DEPARTMENT OF TRANSPORTATION

Assessing the Economic Effects of Context-Sensitive Main Street Highways in Small Cities

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16. Abstract (Limit: 250 words) Complete Streets is a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient, and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation. While there have been multiple studies on Complete Streets in metropolitan areas, little is known about these projects impacts in small cities. In this research, we assess the economic impacts of Complete Streets projects on small-city businesses through case studies and by comparing economic measures from a group of cities with Complete Streets projects to comparable control groups without these streets. Our findings show that few respondents perceive a direct impact for their business, but many feel that the reconstructions have been (would be) beneficial for the city. Mechanisms through which Complete Streets might impact businesses and the local economy include altering of business practices, changing of city practices, or acting as a catalyst for additional investment. In addition, our results suggest that Complete Streets projects may improve the economic activity of small cities to some extent, particularly when considering revenues from property taxes. The research team also develops a consistent set of economic metrics that MnDOT and local transportation agencies can use to evaluate and communicate the effect of context-sensitive main street highways.			
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FINAL REPORT

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LIST OF ABBREVIATIONS

ACS	American Community Survey
ADA	American with Disabilities Act
APS	Accessible Pedestrian Signal
ATP	Area Transportation Partnership
BLS	Bureau of Labor Statistics
CBP	County Business Patterns
DEED	Department of Employment and Economic Development
DID	Difference-in-Difference
DOR	Department of Revenue
LEHD	Longitudinal Employer-Household Dynamics
MnDOT	Minnesota Department of Transportation
MNIT	Minnesota IT Services
NAICS	North American Industry Classification System
OSA	Office of the State Auditor
QCEW	Quarterly Census of Employment and Wages
ROAD	Redesigning of Alexandria's Downtown
RQI	Ride Quality Index
TAP	Technical Advisory Panel

EXECUTIVE SUMMARY

Complete Streets are streets designed and operated to enable safe use and support mobility for all users. This design and planning approach often aims to improve the experience of pedestrians, bicyclists, and others who are not well served by traditional methods that focus mainly on motorists. This approach to street design may have a positive impact on economic vitality, public safety, and public health. Complete Streets improvements may have unique effects in small cities with less than 20,000 people because of their potential to impact local businesses. However, research on this is limited. Existing literature provides mixed evidence about the effects of Complete Streets improvements on local economies. While some studies have found some evidence that Complete Streets improvements have positive effects on business sales, many of them rely on simple methods that cannot provide any evidence of causation. In addition, the existing literature on the impacts of Complete Streets focuses on large cities, which limits the applicability of their findings to small cities.

In this research, we assess the economic impacts of Complete Streets projects on small-city businesses during and after construction, and then recommend quantitative and qualitative metrics to assess the economic impacts of Complete Streets projects.

Case Studies of Complete Streets in Small Cities in Minnesota

Researchers conducted nine case studies to assess the economic impact of Complete Streets on small city businesses during and after construction. Most of the projects in the case studies began with a MnDOT plan to mill and overlay the roads and address sidewalk and curb deficiencies to comply with the Americans with Disabilities Act (ADA). When the project was announced, city staff worked alongside MnDOT to incorporate Complete Street elements into the project design. Selected sites used the MnDOT project as an opportunity to update utilities, calm traffic, and improve safety for pedestrians and cyclists, and some also leveraged the project to revitalize the central commercial district to draw more tourists or residents.

The following are key findings from across projects:

Perceived economic impact — Less than half of the interviewees felt that the reconstruction of Complete Streets directly affected or would affect their businesses beyond the construction phase. Although few interviewees perceived a direct impact for their business, many felt that the reconstructions had been or would be beneficial for the city's economy. Officials pointed to fewer vacancies, the relocation of businesses to the downtown or commercial area, increased investment dollars, and increased property values. Interviewees identified three mechanisms through which Complete Streets might impact businesses and the local economy:

- By altering business practices — Related to increased sidewalk area allowing for sidewalk sales and advertising
- By changing city practices — Activities that drive economic activity such as community events

- By acting as a catalyst for additional investment — Increased investments on or near the project area such as facade improvements and the rebuilding of downtown buildings

Business involvement — Nearly all projects involved extensive business engagement, particularly in the more recent improvement projects. While the construction period was difficult for most interviewees, a majority viewed the construction as unavoidable and spoke positively about the engagement activities MnDOT and city staff undertook to ease the construction phase. Concerns from business owners centered on the disruption and lack of access caused by construction, the potential loss of on-street parking, and the general narrowing of the road.

Perceived impact on accessibility and transportation — Views on transportation were mixed, with most interviewees stating that they did not think the changes led to more walking or biking. To the extent that interviewees perceived a positive impact, it was typically related to increased pedestrian activity. In terms of accessibility, while not all respondents reported seeing wheelchairs regularly, those that did were overwhelmingly positive about the impacts for individuals in wheelchairs.

Perceived impact on safety — Overall, views on safety were mixed. Some interviewees felt that the roads were safer due to enhanced pedestrian crossings, addition of a center turn lane and ADA-compliant sidewalks. However, other interviewees felt that roads were more dangerous due to narrower lanes, congestion, and unsafe driver behavior.

Estimating Economic Impacts of Complete Streets on Small Cities

Researchers conducted a difference-in-difference (DID) analysis to estimate the economic impacts of Complete Streets on small cities. The results suggested that having a Complete Streets reconstruction project may improve the economic activity of small cities to some extent, particularly when considering revenues from property taxes. It is possible that the cities in the sample experienced an increase in properties' assessed values, which increases the tax base, and thus revenues collected from property taxes. It is also possible that these improvements bring additional investments in the city that are also reflected in an increase in property tax revenues. Contrary to the results of previous study findings suggesting that business sales were positively impacted by Complete Streets, our results did not provide evidence of it. While our results showed a positive impact on gross sales, these were not significant. Lastly, the results regarding the impacts of Complete Streets reconstructions on the number of firms in this study were not as expected. The impact on the number of firms was negative but future research work will be needed in this area. It is possible that the number of small firms leaving the market was higher than the number of bigger new firms emerging. However, the variable used in this analysis did not consider the size of these firms.

Recommended Metrics for Assessing Economic Impacts of Complete Streets

Researchers recommended quantitative and qualitative metrics to assess the economic impacts of Complete Streets projects. While quantitative data refers to counts and revenues, qualitative data refers to perceptions from local business owners and city staff. Recommended metrics are categorized into direct and indirect measures. Direct measures of economic impacts are outputs of business activity

including gross sales, firms, jobs, storefront vacancies, property value, public and private investment, and tax revenues. Indirect measures of the economic impact are variables that may channel economic impacts, that is, those that affect factors that may affect business activities. Recommended measures include pedestrian and bicycle activity, availability of parking, crashes, and average vehicle speed.

Recommendations in Developing Complete Street Projects in Small Cities

Based on the research findings, the research team developed recommendations to support MnDOT and local agencies in small cities in developing Complete Streets projects, communicating effectively, and monitoring the impacts of context-sensitive main street highway projects.

Recommendations for MnDOT and city staff when developing Complete Streets projects:

- Align Complete Streets reconstructions schedule with other city investments
- Consider alternative funding mechanisms to alleviate the financial burden on local businesses
- Continue emphasizing business access throughout the Complete Streets reconstruction
- Continue the coordination of reconstruction schedules with local representatives and the community

Recommendations/best practices for engaging and communicating with local businesses:

- Continue clear and consistent communication with local businesses throughout all phases of a Complete Streets project
- Adopt innovative approaches to engage local business

Recommendations regarding data for measuring the economic impact of Complete Streets projects:

- Revise processes for data entry and validation to improve data quality
- Develop project-specific evaluation plans for all Complete Streets projects

CHAPTER 1: INTRODUCTION

Complete Streets are streets designed and operated to enable safe use and support mobility for all users (USDOT, 2015). This design and planning approach often aims to improve the experience of pedestrians, bicyclists, and others who are not well served by traditional methods that focus mainly on motorists. Elements such as sidewalks, bike lanes, and pedestrian crossings are commonly associated with Complete Streets although the exact elements that make a street "complete" vary based on an area's characteristics (Perk, Catala, & Mantius, 2015). This inclusive approach to street design may have a positive impact on economic vitality, public safety, and public health.

Minnesota Department of Transportation (MnDOT) policy requires all phases of its trunk highway projects to follow a Complete Streets approach (MnDOT, 2016b). While trunk highways commonly carry high-speed, regional traffic, they also serve as commercial main streets in many small cities in Minnesota. In these cases, the highways have a dual purpose of serving both regional and local travelers. This can bring non-local customers to businesses but can also create disruptive pass-through traffic. Complete Streets improvements may have unique effects in these communities because of their potential to impact local businesses, yet there is little available evidence about the impacts of Complete Streets in small cities.

The goal of this research is to assess the economic impacts of Complete Streets projects on small-city businesses during and after construction. It will include case studies of main street projects, quantitative analysis of the effects of Complete Streets improvements on business sales, and the creation of econometric measures that can be used to evaluate and communicate the impacts of Complete Streets projects. A stronger understanding of Complete Streets projects in small towns and cities could help MnDOT better engage with local businesses and assess the impacts of its road construction projects across the state.

CHAPTER 2: LITERATURE REVIEW

2.1 COMPLETE STREETS POLICIES

2.1.1 Complete Streets Overview

Complete streets are streets designed and operated to enable safe use and support mobility for all users (USDOT, 2015). Typically, Complete Streets improvements improve experiences for groups such as pedestrians, bicyclists, transit users, older people, and people with disabilities. This approach to street design is a departure from more traditional methods that primarily consider street design from the perspective of motorists. The exact definition of Complete Streets varies between different policies, but Minnesota statutes define it as:

> *"The planning, scoping, design, implementation, operation, and maintenance of roads in order to reasonably address the safety and accessibility needs of users of all ages and abilities. Complete Streets considers the needs of motorists, pedestrians, transit users and vehicles, bicyclists, and commercial and emergency vehicles moving along and across roads, intersections, and crossings in a manner that is sensitive to the local context and recognizes that the needs vary in urban, suburban, and rural settings"* (MN Stat. § 174.75 Sub.1).

An important aspect of the Complete Streets approach is that it is context-sensitive, meaning the characteristics of a complete street vary depending on the surrounding community and environment. MnDOT considers a variety of contextual factors during its process, including community context, topography, road function, traffic speed, freight volumes, and pedestrian and bicyclist demand (MnDOT, 2016a). Each of these considerations affect the design of Complete Streets elements that may be appropriate for a given street. Complete streets are often thought to be connected to an approach called Context-Sensitive Solutions, a process of engaging the public and all stakeholders during all phases of program delivery (Slotterback & Zerger, 2013). This engagement plays an important role in understanding community context.

Although Complete Streets is an approach rather than a prescribed set of features, there are many features commonly associated with these improvements. Some common project features used by MnDOT include paved shoulders, sidewalks, bike lanes, pedestrian refuge medians, truck mountable curbs or roundabouts, signal retiming, updated striping, and bus stop access (MnDOT, 2016a). Streetscaping and landscaping, narrower travel lanes, bus lanes, and roundabouts are also commonly part of Complete Streets improvements (Perk, Catala, & Mantius, 2015; USDOT, 2015). Collectively, these improvements can encourage active transportation, increase safety for pedestrians and bicyclists, and create more aesthetically pleasing and livable spaces. In addition to community context, the inclusion of these features depends on available funding.

2.1.2 Complete Streets Policies

Complete Streets policies have become much more common in states and localities across the U.S. in recent decades. According to Smart Growth America and the National Complete Streets Coalition, over 1,450 agencies at the local, regional, and state levels have adopted Complete Streets policies. Most of those policies have been at the municipal-level and have most commonly been resolutions (Smart Growth America, 2020). Complete streets policies have been less commonly adopted in small cities (Carlson, et al., 2016).

Several types of Complete Streets policies have been enacted across the country. In an initial study, Gregg and Hess (2018) reviewed a sample of the municipal policies cataloged by the National Complete Streets Coalition to better understand how they define "Complete Streets", common design elements, and how tradeoffs are handled between motorized and non-motorized users. The review notes that there is a variety of policy categories and there is an important difference between non-binding resolutions and actual legislation. The study broadly found that most adopted complete policies were aspirational and without a clear legal mandate, leading to the overall conclusion that existing policies were relatively weak.

Another study, the first systematic review of state Complete Streets legislation, found that 18 states and Washington, D.C. had adopted Complete Streets legislative statutes. Of those, about three-quarters had been adopted since 2007 (Porter, et al., 2016). The researchers examined four key aspects of existing state policies that were directly connected to implementation concerns such as funding, feasibility, and usage. The authors found that almost half of the policies encouraged or required the accommodation of pedestrians and bicyclists in local plans (48 percent) and referred to network connectivity as an explicit purpose of the statute (43 percent). To a lesser extent, the policies also referred to specific funding allocations to support the construction and maintenance of accommodations for pedestrians (28 percent) and indicated whether the law applied to state and federally funded roads (24 percent). An additional piece of research concluded that state Complete Streets policies have grown more comprehensive over time (Yusuf, O'Connell, Rawat, & Anuar, 2016).

The state of Minnesota adopted its Complete Streets legislation as part of the 2010 transportation omnibus bill (MN Stat § 174.75). It required MnDOT to lead a partnership with other transportation stakeholders to develop a Complete Streets policy for Minnesota trunk highways and introduced the agency's definition of Complete Streets. This legislation led to the adoption of an official MnDOT Complete Streets policy in 2013, later revised in 2016 (MnDOT, 2016b). The policy specifies that MnDOT must take a Complete Streets approach to individual projects and when developing capital spending plans such as Area Transportation Improvement Programs. It also requires all preservation projects to follow a Complete Streets approach, although it recognizes that budget may constrain improvements that go beyond infrastructure maintenance and life extension. Overall, the policy is intended to support several key transportation goals:

- Minimize fatalities and injuries for transportation users

- Provide multimodal and intermodal transportation facilities and services to increase access for all persons and businesses
- Increase use of transit as a percentage of all trips
- Increase bicycling and walking as a percentage of all trips.

