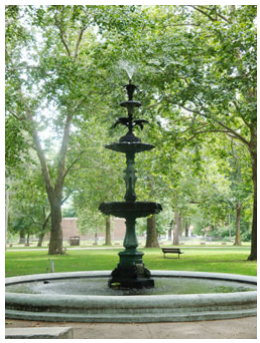
(see page 82)

4.4. Methods

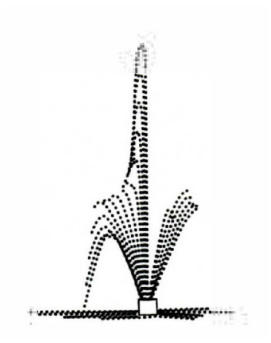
There are a lot of programs that can fit vacant sites and serve the purpose of activating the community (Desimini 2019). Moreover, the method of filtering and choosing the best fit for these sites have been produced. First is the size of the site. Each architecture program requires an area to accommodate its requirements and facilities. Second is the type of users. The location of the site and its importance and surroundings could influence the choice. Third is the history behind the site. The city has a rich strong history and that is beneficial in going through a guided map of the history of the city.

Size, environment, users.

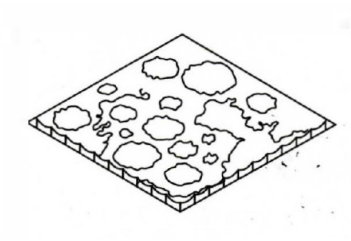
For instance, mini golf course for kids, there is no golf course for kids. A mini golf course for children requires a large lot. Active surface of water, McNish Park has a historic fountain. Moreover, there is no water surface that activates children. Moving fountains is becoming more popular (see pages 85-88).

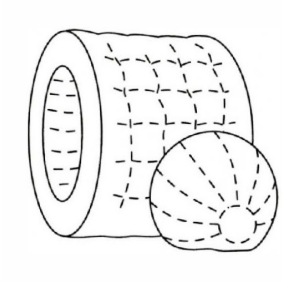


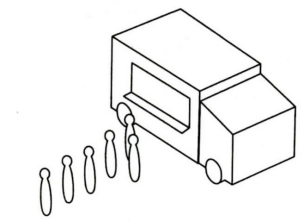
Fountain
the city has a historical fountain in the city park far away from children



Ground Pattern
provide a multitask ground for children to be creative and work their imagination







History Program

Fountain
Size: 5,000 ft²
Environment:
irrigation, water
Poeple:
all
Where: kids and school

Ground Pattern
Size: 5,000 ft² 10,000 ft²
Environment:
day
Poeple:
all
Where: kids, school, downtown

Inflate
Size: 5,000 ft² -more

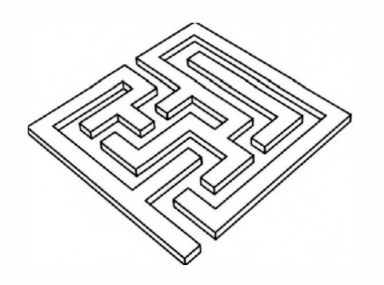
Poeple:
children - teen - adult
Where: kids and school

Food Truck
Size: 10,000 ft² - more
Environment:
day, night
Poeple:
children, teen, adult
Where: kids, school, downtown

Picnic Ground
Size: 10,000 ft² - more
Environment:
day, night,
Poeple:
all
Where: kids, school, downtown

Method Future

maze
active
mystery



children can learn from the botanical garden

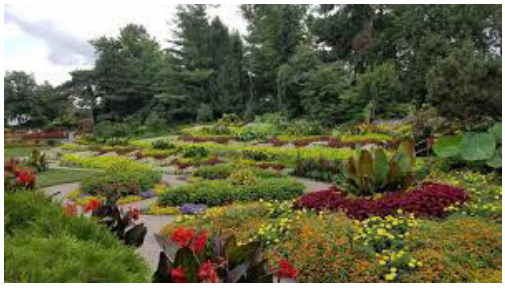
far from children
for adult

History Program

Bike share
Size: 5,000 ft² - 10,000 ft²
Environment:
day, paved
Poeple:
children - teen - adult
Where: kids and school

Labyrinth
Size: more
Environment:
tree, grass
Poeple:
children - teen - adult - elder
Where: kids and school

Botanical Garden
Size: more
Environment:
day, rain, irrigation, hurb, tree
Poeple:
all
Where: kids, school, downtown



Mini-Golf Course
Size: more
Environment:
day, paved
Poeple:
children - teen - adult
Where: kids, school, downtown

Method Future

4.5. Phase I: proposed revitalize safe route

There are a lot of precedents examples to learn from to apply to this type of projects.

Stories of revitalizing abandonment

1- Highline: New York

The High Line is a public park built on a historic freight rail line elevated above the streets on Manhattan's West Side. Saved from demolition by neighborhood residents and the City of New York, the High Line opened in 2009 as a hybrid public space where visitors experience nature, art, and design (see page 91-92).

Built on a historic, elevated rail line, the High Line was always intended to be more than a park. You can walk through gardens, view art, experience a performance, savor delicious food, or connect with friends and neighbors-all while enjoying a unique perspective of New York City.

The team of James Corner Field Operations (Project Lead), Diller Scofidio + Renfro, and Piet Oudolf design the High Line (HighLine.ORG).

This example of revitalizing a place is not just to repurpose the railroad infrastructure to a park. The highline connects residents and provides them with a livable place that they can share in a safe environment.

