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# Medical Metropolis: The Impacts of the Healthcare Industry on Rochester, Minnesota

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**Medical Metropolis: The Impacts of the Healthcare Industry on  
Rochester, Minnesota**

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Honors Thesis  
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May 6<sup>th</sup>, 2013

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## **Abstract**

Specialized-function cities are dominated by one or two related industries that comprise the majority of the economic base of the area. Rochester, Minnesota is a prime example of such a city. The case of Rochester challenges much of conventional theory regarding economic diversification and spillovers of different economic systems. This case study presents new ideas regarding these spillovers and the success of specializations, as well as provides an in-depth analysis of the affect the Mayo Clinic - a premier medical facility – has on the local infrastructure and economy. This study illustrates how the healthcare industry has shaped Rochester's urban form; with particular emphasis being placed on the characteristics, expansion, and zoning of the Central Business District. The study also examines the unique public-private partnership between the City and the Mayo Clinic that has formed as a result of the intense specialization, and how the nature of this relationship shapes development discourse along with urban growth mechanics. This collaborative effort contributes to the use of the medical industry as a tool for urban and economic development in Rochester.

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*If you [drive] from Minneapolis to Rochester, Minnesota, you ride southward for ninety miles through a rolling countryside that in summer is a patchwork quilt in the greens of corn, small grains, clover, and alfalfa...The towns that interrupt at every ten or fifteen miles are small, some of them just a few stores and houses grouped around a filling station at a crossroads, others large enough to boast a bank, a hotel above one of the cafes, perhaps a cheese factory or a cannery...And then suddenly from the crest of a hill you see the metropolitan skyline of Rochester. Among the dairy farms and market villages you have come upon a city of great hospitals and crowded hotels; a city with hundreds of acres of parks and playgrounds, with fine stores and specialty shops; a city that is a crossroads of airlines, railroads, and national highways...In this "little town on the edge of nowhere", is one of the world's greatest medical centers, to which men come from the ends of the earth for treatment and instruction. That is the paradox of Rochester.*

- Helen Clapesattle, "The Doctors Mayo"  
1969

## **INTRODUCTION: The Paradox of Rochester**

The introductory quote above, illustrates what Helen Clapesattle calls “the paradox of Rochester”; a seemingly large city that appears out of nowhere. Since 1969 when Clapesattle’s book was published, the paradox of Rochester has only been strengthened. Much of this has been due to the medical industry. Rochester, for many decades, has been home to the Mayo Clinic – the innovator of medical group practice and largest integrated medical center in the world (Mayo Clinic Rochester). The names Rochester and Mayo Clinic are synonymous.

Having grown up in Rochester, I took the city’s unique culture for granted. Only when I came to college did I realize that it was not normal for all your friends’ parents to be doctors and for a city of 100,000 to have over a million visitors each year. The seed for this research paper was perhaps planted when one of my college friends visited Rochester, and while standing on a pedestrian walkway in between the tall buildings and parking ramps with buses and shuttles rushing past on the nearby street, he said that he didn’t expect Rochester to look like this. Rochester is different than any other city of its size. Because of the Mayo Clinic and other associated healthcare industries, my friend saw the same phenomenon as Helen Clapesattle.

Rochester epitomizes the definition of a specialized function city. Specialized function cities are commonly defined as urban areas that concentrate their resources and services in one or two related industries; the medical industry in the case of Rochester. Additionally, according to economist Edward Glaeser, a specialized function city is defined by “the fraction of the city’s employment that this [specialization] represents in that city, relative to the share of the whole industry in national employment”; meaning that a majority of the people are employed by this industry (Glaeser et. al. 1992, pg. 1140). By this definition, Rochester is a prime example of a specialized function city. Over 20% of Rochester’s population is employed by the healthcare sector, as compared to 3.9% in the state of Minnesota (Onboard Informatics 2012). The largest employer in the city is the Mayo Clinic with over 32,000 employees and thousands of other support jobs (Battelle 2010, pg. 4).

In the wake of an economic downturn and the deindustrialization of many cities, it is important to look at cities that are successful and sustainable. Rochester is one of these cities. In this paper, I will not only assess the impacts of the healthcare industry on the city of Rochester, but I will argue that the healthcare specialization model is highly efficient and sustainable for Rochester. As will be explained in Chapter 1, there are many models for creating and stimulating growth within cities and Rochester exhibits just one of these models. This paper will delve into the issues surrounding specialized function cities, economic and physical expansion theory, and ultimately, will prove that Rochester is sustainable and thriving, even without a diversified economic base.

Secondly, this paper will also show how relationships between City and industry are formed; relationships that are innate to a specialized-function city and that drive development forward. The Mayo Clinic and the City government have created a strong, mutually beneficial relationship. Through the ability to forge a collaborative City-industry relationship, Rochester has been able to grow and expand in a time of generally decreased economic growth at the national scale. This collaboration is an important factor of what makes the specialized economic base model successful in Rochester. While the broader context of my paper is analyzing the inner workings of a prime example of a specialized function city, I will also look at different initiatives, partnerships, laws, and regulations, which make this specialization possible, and which allow it to be so successful.

Through this exploration of exactly how the specialization in Rochester functions to create growth and economic vitality, my paper also sets out to explain how the Mayo Clinic has influenced Rochester's physical, urban form, specifically in the CBD (Central Business District). As will be discussed in depth in Chapters 4 and 5, this research can be subdivided into two impact areas; the physical structure of the CBD and the economic vitality of Rochester. A large aspect of the research on physical design will focus on a special districting city ordinance (Ordinance #2726) that enables the development of the physical infrastructure that is needed for this specialization to function. The economic research will focus on the evidence of Mayo's economic impact and the plans that drive



the specialization forward. These two impact areas are equally important in creating a sustainable specialization.

Through this paper, I am not trying to argue that specialized economic bases are the way for every city and that each specialization acts in the same way, rather I argue that this model can and does work, as can be exhibited by Rochester.

## **I. LITERATURE REVIEW**

This research integrates concepts from urban geography and economics – thus situating itself in economic geography. Cities have long been considered centers of innovation, creativity, and growth (Jacobs 1969, Kaplan et. al. 2004, Florida 2005, Glaeser 2011) and different models – both economic and geographic – have been formed in order to explain the structure of the city and to better capitalize on the creativity and innovation within them. I will begin a review of these models, but I will start with the model of a specialized function city. In both the fields of geography and economics there has long been a debate about specialized function cities. In economic debates, scholars have assessed specialized function cities by looking at externalities, spillovers, and the flow of knowledge in these cities and how this affects growth. In geographic research, scholars have assessed different models of urban landscapes in relation to economic activity and societal impacts of industries (Jacobs 1969, Mumford 1962).

### **A. Specialization and Industry Clusters**

Numerous studies published throughout the last few decades have explored the idea of specialized function cities and specialized clusters; they have forwarded the notion that a specialization will either stimulate growth and vitality within the urban area or decrease and impede growth.

Economist Alfred Marshall was the first economist that supported specializations and considered them beneficial. Marshall began to investigate the idea of specializations in 1890 when cities were starting to concentrate labor and resources into specific industries. Due to new technology and the Industrial Revolution in the previous century, a city no longer needed to perform every function. Marshall claimed that a concentration of an

industry in the city helped to facilitate knowledge spillovers and resulted in the expansion of this industry. Concentrating knowledge leads to more knowledge, he argued. This in turn leads to the growth of the city (Marshall 1890). Marshall's views sparked the exploration of specializations within cities and their impacts on the urban and economic expansion and growth of the area.

Marshall's theory can be more applicable when combined with fundamental aspects of urban economic activity. In the book *Urban Geography* by David Kaplan et. al., the authors explain the fundamental economic activities that generate income for cities. Economic activities are divided into two groups; basic and non-basic. "Basic economic activities generate income for residents of the city," Kaplan et. al. explain (Kaplan et. al. 2004, pg. 156). Basic activities are produced within the city and sold or exported to outside places. These activities bring in revenue from outside the city itself and "represent the engine for economic growth". Basic activities are most often associated with tangible goods and manufacturing; however most recently, services have also been classified as basic activities.

Non-basic activities, on the other hand, circulate revenue within the city. These activities include retail and other commercial activities, but can also include advanced services. The total economic revenue is the sum of both basic and non-basic activities. In the case of Rochester, the advanced services that the Mayo Clinic provides are basic rather than non-basic. While some patients served are inevitably from Rochester, the majority of patients come from outside the city – making the Mayo Clinic an engine for economic growth.

Basic functions support the entire economy and all residents of the city through multipliers. "Primary multipliers represent the impact of basic activity on the total employment of the city", Kaplan et. al. state (Kaplan et. al. 2004, pg. 156). The better and more successful the basic activity is, the more people that sector will need to hire; additionally "some non-basic activity will be supported" by this increase in the workforce. Secondary multipliers refer to the money spent by workers and residents within the local economy that circulates throughout the city numerous times, supporting an array of non-

basic services. While the specific direct and indirect economic impacts of the Mayo Clinic will be explained later, it is important to be familiar with these terms in order to understand economic geography theories. In the context of basic and non-basic activities, Marshall's assertion that a specialization and specialized knowledge have the ability to become an engine for growth is validated by economic theory.

Since Marshall, numerous economic and urban geography theories have supported the notion that a specialization has the ability to promote growth within the city; through different manifestations. Recent specializations no longer focus on manufacturing and other industrial activities, but rather on the concentration of knowledge and skill; this is the "new economy" (Kelly 1998). Basic economic activities and workers are no longer solely factory workers and physical laborers, but increasingly knowledge workers.

Recent research by urban studies theorist Richard Florida has shown a tendency for clusters based on expertise knowledge to form. Florida claims that "not only do people remain highly concentrated but the economy itself – high-tech, knowledge based, and creative content industries which drive so much economic growth – continue to cluster in specific places" (Florida 2005, pg 219). Additionally, Kaplan et. al. explain that "the urban geography of human resources or talent is highly concentrated" (Kaplan et. al. 2004, pg. 165). Florida also points to other research as an indicator to this shift towards interest in specializations and clusters and their success stating that,

"conventional wisdom about regional development for the past two decades has been that companies, firms, industries, drive regional innovation and growth, and thus there is an almost exclusive focus in literature on the location and more recently the clustering of firms and industries" (Florida 2005, pg. 27).

Thus, according to Florida and Kaplan et. al., clusters are what drive development, innovation, and growth; my research examines a determinative case of clustering. A recent study done by the Institute for Strategy and Competitiveness at Harvard Business School showed that areas with clusters exhibit more economic growth, produce more jobs, have increased entrepreneurial activity, and stronger wage growth (Delgado et. al. 2012). This corresponds with Marshall's original theory about the concentration of

knowledge leading to growth, as well as Florida's assumptions of clusters. The theories and research mentioned above show that specializing and clustering like industries or knowledge in one place is beneficial to growth.

While these specialized clusters are becoming increasingly common, certain authors and scholars argue that in the event of increased technology there has been and will continue to be a de-emphasis on the importance of place. Economist and editor, Kevin Kelly in his book *New Rules for the New Economy* claims that the "new economy operates in a space rather than a place" and that geographical place is not as important anymore when it comes to growth (Kelly 1998, Chap. 7). Kelly offers several reasons for this de-emphasis of place including technology, increased communication, and globalization. This view devalues the importance of clusters. However, Florida still defends the aspect of place. "Geography is not dead," he says, adding that "place remains important as a locus of economic activity" exactly because of this tendency to create industry clusters (Florida 2005 pg. 219).

Michael Porter, professor at Harvard Business School, similarly claims that even though the world is moving into a new economy stage, today's world is still highly dependent on place and is full of clusters. Clusters, he claims, are "critical masses – in one place – of unusual competitive success in particular fields" (Porter 1998, pg. 78). He claims that clusters are not unique, but differ in what field they specialize in. Porter also claims that clusters "lie increasingly in local things – knowledge, relationships, motivation". Rochester's cluster of the medical industry is deeply rooted in local knowledge and relationships. These theories and views all point to success for specialized function cities and highlight the immense concentration as a positive.