These goals directly connect to those in the Minnesota GO and Statewide Multimodal Transportation plans. While only transportation goals are explicitly included in the policy, goals related to economic vitality and public health are referenced in other documents published by MnDOT (Marti, Kuehl, & Giese, 2013) as well as on MnDOT's Complete Streets homepage (MnDOT, 2016a). The state Complete Streets legislation also encouraged, although did not require, local communities to adopt their own policies. According to the data maintained by Smart Growth America, 42 cities, counties, and regional organizations in Minnesota have implemented their own Complete Streets ordinances, resolutions, or policies. These include Minneapolis, St. Paul, Duluth, and Rochester in addition to many smaller communities (Smart Growth America, 2020).

2.2 COMMUNITY IMPACTS OF COMPLETE STREETS

Complete streets improvements can have several benefits for communities. Improving infrastructure to serve a broader group of potential users can lead to enhanced economic vitality, safety, and public health. Given the focus of our research, this literature review will focus mostly on the potential economic impacts of Complete Streets projects on local businesses.[1]

2.2.1 Economic Impacts of Complete Streets

Research related to the economic impacts of Complete Streets predominantly explores the effects of projects on two aspects of local economies: business activity -measured through sales, employment, and survival- and property values. Studies about business impacts are particularly relevant for our project. In addition to studies that specifically evaluate Complete Streets improvements, others provide evidence about the impact of design elements commonly associated with Complete Streets such as sidewalks and bike lanes.

Complete streets improvements may affect local economies in several ways. Improvements during the construction stage, for instance, can reduce traffic lanes or parking. These may make accessing business

[1] For a more complete review of the safety and health benefits of Complete Streets, please refer to the literature review for the project *How do Complete Streets Matter for Communities? The Case of Richfield, Minnesota* (Phinney, Fonseca, Bean, & Zhao, 2020).

more difficult and lead to sales decline. In the long term, these improvements can potentially bring more customers to nearby businesses by increasing pedestrian, bicycle, and transit access. Improvements to both street aesthetics and livability may also encourage potential customers to visit an area and stay longer. This can lead to a broader conception of a street as a destination itself (Hui, Saxe, Roorda, Hess, & Miller, 2017) that increases traffic to local businesses. These same improvements in accessibility and livability may also affect nearby property values. A large body of literature has also found evidence that residential and commercial property values benefit from transit access (Duncan, et al., 2020; Hamidi, Kittrell, & Ewing, 2016) and walkability (Perk, Catala, & Mantius, 2015; Pivo & Fisher, 2011).

2.2.1.1 Impacts of Complete Streets on Businesses

The effect of Complete Streets on businesses is typically evaluated using business sales, often measured using sales tax revenue data. Other measures such as business establishment, failure, or employment may also be used, but their value is limited by their smaller sample sizes. Existing studies about business impacts use different levels of analysis. Some measure the impacts of Complete Streets at the business level, while others compare changes by street or jurisdiction. Generally, more recent studies have used more sophisticated analysis methods as described below.

The New York City Department of Transportation conducted an early analysis of retail sales tax revenue before and after Complete Streets improvements (NYDOT, 2013). It compared trends in aggregated sales tax data between seven improvement sites and control sites with a variety of different improvements. Overall, it found they generally had positive impacts, although it relied on a simple comparison of trends rather than a method that could generate evidence of causation. It also found that sales changes began to emerge between one and two years after project completion, suggesting that this period may be long enough to evaluate future projects. A report from Smart Growth America using a similar methodology found higher employment in most improved areas, compared to controls, and increases in new businesses in each community studied (Anderson, et al., 2015). A third paper evaluated three urban Complete Streets projects and similarly found they were associated with nearby job growth (Perk, Catala, & Mantius, 2015).

Liu & Shi (2020) explored the impact of Complete Streets and other improvements to pedestrian and bicycle facilities with a focus on improvements that reduce traffic lanes or parking for businesses. The authors analyzed street improvement corridors in seven major cities using more robust methods-difference-in-difference analysis and interrupted time series analysis. The authors found a mix of positive and non-significant impacts on corridor employment and sales, and strong positive impacts on foodservice businesses, in particular.

Phinney et al. (2020) also studied the impact of complete street improvements on business activity in Richfield, Minnesota. The authors interviewed owners and managers of Richfield businesses along three stretches of road. Few interviewees believed the improvements had directly affected their business activity, although some did speculate that the pedestrian improvements would lead to more foot traffic.

Most respondents also indicated that the construction itself had a negative impact on their business, ranging from an "inconvenience" to a "significant disruption".

Additional studies about the features associated with Complete Streets have also contributed to the understanding of its economic impacts. Studies on the introduction of bike lanes, for instance, have mostly found positive or non-significant effects on businesses, and provide evidence that bicyclists spend more at local businesses. With data from the second quarter of 2011, Stantec Consulting (2011) analyzed the impact of bike lanes completed in June and December 2010 in Vancouver. The organization found that bike lanes were associated with sales losses of between 6 and 9 percent. Factors that contributed to this included increased traffic congestion, lack of parking, turning restrictions, and reduced pedestrian safety.

McCormick (2012) used sales tax and property value data to examine the effect of a road diet in Los Angeles that eliminated two of four traffic lanes and added a turn lane and two bike lanes. Compared to a connected street, the author found a small increase in sales tax revenue and concludes that road diets have little effect on surrounding businesses, property values, and customer shopping patterns. According to the study, merchants did not feel that bike lanes hurt their businesses, and a large percentage of customers believed that bike lanes were important roadway additions. In addition, merchants assumed more customers drive than reflected in customer survey responses. Similarly, analyzing sales and employment data from three corridors in San Francisco that added bike lanes, Poirier (2018) found a large positive relationship between lane intervention and business performance. According to the author, abutting local-serving businesses have higher sales over a 5-year period than non-abutting businesses (with two corridors having an increase of more than 20 percent). However, when all businesses were considered, the results from two corridors showed a decline in sales (between 5 and 16 percent).

Arancibia, et al. (2019) analyzed a pilot bike lane addition in Toronto that came with the removal of on-street parking. Overall, the business environment improved during the pilot with an increase in visitor spending, visit frequency, and customer counts. Comparing the street with a control site, the authors found a positive or neutral impact on these local economic indicators. According to the authors, those who walk or bike were the most likely to spend $100 or more per month, both before and after the bike lane's installation. However, cyclists had a 16 percent increased likelihood of spending at least $100 over people who walked after the installation of bike lanes.

Overall, these studies provide valuable insight about the impact of Complete Streets improvements on nearby businesses. Studies have found some evidence that business sales are positively impacted, but generally relied on simple analysis techniques that did not control for extraneous factors or test the statistical significance of observed differences. They also typically do not control for selection bias when considering which streets receive complete street improvements.

The generalizability of these studies is limited by their total focus on large cities. Differences in community context including business characteristics and mode choice may result in street usage and

complete street improvements that are different than those in smaller communities, complicating the extension of these findings to small towns and cities.

2.2.1.2 Impacts of Complete Streets on Property Values

Besides impacting business sales, improved mobility infrastructure and accessibility can positively impact property values, leading to more wealth for homeowners, higher rents, and more property tax revenue. Assessed home prices and commercial rents are commonly used to assess the impact of Complete Streets on property values. Studies that evaluate the impact of Complete Streets on property values have generally used quasi-experimental designs and found little evidence of a significant effect.

One 2017 study examined the impact of Complete Streets on the appraised values of single-family homes in Orlando, Florida (Yu, Xu, Towne, & Iman, 2017). Using propensity score matching, it found that the value of homes near the improvements had 8.2 percent higher appreciation than in control groups but did not test whether this difference was statistically significant. McCormick (2012) also found no significant evidence that the previously referenced road diet impacted property values.

A previous MnDOT study conducted a similar analysis about how Complete Streets affected appraised residential property values in Richfield, Minnesota using difference-in-difference analysis (Phinney, Fonseca, Bean, & Zhao, 2020). It found no evidence that the improvements had a statistically significant impact on property values. An additional study explored the effects of municipal Complete Streets policy adoption, rather than project impact, on home prices. Using difference-in-difference analysis, it also found no evidence of increased home values (Vandegrift & Zanoni, 2018).

In contrast, a Smart Growth America study of Complete Streets projects found increases in property values in eight of ten case study communities that had available data. However, their report acknowledges that more data and research are needed on the subject. Increases in property values may raise concerns about affordability, gentrification, and displacement. There concerns have been raised but more research demonstrating a relationship between increased property values from Complete Streets projects and displacement is needed (Zavestoski & Agyeman, 2014). Only one recent longitudinal study of bike lanes, one common element of Complete Streets projects, installed in residential neighborhoods in 29 cities between 2000 and 2019 found that installation of bike infrastructure was not associated with residential displacement (Ferenchak & Marshall, 2021).

In summary, recent studies about property value impacts have used sophisticated methods but found little evidence of a positive effect. Similar to the literature about business impacts, these studies focus exclusively on projects in large cities which may limit the applicability of their findings to small cities.

2.2.2 Safety and Health Impacts of Complete Streets

Complete streets improvements are often associated with safety and public health improvements. These are highly touted benefits of Complete Streets, and it is important to briefly review them even though they are not the primary focus of our research. Both types of benefits may generate indirect economic effects as well.

Using a Complete Streets approach to street design can improve public safety by prioritizing the safety of groups such as pedestrians and bicyclists. According to the National Center for Statistics and Analysis, 36,560 Americans died in motor vehicle crashes in 2018 (National Center for Statistics and Analysis, 2019). While the number of motorists killed has been declining, more pedestrians and cyclists died in 2018 than in any year since 1990 (National Center for Statistics and Analysis, 2019). Combined, 7,000 pedestrians and cyclists died from car crashes that year. A major contributor to these crashes is that conventional street planning and design has typically emphasized the importance of motor vehicle speed and volume at the expense of the needs of other groups of street users.

The addition of features such as sidewalks, crosswalks, and bike lanes can increase safety and accessibility for vulnerable user groups by giving them dedicated spaces. Traffic calming strategies employed as part of Complete Streets improvements can also decrease vehicle speeds, a major factor in deadly collisions. One study of multiple Complete Streets projects found that vehicle crashes declined on 70 percent of affected streets (Anderson, et al., 2015). Several studies have found that streets with common complete street elements have lower crash rates (Huang, Stewart, & Zegeer, 2002; Zegeer & Bushell, 2012).

In addition to the human toll of car crashes, unsafe streets have economic consequences. In their study of 34 Complete Streets projects across the U.S., Smart Growth America found that these Complete Streets improvements collectively averted $18.1 million in costs associated with car crashes in one year. The study also found that these projects would pay for themselves in less than 8 years, due to these cost savings (Smart Growth America, 2015).

Complete streets also promote active transportation, which is beneficial for community health. Physical activity has been well-established in academic literature as a preventative factor for a range of negative physical and mental health outcomes (Manley, 1996; WHO, 2004). There is some evidence that Complete Streets projects lead directly to more physical activity. One study of multiple Complete Streets projects found that pedestrian counts increased in 12 of 13 measured projects and bicycle counts in 22 of 23 (Anderson, et al., 2015). There is also evidence that common design features of Complete Streets lead to increased physical activity, and a review of 23 published articles about the relationship between built environment and health found that more walkable neighborhoods were associated with increased physical activity and fewer health problems such as obesity, depression, and alcohol abuse (Renalds, Smith, & Hale, 2010).

2.3 COMPLETE STREETS IN SMALL CITIES

2.3.1 Small City Characteristics

Small cities and towns are home to a significant amount of Minnesota's population. The U.S. Census Bureau defines mid-sized cities as those with a population between 5,000 and 10,000 and small cities as those with less than 5,000 residents (Toukabri & Medina, 2020). According to data from the Minnesota State Demographic Center (2020), over 20 percent of Minnesotans live in these communities, which are the primary focus of this study. Minnesota's small cities are diverse, yet commonly share community and transportation characteristics distinct from large cities. Three common features of small cities are the dual role of trunk highways as main streets lower rates of active transportation use than large cities, and unique land use and development patterns. These affect the type of Complete Streets improvements that may be appropriate in these communities, as well as their potential impacts.

Trunk highways often serve as commercial main streets in small cities and this may influence the effects of MnDOT construction projects in these areas. These streets have the dual purpose of serving both regional and community mobility needs, which can benefit local businesses by bringing in non-local traffic but can also create tension between balancing the needs of regional and local users (Nicholls, Payne, Gear, & Miller, 2009; Nicholls, Cannon, Duffy, & Stevens, 2011). Highways are typically designed to serve regional travelers and freight by facilitating high vehicle speed, yet this can create an unpleasant and dangerous environment for pedestrians, bicyclists, and others that spend time around a main street. In addition to noise and disruption caused by pass-through traffic, 60 percent of traffic fatalities occur in rural regions, as well as a disproportionate number of pedestrian deaths (Alta Planning and Design, 2016; Shoup & Homa, 2010).

Due to the dynamics of this dual role, Complete Streets improvements along trunk highway main streets could have a larger than expected effect on local economies. Improvements that encourage more activity on and around main streets by improving safety or calming traffic, providing improved pedestrian facilities, and enhance roadway aesthetics could have a particularly large effect on traffic to nearby businesses. At the same time, any negative effects including loss of parking or travel lanes could also be amplified due to the importance of commercial main streets in small-cities economies.

Another relevant transportation characteristic in smaller cities is that walking, biking, and transit use are typically lower than in large cities. In particular, studies indicate that residents of rural areas and small cities are less physically active and walk less on average (Kegler, et al., 2015; Park, Eyler, Tabak, Valko, & Brownson, 2017), while most transit ridership in Minnesota occurs in urban areas (FTA, 2020). This disparity has multiple causes, and at least some of those could be addressed by Complete Streets improvements.

While studies show that small cities residents are less active, existing research also shows that they desire to walk more. According to a survey from the Federal DOT, 95 percent of rural residents rate sidewalks as important to their community, a larger portion than think the same of major roads, airport access, and adequate parking. Large majorities also consider other pedestrian infrastructure, bike lanes,

and local transit important (Guarino & Weidman, 2011). Research indicates infrastructure such as sidewalks and trails is an important driver of physical activity in rural areas (Brownson, et al., 2000; Kegler, et al., 2015; Li, Chi, & Jackson, 2015; Park, Eyler, Tabak, Valko, & Brownson, 2017) and the comparative lack of this infrastructure results in a less active population than in larger communities. While transit and active transportation may be slightly constrained by the distance between amenities in small communities (Calloway & Faghri, 2020), Complete Streets can contribute to an improved built environment that facilitates increased use of these options and better reflects the desires of residents.