Figure 59 highline railway courtesy from https://twistedsifter.com/2011/06/high-line-park-new-york-city/ - Photograph via thehighline.org early 1930s while it was working

Figure 60 abandoned highline railway courtesy from https://twistedsifter.com/2011/06/high-line-park-new-york-city/ Photograph by Joel Sternfield

Figure 61 abandoned highline railway courtesy from https://twistedsifter.com/2011/06/high-line-park-new-york-city/ Photograph via thehighline.org

Figure 62 high line after revitalization, courtesy of https://www.npr.org/2011/09/03/140063103/the-inside-track-on-new-yorks-high-line taken 2011

Figure 63 high line after revitalization, courtesy of https://www.npr.org/2011/09/03/140063103/the-inside-track-on-new-yorks-high-line taken 2011

2- Main street revitalizing

Main Street America has been helping revitalize older and historic commercial districts for 40 years. Today it is a network of more than 1,600 neighborhoods and communities, rural and urban, who share both a commitment to the place and to building stronger communities through preservation-based economic development. Main Street America is a program of the nonprofit National Main Street Center, Inc., a subsidiary of the National Trust for Historic Preservation (MainStreet.ORG). Here are three examples of the revitalization of main street.

Wausau, Wisconsin

"Wausau River District has set an example for communities across the country that are looking to cultivate sustainable, long-term revitalization in their downtown," said National Main Street Center CEO and President Patrice Frey. "They have shown what's possible if you invest in public spaces, expand partnerships and collaborations, diversify funding sources, and launch programs that respond to the needs of your community." (MainStreet.ORG 2019a) (see Figure 64).

Wheeling, West Virginia

"In only a few years, Wheeling Heritage has changed the narrative around what is possible for their downtown," said National Main Street Center President and CEO Patrice Frey (MainStreet.ORG 2019b) (see Figure 65).

Washington, Missouri

Downtown revitalization in a small community can be seen in this example. The city has worked a long way to be in this position. Despite several attempts to bring back life to downtown, now Washington has more than 500 buildings on the National Register

of Historic Places. Organization and government worked together to make this happen. There is almost no vacancy in shops and the town's historic brick buildings have been renovated. Restaurants and galleries fill the town's historic brick buildings, and a boom in residential construction has produced renovated apartments in Washington's signature century-old brick buildings as well as new townhomes rising from the site of a one-time industrial plant overlooking the river (MainStreet.org).

Most of those examples became a place for crimes with its abandonments. Giving life back to those places made it more friendly.

Grants

The fund of the vision of revitalizing can cost the community a lot. Moreover, there are different sources of funds that a community can apply for. Agencies like Main Street America provide funds at a federal level and at a state level. Some of those funds and grants, federal are from USDA, EPA, DED, and HUD (Grants.GOV). State level grants in Nebraska are from NDED in CDBG (Nebraska.GOV 2016). Those are some examples, there are more of those funds' programs for revitalizing.

Figure 64 Wausau River District courtesy of https://www.mainstreet.org/mainstreetamerica/mainstreetawards/gamsa/new-item/wausau

Figure 65 Wheeling Heritage courtesy of https://www.mainstreet.org/mainstreetamerica/mainstreetawards/gamsa/new-item/wheeling

Child Journey Through the Safe Route

Narrative

Students while walking in the morning to school will enjoy a sense of security. To go back and take their time by stopping in each one of those activities and reflect (see Figure 66).

Proposed activities are distributed alongside the safe route based on several criteria. Sites closer to school can accommodate projects that require minimal adult supervision. The type of supervision that can be made by school staff in the morning and in the afternoon while coming to school and going back home. Other sites are considered either to not be for children or don’t require supervision (see Figure 67, Figure 68,and Figure 69).

Parents might use and engage in this atmosphere during lunch hour to take a walk and refresh. Also, those programs can accommodate evening activities from the whole family to go out (see Figure 70).