While the previously mentioned theories and scholars believe that specializing promotes growth and provides knowledge and development spillovers, there are other scholars that believe that specializing does nothing for expansion and growth. Many cities with a very highly concentrated specialization have not done well economically and socially – take for example Detroit and the auto industry. The Stanback model claims that "metropolitan areas that were highly specialized in industrial production experienced

slower and more difficult adjustment to the new service economy” (Kaplan et. al. 2004, pg. 160). Their “failures” have been attributed to the immense specialization and lack of variety (Palchick 2012). These failures have led to the development of a different theoretical framework regarding specializations.

Another urban studies theorist, Jane Jacobs, in *The Economy of Cities* claims that the driving force behind growth actually comes from outside of the core industry (Jacobs 1969). In her theory, it is the diversity and assortment of different industries that promotes growth. The mix of knowledge is what creates more growth, not the concentration of knowledge.

In his earlier work, Michael Porter pointed to variety as the driving force behind innovation and growth, rather than local monopoly (Porter 1990). Porter states that it is the local competition between businesses and industries that creates more knowledge, motivation, and growth. However, in his later work, Porter does claim that specialized, geographically concentrated industries do stimulate growth (Porter 1998). Another study of industries and specialized cities conducted by economist Edward Glaeser concluded that “at the city-industry level, specialization hurts, competition helps, and city diversity helps employment growth” (Glaeser et. al. 1992, pg. 1150). In this theory, as in Jacobs and Porter’s, urban variety, competition, and spillovers *between* industries are the driving force behind growth in cities. None of these views point to specialization as a contributing factor to economic dominance and expansion.

While some of these theories, views, and even practical economic thought point towards competition and diversity as the driving forces behind city growth, this research and the case of Rochester suggests that diversity is not necessary for economic growth and sustainability. It is precisely the immense specialization that drives development and growth and maintains stability. Local views support this statement. A report from the county in which the Mayo Clinic is located stated that “although conventional wisdom [regarding economic diversity] says that this kind of dominance in a local economy is not ideal for long-term stability and growth; the opposite has proven to be true here” (Olmsted County Comprehensive Annual Financial Report 2010, pg. 9).

Just as Marshall argued in 1890, I too would argue that concentrating knowledge creates more growth in the case of Rochester. Additionally, however, besides these knowledge spillovers, specializations have much more to offer – they create bonds between different public and private entities. Porter begins to uncover the idea that local relationships and motivations are essential to building a successful specialization (Porter 1998). However, none of the theories delve into intra-city relationships and public-private partnerships as yet another “spillover” of specializations. Oftentimes, a close working relationship is formed between the industry of a specialized function city and the city government. This relationship proves to be mutually beneficial for both the industry and the city in the same economic terms that previous theory has described, however, these relationships influence much more than purely economics.

In addition to being beneficial to the economic growth of the city, a specialization can also be helpful in forming public-private partnerships. Urban geographer and Professor at Macalester College, David Lanegran writes that public-private partnerships, used beginning in the 1980s, were a way to leverage money for urban development in Saint Paul (Lanegran 1989). During this time, many foundations became involved in civic engagement and city improvements. Other cities also have embarked on these types of partnerships to improve public infrastructure and urban appeal (Mustafa 1999, Brunner 2011). In Rochester, the Clinic often partners on large-scale development projects and plans with the City. The Downtown Master Plan and Rochester 2<sup>nd</sup> Street Corridor Framework Plan both consist of committee members representing the government and the Mayo Clinic (Downtown Master Plan Draft 2012, Rochester 2<sup>nd</sup> Street Corridor Framework Plan 2009).

As this paper will show, the Mayo Clinic is heavily involved in urban development in the city, and this is an outcome of having a strong relationship with the City. Concordantly, the government is heavily invested in the growth and development of the Mayo Clinic. Later in the paper, I will make it clear that this sort of strong working relationship is something that is perhaps inherent to specialized function cities because both industry and City are largely codependent on one another. The lack of economic competition is

precisely what makes it possible to form a strong bond between one industry and the city government. Because there is only one industry, the gains of the industry are what drive the city, both economically and socially. Therefore, the city has just as much agency and motivation to push through plans that benefit the industry. This bond, in turn, results in mutual benefits, but it also creates economic growth for the region and influences urban development. This research aims to explain the relationship between industry and government in a specialized-function city and how it creates a stable environment for growth.

### **B. Urban Planning and Zoning**

A city's economic nature, in this case Rochester's specialization, also influences the physical landscape. Kaplan et. al. state that urban landscapes change according to economic changes over time - this also means that urban landscapes reflect economic functions (Kaplan et. al. 2004, pg. 155). Sociologist and historian Lewis Mumford claimed that physical design and economics of cities should be secondary to the cities' connection to the natural environment and human community (Mumford 1962). Rochester presents an example of the polar opposite of Mumford's view. The physical design and economy of the city is not secondary, in fact it is the driving facet of the development and design of the city. As Kaplan et. al. stated, economy drives the physical design and physical design drives the economy. Much of this action takes place in the CBD.

The CBD is the commercial and most often geographic heart of the city. In the United States, the CBD holds many financial operations, commercial and retail space. It also usually contains the "tallest buildings of the city, has the highest land costs, and most intensely utilized space" which is true for Rochester's CBD (Kaplan et. al. 2004, pg. 129). Additionally the CBD core has "heavy horizontal pedestrian traffic on sidewalks and skywalks" which Rochester's CBD certainly exhibits through pedestrian zones and an above and below ground pedestrian system. Ernest Burgess, who came up with the first model of land-use within a city states several criteria for the CBD; 1) it is the commercial center of the city, 2) it is an area of high land value and competition for space, 3) it is

marked by tall, high density buildings, and lastly, 4) the CBD has a small residential population (Park et. al. 1967).

One of the first and most well-known descriptions of the CBD was the Burgess Concentric Zone Model from 1925. Ernest Burgess's concentric zone model featured the CBD in the middle of rings of different functions; factory zone, working zone, residential, and commuter (Park et. al. 1967). This model placed the most emphasis on the CBD and was based around the notion of economic competition and competition for land. Only a decade later, economist Homer Hoyt revised the Concentric Zone Model that blended concentric rings and sectors. He accounted for transportation networks and human preference to claim that expansion happens in a more radial fashion rather than zonal (Harris and Ullman 1945). Hoyt's model was also based around a single commercial zone or CBD. The last traditional urban spatial model is the Multiple Nuclei Model created by geographers Chauncy Harris and Edward Ullman. This model stated that even though a city may form around a CBD, other business districts develop in the outskirts of the city, thus creating an urban fabric with multiple nodes and important areas, not just one centralized business area (Harris and Ullman 1945). Each one of the nodes exhibited significant impact on its surroundings.

While all three models have several assumptions and limitations, Rochester exhibits more features from the Burgess Model and Hoyt Model; the CBD is highly centralized and there are no other nuclei or economic centers that would rival the CBD, as the Multiple Nuclei Model suggests.

While the Hoyt model describes the physical design of Rochester better than other models, Rochester does exhibit several key differences. In those models, the CBD is a mix of financial, retail, and commercial operations and offices. The content of the typical CBD is highly mixed. Rochester's CBD is different in that it lacks this mix of services. The Mayo Clinic owns over 100 acres in central Rochester which is over 50% of the delineated CBD area (Five-Year Plan Update 2011, pg. 2.1). While there is some commercial and retail space in the CBD, it is not the mix that is typically seen. Aside from this concentration of one type of business in the CBD, Rochester's downtown is also very unique for its size.



Rochester's skyline is impressive and unexpected. Rochester's CBD is also unique in other terms, specifically its zoning ordinance.

The Burgess Concentric Zone Model is the theoretical base for zoning legislation in the United States. Burgess presented the first model that was segregated by land-use. Today zoning is imperative to development and growth; Rochester being no exception to this. Zoning is a very powerful and influential tool for planners. Zoning "entails the determination, location, and detailed description of use zones that are based around one or more specific land uses" (Kaplan et. al. 2004, pg. 358). Commercial, residential, and industrial are common use zones, however there are many different use zones specific to a city. Zoning has dramatic effects on property values and on how cities develop. While zoning does provide any easy way to manage uses, congestion, and encroachment; it does "shun functional integration" and does promote a very segregated city. Author and planner Carl Stephani claims that "virtually everyone lives in a community with adopted zoning ordinances" (Stephani 1999, pg. 41). While he claims that land use segregation in the United States started in the early 20<sup>th</sup> century and was the premier method of urban planning, the idea of zoning has since expanded to include much more than strictly land-use.

Stephani explains that zoning tries to do several things; the first and foremost goal being segregating land use. Peter Katz, a strategic consultant and leader in the New Urbanism movement, states that "conventional zoning primarily seeks to control land use and density" (Katz 2004, pg. 16). Eventually though, this separation of use wasn't enough and development standards were also built in to zoning code – standards such as building height and setbacks from property lines (Stephani 1999). Katz also attests to the fact that development standards were introduced to control the form of the buildings, but that conventional coding "is largely silent on matters of form beyond the most basic height, floor-area, and setback limits". Lastly, conventional zoning law includes variances which are implemented in special situations to circumvent the development standards.

According to Jeff Ellerbusch, Senior Planner with the Rochester City Planning and Zoning Commission, Rochester entered its first zoning ordinance in the 1940s, and since

the 1960s there has been a medical land use designation in the city. This special use was not unique because many cities have special uses built into their code. What differentiates Rochester from conventional zoning practices is a special zoning overlay ordinance in effect since 1991 that creates what is known as a special district. Previous scholarly work regarding special districts explains these districts situated within a political economy framework (Foster 1997, Bauroth 2010). Special Districts are areas that are created through unique zoning regulations. The New York City Department of Planning defines Special Purpose Districts as a “defined area with unique characteristics... [that] achieves specific planning and urban design objectives” (New York City Department of Planning 2013). Oftentimes, special districts have distinct zoning regulations and codes that appeal to and promote the purpose of the district. Planner and architect Steven Moore claims that private interests are the driving force behind land use zoning, and special districts are clearly geared towards the private interests of the purpose of the district (Moore 2007). Additionally, special districts “can be helpful in promoting more flexible development” (Kaplan et. al. 2004, pg. 359). This type of zoning is usually used for large campuses and in instances where conventional zoning is becoming increasingly difficult or inhibiting.

Rochester’s CBD has had a Medical-Institutional Special District in place since 1991. This purely a land use special district and does not entail any special taxing agendas like many other special districts. This zoning plan was instituted because existing zoning regulations were no longer working. The ordinance states that,

“given the unique nature of Mayo’s operations, it has not been possible to devise a general zoning code that will both accommodate the singular requirements of the Mayo Foundation and adequately guide downtown commercial growth”(Ordinance #2726, 64D.100.f).

As elsewhere, this type of zoning was only instituted once conventional zoning begins to inhibit land use and development to a point where it becomes detrimental to the city and economy. Private institutions benefit substantially from this type of zoning, but this research will also show that the city and government also have much to gain from such an

ordinance. Rochester is not unique in having this type of zoning in place – Cleveland Clinic is part of an area called the Cleveland Health-Tech Corridor, and Johns Hopkins Hospital is part of the Eastern Health District in Baltimore– but it is unique in that such a large district is present, covering a majority of the CBD. This zoning is closely correlated with specialization theory as it creates the physical manifestation of the specialization. Rochester’s special district could also be seen as a result of a public-private partnership as it was a collaborative effort by both City and Clinic that leverages money for urban development. As will be explained later in this paper, the special district has influenced the form of the CBD substantially and also gives the Mayo Clinic a competitive economic edge. As Kaplan et. al. stated, zoning is favored by businesses and property owners because it maintains property values (Kaplan et. al. 2004, pg. 361).