Finally, small cities often have different development and land use patterns than larger cities. They often have well-developed downtown areas with amenities such as shops and restaurants, while land on the edge of town is less expensive for new development. This pattern can lead grocery stores and other necessities to be located away from downtowns. Without infrastructure designed for those who do not use cars, it can be difficult for many to reach these destinations (Active Transportation Alliance, 2014). Complete streets infrastructure can allow more people to overcome obstacles to reaching these destinations.

2.3.2 Complete Streets in Small Cities

The characteristics of small cities also impact the types of Complete Streets improvements that are contextually appropriate. Alta Planning and Design (2016) produced a resource for the Federal Highway Administration (FHWA) about how multimodal networks can be created in small cities and rural areas. One common strategy it highlighted along dual-purpose main streets was narrowing the lanes of two-lane highways, which are often wider than necessary to facilitate faster travel flow. This method calms traffic and makes room for other street uses such as median islands, streetscaping, or bike lanes. For small cities with four-lane highways, a road diet that transforms the street to three lanes can perform a similar function. Additions such as landscaping, street trees, and on-street parking are also commonly used to slow traffic along main street highways (Porter, et al., 2016). The addition of on-street parking can also allow the removal of curb cuts that make walking difficult by creating frequent conflicts between motorists and pedestrians (Schmitt, 2013).

The FHWA Report also identifies challenges to developing multimodal transportation infrastructure in small cities such as making roads accessible for large farm equipment (in some communities), constrained terrain that makes the creation of active transportation facilities difficult, lack of defined pedestrian crossings, and the more auto-oriented development of rural areas compared to urban ones (Alta Planning and Design, 2016). For main streets, street improvements may be constrained by residents' desire to maintain a small city character or historic preservation laws, although Complete Streets projects can be an effective way to revitalize these areas.

2.4 STREET CONSTRUCTION IMPACTS

2.4.1 Business Impacts

While Complete Streets improvements can have long-term impacts on businesses, they are also impacted during the street construction process itself. Negative impacts may stem from loss of pedestrian or vehicular access, temporary parking loss, utility shutoffs, increased noise, vibration, dust, dirt, and visual obstructions (Radin & Ray, 2011). The severity of these challenges may be worsened by project length or lack of signage (CH2M Hill, 2009). These impacts can potentially translate into short-term sales declines for businesses and could contribute to employment loss or business closure in extreme circumstances. Given these potential impacts, it is important to consider these effects- and how local business owners perceive them- when assessing how Complete Streets affect local businesses. This background is helpful for the following tasks of this project, particularly the case studies of ongoing and completed projects. Note that some construction elements, such as utility upgrades, are not specifically tied to complete street features, but they could also affect estimates of construction disruptions.

It is well understood that road construction poses challenges for nearby businesses, but the magnitude of its impacts is still being studied. Researchers at the University of Texas conducted early studies of several highway widening construction projects in large and mid-sized cities (Buffington & Wildenthal, 1997a; Buffington & Wildenthal, 1997b; Buffington & Wildenthal, 1998). They relied primarily on self-reported sales data and found that construction generally produced temporary sales declines of below 5 percent using simple percentage analysis, without controlling for outside factors.

A later, multi-phase study of construction impacts was done by researchers at the University of Wyoming. During one phase, the researchers analyzed the impact of 12 construction projects with different features on business sales, in a mix of large and small communities (Young, Wolffing, & Tomasini, 2005). The study used simple analysis of the percent change in sales before, during, and after construction to explore the impact, and found that on average businesses had positive sales growth during all three stages, although construction did precede sales declines in five of the cases. The most heavily impacted types of businesses were food retail, general service, gas service, and industrial professional service. It also found that there were no significant differences between actual impacts and business owner perceptions for most projects.

In a later phase, the researchers analyzed the impact of four large projects in the City of Dubois, Wyoming over seven years (Buddemeyer, Young, & Giessen, 2008). The study used the same methodology and found that business sales did decline over the course of the construction period, but that the effect was mainly driven by several large businesses. Discounting those, the negative effect disappeared. The study also found that few businesses directly reported that the construction had a negative impact on their operations. Overall, the conclusions of the study were limited by the simplicity of its methods.

More recently, Ray (2017) used a logit model to examine the effect of road projects associated with transit construction. It found evidence that being near a newly constructed station increased the risk of

business failure by 46 percent, during construction, although a difference-in-difference analysis did not find that the projects had a significant negative impact on sales. As a result, the direct reasons behind business failure were unclear.

Finally, Concas (2018) examined the effect of roadway rehabilitation on small businesses along a section of road in Tampa Bay, Florida. The author used regression analysis to model business sales as a function of traffic volumes and local economic conditions. Overall, it concluded that the 2-year project reduced sales between 2 and 6 percent, and that this change was slightly larger for traffic-dependent businesses.

The most rigorous existing studies provide useful evidence that road construction can negatively impact nearby businesses, although the literature is inconclusive about the size of those effects (Concas, 2018; Ray, 2017). There is also evidence that business effects vary based on industry, customer base, length of construction, and other characteristics. Given the importance of context to these findings, it may be difficult to generalize the results of many of the studies to small cities.

Our research can improve the understanding of MnDOT construction's impact on businesses in small communities. We will develop a robust estimation strategy that will allow the researchers to get closer to causal explanations than many of the methods used previously. It will also assess the impacts of construction projects with varying scopes in small cities, a very important contribution to the literature that has so far focused mainly on urban areas yet demonstrated the importance of contextual factors on construction impacts.

2.4.2 Mitigation and Engagement Strategies

Departments of transportation across the country have developed strategies to mitigate the impacts of construction activities on nearby businesses. MnDOT is required to do so by law (S.F. 3669, 85th Minnesota Legislature, 2008 Regular Session, Chapter 308, 2008) and has produced several research reports and engagement strategies aimed at mitigating the impact of construction on small businesses.

The year after this law was passed, CH2M Hill completed a report for MnDOT that reviewed previous projects to better understand the needs of small businesses and identify methods to improve communication and impact mitigation (CH2M Hill, 2009). This document outlined steps MnDOT could take to be proactive when engaging with local businesses and included a plan that guided future mitigation efforts, including that:

- MnDOT will emphasize small business outreach as an integral part of its public participation strategy
- MnDOT will develop a checklist for project managers that structures different steps of the business engagement process
- MnDOT will develop a packet for affected local businesses that provides information about the construction and work with area business development organizations to better engage businesses

- MnDOT will review its policies for construction signing
- MnDOT will regularly evaluate its business outreach activities

MnDOT's approach to construction impact mitigation is part of its overall public engagement and Context-Sensitive Solutions strategies. While its public engagement policies and other statewide guidelines structure the engagement process, exact engagement practices may differ by MnDOT district office and the context of each project. Within individual projects, responsibilities for construction impact mitigation vary by stage of construction and project. For instance, it may fall on MnDOT engineers during early phases such as planning or scoping, but primarily be the responsibility of the contractor during construction.

MnDOT's Business Impact Mitigation Guidance was created to help minimize construction impacts on local businesses. Its main purposes are to increase business involvement in the project development process, keep businesses informed regarding project issues, help businesses understand the projects and its potential impacts, and mitigate construction impacts to the extent feasible (MnDOT, 2021). Common mitigation strategies may include on-site signage, alternative parking, and staging incentives (CTC & Associates LLC, 2019).

The Guidance emphasizes a few key components of the business impact mitigation strategy. Initially, it is determined whether a project is anticipated to cause "substantial business impacts", which are defined as the impairment of road access, parking, or visibility for one month or longer, for one or more businesses. Substantial expected impacts trigger mitigation requirements, although it may still be appropriate to use some mitigation strategies when smaller impacts are anticipated. The next step for projects with substantial expected impacts is the appointment of a business liaison, a direct contact for businesses. The liaison may consult with businesses, investigate possible mitigation methods, and provide information about construction effects to businesses throughout the process.

The Guidance requires the use of the Business Impact Mitigation Checklist created by MnDOT to guide and document the remaining mitigation efforts. The Checklist structures key aspects of the engagement process, including business identification and contact, impact identification, contact with local governments and other organizations, and the creation of information packets that provide businesses information about anticipated impacts and potential mitigation strategies (MnDOT, 2021).

MnDOT published another report in 2019 prepared by CTC & Associates that surveyed respondents from a sample of state transportation agencies, plus the Metropolitan Council, to evaluate how different agencies use construction mitigation strategies. Overall, it found the different agencies used a range of strategies and practices, rather than having consistent practices.

CHAPTER 3: CASE STUDIES

This chapter focuses on findings from case studies of nine Complete Streets projects in Minnesota. Key findings are based on interviews with key stakeholders as well as additional research on the motivation and consequences of each Complete Streets project. Projects in nine cities with less than 20,000 residents were selected as cases for this analysis. The cases vary by size and location across Minnesota, as well as the features of the Complete Street project. All projects were completed between 2012 and 2021.

3.1 RESEARCH DESIGN AND METHODOLOGY

3.1.1 Research Design

Case studies are used in this research to assess the economic impacts of Complete Street projects on businesses in small Minnesota cities during and after construction. Case studies represent a strong empirical approach because they permit a depth of analysis that is not possible with larger quantitative designs. Because there is limited research on Complete Streets in small cities, it is unclear whether changes that promote multimodal travel operate the same as they do in larger cities. At the same time, some quantitative indicators are not available in small Minnesota cities. Case studies therefore have the potential to shed light on the mechanisms that shape the economic impacts of Complete Streets in small cities in addition to providing insights on information that may otherwise be unobservable.

Case studies were selected from a pool of projects suggested by Technical Advisory Panel (TAP) members, MnDOT Metro District planners, and the researchers. In selecting the cases, we considered numerous characteristics including project features such as Complete Streets elements, whether the project was in a historic preservation district or featured utilities reconstruction, project completion dates, geographic location (specifically, the area transportation partnership (ATP) the city belongs to), as well as city characteristics such as demographics, economic activities, and traffic volumes.

Data sources that informed case selection included publicly available information about the project from MnDOT and cities. Documents from MnDOT include community engagement documents, the MnDOT annual report "Major Highway Projects and Trunk Highway Fund Expenditures," MnDOT project sites, city websites, project maps, and images from project staff and Google Maps. This was supplemented with information from MnDOT and city project managers, and others involved or with knowledge about the project, as well as local news articles.[2]

[2] Limitations with respect to data availability for case selection included: (1) limited information available in online sources, particularly regarding the Complete Streets elements of the improvements and information related to the local economy in some rural communities, and (2) lack of project managers' access to project information that is stored as hard copies in their offices, due to the coronavirus pandemic.

3.1.2 Data Collection and Analysis

Data were collected on a city-by-city basis. In each city, our research team began by interviewing a city official (typically the City Administrator or City Engineer/Planner) and MnDOT project manager. We then contacted business owners and landlords in the construction area as well as leaders in the larger business community. Data collection took approximately one to two weeks in each city.

Our initial approach involved contacting business owners and landlords via email or phone and requesting a 30-45 minute interview. Few individuals responded to this request and of those that did, several declined. The research team quickly pivoted to a strategy in which we asked business owners if they had 15 minutes to chat about the street reconstruction project in their city. This approach yielded a much higher response rate.[3]

On average, we contacted approximately 20 individuals per city and successfully interviewed 11 individuals. The smallest number of respondents was nine in St. James and the largest number of respondents was 13 in Bayport and in Alexandria. In total, we conducted 101 interviews.

In each city, our interview respondents represent a mix of business owners or managers and landlords, business leaders, and city or MnDOT staff. Zoom and phone interviews with city and MnDOT officials were recorded, while interviews with business owners, landlords, and leaders were kept conversational in tone and not recorded. Our team sought a mix of businesses in each city, including professional services, retail stores, spas and salons, food establishments, and gas stations. We supplemented interview data with additional reports, newspaper articles, and media coverage of the reconstruction and its impacts.

Interviewers took extensive notes during each interview and wrote down relevant quotes when possible. An interview case memo was created immediately following each interview, containing general information about the person or interview as well as responses to the interview questions.

The case memos were coded and analyzed in NVivo qualitative software, first by city and then across cities. Our initial codes included the primary focus areas: business involvement, construction experience, perceptions of economic impact, transportation, access, and safety, as well as COVID-related factors. Our secondary codes provided detail about the primary codes. For example, secondary codes for economic impact included: behavioral changes, perceived direction, and mechanisms of influence. While the coding and initial analysis were completed by the project lead for Task 4, interviewers read and commented on preliminary and final analyses.

[3] The interview instruments are available in Appendix A.

3.1.3 Limitations

Despite clear advantages, there are limitations associated with the research design and methodology. One key limitation is the fact that an analysis of a series of cases limits the extent to which the findings apply to a broader range of cases. Though our selection of projects that differ in terms population size and location across Minnesota enhances the generalizability of our findings, it remains unclear whether patterns identified in our data hold for Complete Street projects in other small cities.

Second, both the project and the economic activity of businesses in our study were affected by the 2020 coronavirus pandemic. For our team, the pandemic meant that we were unable to travel to small cities and towns to talk with business owners or city staff and take pictures of completed projects. We therefore draw extensively from existing documentation, such as MnDOT reports, city bulletins, and newspaper articles, to supplement our interview data.

For businesses, the pandemic profoundly affected their sales and revenue, with some seeing increases during the pandemic (furniture and liquor stores, for example) and others seeing sharp decreases (restaurants and retail shops). Interestingly, the pandemic appeared to minimize the disruption to businesses caused during the construction phase. Because many businesses were closed or operating remotely, few needed to work to maintain customer access. This was true for Bayport, Bagley, and to some extent, Watertown.

The pandemic also appeared to shape the extent to which businesses could discern an impact of an improvement project. For example, when an end to construction coincided with the lifting of a 'stay at home' order, it was difficult for business owners to isolate the effect of one or another. This was true for cities in which construction coincided with the pandemic, including Bayport and Bagley, as well as for cities in which construction occurred just prior to the pandemic, including Glenwood and St. James.

Despite these limitations, this study offers a robust and novel set of findings regarding the impact of Complete Streets projects on small Minnesota cities.

3.2 DESCRIPTION OF CASE STUDIES

A total of nine cases from cities with less than 20,000 people were selected for in-depth analysis (Figure 3.1). Of these, three are from third-class cities and six from fourth-class cities. Eight completed projects and one ongoing project were included in the analysis.