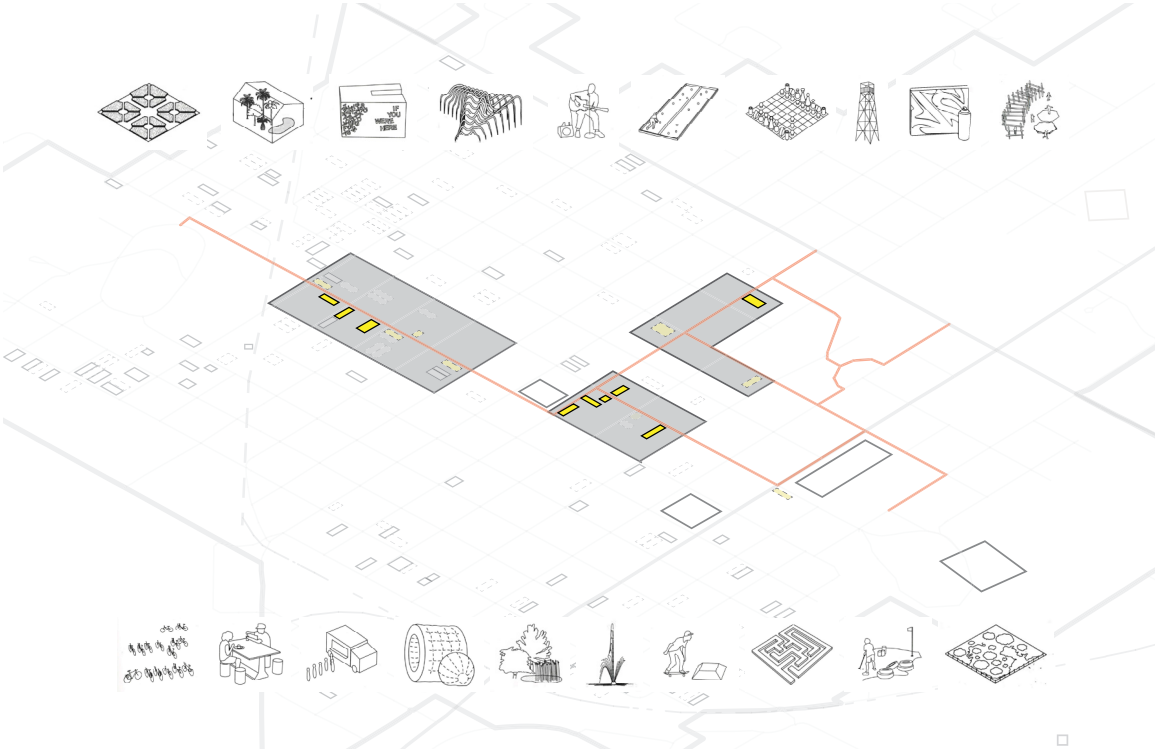


Figure 66 starting to create a narrative for a grand story of the route

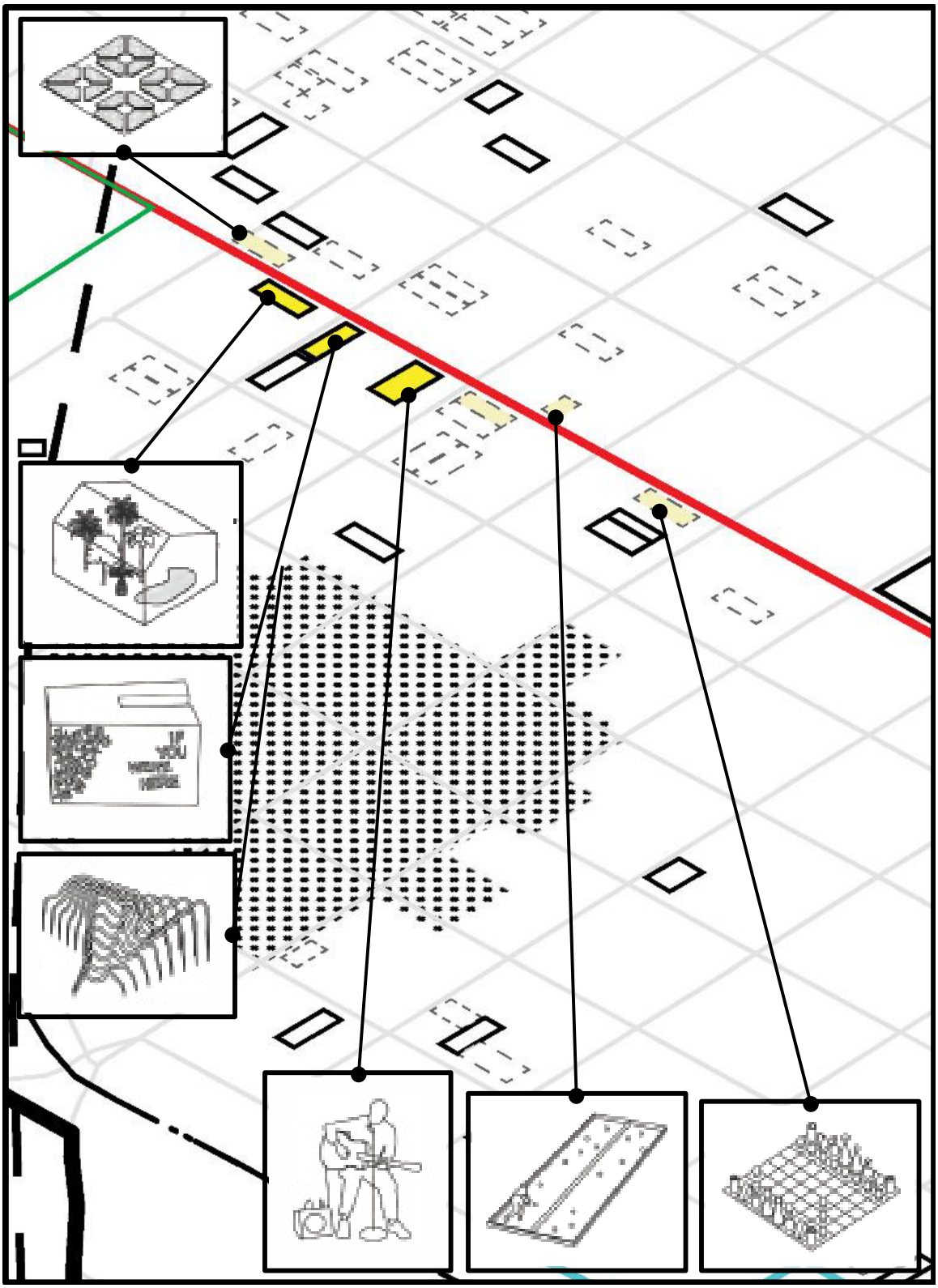


Figure 67 west side of the town, north of downtown area, diversify landscape and architecture to create variety of activities for different demography