These new advances in zoning and special districting (Foster 1997, Porter et. al. 1992, Llobrera et. al. 2000) may become the new norm and the new desired market characteristic. In the book describing the Urban Growth Machine theory, sociologists John Logan and Harvey Molotch state that “people who control places try to trap growth” and land-use regulations – specifically special districting – have the ability to increase the control people and private entities have on place (Logan and Molotch 1987, pg 34). Additionally, as Kaplan et. al. stated, special districting does offer flexible development for the Mayo Clinic. The effects of special districting will be explained in detail later in this research, however first it is important to understand the new economy within which Rochester and Mayo are situated.

### **C. Knowledge Based Economies**

Recent research of cities (Drucker 1969, Florida 2002, 2005) has been based on the notion of a knowledge based economy, or k-economy. “The importance of knowledge as a key source of competitive advantage is now well established” and the new economy of today’s world is based less and less on creations and tangibles, and more and more on knowledge (Nonaka & Nishiguchi 2001, pg. 3). As mentioned before, specializations and industry clusters are forming within this new economy setting and are leaving old

manufacturing and industrial centers behind. Zoning and planning are also adapting to these new kinds of businesses and ventures.

Until recently, people “whether workers, owners, or investors, have perceived their careers and fortunes to be inextricably linked to one or other industry of the firm” and the products of the economy were more tangible (Burton-Jones 1999, pg. 5). New economy specializations no longer function this way. Economic theorist Richard Due claims that “businesses that insist on hanging on to the commodity-processing economy of yesterday are soon going to find themselves unproductive and noncompetitive” (Due 1995, pg. 76). Similarly, economists Walter Powell and Kaisa Snellman state that, “the key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources” (Powell and Snellman 2004, pg. 201). This is why more and more of our economy is centered upon the exchange of knowledge rather than tangible commodities.

The healthcare industry, which is so dominant in Rochester, is part of this new, knowledge economy. In this industry, knowledge regarding health and medicine is the commodity. Richard Florida coined the term “Creative Class” to encompass sectors and industries that focus on knowledge exchange, and health workers – the workforce that is dominant in Rochester – make up the Creative Professionals category of this class of workers (Florida 2002). In 1995, it was estimated that the “US health industry is bigger than petroleum refining, aircraft, automobile, automobile parts, textiles, steel, and mining combined, and accounts for 13% of the US economy”; this sector has only been growing (Due 1995, pg 76).

The reason why this distinction between the conventional economic structure and the new economy is important is that this paper and its conclusions apply to the new knowledge economy. Knowledge based industries and businesses function differently than other commercial activities, and therefore cities with a specialization in the knowledge economy will function differently than cities with a specialization in manufacturing.

The purpose of these sections was to provide context for this research and show how economic and urban theory are tied together in cities, specifically specialized function

cities. Hopefully, this review of previous scholarly work has shown how the specialization of a city influences numerous facets of urban life and economics, as well as highlighted the areas where this particular case study fits in. Before I can present my analysis of Rochester's CBD, one final item must be mentioned, and that is the history of the Mayo Clinic in Rochester.

## II. HISTORICAL CONTEXT & BACKGROUND

Rochester's current political, social, and built environment is a direct result of historical agreements, arrangements, and plans. The history of Rochester and the Mayo Clinic is a long and interesting one, and will inform and clarify the assertions in this paper. In the book *Spatial Practices*, Raphaël Fischler claims that "historical research can help explain what planners do" and that planning happens within historical institutions, not apart from them (Fischler 1995, pg. 49). This is why it is important to understand both the theoretical context of this research as presented in Chapter 1, and the historical context. Planning agencies and programs in cities have two courses, with one devoted to theory and methods and the other devoted to context such as urban history (Fainstein 2005). The type of planning strategy that is chose by the city is relative to its particular history, thus it is important to look at the history of Rochester to understand how a huge medical center emerged in a "little town on the edge of nowhere" (Clapesattle 1969, pg. 3).

### A. Early History<sup>1</sup>

One could very confidently say that the city of Rochester and Mayo Clinic developed side by side, and that most probably one would not exist without the other. Rochester was conveniently, located on a major trade route, the Dubuque Trail, a stagecoach route from Dubuque, Iowa to Saint Paul. Rochester functioned as a major stop on this 272-mile route until the railroad came in 1864. By 1885, Rochester became a major stopping and resting point. In 1863, Dr. William Worrall Mayo arrived in Rochester as medical examiner of Civil War recruits. He built up his practice and continued to

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<sup>1</sup> History section is adapted from several books, *Mayo Clinic: Its Growth and Progress*, *Sketch of the Mayo Clinic and the Mayo Foundation*, *The Doctors Mayo*, and *Mayo Roots: Profiling the Origins of Mayo Clinic*

expand it even after the war had ended. During this time, Rochester had a population of about 1,500. Dr. Mayo had two sons, William and Charlie, who would help with the practice as soon as they were old enough, and eventually grew up to be the world-renowned Doctors Mayo.

On August 21<sup>st</sup>, 1883 a tornado swept through the city of Rochester, injuring numerous people and killing twenty-two. At this time, there was no hospital in Rochester and so makeshift quarters were created in a dance hall on Broadway and in rooms of the German Library Association. However, even these measures were insufficient. Dr. Mayo turned to The Sisters of St. Francis – whose motherhouse sits atop a hill overlooking the city to this day – for help. Mother Alfred Moes, the mother superior at the time, agreed to help.

The Sisters were instrumental in setting up quarters and providing volunteers and caretakers in the aftermath of the storm. After the tragedy was over and the city began to recover, Mother Alfred Moes approached Dr. Mayo with an offer; if he would agree to run it, the Sisters would finance a hospital in Rochester. This was a controversial request. During this time, Rochester was still small and did not warrant the need for a hospital. Hospitals were also looked down upon as places that attracted the sick and unwell. They were not places where one went to be cured, but rather where one went to die. Eventually Dr. Mayo agreed to the offer and against all odds, the Sisters raised enough money for the hospital and Saint Mary's Hospital<sup>2</sup> opened in 1889. The hospital was located on a nine-acre site just outside of the city limits (today this same site is considered to be in downtown).

During the time, there were only 6 hospitals in the Twin Cities, one in Duluth, and a small clinic in Winona. Rochester's new hospital had little competition and could draw from a large hinterland. By this time, Dr. Mayo was in his seventies and so the task of running the hospital fell to his two sons: William and Charlie. The hospital struggled for quite some time but eventually because of the hard work of the Mayos and the Sisters, medical advances, and Rochester's geographic situation, Saint Marys became world

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<sup>2</sup> The name has since been stylized to omit the apostrophe; Saint Marys Hospital

renowned. During this time, Rochester became a prime location on multiple transit routes and in the center of a prosperous economic area. The Winona and St. Peter Railroad (which became the Chicago & Northwestern) came to Rochester. This and its position on the Dubuque Trail assured that Rochester was very accessible.

Dr. William Mayo was appointed as the local surgeon for the Chicago and Northwestern railroad, and Charles was appointed as the substitute. Via word of mouth, facilitated by the railroad, news about Saint Marys Hospital and the Mayo family spread. The railroad connection brought new patients from the Dakotas that continued coming back to the Mayo brothers even after new hospitals and practices had been set up elsewhere. Word travelled fast along all of the railroad routes and soon people were coming from all parts of the country to the Mayos.

The Mayo brothers, Charlie and William, also played a huge part in the success of the hospital. Both brothers travelled around the country and world to learn new techniques and observe the best surgeons of the time. Dr. William and Dr. Charles frequented Johns Hopkins Hospital and the Cook County Hospital in Chicago. They brought back new ideas and techniques to Rochester and implemented them into their own practices. St. Marys hospital began to perform more and more surgeries, and due to new technology, techniques, and the expertise of the Mayo brothers, death rates for most surgeries fell dramatically. For example, the number of abdominal operations at St. Mary's Hospital rose from 54 in the first three years to 612 in 1900 and 2,157 in 1905. Also during this time, new antiseptic techniques improved medical practice and medical journals and publications began to circulate. These publications also helped in putting Rochester on the map.

Since the beginning, the Mayo practice had a competitive edge over all other hospitals and clinics; the Mayo Clinic was the first group-practice in the United States, and perhaps in the world. During that time, it was unheard of to have two doctors work side by side such as the Mayos did. Beginning in the 1890s, William and Charles began recruiting other doctors to join the practice, thus expanding the concept of group practice

even more. By 1897, less than ten years after its opening, Saint Marys Hospital required an expansion. This would be an ever continuing story with Saint Marys.

## **B. Downtown**

While Saint Marys Hospital grew, the Mayo family established their practice about a mile away, in what is now downtown Rochester. In 1901 the Mayo's owned a building for their offices, library, examination rooms, minor surgery room, and a laboratory. In the early part of the 20<sup>th</sup> century business surrounding the medical practice boomed. Entrepreneurs created a shuttle system for patients – to and from the train station and between Saint Marys and the downtown offices. The pharmacy, hotel, and sanatorium businesses flowered. Today, many sub-industries are present in Rochester as a result of the Mayo Clinic.

In order to attract more patients, the Mayo's decided that Rochester needed some improvements. Throughout their lives, William, William Jr., and Charlie gave many of their life savings to the city and the Mayo Clinic. In 1904, the Mayo brothers gave the city money to purchase and create the first park located in downtown – known today as Central Park.

As the medical buildings were expanded, the volume of patients increased. In 1912, 15,000 patients registered. In two years, this number doubled. At its height, Rochester's transient population was double that of its permanent one (Clapesattle 1969, pg. 498). More patients meant more accommodations were needed. John Kahler was an hotelier at the time and worked closely with the Mayo brothers. Oftentimes, the Clinic could not keep up with patient demand and Kahler used his hotels as makeshift hospitals. The Kahler Corporation managed many of these hotel-hospital hybrids. In 1907, the Kahler Hotel was built in downtown – where it still stands today.

In 1909 the term "Mayo Clinic" was used for the first time and within three years it became a household name. Soon, however, it was realized that no amount of new additions and expansions to Saint Marys would be enough for the volume of patients. In 1914 a new building, known as the Red Brick Building, was built on the site of the old offices in downtown. Also in 1914 the Mayo Foundation for Medical Education and



Research was created; today known simply as the Mayo Foundation. They would take charge of the assets, properties, and all aspects of the Mayo Clinic.

While Saint Marys grew in a cohesive manner because of available space, the downtown campus was not well organized. Throughout the next couple of decades, expansions happened in an ad-hoc manner. When there was a need for a new facility a lot would be purchased and the building would be erected. Following the same development strategy, the downtown campus grew and continues to grow in the same way. In following chapters I will touch more on Mayo's development strategy.

### **C. Rochester Today**

Today, the Mayo Clinic consists of two campuses; Saint Marys and the bigger downtown campus. The two campuses are about 1 mile apart (Campus Maps 2013). Currently, the Mayo Clinic owns more than 120 acres in downtown Rochester and almost 400 additional acres throughout the city for other support facilities and properties (Five-Year Plan Update 2011, pg. 2.1). As of 2013, the Mayo Clinic is in the midst of three large-scale construction projects. Saint Marys is undergoing two expansions; one 118,000-square-foot expansion for preoperative and postoperative functions and an expansion of the emergency department. The highest profile project is the \$185 million Richard O. Jacobson Building which will house a proton beam cancer therapy center. Additionally, the Dan Abraham Healthy Living Center, a fitness center for employees and patients, is also currently undergoing expansion (Kiger 2011). The Clinic forms an urban mosaic of different pieces and buildings that make up a whole campus. As the history shows, it took a long time to create a campus this big and connected.

The downtown campus spans a seven by seven block area. Infrastructure of the Mayo Clinic downtown campus includes patient care buildings, such as the Rochester Methodist Hospital, research buildings, the Mayo Medical School, administrative offices, and parking ramps. In sum, the downtown campus includes 30 buildings and 5 parking ramps for employees and patients. In addition to these properties, the Mayo Clinic also owns numerous surface lots within the downtown. The two campuses comprise "the largest integrated medical center in the world" and the downtown campus – which is

connected via skyways and subways – is the largest interconnected medical facility (Mayo Clinic in Rochester 2013). Additionally, U.S. News and World Report ranked the Mayo Clinic the number three “Best Hospital” in the USA (2012-13) and the “Most Connected” hospital (2012-13) in terms of its use of technology (U.S. Best Hospitals 2013 & Most Connected Hospitals 2013).