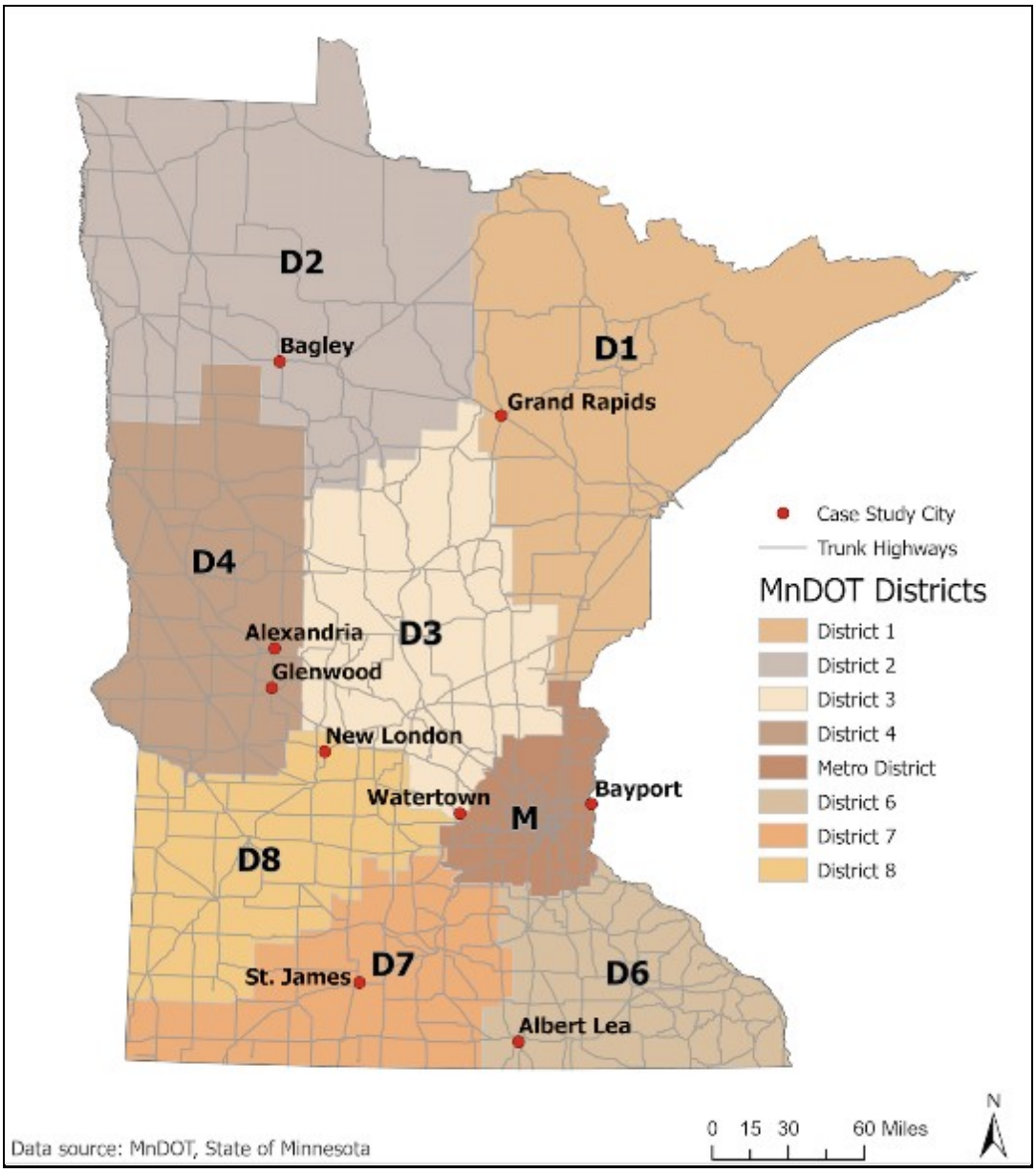

Figure 3.1 Location of selected case studies

3.2.1 Overview of Cities

Understanding the community background and local economy is an important component of assessing the economic impacts of Complete Streets projects. Table 3.1 shows key demographic features of the nine cities included in this study, as well as comparable statistics for the state of Minnesota.

Table 3.1 Demographic profile of selected cities

	Population	Race/Ethnicity					Median Age	Median Household Income
		White	Native Amer.	Black	Asian	Hispanic (any race)		
Minnesota	5,706.494	76.3%	1.0%	6.9%	5.2%	6.1%	38.4	$74,593
Albert Lea	17,773	90.4%	1.2%	2.4%	4.0%	14.4%	42.6	$47,508
Alexandria	13,554	97.0%	1.5%	1.9%	1.3%	3.0%	37.5	$72,483
Bagley	1,398	91.1%	12.7%	0.9%	0.4%	0.1%	40.3	$38,846
Bayport	3,723	82.9%	4.9%	13.2%	1.3%	3.1%	37.8	$78,221
Glenwood	2,657	99.1%	0.4%	0.6%	0.0%	0.8%	44.3	$47,000
Grand Rapids	11,165	97.7%	2.0%	0.9%	0.9%	1.0%	41.3	$48,287
New London	1,197	99.1%	0.8%	1.6%	0.8%	4.3%	42.7	$53,456
St. James	4,444	80.2%	0.1%	0.1%	0.0%	41.9%	37.1	$48,025
Watertown	4,408	99.5%	1.3%	0.8%	0.0%	2.8%	36.5	$83,542

Source: *U.S. Census Bureau, 2020 Decennial Census (Minnesota estimates) and 2019 American Community Survey 5-year estimates (2015-2019) (city estimates)*

The cities range in size from just under 1,200 residents in New London to over 17,500 residents in Albert Lea. Racial and ethnic diversity is considerably less pronounced in our cities relative to Minnesota as a whole: in all but two (Bayport and St. James), over 90 percent of residents identify as white. Bagley, Bayport, and St. James have larger than average percentages of American Indian (12.7 percent in Bagley), Black/African American (13.2 percent in Bayport), and Hispanic (41.9 percent) populations. Across cities, median household income ranges from a low of $38,846 in Bagley to a high of $83,542 in Watertown.

Most of the cities in our study have an aging population and city officials anticipate making changes in the current infrastructure to address the needs of this population. As shown in the table above, five cities have a median age above Minnesota's median age. Albert Lea, Grand Rapids, St. James, and Watertown also have a growing younger population and city officials are focused on adding activities that cater to this demographic.

In terms of the local economy, industrial and manufacturing sectors and tourism are main categories of economic activity. While cities like Glenwood and New London rely significantly on tourism, Watertown, Bagley, and St. James rely on industrial and manufacturing enterprises. Cities including Albert Lea,

Alexandria, Bayport, and Grand Rapids have developed multiple sectors. Because some of the improvements can cause major disruptions that affect the local economy, construction work is often scheduled to avoid major tourism events as well as extensive community engagement and outreach efforts to avoid business closure and ensure access during construction.

3.2.2 Selected Complete Streets Projects

Complete Streets projects in small cities typically occur in corridors that serve as a main street and major state thoroughfare. The two functions are frequently incompatible with one another as high speed and high-volume traffic conflicts with the leisurely environment of a downtown commercial district. Most project sites included in this study involve the downtown area – only in Albert Lea and Watertown were the reconstructions a few blocks away from the primary commercial area.

Table 3.2 shows characteristics for each improvement site. As this table shows, most of the projects are on principal or minor arterials. Principal arterials are designed to carry longer trips at higher speeds with minimal land access and include interstates and trunk highways that connect regional business and commercial concentrations or provide connections to other cities, regions, and states. Minor arterials maintain mobility but provide more land access than principal arterials. These include some trunk highways and county roads that connect cities and towns within the region and link to regional business and commercial concentrations. Only the Complete Streets improvement in Glenwood included major collectors, which are roadways that provide linkages to larger developments and community amenities but generally do not link communities to one another.

Table 3.2 Characteristics of selected projects

City (ATP)	Population (2)	Project Location	Functional Classification	Completion Date
Albert Lea (D6) (1)	17,656	U.S. Hwy 65	Principal arterial	2015
Alexandria (D4)	13,822	TH-29	Minor arterial	2014
Bagley (D2)	1,398	U.S. Hwy 2	Principal arterial	2020
Bayport (Metro)	3,765	TH-95	Minor arterial	2020
Glenwood (D4)	2,611	TH-28, TH-29, TH-104	Principal arterial (TH- 28), Major collector (TH-29, TH-104)	2018
Grand Rapids (D1)(1)	11,214	U.S. Hwy 169	Principal arterial	2012
New London (D8)	1,420	TH-9	Minor arterial	2012
St. James (D7)	4,400	TH-4	Minor arterial	2018

Watertown (D5)	4,529	TH-25	Minor arterial	2021

Notes: *(1) Historic Preservation District. (2) Estimated as of July 1, 2019. Source: Population data from Census Bureau. Functional classification data from MnDOT* (MnDOT, 2021).

Complete Street Project Features Across Sites

There are many similarities across the Complete Streets projects in our study. All began with an MnDOT plan to mill and overlay the road and address American with Disabilities Act (ADA) sidewalk and curb deficiencies (when needed). When a project was announced, city staff worked alongside MnDOT to incorporate Complete Street elements into the project design. Some cities, such as New London, had ideas or plans already in place. Other cities, such as Alexandria, used the project as the impetus to develop plans for updating or revitalizing the surrounding area. Across cities, the inclusion of Complete Streets elements (other than ADA updates) in the project was city-directed.

Cities included in this study used the MnDOT project as an opportunity to update utilities (sewer and water), calm traffic, and improve safety for pedestrians and cyclists. The updates to underground utilities were typically necessitated by the age of the existing infrastructure. Such an approach is advantageous to cities because a MnDOT improvement project minimizes the disruption to businesses and residents and is cost-effective, as MnDOT covers the costs of removing and replacing existing pavement.

For most of the cities in this study, the primary motivation to include Complete Streets enhancements was to improve safety for pedestrians, cyclists, and vehicles. An equally important motivation for some of the cities was to revitalize the central commercial district to draw more tourists or residents.

An emphasis on enhancing connectivity and safety for pedestrians and cyclists strongly shaped the adoption of Complete Streets elements in several cities including Grand Rapids, Albert Lea, Bagley, Glenwood, and Watertown. In 2003, Grand Rapids articulated a goal of becoming a “walkable city” and made numerous bicycle and pedestrian improvements to enhance connectivity throughout the area. In 2009, Albert Lea became the first U.S. city to pilot Blue Zones - a community-wide effort to improve community health and wellbeing by changing the local environment. Similarly, Watertown’s City Council worked to develop a master plan for safely connecting bicyclists and pedestrians throughout the city in 2019, and Glenwood added bike lanes throughout the project area in an effort to connect regional trails to the north and west of the city.

All projects in this study involved some effort to calm traffic by narrowing or eliminating traffic lanes. Traffic calming efforts were most often motivated by an interest in enhancing pedestrian and vehicle safety. Wide lanes and a lack of medians, crosswalks, and parking spots contributes the perception of an open street in which vehicles do not need to slow down. Figure 3.2 shows Main Street in New London, prior to and following the 2010 reconstruction. While narrowing the road to calm traffic was a key element in all reconstructions, such design elements emerged as a point of contention in several cities.

Panel A. Main Street looking South into Downtown New London, 2009

Panel B. Main Street looking South into Downtown New London, 2018

Figure 3.2 Example of narrower street in New London, pre/post construction

Source: *Google Maps*

3.3 KEY FINDINGS

In this section, we discuss the perceived impacts of Complete Streets projects for business activity, transportation patterns, and safety, across all nine project sites. These findings are based on 101 interviews with business owners and managers, landlords, city officials, and MnDOT project representatives. While we draw extensively from the interview data in this chapter, the findings also incorporate project documentation from MnDOT and city officials, local media reports, and other studies or research related to the project. These sources are elaborated upon in the next chapter.

The section begins with a discussion of business engagement, concerns from business owners, managers, and landlords, and perceptions of the construction phase. We then discuss the perceived economic impacts of the city's Complete Streets project for businesses and the local economy. In this section, we elaborate on the potential mechanisms underlying this influence, as identified by our respondents. The last part of the section summarizes findings related to the perceived impact of each project on transportation and safety. Table 3.3 describes key findings from across the nine cities.

Table 3.3 Key findings from across projects

Business involvement	• Nearly all projects involved extensive business engagement – particularly in the more recent improvement projects. • Concerns from business owners centered on the disruption and lack of access caused by construction, the potential loss of on-street parking, and the general narrowing of the road. • While the construction period was difficult for most respondents, a majority viewed the construction as unavoidable and spoke positively about the activities of MnDOT and city staff.
Perceived economic impact	• Less than half of respondents felt that the reconstruction directly impacted or would impact their business beyond the construction phase. • Although few respondents perceived a direct impact for their business, many felt that the reconstructions had been or would be beneficial for the city. • Respondents identified three mechanisms through which Complete Streets might impact businesses and the local economy: by altering business practices, by changing city practices, or by acting as a catalyst for additional investment.
Perceived impact on accessibility and transportation	• While not all respondents reported seeing wheelchairs regularly, those that did were overwhelmingly positive about the impacts for individuals in wheelchairs. • Views on transportation were mixed, with most respondents stating that they did not think the changes led to more walking or biking. To the extent that respondents perceived a positive impact, it was typically related to increased pedestrian activity. • Bicycle lanes were a particularly contentious design element across cities.

Perceived impact on safety	• In three cities, a majority of respondents felt that safety had improved. • In six cities, views on safety were mixed. Some respondents felt that the roads were safer. Other respondents felt that the roads were more dangerous due to narrower lanes, congestion, and unsafe driver behavior. Still others reported both positive and negative impacts on safety.

3.3.1 Planning and Construction Phase

3.3.1.1 Business engagement

Nearly all Complete Street projects involved extensive business engagement – particularly in the more recent improvement projects. While a few people we spoke with did not feel informed about their city's project, most of the respondents spoke favorably about the efforts of city officials and MnDOT to respond to and incorporate community interests into the project design. The interviews suggest that businesses appreciated consistent communication about the projects. A business owner in Bagley noted that the city held weekly meetings about the project, which was helpful because "if you had a concern you just to go to City Hall on a Thursday at 2pm."