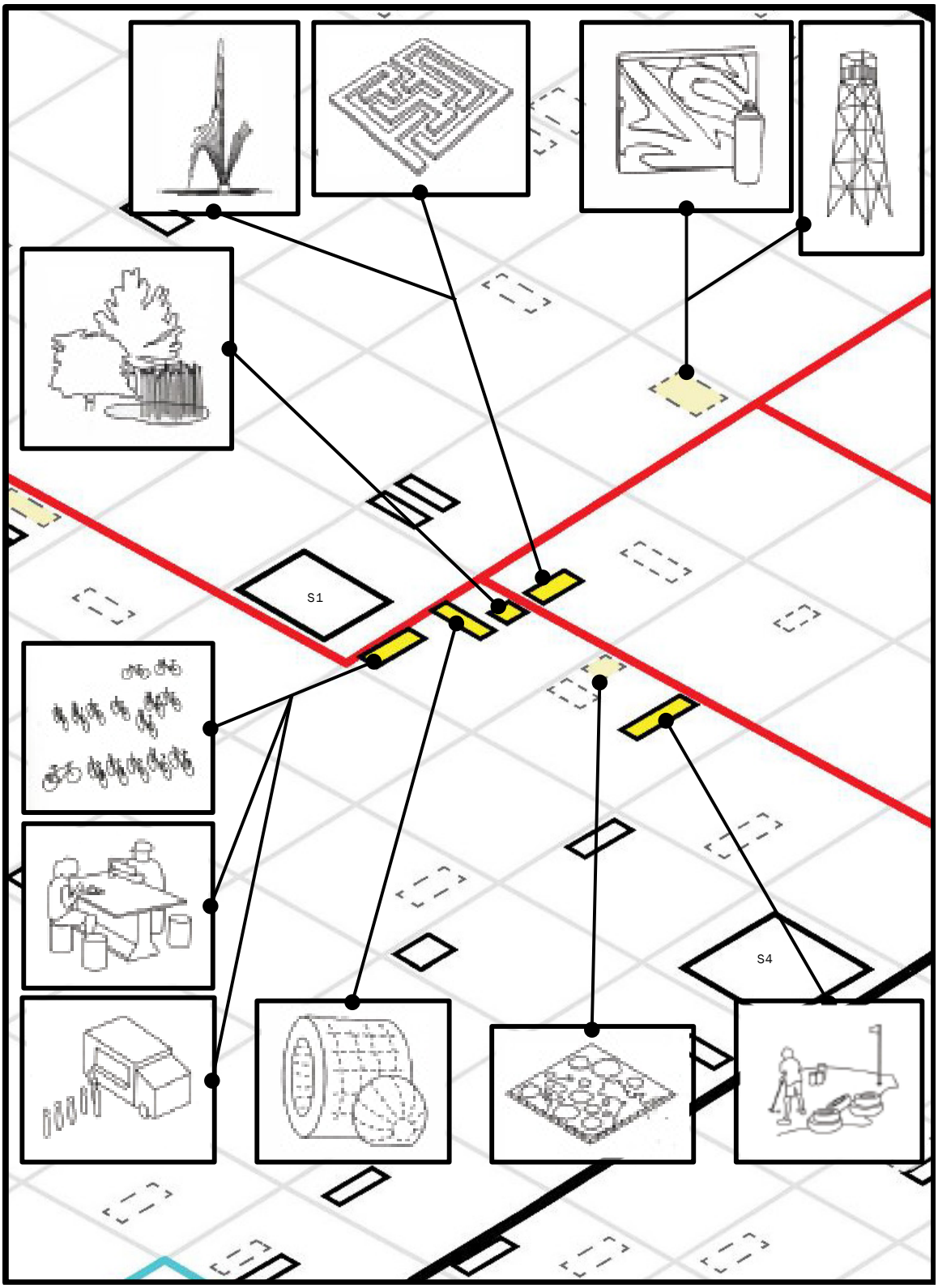


Figure 68 center of the route, near school narrative

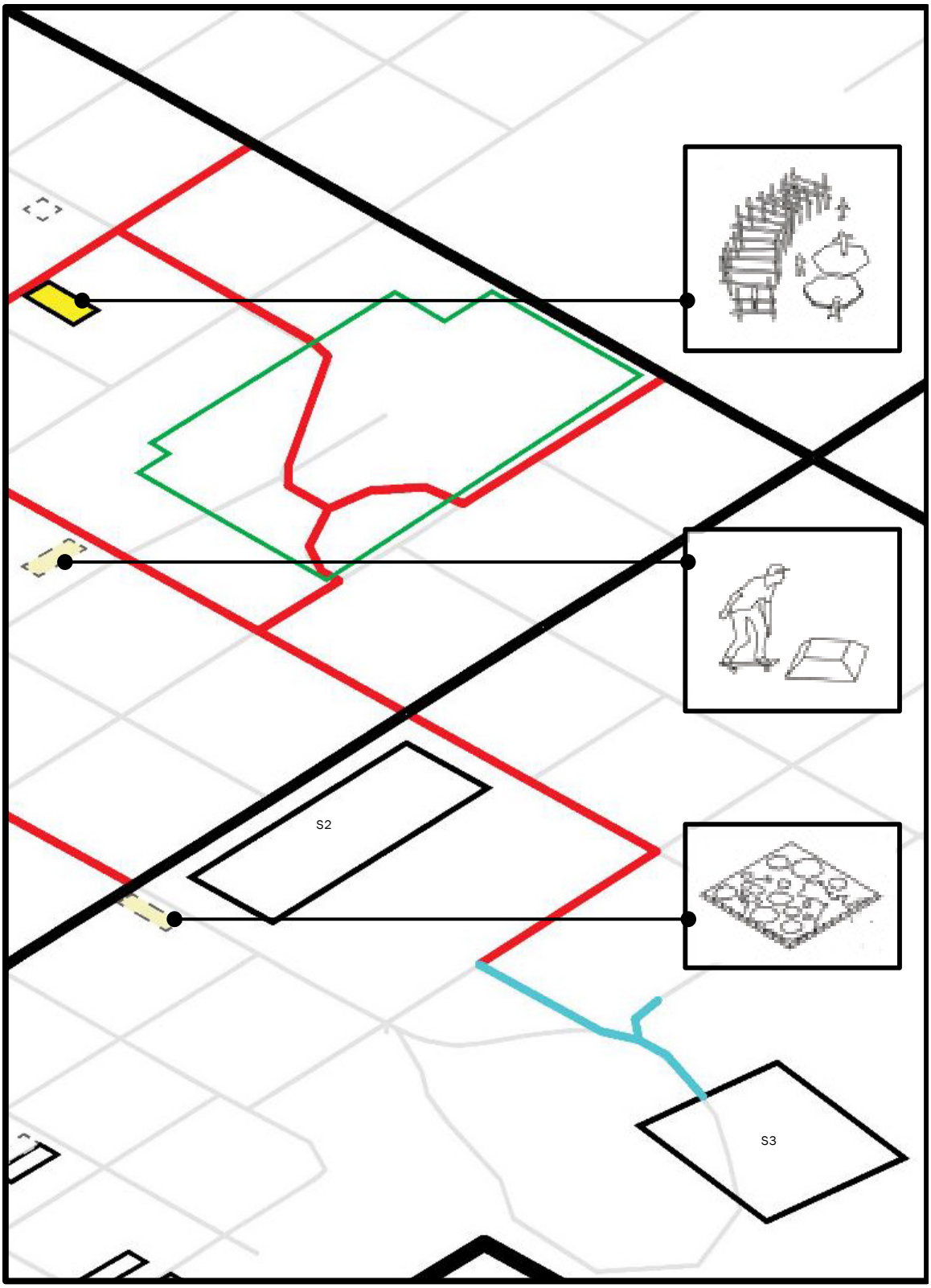


Figure 69 east and north part of the route theme

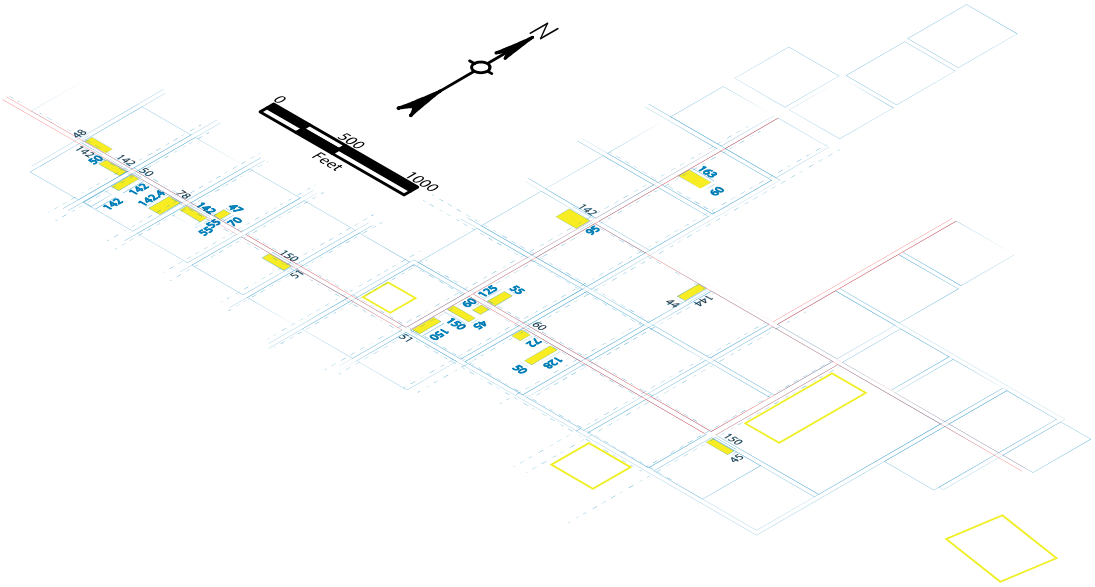


Figure 70 study different aspects of sites like size and location

4.6. Zones

Every zone has its own use theme that fits into the flow of the project's story.

Downtown corridor

North of downtown and the historic district are the safe school route cross paths. At that location there are vacant sites that could have the theme of weekend activities and to accommodate different people and their needs, from children to adults (see Figure 71).

North corridor

North of the schools, there is a group vacant sites that could be used for a range of family activities (see Figure 72).

Central corridor

This group of vacant sites next to the elementary school is the most important for the proposal project as children cross paths with each other closer to school. These sites could have the theme of children. Also, they could have activities for family to be used after school time. Moreover, one of these sites is owned by the city (see Figure 73).

This could be a strong start for revitalizing an urban corridor walking from one side of the city to the other through the downtown area.