These accomplishments have been a long time in the making. Since the 1900s, the City and Clinic have worked together to facilitate the growth and development of Rochester. The Mayo brothers understood that in order to have a successful medical practice and attract patients, there must be a flourishing town. This legacy of close cooperation between the two entities continues to this day and is a large part of the success of the Mayo Clinic and the city. This brief introduction to Rochester today has hopefully showed how massive this organization is – both physically and economically.

### **III. DATA & METHODOLOGY**

With the proper historical context and background of Rochester as well as related theories and conceptual framework, I can move forward with the specifics of my research. Since its beginning, Rochester and the Mayo Clinic have chosen to pursue growth and expansion in alternative ways. This city truly does present a distinct and extreme case of planning and development. Case studies are most often used to answer explanatory, how and why questions and this case study is also instrumental in providing new insights into the motivation behind growth in cities and impacts of industry on the city (Yin 2009, pg. 9). Author and researcher Robert Yin states that there are numerous circumstances in which a case study is the most informative and beneficial mode of inquiry. Yin suggests doing a single case study for cases that “represent an extreme or unique case” (Yin 1994, pg. 39). By choosing to formulate this research as a case study, I hope to highlight the unique characteristics of Rochester as well as to answer some imperative questions regarding specializations.

Models and theories are oftentimes based on case studies or a series of case studies. While the myriad of political economy and urban theories have tried to explain

the dynamics of municipal political affairs, urban infrastructure, and economic expansion, few have focused on a specialized function city. This makes my case study about a specialized city important in framing further discussion about city development. Yin explains that case studies can produce significant insights about the particular place, event, or actor; however they can also be used to produce larger, more general conclusions about a topic and applications or amendments to already existing theory (Yin 1994, 2009). As a result, my case study about the specialization of Rochester and its impacts on the city can have larger applications, specifically within research about specialized function cities and cities with a large industry presence. Harris and Ullman claim that “what is learned about one [city] helps in studying another” (Harris and Ullman 1945, pg. 7).

This case study will offer insights about the inner workings and relationships in a specialized function city and will identify broader applications. While the larger case is the city of Rochester as whole, my focus is the city’s CBD and Medical-Institutional Special, as well as analyzing the effectiveness of the medical specialization as a tool for development.

#### **A. Data Collection**

In my investigation of the impacts of the healthcare industry on Rochester’s urban form and economy, I relied on two separate research methods. I used both primary sources, mainly informant interviews and conversations, and secondary sources in the form of documents, plans, and articles.

For my primary sources, I interviewed several key actors representing both City interests and Mayo Clinic interests. These interviewees represented varied and diverse entities including the Rochester-Olmsted Planning Department, Rochester Area Chamber of Commerce, Destination Medical Community and Facilities Project Services at the Mayo Clinic. Instead of conducting a larger quantity of shorter more survey-like interviews, I decided to instead focus on a few key people or groups and conduct in-depth, thorough interviews with those individuals. The eight interviews that I conducted were very informative. Through these interviews, I gathered more in-depth data and was able to assess numerous actors within Rochester’s growth coalition. By interviewing people from

numerous organizations and fields, I am confident that my analysis on this issue is not biased or representative of one side. I conducted these interviews in a 3 month span, starting in June of 2012.

The interviews provided insight into city dynamics, processes, and projects. In order to get more specific data, I examined numerous city and Mayo Clinic documents, including; Rochester Downtown Master Plan, Mayo Clinic Master Plan and Five Year Plan Updates, City Planning and Zoning Commission meeting minutes, land use plans, city budgets, and expansion plans, among other things. I also used numerous newspaper articles from the Rochester Post-Bulletin that chronicled the different developments. Using local sources offers insights into the thoughts and actions of the Rochester community. These two methods combined, gave rise to a substantial body of work that I then analyzed and synthesized in depth. This type of methodology was influential in assessing the success of the specialization, as well as identifying different interests and motivations behind Rochester's growth.

## **B. Site**

As part of my methodology, I divided my findings into two impact areas – the physical form of the CBD and the local economic impacts. The physical form of the CBD is defined as the site in which the Mayo Clinic expands and within which growth happens. Urbano Fra Paleo claims that “site and situation are some of the locational concepts widely used in geography” (Paleo 2006, pg. 20). He also defines site as a “set of properties or conditions in a certain location and the closer contiguous environment”. While in geography site usually pertains to natural features and environments, in my research I am expanding the definition of site to incorporate built environment as well. In the typical definition, site provides resources. In Rochester, the physical infrastructure of the CBD provides resources in the form of laboratories, facilities, offices, and a general environment conducive to the growth of the medical industry.

Just as the physical location of a city can provide it with resources and wealth, the CBD is also a site. The Mayo Clinic is highly dependent on the physical characteristics of the CBD. In a City Council meeting in November of 2011, City Council President Hanson

said “the Mayo Clinic’s home is Rochester and always will be”, highlighting this aspect of site (City Council, November 21<sup>st</sup>, 2011 pg. 9215). Mayo Clinic’s site in downtown Rochester provides it with numerous aspects that are integral to its business plan. Place is idiosyncratic; each place or land market offers business a specific set of characteristics that are conducive to its expansion whether it is access to workforce, infrastructure, or government assistance (Logan and Molotch 1987, pg. 18). Rochester’s CBD provides the Mayo Clinic with all the resources it needs in order to grow.

Site can be changed and altered in order to draw more benefits which is what I argue happens in the case of Rochester’s CBD. This impact area of urban form will focus on the mechanisms in place in the CBD that create a conducive environment for growth and stability for the specialization.

### **C. Situation**

While the physical urban form impact area fits into the site aspect of Rochester, the economic impact area is a part of the situation of Rochester. Paleo, defines situation as:

“the set of conditions of a place derived from the relationships with distant, imprecise areas or places. Therefore, it is very dependent on accessibility, the development of transport and communication. It has a strong economic component.” (Paleo 2006, pg. 20-21)

Situation is the relative location of a place; relative to its surroundings and other places. As Paleo described, situation is affected by connections, networks technology, and transportation, among other things. Rochester’s situation depends on its connectivity to an educated workforce, investors, and a communication system.

The physical site and infrastructure provide the base for economic benefits and expansion, however, it is the situation – or what is then done with this site and how it is connected and used in a larger system – that brings in the major economic remunerations.

The economic successes that are seen in Rochester are a result of its situation and ability to link with other people, places, and entities. While the CBD provides an ideal physical environment for the industry, its situation is what spurs economic impacts. From here on, I will divide the research into these two impact areas. While they are related and

intertwined, it is more useful to look at them separately. This case study will show how these two impact areas are intertwined and will illustrate how the medical specialization shapes each of these areas.

## **IV. URBAN FORM**

### **A. Special District**

This section will explain how the Mayo Clinic has shaped downtown Rochester. Downtown Rochester exists in its current form today because of the Mayo Clinic, and as the two continue to develop and grow side by side, their intertwined nature and collaboration is becoming increasingly evident.

Perhaps the best example and explanation of this relationship, is the Medical Institutional Special District. In March of 1991, the city of Rochester adopted a special overlay zoning district and regulations, Ordinance 2726, that established a special district called the Medical-Institutional Campus Special District. This zoning plan has an effect on almost all other aspects of downtown development. As stated in Chapter 1, this plan was put in place because existing zoning regulations could not accommodate the requirements of the Mayo Clinic and guide downtown development (Ordinance #2726). Prior to the ordinance, it was extremely difficult to plan for future investment or growth, for both the Mayo Clinic and the City. Creating the Special District has alleviated these concerns.

#### *i. Medical Institutional Special District*

According to the Mayo Clinic Five-Year Update (2011) the district was created “to assist and encourage the development of medical institutional land uses in a campus setting at the Mayo Clinic Downtown and St. Marys Hospital Campuses” (pg. 1.1). Within these two areas, the special regulations of the district are applicable to any property owned by the Mayo Foundation. As explained earlier, the Mayo Foundation controls all assets and institutions associated with the Mayo Clinic and is in charge of buying land for future development. The district also includes properties that do not belong to the Mayo Foundation, and the special regulations do not apply to those properties. Underlying city

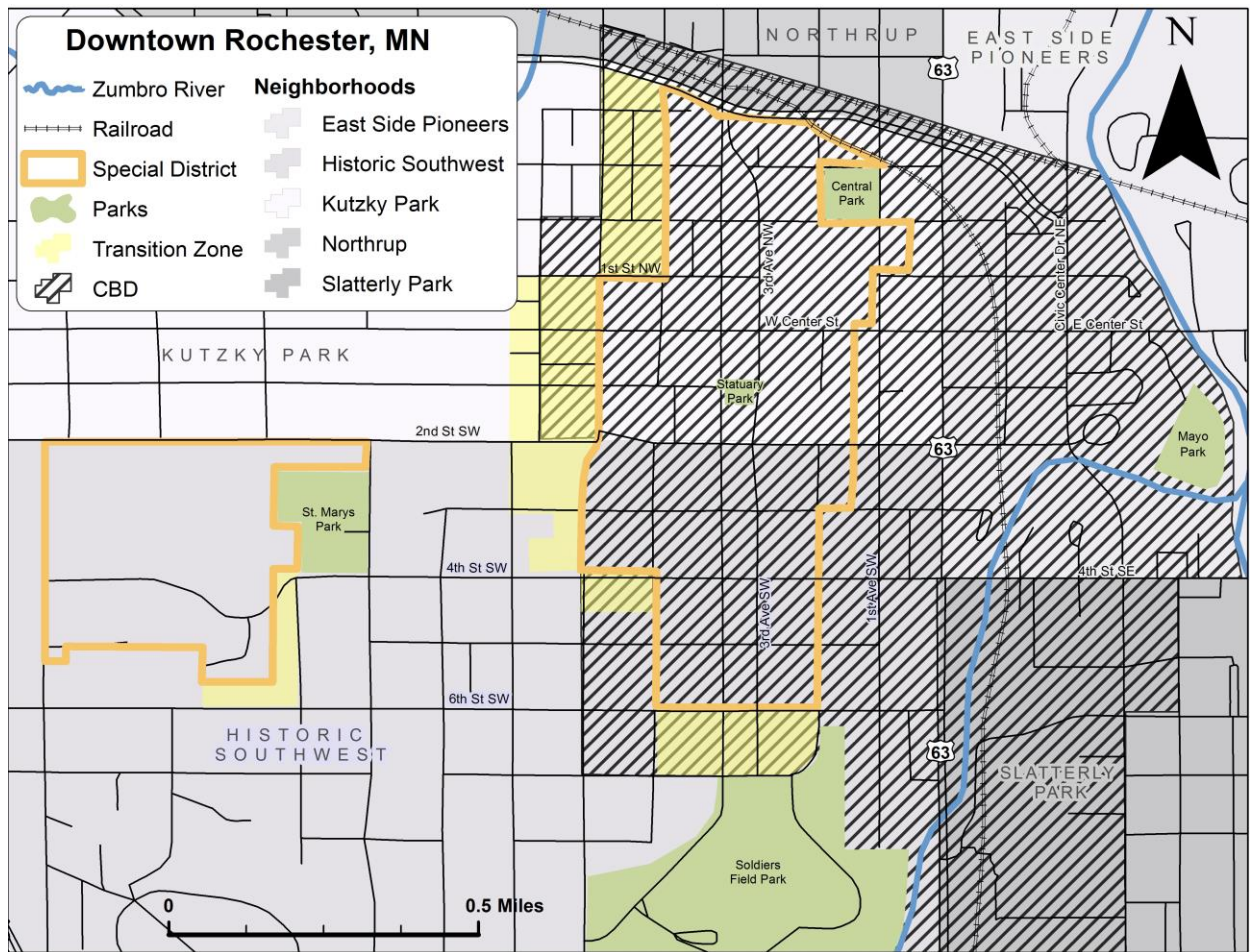
zoning regulations apply to those properties and Mayo properties which are located outside of the Special District – hence the name overlay zoning because it exists “on top of” preexisting zoning regulations.