In addition, city officials were largely positive about MnDOT's willingness to work collaboratively to incorporate design elements that were important to the city and the community. In some cases, MnDOT was able to secure funding to support the city's goals for the road. In Watertown, for example, the district office was able to access funding to pay for some of the city's desired changes:

> "MnDOT's initial plans only included a mill and overlay. We knew, however, that the City had been working on a layout for this segment that included urbanizing TH 25 with curb and gutter, adding bike/ped facilities, etc. So, when Metro District Main Street funds (a pot of funding for projects like this where a trunk highway goes through a downtown) became available, the South Area put this on the list of projects to be considered. This project got selected and the additional $2M+ of funding allowed us to work with the City to reconstruct TH 25 with curb and gutter, add 8 ft sidewalks on both sides of TH 25, add the center turn lane, etc." (MnDOT representative).

While the pre-construction phase appeared smooth for most cities in our study, several Glenwood respondents referenced communication challenges between MnDOT, the city, and the community as hindering the project. Respondents pointed to miscommunication between the city and community over whether the project was city-led or MnDOT-led, and several noted feeling that their concerns were not addressed during the design phase. Such comments speak to the importance of clear and consistent communication throughout design and construction phases.

The case studies reveal innovative methods for engaging businesses in the design and construction phases. In Alexandria, the Redesigning of Alexandria's Downtown (ROAD) group was formed to develop a marketing and communications strategy for the project. The group provided updates to businesses

and the community via its "Alex ROAD report." In New London, the local Merchants' Group was active in disseminating information to businesses throughout the construction phase. St. James Convention and Visitors Bureau, which oversees the promotion of tourism activities in the city, developed a *Business Survival Guide* that included tips for business planning, logistics and signage, getting construction updates, and community engagement activities.

3.3.1.2 Concerns from business owners

Across projects, the concerns of business owners centered around disruption and lack of access to the business during construction, loss of parking, and the impacts of traffic calming measures including road diets, general narrowing of the street through narrower lanes, and/or wider sidewalks.

Disruption and Access

With respect to disruption and access, any major improvement project on a state highway upends normal business operations for those organizations located on or adjacent to the highway. As a result, few business owners look forward to construction. Yet while our respondents acknowledged the disruption caused by construction, most saw it as necessary. As one individual noted: "If you're cutting wood there is going to be sawdust; the benefits come down the line. Has it slowed down people getting here, sure. But they still get here" (Watertown business owner).

The construction phase is particularly important to cities in this study because construction season coincides with the summer tourism season, on which many of the cities rely. Construction adds congestion when there are already a lot of tourists in town. According to one Grand Rapids business owner: "Road construction is road construction, and it is difficult no matter where you are but especially in this community because we have a lot of tourists in the summer that congest the roads. It's just added vehicles." Construction can also lead tourists to avoid the city or business, decreasing revenue during a particularly important season.

To minimize disruptions and preserve access, MnDOT and city staff across projects worked with individual businesses to establish access points and communicate updates about construction near the buildings. Back entrances and boardwalks were also used to maintain access throughout the construction period.

Several projects adopted a phased approach to minimize the disruption to businesses. For instance, Alexandria city officials instituted a three-phase timeline with hard deadlines and significant penalties for failing to meet deadlines. In Grand Rapids and New London, construction was completed on one side of the street and then the other, leaving one lane of traffic open at all times.

Interview respondents discussed these efforts favorably, drawing attention to the benefits of reconstructing the roads in segments or one side at a time. As one Grand Rapids business owner noted: "Truthfully, I went through this 20 years ago and it shut us down. It was a summer of no business. This

time it was pretty good because they kept the roads open. They did one side, then the other side." Figure 3.3 shows an image of the phased construction in Grand Rapids, which kept one lane of traffic open at all times.

Figure 3.3 Example of phased reconstruction in Grand Rapids (2012)

Source: *Google Maps*

Interestingly, businesses located along highways that were reconstructed during the early months of the coronavirus pandemic (Bagley and Bayport) felt fortunate with the timing of the improvement project. Because most businesses and organizations were closed, organizations did not have to navigate street closures or provide updates to patrons about accessing buildings.

Loss of Street Parking

Just over half of the improvement sites in this study had on-street parking prior to the reconstruction and the potential loss of on-street parking was a primary concern for businesses located along those construction areas. In Complete Streets projects, a loss of parking can result if curb bump-outs displace parking stalls or if bicycle lanes replace an on-street parking area. The potential loss of on-street parking was a central concern for the business community in the design phases of Alexandria's reconstruction. To gain the support of the business community, the city had to assure businesses that they would maintain most of their on-street parking. The loss of parking was also mentioned by business owners in

Glenwood, where one respondent reported that businesses had left downtown due to the loss of parking.

The potential loss of parking was less of a concern for business owners in cities such as Grand Rapids and Watertown because most businesses have access to a parking lot off the highway.

Traffic Calming Measures

Finally, in several cities, traffic calming measures including road diets, raised medians or center turn lanes, and wider sidewalks presented a concern for local businesses. Respondents highlighted issues related to traffic patterns and organizational needs as well as the need to accommodate the large truck traffic. For example, in Bayport, a local church noted that a proposed median would make it difficult for patrons to access the building – something that would prove especially challenging for visitors to the church during weddings and funerals. In Glenwood, respondents drew attention to the need to accommodate large trucks at the intersection of three highways. Some respondents expressed ambivalence about the traffic calming measures, noting that while there was a need to slow traffic, there was also a need to accommodate the large number of semi-trucks that move through town daily.

In some cities, such as New London, respondents reported that business owners and residents were largely positive about traffic calming measures once the rationale was explained. In other cities, resistance to such measures persisted. For example, respondents in Bagley reported attending "heated" council meetings about a proposed road diet on the western edge of its improvement site.

Interestingly, the wider sidewalks associated with traffic calming measures emerged as contentious due to the implications for shoveling snow in the winter. In cities where businesses are required to shovel snow in front of their building, the addition of several feet of sidewalk adds considerable time and effort, particularly if the snow cannot be shoveled into the street.

3.3.1.3 Construction Experience

Unsurprisingly, the construction period was difficult for nearly all businesses. As one respondent noted: I wouldn't wish road construction on any small business" (Business owner, Alexandria). Most criticisms were specific to the needs or challenges of a particular business – for instance, a misplaced mailbox or a miscommunication regarding the timing of sidewalk removal. Business owners and landlords also pointed to a decrease in revenue during and following the construction phase.

Yet despite the disruption caused by construction, most of our respondents viewed the construction as unavoidable and spoke positively about the activities of MnDOT and city staff. When we asked businesses whether MnDOT or city staff could have done anything differently to ease the construction phase for businesses and other organizations, most said no. Respondents across projects reported that both MnDOT and city staff did what they could to minimize the disruption. While a few respondents had concerns related to construction hiccups or lack of communication, most perceived that the construction phase went as well as it could have given the circumstances.

3.3.2 Economic Impacts of Improvement Projects

3.3.2.1 Perceived economic impacts

Perceived impacts on business or property

A minority of respondents felt that the reconstruction impacted or would impact their business. Business owners were more likely to draw attention to larger economic trends, such as the recession of 2009 and subsequent recovery, the growth of big box stores and regional centers, and the coronavirus pandemic, as explaining the success of their business. Others highlighted individual business practices (marketing strategies, for example) as being more influential than changes in the street design. Perceptions of limited or no impact were evidence in Albert Lea, Bagley, and Grand Rapids.

Some respondents, in fact, viewed the reconstruction as having a negative impact on their business. In many cases, this was due to an inability to recover quickly following the construction phase. Several respondents pointed to the role of assessments in shaping the economic consequences of the reconstruction for their businesses. For example, a representative from a business in Alexandria that took two years to recover from the construction phase noted: "Had we been assessed it would have definitely set us back even further."

Respondents also perceived the loss of parking spaces as negatively impacting business. This was particularly true in Glenwood, where one respondent noted that the loss of several on-street parking spots and absence of city parking lots had led businesses to leave the downtown area. In New London, a business owner described the development of a city parking lot as a "godsend" due to the loss of on-street parking following reconstruction.

Those individuals who perceived no impact either found it too difficult to disentangle the impact of the reconstruction from other factors (such as the pandemic) or simply did not think that the improvement mattered for business activity. As one Grand Rapids business owner noted: "I mean, it was an improvement on the road, but I don't think that affects business." Another stated: "I can't imagine it would change anything, but it is certainly nice to have fresh streets and repaved sidewalks" (Business owner, Bagley).

Perceived impact on the city

Although few respondents perceived a direct impact for their business, many felt that the reconstructions had been or would be beneficial for the city's economy. This was particularly true in Alexandria, Bayport, New London, and Watertown. Individuals spoke favorably about the updates and aesthetic improvements, noting that positive changes can result from these types of improvements:

- "When you roll into a town and you see that it's set up and it looks like people take care of it, it creates a memory that makes you want to stop or go back." (Business owner, Alexandria)

- "I think it does look a lot better. I think we could use some "nice-ing" up of the store fronts, but having the road redone makes it look like the community is being invested in." (Business owner, Bayport)
- (*Interviewer: Do you think the changes will impact economic activity?*) "I hope it does. It's a cute, fun little city. I hope it does pull some people." (Business owner, Watertown)

Perceptions of a positive impact for the city were consistent with data presented by city officials during our interviews. Officials pointed to fewer vacancies, the relocation of businesses to the downtown or commercial area, increased investment dollars, and increased property values. In some instances, the perceptions of business owners differed from the indicators that city officials used to examine outcomes. For example, although the Albert Lea business owners we spoke with did not perceive that the reconstruction had a positive impact for the city, indicators including decreased vacancies and increased property values suggested a positive outcome.

3.3.2.2 Mechanisms of influence

Altering business practices

While most respondents said they did not change their behavior post-construction, some did point to altering business practices to make use of expanded sidewalks. In Bagley, one respondent described a large sidewalk sale, hosted by a furniture store, that secured permits to use the sidewalks to showcase a wide range of goods. A New London business owner noted that they: "Appreciated the extra width and smooth sidewalk for putting up signs." In Alexandria, a respondent described the positive response from the business community to the increased sidewalk area:

> "There's more ability to do sidewalk sales…. With wider sidewalks they can put out (there are ordinances obviously) a display rack as a teaser as well as one sandwich board sign that has information, and I know that the downtown merchants see these things as benefits."

In addition, some business owners in Bagley and Glenwood were quite critical of their inability to use the sidewalks for sales and marketing, due to their perception that a state rule prohibited the use of sidewalks for commercial use on a state highway. Business owners in Albert Lea also spoke negatively about limitations on sidewalk use, such as a city ordinance prohibiting advertising on the sidewalk.

Changing city practices

In some cases, a Complete Streets project leads to city practices and activities that can drive economic activity. This is most apparent in Alexandria, where events associated with the Complete Streets project were so successful that the city continued the activities in the years following the project's completion. Figure 3.4 shows an advertisement and image from a downtown event held mid-construction, designed to promote community engagement and reduce the disruption caused by construction.

Figure 3.4 Advertisement and image from event help during the construction phase in downtown Alexandria

Source: (Alex ROAD Report, 2014)*, Public Facebook Page*

Reconstructions as a catalyst for additional investments

Several of our respondents also described the Complete Streets project as prompting the city government or city council to change behavior and/or increase investments on or near the project area. For example, although New London had developed a Downtown Master Plan several years prior to reconstruction, the plan itself did not lead to any changes until the improvement project brought some of the proposed changes into existence. One respondent noted that around the time of the improvement project, the city began investing in business subsidy work – such as applying for grants for facade improvements and establishing tax-increment financing districts to enable the rebuilding of downtown buildings. Another respondent noted the reconstruction prompted businesses to upgrade their exteriors.

Similarly, in Watertown, the improvement project led the City Council to approve additional investments to connect the highway to the downtown area. A Watertown respondent described the improvement project as "the catalyst…for the city to make those other investments to make the connections to the project area. Having MnDOT make this investment along Highway 25 really motivated the council to do that." Other cities invested in streetscaping, improved lighting, or decorative railing to add to the enhanced aesthetics of the reconstructed road.

3.3.3 Other Impacts of Reconstructions

3.3.3.1 Accessibility and Transportation

All of the projects included in this study included updates to sidewalks to bring them into ADA compliance. Several also incorporated new or wider sidewalks throughout the improvement area. While not all respondents reported seeing wheelchairs regularly, those that did were overwhelmingly positive about the impacts for individuals in wheelchairs. Asked about customers in wheelchairs and ADA-compliant sidewalks, respondents noted:

- "I do feel that has made a difference. That's very nice and I think it is easier for them to get around. We do see that quite often." (Business owner, Alexandria)
- "It's definitely more convenient for anyone who is handicapped or in a wheelchair because they can go down easier. It has also made it better for foot traffic and bikes." (Business owner, St. James)
- "I know I get a couple people coming in here on wheelchairs. Are they (the curbs) nice for walking, yeah. I think it's a good idea to have them; it doesn't hurt anything and if someone is handicapped it helps them out." (Business owner, Glenwood)

Enhanced accessibility is particularly important due to the fact that most of the cities in this study have aging populations. Several respondents also described the advantages of ADA-compliant curbs for people using electric scooters on the sidewalk.

With respect to transportation, respondents had mixed views on whether the Complete Street changes led to changing use of the roads. With the exception of Alexandria, there were no cities where respondents felt that the road changes had diverted traffic. To some extent, this is due to the fact that in cities like Bayport and Bagley, the semi traffic is specific to the industries located in town. In Bayport and New London, several respondents perceived that the vehicle traffic was slower, though in Bayport, respondents largely attributed this to active police patrolling. Respondents in Alexandria also drew a connection between persistent high speeds and a *lack* of policy patrolling.

While vehicle travel was the dominant form of transportation to and from businesses in our study, some respondents did perceive that the Complete Streets projects had contributed to an increase in walking and cycling throughout town. As one business owner in Alexandria noted: "Yeah, it does seem like there is a lot more pedestrian traffic. There are more bikes on the bike racks." In New London, one respondent felt that there were now more people walking on the sidewalks, which the respondent noted line up with the trails in town. City officials in Albert Lea pointed to indicators suggesting more walking and biking throughout the city following its street reconstructions. Many respondents in Bayport and Watertown also perceived that the changes would lead to more active forms of transport (particularly walking) surrounding the improvement area.