Downtown: west corridor

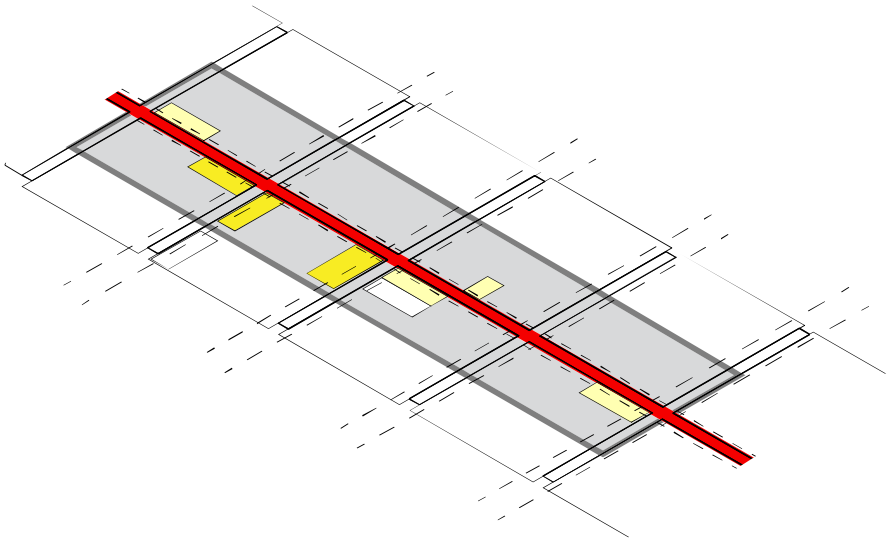


Figure 71 Downtown corridor

North corridor

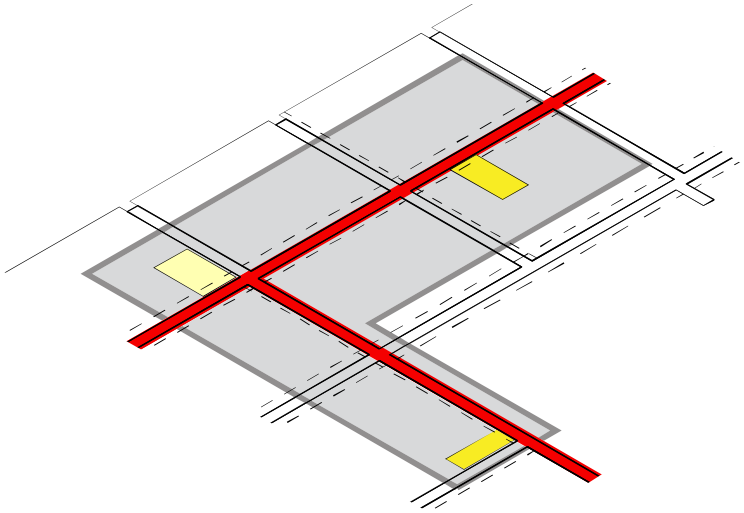


Figure 72 North corridor

Center corridor

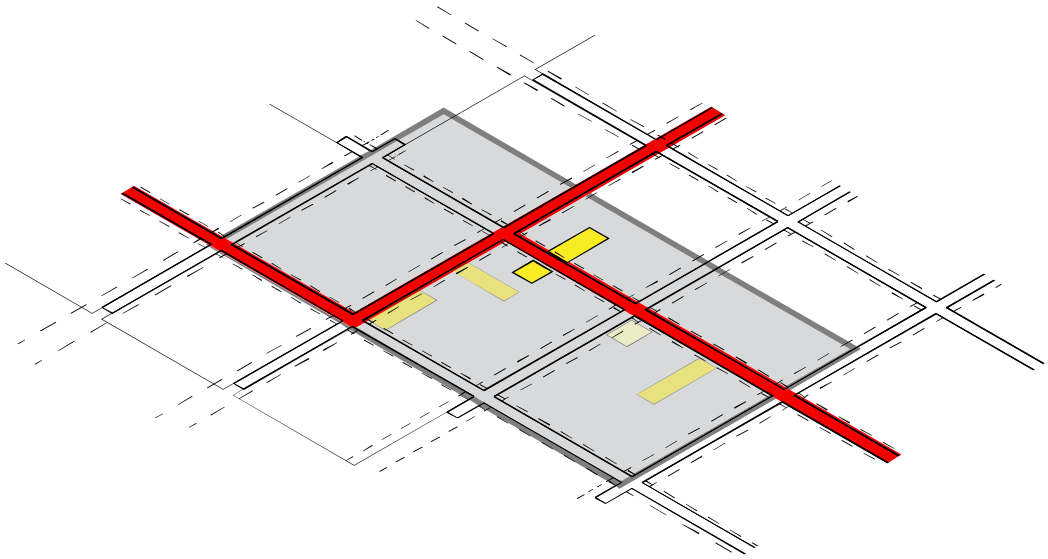


Figure 73 Center corridor

Central corridor buildings and relation to school

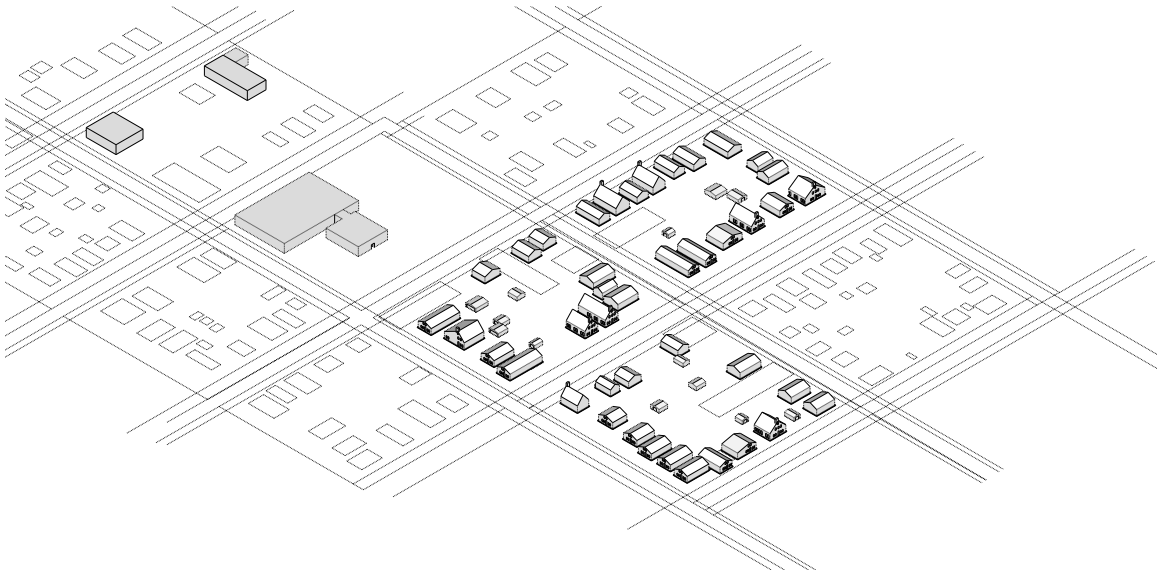


Figure 74 Central corridor buildings and relation to school

School circulation and surroundings

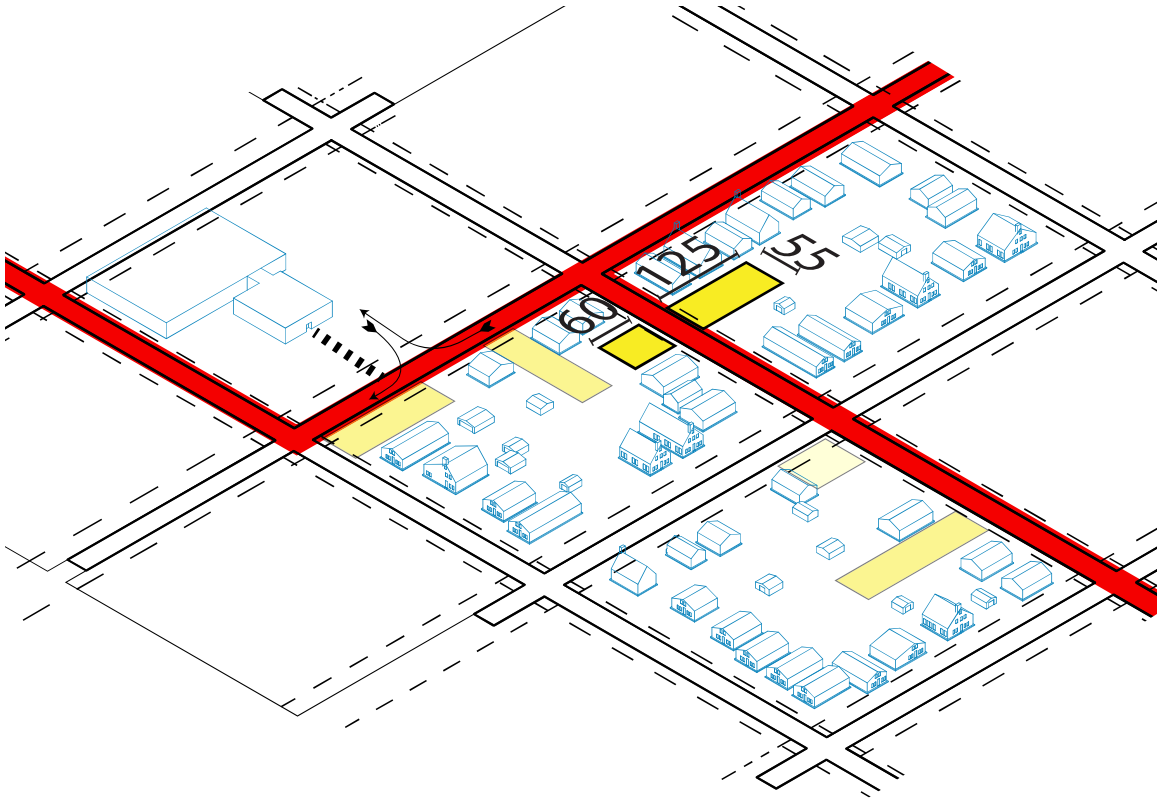
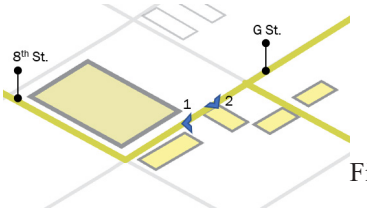