Within this Medical-Institutional Special District, the Mayo Clinic does not have to go through the regular planning and zoning process, but rather the district expedites the process (Rohde, personal communication). Within the Special District, the Mayo Clinic can plan and execute its plans without participating in the city process for construction of new buildings.

While the Mayo Clinic owns a majority of properties in the delineated district area, there are many lots that belong to other businesses or the City. Through the ordinance, the Mayo Foundation does not receive any advantage in acquiring lots that are in the district. Oftentimes though, because of its large financial resources and power as an organization the Clinic outbids all other potential buyers. In recent years, the Mayo Clinic has swept up open lots in the CBD, oftentimes through private agreements for undisclosed amounts (Russell 2011). Figure 1 below shows the Special District in relation to Rochester’s CBD.

Prior to the overlay zoning, the Mayo Clinic had to apply for numerous zoning variances. “In the past two decades, each new investment by Mayo Foundation has required a code variance from building density, parking, and loading requirements,” the ordinance states (Ordinance #2726, 64D.100.f). One of these mentioned code variances is floor-area ratio (FAR). Most of Mayo’s projects were in a land-use zone that had a 1.5 FAR. This means that the building’s total floor area could be 1.5 times the lot size. All of the Mayo Clinic buildings far exceed this ratio and a zoning variance had to be granted each time new construction was proposed. Another common zoning variance that was granted was related to off-street parking. With each building, there needed to be adequate off street parking for the demand created by the building. This would have been impossible in some of the building locations, and variances had to be granted. Jeff Ellerbusch, with the Rochester Olmstead Planning Committee, stated that prior to the Special District, the

city had approved every single variance that the Mayo Clinic had filed (Ellerbusch, personal communication).



**Figure 1: Map of Rochester's CBD and Medical Institutional Special District**

The overlay zoning treats the entirety of the Mayo Clinic as a campus. The Special District zoning regulations “recognize how the medical center is uniquely developed as a campus on a collection of city blocks supported by a public street system” (Ellerbusch 2012a pg. 50). The Mayo Clinic is not looked at on a lot by lot basis, but rather as one physical entity. Many of the buildings are connected and adjacent and looking at FAR on a lot basis did not prove to be efficient. Because the Mayo Clinic is a private entity, this type of overlay zoning was the only viable solution for many of the issues faced prior to 1991. Public institutions, such as some universities, oftentimes can circumvent local zoning laws, however in the case of the Mayo Clinic, this was not possible without a special districting ordinance (Ellerbusch, personal communication).



ii. *Five Year Plan Updates*

Under the ordinance, the Mayo Clinic must submit short-term plans for its development projects to the city. This short-term plan is presented in the form of five-year plans and updates which are prepared by the Mayo Clinic. Bruce Rohde, Division Chair in Mayo's Facility Project Services, said that this type of arrangement is also beneficial to the City. By presenting this information on future developments, this procedure aids the City in its infrastructure and growth planning efforts. The City of Rochester is then aware of major projects within the next five years and is able to better estimate the demand for public infrastructure. At the core of the five-year plan is a list of all potential development projects that the Mayo Foundation may undertake.

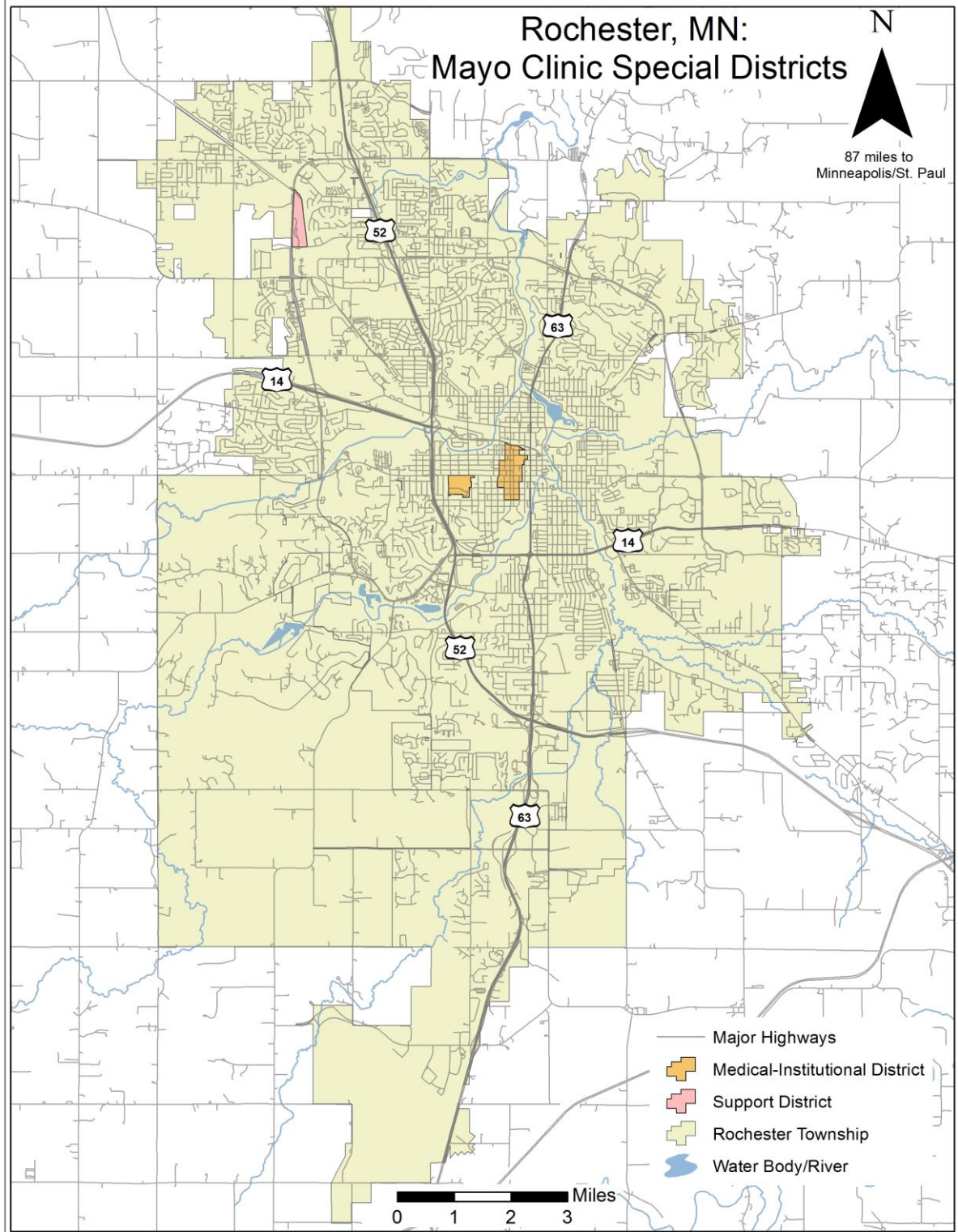
The five-year plan must be presented to the Planning and Zoning Commission as well as to the City Council. The Mayo Foundation must present the projects and ideas that are in the five-year; after this, the Planning and Zoning Commission will make a recommendation to the City Council whether to approve the plan. While there is some room for negotiation under the ordinance, the plan *must* be approved unless "it is found to be inconsistent with the [city's] master plan" (Letter to Planning and Zoning Commission 2006,pg. 130).

The five-year plans address three different types of land use intensities that, together, make up the Mayo Clinic campus. These are as follows.

- 1) Primary Medical-Institutional: This is where the Medical-Institutional Special District is located. This area includes the downtown Mayo Clinic and Rochester Methodist Hospital ("Central Sub-District") and St. Marys Hospital ("West Sub-District"). This district covers the essential institutional uses such as patient care, education, and research (see Figure 1).
- 2) Transition: The transition district, located on the periphery of the Central and West Primary Medical-Institutional Sub-Districts is meant to serve as a buffer between the Mayo Clinic campus and surrounding residential areas. The transition zone provides an area of gradual change from the "large-scale, active uses and adjacent neighborhood residential uses" (Five-Year Update 2011, pg 1.2). This area has more zoning restrictions than the Primary Medical-

Institutional District; however, some Primary Medical-Institutional uses do occur. This transition zone is the first aspect of Ordinance 2726 that I will discuss in terms of influencing the physical infrastructure of downtown. Due to these zones and the regulations within them, there is a gradual gradient of change between the core CBD area and surrounding neighborhoods. This creates a CBD with “shoulders” and with a slow sloping effect when one looks at the architecture and height of buildings.

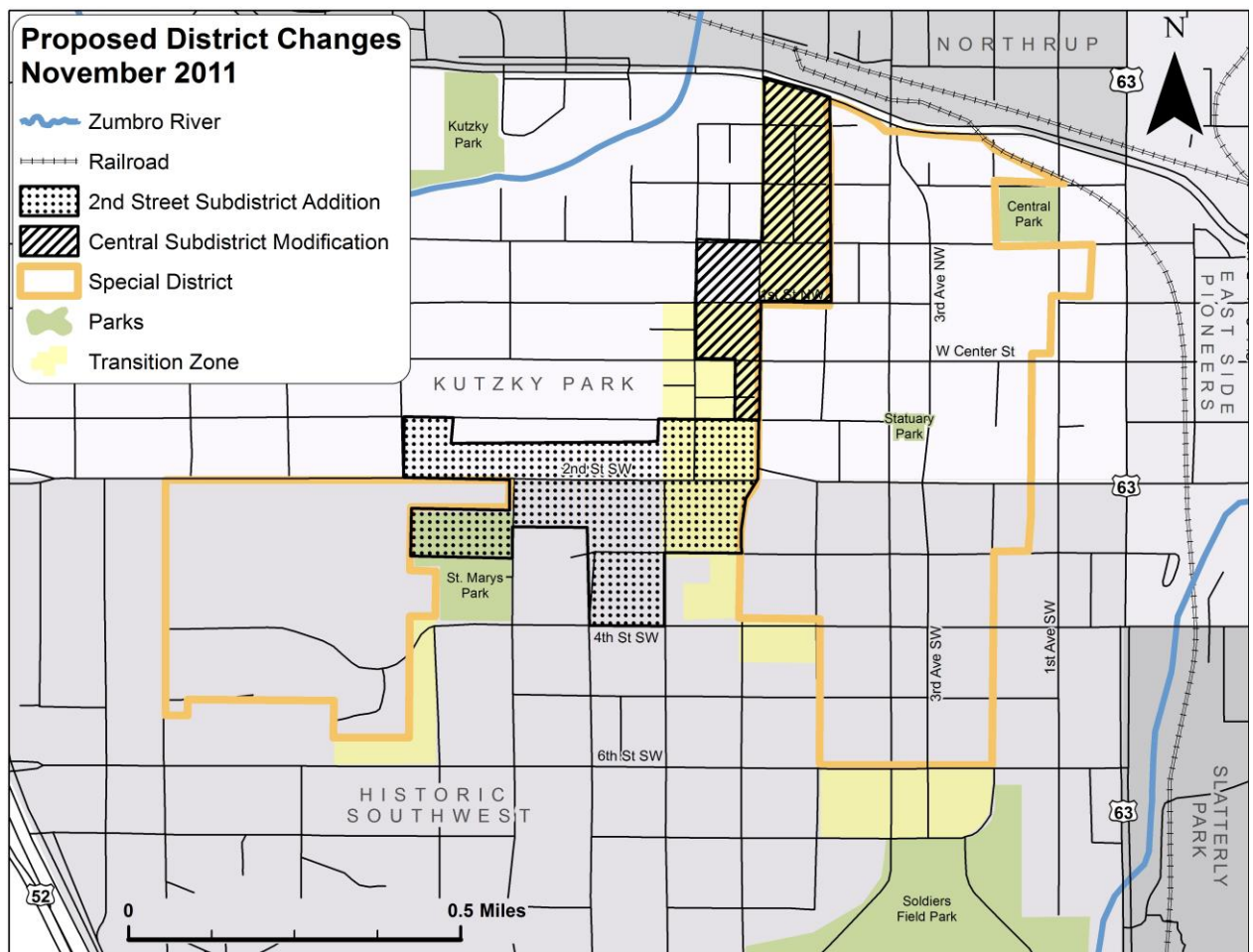
- 3) Non-Contiguous Support: Support Facilities that do not need to be in close proximity to the Central and West Sub-Districts have been dispersed to other areas of the city. These areas make up the Non-Contiguous Support District. Buildings and projects in this district are subject to any underlying, existing zoning and planning regulations and restrictions. Non-Contiguous Support uses include parking, receiving, and waste management.
  - a. In 2003, in order to further alleviate the congestion in the Primary District and in downtown Rochester, the Mayo Support Center Special District was created. This district allows for contiguous growth of Administrative and Support Functions on a separate campus. The Mayo Support Center Special District is located along the east side of West Circle Drive near the intersection with 41st Street NW. This district is located about 5 miles northwest of the Mayo Clinic downtown campus. Figure 2 below shows the two districts in Rochester.
  - b. This movement of non-patient related services out of the CBD slowed the growth of downtown; however, it also “saved” downtown according to Jeff Ellerbusch, Senior Planner at Olmsted/Rochester Planning Department (Ellerbusch, personal communication). Decentralizing its non-patient services and relocating them outside of downtown relieved congestion in the CBD core. It also made downtown more pedestrian and visitor friendly.