For some respondents, it was difficult to say that the reconstruction led to more walking or biking. In Alexandria, for example, one respondent drew attention to the fact that there were numerous pedestrians prior to construction: "I can't say that there is more -- there are just more people.

Downtown Alexandria has always been vibrant and busy so pre-construction, the summer of 2013, there was always massive foot traffic."

A majority of respondents, however, did not perceive an impact on transportation patterns. When we asked interviewees whether the reconstruction had led more people to walk or bike through town, or had changed transportation patterns generally, respondents offered: "No, not at all" (Business owner; Albert Lea); "People get to the business by vehicle and that hasn't changed much over time" (Local stakeholder, New London); "not a measurable change" (Business owner, Bagley); and "No" (Business owner, Watertown). Notably, the perceived lack of impact does not mean that few cyclists or pedestrians use the road. Rather, our respondents simply did not think that the Complete Street enhancements had altered those transportation patterns in any way.

Interestingly, bike lanes emerged as a particularly contentious topic across the project sites. In Alexandria and Bayport, bike lanes were considered but ultimately removed from the project design. In Alexandria, businesses did not want the bike lanes on the sidewalks. In Bayport, businesses did not want to lose on-street parking to install a bike lane. In Glenwood, where bike lanes were installed, some respondents were highly critical of the lanes. One respondent noted: "The sidewalk is fine and the green area is beautiful, but they put a bike lane on both sides. Nobody uses it." (Business owner, Glenwood). Another said: "Bike paths are the most underused real estate. And those special buttons for the bikes to cross - nobody looks at those." (Business owner, Glenwood). Respondents were particularly displeased with the fact that lanes were narrowed to enable bike lanes.

If the highway itself could not support bike lanes (either due to the width or the traffic volume), cities sometimes installed bike lanes on parallel streets, as in Alexandria. Or, they facilitated cycling in other ways, such as Watertown self-funding a connection between the reconstructed highway and a regional biking trail. Respondents in Albert Lea and Glenwood reported seeing cyclists using the sidewalks or streets rather than in the bike lanes. Figure 3.5 shows an image of the on-street bike lanes in Albert Lea.

Figure 3.5 Example of on-street bike lanes in Albert Lea

Source: *Alex ROAD Report* (2014)*, Public Facebook Page*

3.3.3.2 Safety

Improving safety for multiple types of transit users was a central goal for both MnDOT and city staff, for all projects in this study. For business owners we interviewed, perceptions of safety impacts were mixed, with some respondents stating that safety had improved, some stating that that was no change, and others stating that the road was less safe post-construction.

In Bayport, Grand Rapids, and Watertown, nearly all respondents felt that safety had improved. Notably, discussions of safety had been prevalent in each community prior to reconstruction. In Bayport, local media reports highlighted concerns related to pedestrian crossings on Highway 95, especially near the elementary school. In Grand Rapids, rear-end vehicle accidents were common along Highway 169/Pokegama Avenue in the years preceding the construction. In Watertown, an individual had been killed when attempting to access a local business in his wheelchair, using the shoulder of the road to travel from the local nursing home to the business.

Individuals in these cities perceived that the enhanced pedestrian crossings (Bayport), addition of a center turn lane (Grand Rapids), and addition of ADA-compliant sidewalks on both sides of the highway (Watertown) had improved safety in the town. A respondent in Grand Rapids explained: “I had to call 911 so many times. Two times my sign outside was crooked and my landscaping was bad and I had to call insurance.” She reported that since the reconstruction, she hadn’t called 911 once. Similarly, a Bayport resident noted: “I drive through Bayport every day. It feels safer. I feel like pedestrians are safer. The signage, the median, even with the sidewalks...people must be slowing down given those new zones” (Director, nonprofit/public organization).

Figure 3.6 shows pedestrian and cyclist crossings on Highway 95 before and after reconstruction in downtown Bayport.

Panel A: Highway 95 before the reconstruction project (2019)

Panel B: Highway 95 after the reconstruction project (2021)

Figure 3.6 Example of enhanced pedestrian and cyclist crossings in Bayport (pre/post reconstruction)
Source: *Google Maps for Panel A and author's image for Panel B*

Some respondents felt that the streets had become less safe after the reconstruction. Those that perceived a negative impact drew attention to increased congestion, the difficulty that large trucks face when turning, and the problems associated with on-street parking and narrow traffic lanes. For example, in Albert Lea, respondents attributed the road diet to increased congestion along the highway. In Glenwood, several respondents noted that the congestion caused by narrowing the road was mainly a problem because it caused drivers to act in unsafe ways. For example: “It’s not a 4-lane road but they are using it as such. People are going around the turning vehicle and around stopped traffic, coming out at me in a lane that is not a traffic lane. It’s too restrictive and people are losing patience.”

In Glenwood, respondents described routinely seeing semi-trucks failing to make the turn from one highway to another – a problem that was exacerbated by curb bump-outs at some of the curbs. This was also true in Bagley. As a business owner in Bagley noted: “Every day I’m seeing cars and trucks backed up as trucks try to make the corners. We have large loads, loggers…. all of my trucks that come in are large semis. Traffic gets backed up and they can’t make the corner.” The inability of semi-trucks to navigate updated roads was frequently brought up by our respondents in St. James. One noted: “If two semis meet there isn’t a lot of room to get around them” (Business owner, St. James).

In several cities, the narrower traffic lanes mean less distance between traffic and parked vehicles. In cities including Alexandria and New London, respondents often drew attention to the danger of parking and opening a door into oncoming traffic. When asked whether the road was safer post-construction, one Alexandria business owner said: “No, because it is so narrow for parking. And that first lane is very narrow. We see semis that cross over the line between the two lanes because it is so close. I have also seen right in front of our building a semi come by and knock the mirrors off a truck. I do not think it’s safe at all.” Another respondent noted: “You’re taking your life into your hands when you open your door” (Business owner, Alexandria). Similarly, a long-time business owner in New London said that customers will often say that they do not feel safe parking on the main street. Another noted that the first thing she does after parking on the highway is look in her rearview mirror to check for trucks.

Notably, some respondents recognized the trade-offs and held the view that some issues had improved while others had gotten worse. For example, a business owner in Glenwood noted: “The biggest thing I think is the safety issue with the right hand turns or going around stopped traffic. Part of it is a consequence of the slower traffic flow. I think there is a serious safety issue. But on the other hand, it has helped traffic slow down, so it's a trade off in both ways.” Another business owner echoed this sentiment, stating: “I wasn't sure about [the curb bump-outs] because it makes it harder to turn, but they do help. The benefits outweigh the problems.”

3.4 INDIVIDUAL CASE STUDIES

3.4.1 Albert Lea

Albert Lea is a rural city located about 90 miles south of Minneapolis near the Iowa border. With six lakes and over 300 acres of parks and open spaces, the city offers an array of recreational activities including boating, fishing, and hiking, as well as birding in nearby Myre-Big Island State Park (City of Albert Lea, 2020). Albert Lea is the county seat of Freeborn County and has several county buildings located throughout the city's commercial areas.

At just over 17,750 residents, Albert Lea is the largest city in our sample. The city has an aging population, with just under a quarter of residents aged 65 or older. Median household income is $47,508 - considerably lower than the state's median income of $74,593. Albert Lea is also more diverse than other cities in our study, with 2 percent of residents identifying as Black/African American, 4 percent as Asian, and 14 percent identifying as Hispanic ethnicity (U.S. Census Bureau, 2019).

The city has a diversified economic base consisting of industrial, retail, manufacturing, and medical enterprises as well as a strong agricultural sector. Its location near the crossroads of Interstates 35 and 90 allows easy access to markets throughout the Midwest. The Mayo Clinic also has a regional hospital in Albert Lea, which serves as an important employment center for the region (Lakes N Woods, 2021).

Table 3.4 Key findings, Albert Lea

Project Features	• Part of a two-phase project aimed at revitalizing the downtown area and promoting active living across the city. • Mill and overlay, road diet, replacement of sidewalks and traffic signals, streetscape improvements (decorative lighting, brick pavers, trees, and tree gates), addition of bike lanes, and widened parking lanes.
Revenue/Economy	• No respondents felt that the reconstruction impacted business activity. • No respondents reported utilizing the street differently post-construction. • Other data suggest considerable economic expansion post-construction, including a 25 percent increase in property values in the downtown area.
Transportation	• No respondents perceived changes in how employees or customers access the business/organization. • Other data show an increase in biking and walking following completion of the two-phase project.
Safety	• Interview respondents had mixed perceptions regarding safety improvements, with some drawing attention to the safety benefits of a center turn lane and others highlighting increased congestion post-construction. • Crash data show a decreased number of crashes annually.

Albert Lea has a unique history with Complete Streets. In 2009, Albert Lea became the first U.S. city to pilot Blue Zones - a community-wide effort to improve community health and wellbeing by changing the local environment (Blue Zones, 2021). As part of the project, Albert Lea residents participated in a walking audit of the city to identify opportunities for creating a healthier living environment. During this year, the city also adopted a subdivision ordinance stating that all new subdivisions must be designed with Complete Streets. The ordinance provided general guidance and specified specific measurements for sidewalk widths as well as minimum setbacks (Slotterback & Zerger, 2013).

Following the 9-month pilot project, the city developed a Bike and Pedestrian Master Plan and sought additional funding and community input prior to implementing key changes, which included the creation of a five-mile trail around Fountain Lake, two new bikeways connecting downtown and Myre-Big Island State Park, and more than nine miles of sidewalks on city streets (Blue Zones, 2021; Rural Health Information Hub, 2021). A Complete Streets Policy for all new street and street reconstruction projects was adopted by the City Council in 2015 (City of Albert Lea, 2015b).

3.4.1.1 Project Description

The 2015 reconstruction of Highway 65/South Broadway Avenue was the second phase of a two-phase project that began two years earlier with the reconstruction of several downtown blocks. Motivated in part by the need to update aging infrastructure, the city reconstructed the streets, widened sidewalks, and modernized water and sewer infrastructure. Bump-outs were added at key downtown intersections as well as streetscaping enhancements along North Broadway, including decorative lighting, kiosks, trees, and pedestrian plazas. A staircase was added to a sidewalk promenade in Fountain Lake Park, as well as ADA-compliant sidewalks and a new boat dock (Stultz, 2013a; Thoman, 2018). In late 2013, the city welcomed the end of construction with a community celebration that featured a fun run, games, sidewalk sales, and downtown street dance (Stultz, 2013b).

MnDOT began planning for a mill and overlay of the southern Highway 65/South Broadway corridor in 2014. As part of this project, MnDOT also planned to address ADA deficiencies, enhance safety, and improve drainage. Early in the planning phase, the city pushed for additional features to enhance safety and extend the look and feel of the downtown area. According to city officials, the city had been discussing their desire to incorporate a road diet as well as additional Complete Street enhancements into the Broadway reconstruction several years prior to the formal planning process.

In 2014, the Albert Lea City Council requested a study to examine the feasibility of resurfacing the road, extending the streetscaping elements and implementing a road diet on the northern segment of the road (Stultz, 2014). The study recommended reconstructing the four-lane highway into three lanes between Main Street and 7th Street. Though MnDOT was originally reluctant to support the road diet, the change was eventually supported given the success of road diets in other locations (Thoman, 2018).

Public engagement on the project began in 2014. During the process, community members, including commercial truck drivers, expressed concerns that the road diet would lead to confusion, slower traffic,

and increased commute times (Thoman, 2018). City staff reported that relative to the previous phase of the project, it was more challenging to engage businesses along Highway 65/South Broadway Avenue. MnDOT's district office also engaged in more regular updating and communication with businesses and community members and celebrated the completion of the project alongside city officials with a ceremonial ribbon cutting.

During the planning phase, Dan Burden of Blue Zones - who conducted the first walkability audit in 2009 - returned to Albert Lea in late 2014/early 2015 to conduct a walking audit of South Broadway, meet with community members, and host community presentations and workshops (Stultz, Blue Zones expert on roads set to return, 2015). In January 2015, Burden led a "re-visioning" of South Broadway Avenue, with the aim of "transform(ing) the street into a place that is more safe and accessible to all street users" (City of Albert Lea, 2015).

Figure 3.7 shows the full project area, which involved two blocks of Main Street on the north end of the project and extended down Highway 65/South Broadway Avenue just past I-35. The road diet and streetscaping elements were confined to the northern end of the project and extended from Main Street to 7th Street (approximately 0.8 miles).

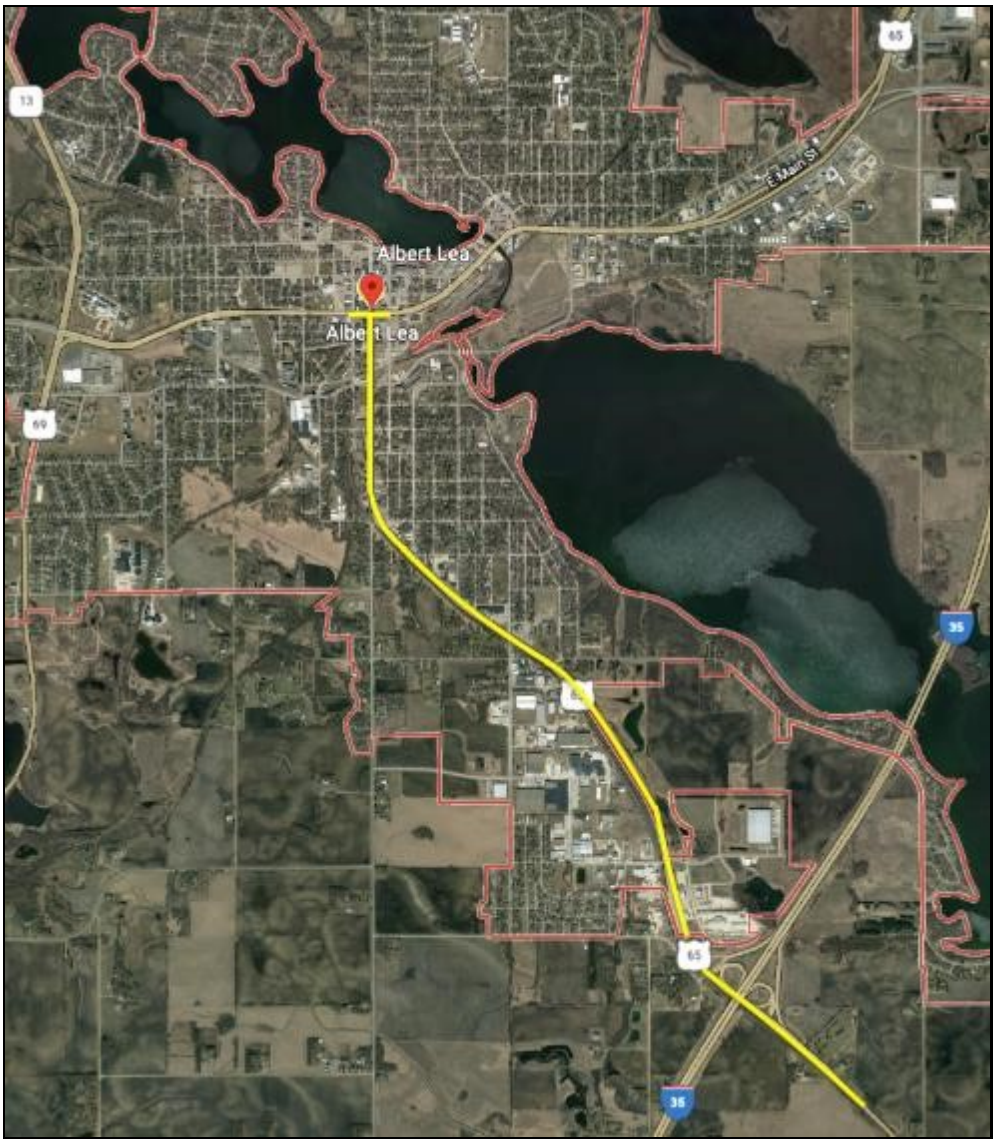

Figure 3.7 Albert Lea Highway 65/South Broadway Avenue project area
Source: *Google Maps, project information added by author*

Highway 65/South Broadway Avenue was fully reconstructed during the 2015 construction season. Figure 3.8 shows the intersection of Highway 65/South Broadway Avenue and College Street on the northern end of the project area, before and after the reconstruction.