Figure 75 School circulation and surroundings



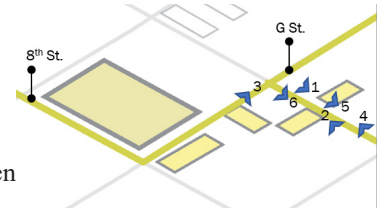


Figure 76 lot no. 80 surroundings taken December 5, 2019

Figure 77 lot no. 80 surroundings taken December 5, 2019

Lots No. C.80

This lot is located at the center corridor (see Figure 74). This lot was chosen to start with because it is owned by the city. It is just 425 feet away from Central Elementary school's front gate (see Figure 75, Figure 76, and Figure 77). Those advantages are the reason why this lot is important. The lot face south on 9th Street covering area of 6,875 ft^2.

Content, maintenance, children vs family and parent, middle school children vs young families with babies, times of day,

Cost and Maintenance

One of the goals of studying and choosing the best option for proposed alternatives is to understand the cost of the proposal. In additional to the methods mentioned earlier, every proposed project is evaluated based on cost, installation labor, and maintenance. Jill Desimini states those in *From Fallow* (Desimini 2019).

There are 4 categories of cost:

- almost nothing
- less than 10k
- 10k – 15k
- More than 50k

Labor required for installation is categorize as the following:

- 1 person
- Many people
- With machinery
- Heavy construction

Maintenance is categorized at:

- Less than yearly
- Yearly/ bi-annual
- Monthly / seasonal
- Daily/ weekly

Applying those filters to evaluate alternatives make a justification when choosing the best fit.

Supervision

The main theme of this zone and corridor is children-based activities. It is required to have a system that keeps children supervised for their safety. These lots are close to the school. That gives it the opportunity being monitored by school staff during children's passing in the morning and going back home afternoon.

Alternatives

Three alternatives have been proposed. It is important to evaluate the pros and cons of with the same methods. Alternatives are evaluated based on size of the site, users of the activity, and location. First alternative is single program for the whole site (see Figure 78). There are several advantages of one program. For example, mini golf course requires a large site. However, when a golf course is constructed at this location, it will use the entire site. On the other hand, having a single program does not attract many users. Second alternative, two different programs on one site (see Figure 79). This will give flexibility to the people using the site as they will have more than one activity to enjoy. Botanical Garden and Ground Pattern are proposed to give children an atmosphere of creativity. In contrast, a botanical garden requires the city to hire a horticulture manager to study the proposal, plan and pick garden's plant arrangement. Third alternative, planning three programs is the third proposal on one site (see Figure 80). This will be a difficult option but not impossible and need to be studied before moving forward. It is difficult to have a lot of programs on one site. It might crowd the location with number of activities. However, in this case, inflate, Labyrinth, and fountain can be

designed and implemented on this site. Having different activities that all children, parents and other residents can enjoy is beneficial.

Chosen Alternative

In conclusion, the best alternative is the third option. Having more activities mean attracting more users. There is a historical fountain at McNish Park. However, it misses an active surface of water that kids can play with (see page 86). Moreover, a maze and an inflate are active spaces that can be enjoyed all day. This location is close to school so supervision can be provided either partially or entirely from school staff.

Furthermore, community surveys can be helpful to identify and narrow down the list of potential proposals and alternatives or else come up with a new list of proposals. Also, the City Council can develop a future vision for revitalizing vacant sites. City officials can also recommend number of programs based on their observations of missing urban elements.