**Figure 2: Rochester, MN and the Support and Medical Institutional Districts.**

As the Mayo Clinic grows and changes, so do the Special District boundaries. The Medical-Institutional Special District was changed with an amendment to Ordinance 2726

in 2004. The 2011 Five-Year Update proposes a modification to the Medical-Institutional Special District. The proposal wants to expand the Central Sub-District to accommodate growth in the north, south, and east directions as well as including recently purchased land by the Mayo Foundation that is currently outside of the district. The second expansion proposed, is along 2nd Street SW, between the Central and West Sub-Districts. As of November 2011, the Mayo Clinic owned 42% of the total front footage on 2<sup>nd</sup> Street between the two sub-districts (Five-Year Update 2011, pg. 1.2.2). The proposed district would again create an overlay with special zoning regulations along 2<sup>nd</sup> Street SW. According to the Five-Year Update, this zone would “foster a mix of uses such as housing, low density administrative, appropriate retail, parking and medical support functions” as well as would “facilitate the pedestrian scale of this corridor”. Figure 3 below shows these proposed changes and additions to the district.



**Figure 3: Proposed modifications to the Medical Institutional Special District**

Ordinance 2726 and the creation of the Special District enables development and growth to be very easy for the Mayo Clinic. The process is expedited for the construction of a new Mayo building and the City benefits by being fully aware of large-scale upcoming projects and can plan public infrastructure accordingly.

#### **B. Planning Collaboration**

While this type of ordinance is clearly beneficial to Mayo and its development it also has benefits for the city. Jeff Ellerbusch said that the ordinance is beneficial in numerous ways. Like Rohde, he stated that the overlay zoning district enables the city to better plan infrastructure and projects. Prior to the overlay zoning the government was in a highly reactionary mode and was not a part of the Mayo construction process. There was an inability to do interim range planning. With the Five-Year Update clause in effect, the City has a better understanding of what will be built in downtown and when and can plan accordingly.

An example of this increased cooperation and understanding that Rohde and Ellerbusch describe was the construction of a new cancer therapy center on 2<sup>nd</sup> St NW and 1<sup>st</sup> Ave NW (Figure 1). During the building construction the two roads had to be closed off and excavated. During this time, the City also replaced and repaired some underground piping infrastructure. Because the City knew that this Mayo project was happening ahead of time, they were able to schedule the maintenance project when the streets were already closed. This avoided additional road closures and costs associated with this type of City project. Prior to this ordinance, the City was in a reactionary state – the Mayo Clinic would build something and public infrastructure would have to be adapted. Now, the entire process is more cohesive and planning for the future is much more easily facilitated for both agents (Rohde, personal communication).

Secondly, the overlay zoning increases cooperation between City and Clinic by streamlining the development process. The ordinance removes the need to grant zoning variances - 100% of which were granted prior to 1991. This made it seem like the city granted all variances and brought into question the zoning authority (Ellerbusch, personal

communication). With the ordinance in place, the Mayo Clinic no longer needs to file for these variances for development standards such as FAR, parking, or loading docks. Prior to the ordinance, “both Mayo and the City bear needless expenses in application development and processing” (Ordinance #2726, 64D.100.g). The ordinance saves the Mayo Clinic time and money and also assists the City in preserving zoning authority while also saving time and funding.

The intent of the ordinance has always been to benefit both the Mayo Clinic and the City. The terms of the ordinance were decided by both parties and gains have been made by both sides. Due to the ordinance, the City is able “to confidently program its long-range capital investment...and is able to fully capitalize on Mayo’s presence”. Similarly, with “assurances of permitted clinical use of its land” that the ordinance provides, the Mayo Clinic is able to “confidently plan for future investment and growth in Rochester” (Ordinance #2726, 64D.100.h).

Additionally, the Mayo Clinic remains an active planning agent in downtown, oftentimes teaming up with city agencies to execute large-scale planning projects. The most recent Rochester Downtown Master Plan is “the culmination of a nearly yearlong collaborative effort” with the two leading actors being the City of Rochester and the Mayo Clinic (City of Rochester, 2012). The City calls this type of partnership “unprecedented”. The plan includes aspects of the Special District and works with and around the Mayo Clinic and other actors such as the University of Minnesota-Rochester and Rochester Downtown Alliance to sponsor a development and revitalization effort in the CBD. The outcome of this Master Plan “a compact, walkable downtown situated in an attractive natural environment” with “public and private institutions committed to maintaining downtown Rochester as the heart of the community” (City of Rochester 2012). This collaboration shapes the downtown just as much as the Special District.

These examples show just how strong the collaboration and partnership between the City and Mayo Clinic is. This mutually beneficial relationship between the two has existed in Rochester for decades, but through Ordinance 2726 it is manifested in a physical plan that affects the landscape of the city.

### **C. Consequences of the Special District**

Within the Special District boundaries, like any other developer, the Mayo Clinic is able to “change content of their holdings” through “building higher or more densely” or creating a medical campus that better accommodates the nature of their business (Logan and Molotch 1987, pg. 24). Within the Special District, there are no height restrictions, Floor Area Ratios, or other such building regulations and so the Mayo Clinic truly does have ultimate control of its holdings. This ultimate control leads to some larger consequences and impacts on all of downtown.

The special zoning overlay increases land use intensification by creating boundaries, within which it becomes beneficial for the Mayo Clinic to develop. As the owner of a majority of the land, the Mayo Clinic controls the “set of spatial relations” of the land (Logan and Molotch 1987, pg. 24). This is facilitated by the special zoning overlay which does not innately create this land market monopoly, but contributes to medical land-use intensification in the CBD. Due to these forces at play, the Mayo Clinic has a huge influence on the development of downtown. Besides this land market monopoly, there are numerous other impacts that the Mayo Clinic and ordinance have on the landscape of the CBD.

#### *i. Prospective Development*

The Mayo Clinic acts as a “structural speculator” – a land-owner that directly interferes and alters in the future of the land market – in downtown Rochester (Logan & Molotch 1987, pg. 31). Mayo’s philosophy is “form follows function” and this promotes a very futuristic land acquisition process (Rohde, personal communication). This means that the Mayo Clinic acquires new lots without concrete plans for them, with the intention to use them later when physical expansion is necessary. The site selection process is very lengthy and ultimately, because of Mayo’s clout and economic influence, they are able to hold new lots until they are needed.

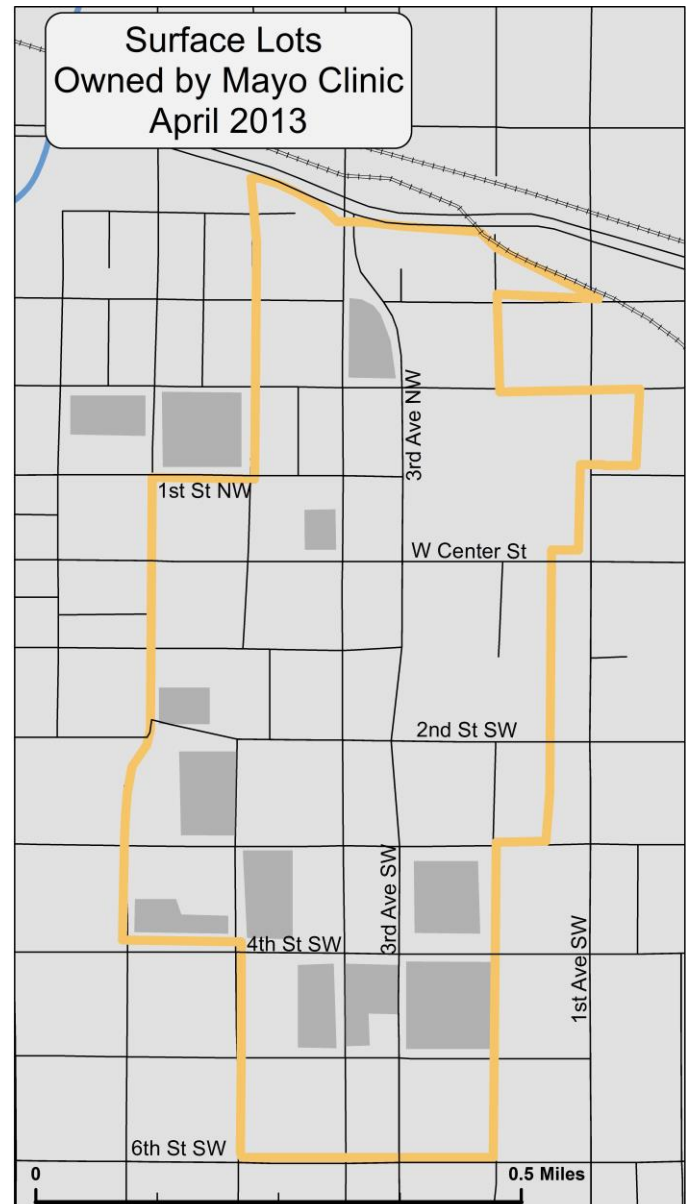
This is something regular developers and entrepreneurs shy away from as it freezes huge amounts of capital. Due to the zoning ordinance, these “holding lots” usually occur within the Special District or in the transition zones as that is where it is most convenient for the Mayo Clinic to expand (Figure 1). These land assets are usually stored



in the form of surface parking lots in premium downtown locations. Figure 4 below shows the surface lots within the CBD that are currently owned by Mayo. The Mayo Clinic can afford to hold these lots until their needs reach the level to expand, however, these surface lots create gaps in the urban fabric of downtown. They essentially waste valuable downtown spaces and create an unfriendly atmosphere for pedestrians and visitors. Numerous urban theorists, perhaps Jane Jacobs being the most famous and outspoken of them, claim that parking lots, surface lots included, are detrimental to neighborhood vitality (Jacobs 1961). The same is true for downtown. The area loses its vitality and competition with these surface lots.

*ii. Historic Preservation*

Additionally, according to the Preservation Alliance of Minnesota, until recently Rochester was the only city of its size that did not have a historic preservation ordinance or regulations. This issue was in recent times debated, and a preservation ordinance was proposed to the City Council. A Heritage Preservation Committee was formed in 2012; however, it still does not exert much planning power.