Panel A: Highway 95/ South Broadway Avenue before the reconstruction project (2013)

Panel B: Highway 95/ South Broadway Avenue after the reconstruction project (2016)

Figure 3.8 Highway 95/South Broadway Avenue and College Street before and after reconstruction

Source: *Google Maps*

As shown in Figure 3.8, improvements included a bituminous pavement mill and overlay, road diet (four to three lanes), replacement of sidewalks and traffic signals, and streetscape improvements, which included decorative street lighting, brick pavers, and trees and tree grates. The road diet and streetscape elements were implemented from Main Street to Seventh Street. The reconstructed road

also included two bike lanes, one in each direction (6 ft each), as well as widened parking lanes (from 8 ft to 9ft).

3.4.1.2 Analysis and Findings

Our analysis draws from interviews with six business owners/landlords, three government officials, and a MnDOT representative.[4] To supplement the interview data, we also draw upon documentation and reports from the City of Albert Lea and MnDOT, newspaper articles and other media reports, and information related to the city's Blue Zones project.

With respect to economic impacts, none of the interviewees that we spoke with thought that the 2015 reconstruction had impacted business activity. Interviewees reported not using the widened sidewalks on South Broadway for marketing, sales, or outdoor seating because the city regulates outdoor seating and city ordinance prohibits using the sidewalks for business purposes. Despite the perception of limited impact, other data (described below) suggest that South Broadway corridor experienced considerable economic expansion, with new businesses filling in vacant spaces, in the years following the project.

Similarly, no respondents perceived changes in how employees or customers access South Broadway Avenue businesses, though one did mention seeing more pedestrians and cyclists using the road. Notably, several individuals mentioned seeing bikers utilize the sidewalks rather than the bike lanes, with one noting that younger individuals (less than 18 years old) tend to use the sidewalks. One reported that the road was too busy for a bike path.

We also asked our interviewees about their perceptions of the impact of the road diet on safety. The individuals that we spoke with had mixed feelings regarding the benefits of the three-lane conversion. One individual mentioned the safety benefits of a center lane, while two others drew attention to the congestion that now happens when a train moves through town. Several interviewees also discussed witnessing accidents on the road, though not all were located on the road diet segment.

The lack of perceived impacts is somewhat at odds with findings from the larger project (Phases 1-2). MnDOT's early data indicates that the road diet did succeed in reducing vehicle crash rates. According to the Blue Zones Project lead, annual average crashes decreased from 12-13 to 4-5 in the two years following the reconstruction and average vehicle speeds also dropped to below the posted speed limit of 30 mph.

In addition, other data suggest that in the years following the Blue Zones pilot project, Albert Lea experienced considerable improvements in population health and economic activity. Indicators suggest

[4] Over the course of several weeks, we reached out to 30 organizations, often multiple times. Only six business owners/landlords were willing to speak with us, and two of those individuals declined to give their names. As a result, the perceptions of our interviewees may not represent the views of the larger business community.

that the city witnessed an increase of approximately 40 percent in biking and walking between 2009 and 2018 (Thoman, 2018) and a 96 percent increase in pedestrian traffic on Broadway. Blue Zones data indicates that residents on average added 2.9 years to their lifespans within a year of the pilot program (Blue Zones, 2021).

Data also suggest considerable improvements with respect to economic activity. In the years following the 2013 and 2015 projects, the downtown area experienced over $2 million in private investments and the relocation of 33 new businesses to the area - including more than a dozen businesses downtown. In addition, the downtown area saw a 25 percent increase in property values, adding $1 million dollars to the city tax base (Thoman, 2018).

Though our interviewees perceived limited impacts of the 2015 reconstruction, a few caveats are worth noting. First, we were only able to reach a handful of business owners, despite reaching out to over 30 individuals. Second, because the city engaged in many activities to enhance the economic vitality and community health of Albert Lea, it is difficult to isolate the impact of any one project. For example, following the Blue Zones project, residents and businesses participated in an array of activities to encourage active living. In addition to the street reconstructions, the city also sought out additional funding to support the revitalization of commercial businesses throughout the downtown and South Broadway corridor. For example, the Albert Lea City Council approved a grant program in 2016 to help business owners on South Broadway make facade and landscaping improvements (Wilmes, 2016).

Finally, economic vitality was only one of several goals of the Blue Zones pilot and subsequent street reconstructions. Indeed, media reports suggest that considerably more attention was paid to increasing opportunities for active living and improving community health and wellbeing. This distinguishes Albert Lea from other cities in our study that prioritized economic activity or focused on improving connectivity to increase traffic into downtown or commercial areas. Given Albert Lea's emphasis on enhancing livability and community health, it makes sense that residents would not perceive a large impact on economic activity, as it was not the primary goal of the reconstruction.

3.4.2 Alexandria

Alexandria is a city of just over 14,000 residents, located 139 miles northwest of the Twin Cities in central Minnesota (Minnesota State Demographic Center, 2020). It is the seat for Douglas County – an area that is home to over 300 lakes and 50 wildlife management areas and draws thousands of tourists each year. Residents and visitors to Alexandria engage in an array of outdoor activities that include biking along the Central Lakes Trail, hunting and fishing in the summer, and cross-country skiing and snowmobiling in the winter. The city's historic downtown also boasts a mix of retail, dining, arts, and entertainment (Explore Alexandria Minnesota, 2021).

Alexandria is one of the largest cities in our study (Minnesota State Demographic Center, 2020). It is a growing city and the population estimated to increase to over 17,000 by 2040 (City of Alexandria, 2020). Like other small Minnesota cities, Alexandria has an aging population; over 22 percent of residents are

65 years or older. Median household income is $72,483, which is just under the median income for the state. Ninety-seven percent of city residents identify as white, making the city considerably less racially and ethnically diverse than Minnesota as a whole (U.S. Census Bureau, 2019).

With respect to its economy, Alexandria serves as a regional hub for numerous industries, including agriculture, education, healthcare, manufacturing, retail trade, tourism, and theater/arts. The downtown area is the core commercial district in the city, with additional commercial and industrial sites developing along the Highway 29/Broadway, County Highway 82, and 1-94 corridors. In addition, while roughly 60 percent of Alexandria residents work within city limits, the city draws just under three-quarters of its total workers from neighboring cities and towns (City of Alexandria, 2020).

Table 3.5 Key findings, Alexandria

Project Features	• Business engagement was extensive, with city officials utilizing a wide array of strategies to involve business owners in the design of the street and regularly communicating updates to the community. • Mill and overlay of Highway 29, replacement of underground utilities including water, sewer, and electrical line widened and colored sidewalks, bump-outs at crosswalks, landscaping (trees and plantings), benches, bike racks, and reduced vehicle lane width.
Revenue/Economy	• While respondents perceived limited direct impact on their sales/revenue, most viewed the reconstruction as beneficial for the city. • Mechanisms of influence identified by business owners include increased ability to use sidewalks for marketing and sales; continuation of events that originated during the construction phase, such as a Wine and Art Crawl; and improvement in the aesthetics of the downtown area.
Transportation	• Perceptions were mixed with respect to the impact on transportation patterns, with some seeing improvement and others seeing no change. • Several respondents drew attention to the benefits and use of wider sidewalks and ADA-compliant curbs by people in wheelchairs.
Safety	• Perceptions of enhanced safety were mixed, with some respondents drawing attention to increased safety for pedestrians and others highlighting the narrowness of the road as decreasing safety.

3.4.2.1 Project Description

Maintaining a vibrant downtown oriented toward the pedestrian has long been an important goal for Alexandria (City of Alexandria, 2020). Thus, when MnDOT announced plans to conduct a mill and overlay project on Highway 29/Broadway Street through downtown, city officials viewed it as an opportunity to revitalize and reimagine the downtown area (Downtown Alexandria, 2014).

One of the city's goals was to take advantage of the major reconstruction to update underground utilities, which had routinely been causing problems for downtown businesses due to the age of the sanitary and water lines. An equally important goal was to reconstruct Highway 29/Broadway Street with elements that would calm traffic, better accommodate multimodal travel, and refresh the look and feel of the bustling commercial area.

The Highway 29/Broadway Street project area is shown in Figure 3.9. The project extended along Highway 29/Broadway Street from 3rd Avenue (north end) to 8th Avenue (south end).

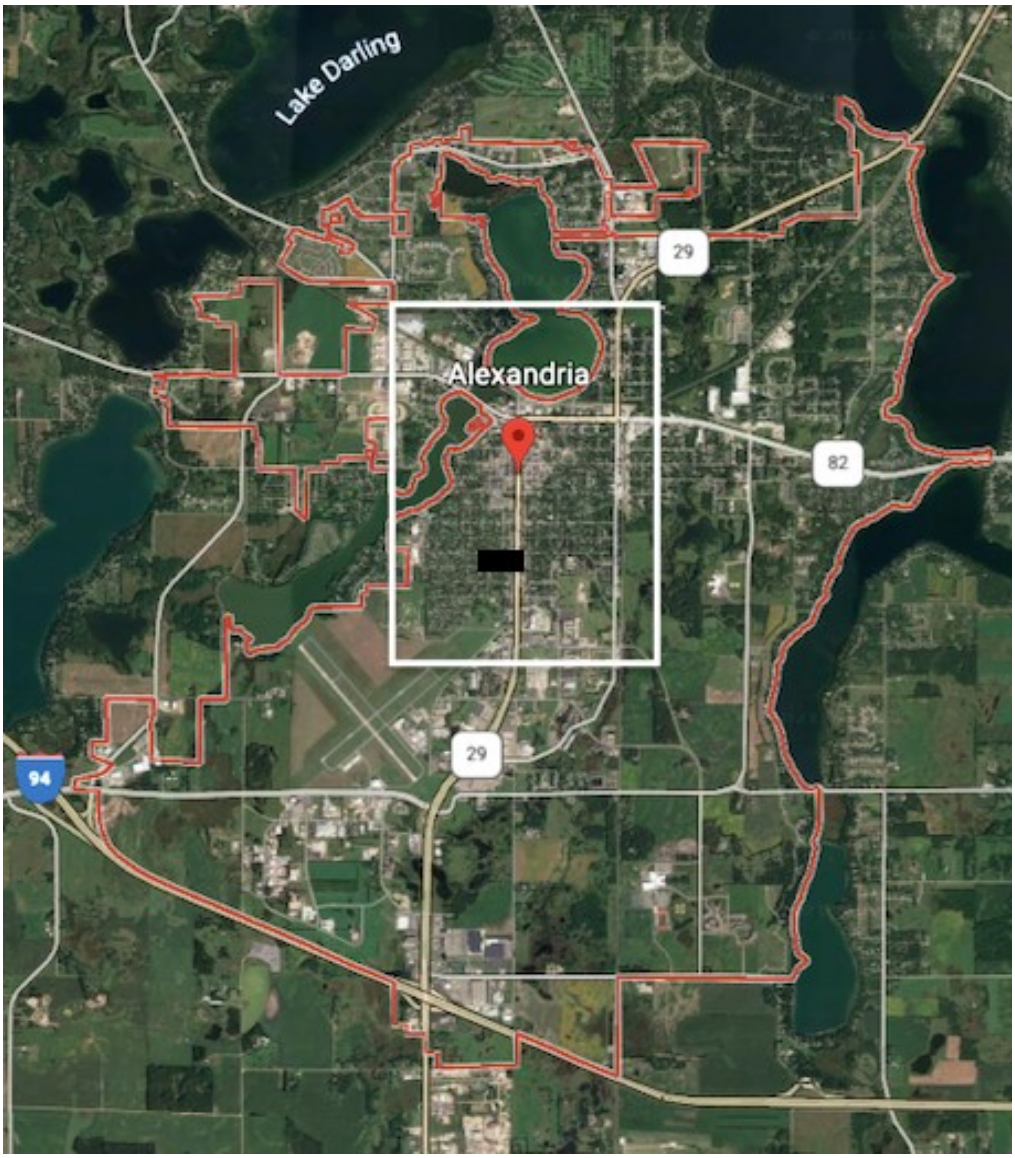

Figure 3.9 Alexandria Highway 65/South Broadway Avenue project area (downtown highlighted in white box)
Source: *Google Earth, project information added by author*

The completed project involved a mill and overlay of Highway 29 as well as complete replacement of underground utilities including water, sewer, and electrical line. Complete Streets elements of the project included widened and colored sidewalks, bump-outs at crosswalks, landscaping (trees and plantings), benches, and bike racks. Vehicle lane width was reduced to 11 ft, center lane width was decreased from 14 to 12 ft., and 8 ft on-street parking spots were preserved. Figure 3.10 shows an aerial view of Highway 29/Broadway Street in downtown following reconstruction.