1- One program

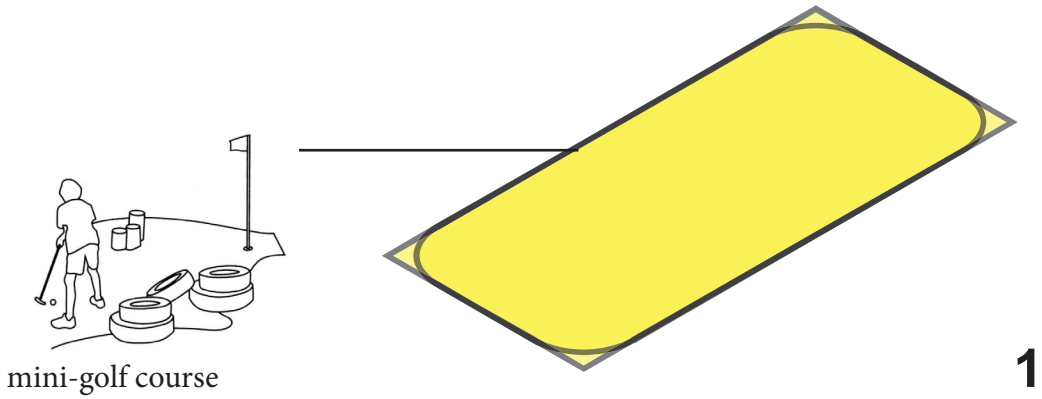


Figure 78 first alternative - one program

2- Two programs

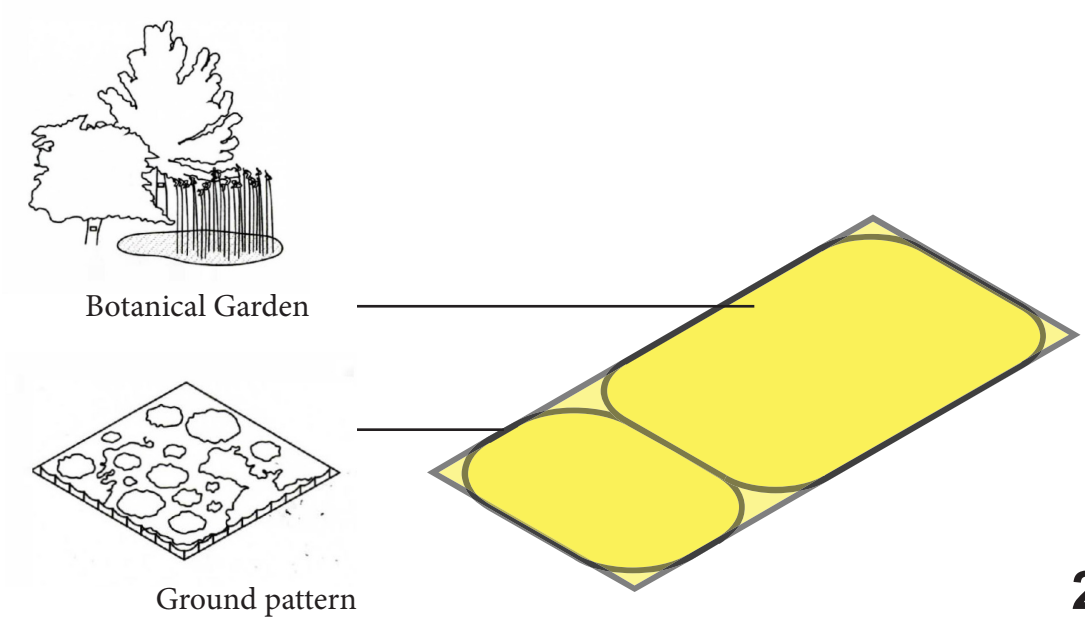


Figure 79 second alternative - two programs

3- Three programs

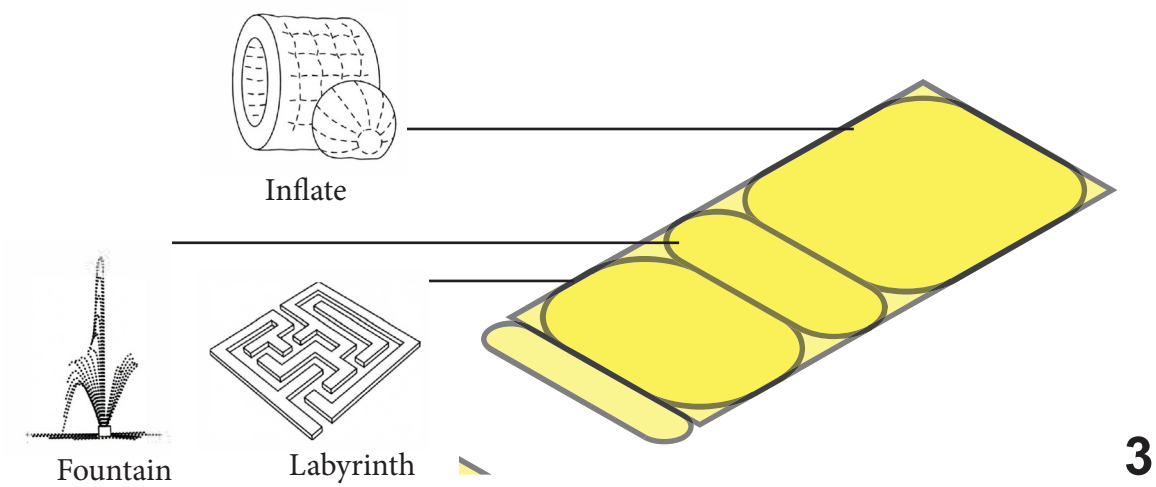


Figure 80 third alternative - three programs

5. Conclusion

In conclusion, for rural Nebraska and the rest of the world, with the decline of the population in rural areas around the world, more and more towns are facing the threat posed by vacant sites. This threat can be understood in the context of urbanism. This could be an upside to the decline, however. Revitalizing blighted areas is not limited to giving life back to the area, it also brings opportunities for more redevelopment. We must take ownership and make a difference in these communities to stabilize the balance between rural and urban as urban tactics are essential for the stability of life in rural areas. Although the example implemented in this thesis is Fairbury, it must trigger successive investigations of revitalization plans to repurpose vacant sites in other shrinking communities.

Fairbury Road Map

For the city of Fairbury, now is the best time to seize the opportunity and plan ahead for potential future repopulation. The city can take ownership of this situation and use the urban environment to create an attractive and safe atmosphere for its residents. The current situation and potential development of the city could be research in further project or outsourced consultation firms.

A safe school route revitalization proposal could be improved by taking a survey of what the city needs in those lots and what is more important for residents. The proposed architectural framework is one possible alternative. However, the city could activate its community by implementing different activities in different locations. The

most important position this study reveals is that vacant sites should be revitalized to meet the community's essential needs for a better life. The best way to revitalize vacant sites is to activate community by planning for the future. Community survey and City Council meetings can provide insight to the study to pick the perfect program best fit the city's future needs.

In conclusion, this thesis encourages the city of Fairbury to further consider repurposing vacant sites for the goal of activating the community. A safe place for a friendly environment, a creative atmosphere, and an activate community.

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