**Figure 4: Surface lots owned by the Mayo Clinic**

Historic buildings in downtown Rochester are often not the most profitable endeavors, but rather they provide a sense of place, history, and perhaps even



educational value. This issue pertains to the Special District and Mayo Clinic because most of Rochester's historical structures are located within the delineated CBD or transition zones. The contestation of these values comes in to play because of Mayo's rapid development. City Administrator, Stevan Kvenvold, claims that "we have lost a lot of historical properties; most of the loss has been because of the advance in economics of the city, a lot of it driven by Mayo Clinic" (Grossfield 2012a).

The result is that when something new is built, little regard is given to preexisting infrastructure on the development lot. Since the Mayo Clinic is the biggest developer within downtown, they oftentimes tear down buildings to make room for new expansions. In a way, they dictate historical preservation within the downtown.

While there are obviously huge downfalls to a lack of such an ordinance, it is not all bad. Historically, the Mayo Clinic has done a lot of preservation. One example is Central Park (which can be seen on the map in Figure 1). The Mayo Foundation revamped the entire park as it was given to the city by the Mayo family. While they do maintain historical properties and areas, these properties are somehow related to the Mayo's past. Properties without this connection, receive little to no attention or funds. Consequently, historical conservation is in a way dictated by industry.

### *iii. Residential Use*

Another consequence of this type of overlay zoning and industry presence in downtown is that there is no residential use within the downtown. Lots are held at such a premium and Mayo is expanding so quickly, that residential use in the Special District would be highly inefficient and not an economically sound decision. This creates the typical 9-5 downtown syndrome, where streets and restaurants empty once the Clinic's workday is over. While this lack of a residential population is starting to improve with new initiatives and a general, nationwide movement to revitalize downtowns, the downtown remains largely a work day attraction. Additionally, this type of downtown restricts residents' access to downtown during the workday. Parking is also at a high premium and Mayo owned ramps can only be accessed by employees or patients. This leaves only a few parking options for residents or visitors, making downtown inaccessible by car during the workday.

The impacts and presence of the Mayo Clinic are felt in almost every aspect of downtown. While these impacts are impressive, this isn't the only area where the Clinic has heavily influenced Rochester. As the city's largest employer and tax payer, the Mayo Clinic also largely contributes to Rochester's economy.

## **V. ECONOMIC IMPACTS**

As illustrated before, the Mayo Clinic has a huge presence in downtown Rochester, but it also has a large presence in the region's economy. In 2010, Mayo's employment numbers represented 41% of the total employment in Olmsted County. The economic impacts of the Mayo Clinic are huge on any scale, whether it be national (\$22 billion), statewide (\$9 billion), or in the Rochester area (Batelle 2010, pg. 2).

This section will delve into the details and numbers behind its influence on the economy of the Rochester area. As with the collaborations and partnerships that create favorable zoning regulations and downtown initiatives, the Mayo Clinic and City also collaborate closely when it comes to economic gains and plans. This section is subdivided to further look at the direct and indirect impacts, as well as at the array of sub-industries that are needed to support Mayo's business volume. Lastly, I will discuss new collaborative efforts between the City and Clinic to bring further economic gains to the area. While the preceding chapter related to the physical site of the Mayo Clinic, this chapter will discuss the economic situation of the Mayo Clinic and Rochester.

### **A. Direct Economic Impacts**

A Battelle Institute study from 2010 showed that the Mayo Clinic has a \$22 billion economic impact nationwide. This includes the Mayo Clinics in Minnesota, Florida, and Arizona, as well as the Mayo Clinic Health System. The study also concluded that "individual states where the Mayo Clinic concentrates its operations (Minnesota) benefit not only from widespread Mayo Clinic and Mayo Health System expenditure impacts, but also from a broad variety of functional impacts generated through Mayo Clinic's health care, research, and education missions". The study found the Mayo Clinic to be highly productive and "well positioned for continued leadership in the science and technology

driven 21<sup>st</sup> century economy, and that the nation and home states are likely to see significant further impacts and benefits from Mayo Clinic in the future” (Battelle 2010, pg. 11).

There are other indicators that show Rochester’s economic growth and prosperity. With the Mayo Clinic making up 50% of Rochester’s economy, much of the economic growth of the area can be attributed to the Mayo Clinic (Wade, personal communication). In November of 2011, Rochester had an unemployment rate of 4.2% compared to the national rate of 8.2% (Hansel 2011). Another indicator of Rochester’s economic success is a recent audit of the city’s finances. In July of 2012, the city’s finances for the previous year (2011) were reviewed. Rochester maintained its AAA bond rating (which is the highest possible). Rochester has maintained this rating since 1977. Overall, the audit showed that the city is being managed correctly and is in good financial shape (Grossfield 2012b).

The Mayo Clinic directly impacts Rochester’s income by being a major contributor to the tax base. A recent Olmsted County report found that “funding from the Rochester property tax is expected to increase annually due to the growth in the tax base as Rochester grows, propelled a large degree by the growth of the Mayo Clinic” (Financial Capacity Analysis 2013, pg. 37). As a non-profit organization, the Mayo Clinic does retain a tax-exempt status; however, with so many properties and subsidiary entities, the Clinic does contribute a lot to city taxes, especially through property taxes. According to 2011 data from the City of Rochester, the Mayo Clinic was the top taxpayer in the city (Proposed 2012 Budget for the City of Rochester). Their taxable market value is almost \$300 million and the Clinic has a total city tax capacity<sup>3</sup> of almost 6%, far exceeding any other organization or business.

As of April 2013, no data was made public about the direct impact on Rochester itself; however, a large portion of the \$9.6 billion statewide impact (calculated by the Battelle Institute) can be attributed to Rochester. On top of that, the Mayo Clinic generates \$1 billion in state and local tax revenue, \$764,284,852 of which is a direct

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<sup>3</sup> Tax capacity is a calculation of the share of property taxes based on market value and class rates.

impact (Battelle 2010, pg. 2). The Mayo Clinic also generates a personal income (total earnings) of \$4.6 billion in Minnesota directly.

## **B. Indirect Economic Impacts**

Rochester recently surpassed Duluth to become Minnesota's third largest city – behind Minneapolis and St. Paul. Rochester is also Minnesota's fastest growing city. According to the US Census, the population of Rochester grew from 85,806 in 2000 to 106,769 in 2010. That is a growth of almost 21,000 in 10 years. This rapid population growth is in part related to the Mayo Clinic and its expansion. According to a study performed by the Battelle Memorial Institute, the Mayo Clinic creates "more than 36,000 additional jobs needed to support Mayo's business volume" (Battelle 2010, pg. 4). Employment opportunities are continuing to grow in Rochester.

John Wade, President of the Rochester Area Chamber of Commerce says that the city is expecting to see 1,800 new jobs in the next 10 years in the biotech sector. Wade predicts that most of this growth will happen in the form of smaller, innovative, start-up companies (Wade, personal communication). The growth in this sector is, of course, influenced by Mayo. Economist and urban theorist, Richard Florida<sup>4</sup>, also points to Rochester as a place of fast growth, specifically in the creative class sector. Florida forecasts that Rochester will show "faster growth in new creative class jobs by 2020 than any other city in the United States" (Kiger 2012a). Florida's projection does not seem to be out of line when compared to data from the Minnesota Department of Employment and Economic Development. The DEED predicts that healthcare practitioner jobs could grow by 4,500 in the Rochester region (Kiger 2012a).

A large reason for this growth is Mayo's world renowned name and status. The Mayo Clinic has been at the top of "best hospital" lists for many decades, but recently it has become desirable in other ways as well; not just for patients looking for the best care. The National Business Group on Health has awarded the Mayo Clinic with its best *Employers for Healthy Lifestyles* award. This award is given to large employers that try to

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<sup>4</sup> In Florida's book *The Rise of the Creative Class*, the term creative class refers to many professions, including healthcare

improve their employees' health and quality of life. The Mayo Clinic offers many programs, services, and facilities for its employees. This type of environment makes the Mayo Clinic not only a desirable location for treatment, but also a desirable workplace ("Mayo clinic recognized," 2012).

Wade also mentioned the impacts that Mayo's physical growth has on the economy of Rochester; both short-term and long term. According to the Mayo Clinic 2011 Financial Report, "In 2012, Mayo Clinic will launch \$600 million in capital projects" and "estimates spending \$700 million per year in capital projects for the next five years" (Mayo Clinic 2011 Financial Report, pg. 35). This type of investment in building projects creates a ripple effect in Rochester's economy.

During the building process, hundreds of construction jobs are created in Rochester. The Mayo Clinic is currently working on building a proton beam cancer treatment center which is scheduled to be finished in 2015. Joe Toronto, construction project superintendent for Gilbane and Knuston Construction said that "about 65 workers are working on the cancer center, a number that will grow to as many as 250 workers as construction peaks later this year" (Baier 2012b). This has an immediate, short-term effect on the economy of Rochester. However, the construction of new buildings provides much more than a few hundred construction jobs in Rochester.

Wade said that through new construction projects and capital investments, Mayo not only makes a commitment to constructing new buildings, but "they also make an additional commitment to staffing them for many years to come" (Hansel 2011). Because of Mayo's commitment to capital investment, Wade estimated 10,000 to 12,000 new jobs in Rochester in the next 10 years. On top of creating both short-term and long-term jobs in Rochester, new Mayo construction has a ripple effect on the community. The safety director for the new proton beam cancer center has "relocated to Rochester to be part of the Rochester scene" (Baier 2012b). Drawing new employees creates demand in other sectors of the economy. According to Rory Lenton, Rochester Area Builders president, "Mayo's expansion projects keep builders busy and growing" but they also "add more employees who need homes" (Hansel 2011). Residential construction follows commercial

projects and on top of homes more grocery stores, banks, and similar businesses are needed, creating a ripple effect. The ripple effect also creates the need for sub-industries that are necessary to support the Mayo Clinic's business volume.

### **C. Sub-Industries**

The Mayo Clinic also has an indirect economic impact by creating a need for related industries and services. I will focus specifically on the lodging industry where the effects of Mayo can be seen very clearly. Rochester welcomes 2.75 million visitors annually, 763,000 of which are patients and their families. Rochester has a very high number of hotel rooms for a town with a population of 106,769 in 2012. As of July 2012, Rochester had 5,362 hotel rooms. This number will grow to over 5,400 in one year (Kiger 2012b). Rochester is second to only Minneapolis in number of hotel rooms in Minnesota. A large portion of hotel visitors are Mayo patients. Because of this high demand, the average price of a hotel in Rochester, at \$95, is much higher than that in Minneapolis or Duluth. In June of 2012 Rochester hotels were running a 68% occupancy rate<sup>5</sup>. Rochester also provides some specialty hotels that are usually not offered in a city of its size. Rochester has many extended-stay hotels, catering to patients with a long treatment time, and multiple high-end options.

Bruce Rohde of Facility Project Services at Mayo says that the Mayo Clinic does not partner with any private or corporate business in offering patient services that Mayo does not provide, such as accommodation (Rohde, personal communication). However, when Mayo sees a need for something they often bring this up to the City. Recently, patients illustrated a need for more high-end accommodations. The Kahler Grand Hotel in downtown Rochester responded by creating penthouses and suites in the top two floors of the current building. This type of request is another great example of the collaborative nature between the Mayo Clinic and the City.

Hotels in Rochester pride themselves in offering the easiest and fastest way to get to the Mayo Clinic and many provide patient services. The most common one of these are shuttles to and from Mayo Clinic buildings and the Rochester Airport. For example, the

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<sup>5</sup> According to Calculated Risk Finance and Economics, national occupancy rates were 53.5% in 2012.

Ramada Hotel in Rochester offers this type of service, eliminating the need for patients to get rental cars ("Ramada ," 2013). Premium locations for hotels are either near the Central Sub-District or the West Sub-District. According to a 2012 article in the Rochester Post-Bulletin, hotel development in Rochester is growing. A new Holiday Inn opened in June of 2012 and another hotel underwent a massive reconstruction and construction in set to begin in spring 2013 on a new Homewood Suites by Hilton. All these hotels are within 4 block radius of each other on the periphery of the West Sub-District (Kiger 2012b). This type of development is described as "prospective development" by Brad Jones, president of the Rochester Convention and Visitor Bureau. As long as Rochester is predicted to grow, hotel development will continue to try to stay ahead of the demand curve.

Other industries in Rochester are also fueled by the transient population which the Mayo Clinic attracts. Besides industries geared towards patient and employee support, there are many spinoff ventures. This quote from the Olmsted County Comprehensive Annual Financial Report, illustrates just one of these ventures:

"Having the Mayo Clinic, IBM, and now the University of Minnesota all located...[in Rochester] has spawned numerous businesses that want to take advantage of the opportunity to be close to global leaders in healthcare and technology. The Minnesota Partnership for the biotechnology and Medical Genomics is an economic development venture between the Mayo Clinic, University of Minnesota, and the State of Minnesota." (Olmsted County Comprehensive Annual Financial Report 2010, pg. 9).

Two specific areas of sub-industries are visible in Rochester. One area is comprised of businesses that cater to patients such as lodging, transit, entertainment. The second area includes other medical and technology firms that feed off of the Mayo Clinic and develop new products and ideas for the medical industry. As with the Special District, economic policies and plans often require increased collaboration between the City government and the Mayo Clinic.

#### **D. Future Collaborations**

Most recently, a new public-private partnership between the Mayo Clinic and the City of Rochester is going a step further and seeking support and assistance on a state-level. Destination Medical Center (DMC), formerly known as Destination Medical Community, is a \$5 billion dollar economic development initiative which is led by the Mayo Clinic and the City of Rochester.

This plan, proposed in January 2013, asks the state of Minnesota “to inject half a billion dollars into the Rochester area to ensure that the city’s development keeps pace with the medical institution’s ambitious growth plans” (Crosby 2013). This money would spur an almost \$6 billion capital investment commitment. In the coming years, the Mayo Clinic has pledged \$3.5 billion in facilities expansion and upgrades and \$2 billion in private investment. Officials say that these figures would “make the effort the largest economic development initiative in Minnesota and one of the largest in the nation” (Crosby 2013).

Again, the Clinic and the City are asking for a “special district” of sorts. The \$585 million from the state would not be upfront funding, but rather DMC is asking Legislature to approve a special taxing district that would exist around the Mayo Clinic campus. The resulting \$30 million a year that would result from this district would help pay for “parking and transportation, demolition and cleanup of building sites, and land acquisition” (Crosby 2013).

The plan aims to capture “income taxes, corporate franchise taxes, statewide business property taxes, and sales taxes generated by Mayo Clinic’s expansion” (Carlson 2013). The plan would be financed using a plan known as tax increment financing (TIF). TIF is a public financing option that provides subsidies for development and infrastructure. TIF operates on the assumption that due to the development, there will be an increase in taxes in the future, and therefore, uses this hypothetical gain to subsidize current development. This TIF would be applied to the above mentioned taxing district.

Before the investment is made, the Mayo Clinic and Rochester want to have assurance that the state is willing to help in the funding. The additional taxes generated through this special taxing district will help fund other infrastructure projects on a city-scale such as roads and bridge in addition to projects listed above (Carlson, 2013a). As



yet another public-private partnership, this effort would leverage large funds for urban development in Rochester. According to Mayo Clinic CEO Dr. John Noseworthy, “for every \$1 in public financing, the project would leverage \$10 in private investment” (Crosby, 2013).

Similar financing strategies are in place at other medical institutions, and the Mayo Clinic is claiming that in order to stay competitive, it also requires public financing. Cleveland, Ohio has embarked on a similar plan called the Global Center for Health Innovation. This project uses \$465 million in public money to finance a “convention, exhibition, and mixed-use space” (Cleveland's 'DMC' is nearing completion 2013). Groundbreaking began in January 2011.

As of February 2013, the DMC proposal passed out of a Senate committee by a unanimous voice vote and has been “given the thumbs up at two legislative hearings – one in the House, the other in the Senate” (Stolle 2013). While the proposal still has to pass through numerous committees and tougher questions will be asked, these first advances seem promising. Another positive indicator for Rochester and the Mayo Clinic is that Gov. Mark Dayton is very interested in the proposal. An article from March 2013 stated that “this is a priority for the administration, and the governor is signaling that” (Carlson, 2013b).

This proposal is yet another example of the collaborative nature between the City and the Mayo Clinic. As with the partnership that resulted in the Special District, this collaboration could again result in physical changes to Rochester’s landscape. Both City and Clinic would benefit from this \$585 million, and the proposal claims that since the Mayo Clinic is such a large business, this move would benefit the state as well. However, the clearest benefits will be reaped by the City and the Clinic. The DMC plan is just another example of how the City and the Mayo Clinic are interdependent on one another, and also how they rely on each other for help in pushing through plans and proposals.

## **VI. CONCLUSION**

This research has led me to some important conclusions – about Rochester, specialized function cities as a broader category, and even city politics and economics. First, let me start with Rochester specifically.

The urban form, specifically the CBD, is directly affected by the healthcare industry and especially by the zoning overlay that created the Medical Institutional Special District. Downtown's current form and social climate are related directly to the Mayo Clinic and its expansion practices. There are numerous ways through which the urban form is affected: 1) Due to Ordinance 2726, Rochester's CBD has a smooth gradient of transition between residential and commercial land use, 2) the Clinic's presence and Special District create a lot of empty lots in a desirable part of town, 3) historic preservation within the CBD has been dictated by Mayo's development interests, 4) high land values, due to the Mayo Clinic's demand, exclude residential uses from the core downtown area, and finally 5) planning within the downtown area has become a collaborative effort of City planning agencies and the Mayo Clinic. From the architecture to the buildings, to historic preservation, empty lots, everything within the CBD is managed or at least influenced by the Clinic. After reading the presented research, there should be no doubt that the Mayo Clinic influences the physical urban form of the city.

While the zoning regulations and expansion of the Clinic do impact the City in a beneficial way, private interests are still the driving force behind land use zoning (Moore 2007). The direct benefits of this zoning and land use regulation are greater for the Mayo Clinic than for the city. Even though the city does benefit from the Special District as well, the intent of the regulation is to benefit the industry, in this case the Mayo Clinic, rather than the city and its residents. The short term benefits are clearly seen by the Mayo Clinic, however, over the long term, these benefits are more equally displaced as the city economy sees trickle down effects initiated by expansion within the Special District. The City government does see immediate benefits; usually in the form of reduced costs associated with infrastructure maintenance and elimination of unnecessary paperwork.

While those are conclusions that are directly related to Rochester, there are many more that can be applied on a larger scale and to other theories. Individual case studies and conclusions cannot be extrapolated to a larger scale, however, they can be used to inform theory and do provide context for studying other cases (Yin 1998, Harris and Ullman 1945).

One of these broad conclusions that I derived from this study is that specialization of the city does not necessarily hinder or impede growth/economic development in any way, in fact, it can be the driving force of growth – as is illustrated in Rochester. The specialization creates a specialized workforce and urban form that is conducive to future development of the healthcare industry. The site, the CBD, is perfectly staged for future Mayo expansion and growth. The Clinic, with the help of the City, has created an ideal location and characteristics for the healthcare industry. This leads me to the broader idea that specializations within cities do more than shape the workforce and economy, they also shape the physical entity of the city. Specialized cities develop an urban form that complements the leading industry. This has been seen in cities with an industrial specialization, in Rust Belt cities and perhaps best of all Detroit. While industrial specializations are becoming largely obsolete in American cities, knowledge-economy specializations are only going to increase and new urban landscape will be created.

While these industries – technology, medicine, management – are not innately seen as physical buildings and campuses like the auto industry, they do require physical infrastructure and do have the same ability to shape urban landscapes. In the past, cities formed and grew because of related physical features and resources such as a rivers and ocean ports. In today's world, these "resources" can be more easily altered and manipulated by industry, so that in effect the industry builds the city. In Rochester, the Mayo Clinic has both literally and figuratively built the city into what it is today.

The second and most important conclusion of my study is that a specialization can create an environment that is conducive to a high level of collaboration between the City and industry. The industry and City of Rochester have a favorable relationship. Because there is only one industry, it is easier to create strong ties between political machines and

government and the industry than it would be a city with numerous industries and economic interests. Florida claims that “places with dense ties and [high level networks] provide advantages to insiders and promote stability” (Florida 2005, pg. 31). In Rochester’s case, strong ties are formed between the industry and the city and government. These strong ties, as Florida implies, do create a favorable setting and advantages. Ordinance 2726 would not have been passed and implemented if there were not strong connections in place between the Mayo Clinic, the city, and the city government. Likewise, other projects and initiatives benefitting the Mayo Clinic and its growth would not exist without this dense network of connections. This dense network also results in a second phenomenon – the idea that it is difficult for outsiders and other industries to gain a competitive edge within Rochester.

Essentially, the specialization creates a monopoly within the city, but not only a monopoly in an economic sense. The industry also monopolizes these ties and connections so other competitors or industries are not able to form such strong relationships with governing bodies and alliances. In Rochester, the Mayo Clinic has clearly monopolized these ties. They are heavily involved in nearly every aspect of the city and work closely with the local government on numerous projects, which my paper only brushed upon. While there are other large companies in Rochester – such as IBM – they do not have the same relationship and political clout that the Mayo Clinic does. Rochester’s success and strong economy prove that these connections do promote stability and even growth for the region.

This perhaps sheds light on a broader idea that industries not only aim to create an economic monopoly but also a political monopoly. Of course, this is not a revelation, but the idea that strong connections between industry and City propel growth is something that has not been fully explored. In a specialized function city, it is much, much easier for the industry to create a favorable relationship with local government and other interests within the city. These relationships then help promote that industry, in a way creating a cycle. Cities with numerous industries, firms, and companies, do not have the luxury of forming dense ties with each one, especially if some of the industries are

competing against one another. While competition and a diversified economic base are beneficial in some ways, they are not beneficial when forming these ties.

While Glaeser, Romer, Marshall, Arrow, Smith, Florida and other scholars talked about spillovers, competition, capturing efficiencies, talented and mobilized workforce as benefits of specializations, I would add the aforementioned conclusion to this list as yet another spillover of specialization. Specialized function cities also benefit from the increased collaboration and heightened amount of connections that the lack of competitors affords. As I mentioned before, having a monopoly on these relationships is just as important as having an economic monopoly – and the two are closely related.

It may seem that I am an advocate for specialized function cities, and that is mostly true. Of course, not every city can become specialized, nor should it. But there are advantages to taking such a path to growth, as this research has presented. Specializations of cities are changing – we are moving away from industrial specializations such as mining and auto industry and moving towards k-economy specializations. There are many cities and regions in the US that have a high-tech specialization, service sector specialization, or a medical industry specialization, and these are the types of specializations I am trying to promote.

These specializations still require physical place. Rochester has shown that a new economy specialization can and does work, perhaps even better than conventional specializations. On the other hand, cities need to be cooperative with these industries and allow said firm or company some benefits to growing and expanding within the city. The Mayo Clinic has made a name for itself, and could very easily move to a larger city where access would be much easier and where there would be a larger support industry. It hasn't moved because of the advantages and benefits the city offers; Ordinance 2726, and Destination Medical Center being only a few of the perks. Both industry and city can benefit from this type of arrangement; Rochester is only one example of such a trend in growing private-public partnerships.

Moving forward, it is important to look at specializations as a viable pathway to growth, especially k-economy specializations. As previous theory and this research have

shown, specializations have several benefits for the urban areas in which they are situated. I predict that Rochester and the Mayo Clinic will continue to grow and develop in the next few decades and the ties between the City and Clinic will only become stronger. Rochester is an ideal location to study the effects and trends of a specialization and will continue to be so in the future.

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