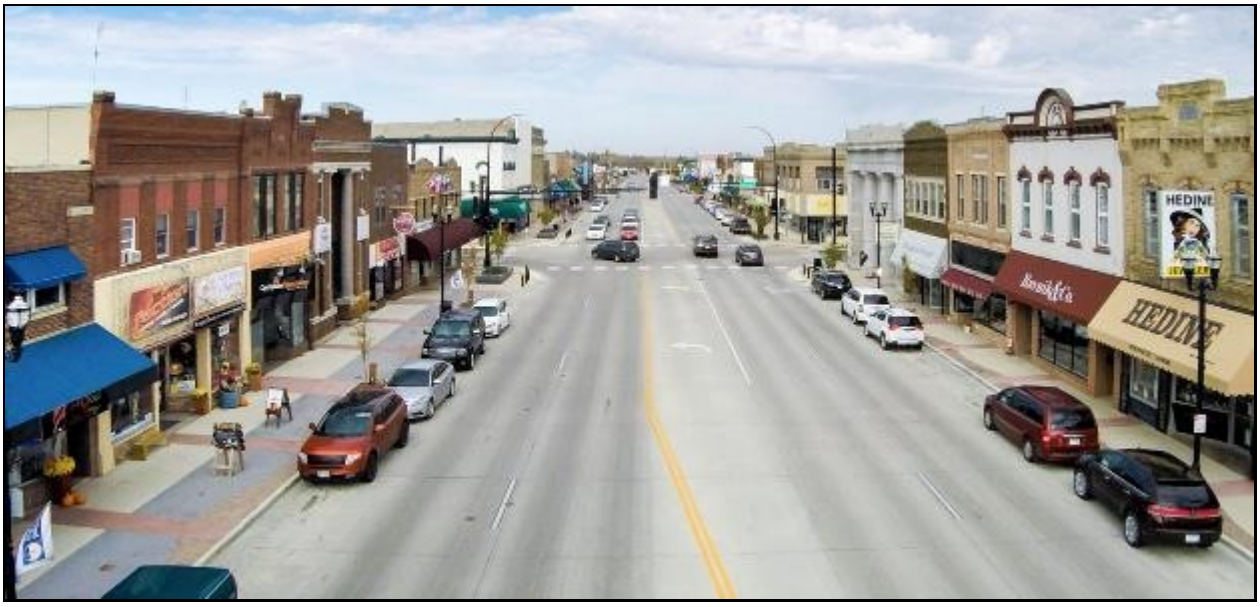

Figure 3.10 Alexandria Highway 65/South Broadway Avenue, post-reconstruction
Source: *Runestone Museum, 2021*

The construction phase of the project occurred between May and October of 2014. To minimize disruption to downtown businesses, the project was divided into three phases. Phase 1 involved the reconstruction of Highway 29/Broadway Street from 3rd Avenue to just before 6th Avenue, Phase 2 included just the major intersection at 6th Avenue, and Phase 3 involved the 6th Avenue to 8th Avenue blocks (Edenloff, 2014). The city also implemented several strategies to minimize disruption to businesses during the reconstruction. Strategies included strong contract terms that penalized construction delays, ensured pedestrian access, and utilized extensive and adaptive signage.

The City of Alexandria engaged in extensive business outreach. Four years prior to construction, three public visioning sessions were held, each attended by more than 60 people from throughout the community. The sessions were designed to allow public input in deciding key success factors (City of Alexandria, 2015). Early in the process, a group consisting of representatives from business, government, media, MnDOT, and other key industries formed to develop a marketing plan to engage businesses and the surrounding community (Brainerd Dispatch, 2016). The Redesigning of Alexandria's

Downtown (ROAD) group kept the community informed of progress via monthly newsletters and posted online as well as a community Facebook page that was updated twice weekly during construction (Alex ROAD Report, 2014).

To enhance community awareness and buy-in throughout the construction period, city officials hosted numerous events and engaged in regular communication with the community through newspaper, radio, online advertising, banners/signage, and social media channels. The construction kicked-off with a groundbreaking ceremony on May 12th in the downtown area (Edenloff, 2014). During construction, the city hosted several downtown "Stop, Shop, and Stroll" events including a Wine and Art Crawl and several live music events. Mid-construction, approximately 2500 individuals attended a "Party in the Street," which showcased a newly completed segment of the road (City of Alexandria, 2015).

3.4.2.2 Analysis and Findings

Our analysis of the perceived impacts of the reconstruction draws upon interviews with two city officials, nine business representatives, and two nonprofit organizations located in the downtown area. We supplement the interview data with media reports, city documents, MnDOT project documentation, and online resources pertaining to the reconstruction.

With respect to perceived economic impacts, only one of the individuals we interviewed felt that the reconstruction had a positive impact on their business. The remaining respondents either did not believe the changes affected revenue or were unable to disaggregate the impact of the reconstruction from other factors, such as larger economic conditions or the adoption of a new business model.

While few perceived a direct positive impact, five respondents thought that the changes had a positive impact for the city as a whole. Several noted that changes to the sidewalks allowed businesses to engage in a wider range of marketing and sales activities. According to one respondent: "There's more ability to do sidewalk sales.... With wider sidewalks they can put out… a display rack as a teaser as well as one sandwich board sign that has information, and I know that the downtown merchants see these things as benefits." One drew attention to activities that had originated during the construction period, such as the Wine and Art Crawl, which continue to draw people to the downtown area.

Several also viewed a positive impact as resulting from overall aesthetic improvements to the downtown area. As one respondent stated: "When you roll into a town and you see that it's set up and it looks like people take care of it creates a memory that makes you want to stop or go back." Respondents noted that customers will often comment on the beautiful look and feel of the town.

One respondent noted that the city and MnDOT were able to cover the costs of assessments to businesses through grants from organizations such as Blue Cross Blue Shield. This respondent noted that these grants helped tremendously in keeping the business afloat during the construction phase.

With respect to safety, crash data show that compared to the previous five-year average, accidents decreased by nearly 50 percent in the year following the reconstruction (Brainerd Dispatch, 2016). Yet interview respondents had mixed perceptions regarding the impacts of the reconstruction on safety.

More than half felt that the pedestrian enhancements, such as the crosswalks, bump outs, and curb barriers, had made the downtown area safer for pedestrians. Those who did not view the road as safer drew attention to the narrowness of the road and speed of traffic.

These responses are largely consistent with responses from a Blue Cross Blue Shield study on the economic impacts of Alexandria's reconstruction. The study, which involved interviews and surveys with owners representing businesses in the downtown area, found that just under half of business owners perceived that traffic safety had decreased following the reconstruction.

Respondent perceptions were mixed with respect to the impact of the reconstruction on transportation patterns. Some respondents did perceive an increase in the number of people downtown. "Yeah, it does seem like there is a lot more pedestrian traffic," one respondent noted, "There are more bikes on the bike racks." However, because cycling is not permitted on the sidewalks, bicyclists walk their bikes or use the cycling lanes on adjacent streets. Several respondents drew attention to the increased use of the widened sidewalks and ADA-compliant curbs by people in wheelchairs and electric scooters, which was overwhelmingly viewed as a benefit.

While some respondents drew attention to the volume of large vehicles traveling down Highway 29, others noted that the reconstruction led some semis to bypass the downtown area. Several respondents found it difficult to discern whether there had been a change in pedestrian or cycling activity. As one respondent noted: "I can't say that there is more… Downtown Alexandria has always been vibrant and busy so pre-construction… there was always massive foot traffic."

3.4.3 Bagley

Bagley is a small city in northwestern Minnesota, located 250 miles from the Twin Cities. Known as the "Gateway to Itasca," the city is 30 miles north of Itasca State Park and the headwaters of the Mississippi River (Lakes N Woods, 2021). It is the county seat for Clearwater County.

With a population of 1,285, Bagley is the second smallest city in our study. Located near Red Lake Reservation, White Earth Reservation, and Leech Lake Reservation, the city has a relatively large American Indian population. Approximately 13 percent of residents identify as American Indian/Alaskan Native, compared to 2 percent in Minnesota. Like other cities, Bagley has an aging population. The median age is 40.3 years and 28 percent of residents are 65 years or older. The city's median income of $38,846 is considerably lower than the state's median income of $74,593 (U.S. Census Bureau, 2019).

For residents of Bagley, the most common types of employment are in manufacturing, health care and social assistance, and retail trade sectors. Nearly 5 percent of workers walk to their jobs and just over one-third travel outside of Clearwater County for work (American Community Survey, 2019). Within the city, most commercial and industrial areas are located on or near Highway 2, which also represents an important connection to the broader national and state transportation network. Bagley's downtown area is located at the intersection of Highway 2 and Highway 92 and includes a mixture of commercial retail, professional services, local government offices, and residential spaces (City of Bagley, 2014).

Table 3.6 Key findings, Bagley

Project Features	• Grading and resurfacing of pavement, utilities upgrades, pedestrian ramps and accessibility improvements, sidewalk improvements and curb bumpouts, lighting, and a multi-use trail west of downtown.
Revenue/Economy	• Respondents perceived limited direct impact on their sales/revenue and limited impact on the city as a whole.
Transportation	• Respondents did not perceive a change in transportation patterns.
Safety	• Perceptions of enhanced safety were mixed, with one respondent reporting improved safety and the remaining respondents stating the reconstruction had no impact or that the road was less safe post-construction.

3.4.3.1 Project Description

The reconstruction of Highway 2 involved the grading and resurfacing of a 2.32-mile segment of Highway 2, shown in Figure 3.11 below. The goals of this project were to improve the safety of roads, improve trail and pedestrian accessibility for Bagley residents, and upgrade utilities. In addition to the pavement improvements, the project involved updating the storm sewer, and curb/gutter improvements. Complete Streets elements of this project were concentrated in downtown and on the west end of the project and included pedestrian ramps and accessibility improvements, sidewalk improvements and curb bump-outs, lighting, and a multi-use trail west of downtown. The project was conducted between June 8th and September 25th of 2020 (MnDOT, 2021).

Figure 3.11 Bagley Highway 2 project area
Source: *Google Earth, project information added by author*

City interest in improving pedestrian access - an important component of the city's land use plan - was a primary motivation for including the Complete Streets elements of the project. The western end of the project included a new multi-use trail on the north side of the highway between Sunset Avenue and Park Avenue NW (shown in Figure 3.12). Several local businesses were supportive of these changes due to the fact that the city lacked sufficient pedestrian infrastructure within this emerging commercial area.

Figure 3.12 Installation of Bagley multi-use trail
***Source**: Google Maps*

Prior to and during the construction phase, the city held weekly meetings to discuss proposed changes. Two weeks before construction began, staff distributed a news release to local media and sent out mailers to residents with information about the upcoming project. During construction, MnDOT staff sent out periodic email updates to people who had subscribed through the project webpage, maintained the project webpage, and posted updates on their Twitter and Facebook feeds.

3.4.3.2 Analysis and Findings

Our analysis draws from ten interviews with business owners located on or near the improvement site, as well as interviews with two MnDOT staff. We supplement the interview data with MnDOT project documentation, city reports, and other online resources.

With respect to business involvement, the individuals that we spoke to felt adequately involved in the planning process and reported that communication and updates from the city and MnDOT were strong throughout the construction phase. One individual noted that the weekly meetings provided a

consistent and reliable mechanism for reporting concerns to the city. Several respondents described attending "heated" city meetings to discuss their concerns about the proposed road diet and sidewalk changes. While some felt that their concerns were addressed in the final design, other elements of the initial plan were implemented despite concerns from local businesses.

No respondent felt that the street changes affected their business or the larger economy beyond the construction phase. Respondents drew attention to sales and marketing practices, the coronavirus pandemic, and larger economic trends as having a much larger effect on individual businesses. One respondent did speculate that the reconstruction could generate more revenue if the changes led more people to be mobile. However, the most common perception was one of limited impact.

Though few individuals felt that the project had an economic effect, two respondents described an innovative use of the wider sidewalks in the summer following the reconstruction. Figure 3.13 shows an event that was hosted by a local furniture store and featured around 30 tents with both local and out-of-town vendors. Galli Furniture obtained permits to use the sidewalks for sales. When describing the event, one respondent noted: "It was one of the best days Bagley has seen in a very long time. I very much appreciated the sidewalk for that." With the exception of this event, business owners did not report engaging in different marketing or sales practices on the improved road/sidewalks.

Figure 3.13 Bagley sidewalk sale, post-construction (July 2021)

***Source**: Public Facebook Page for Galli Furniture*

With respect to transportation, no respondents perceived changes in how customers or residents travel around the town. Two individuals noted that the businesses had been accessible to those in wheelchairs prior to the construction and they did not perceive a change. Two respondents described increased use of the trail by golf carts, ATVs, and other motorized vehicles, and walkers, as well as use of the pedestrian crossing signals.

Similarly, only one respondent perceived a positive impact on safety. To the extent that individuals perceived an impact, it was largely negative. Those who were critical of the changes pointed to the widened sidewalks, curb bump-outs, and the road diet. One respondent discussed the fact that the narrower road creates back-ups because the large truck, logger, and semi traffic are unable to make the turn at the intersection of Highway 2 and Highway 92. Another discussed feeling less safe when parking on the street due to the narrowness of the road.

While respondents did not perceive a positive impact on business sales/revenue, transportation, or safety, the interviews suggest that most do not perceive a negative impact. Rather, respondents simply did not believe the changes mattered much for the outcomes of interest. For instance, in discussing the changes, one respondent noted: “The comment I hear is how ridiculously big the sidewalks are, but I don’t know that it really matters to anyone.” Still another respondent stated: “I can’t imagine it would change anything, but it is certainly nice to have fresh streets and repaved sidewalks.”

3.4.4 Bayport

Bayport is a small city in Washington County, located one mile south of Stillwater on the eastern side of Minnesota. The city’s location along the St. Croix River and proximity to the St. Croix Savanna Natural Area offers many opportunities for hiking, bird watching, and boating. Bayport’s historic downtown area also boasts numerous independent businesses and restaurants that contribute to the small town feel of the town (City of Bayport, 2021).

With just 3,723 residents, Bayport is one of the smallest cities in our study. Roughly one-third of the population resides within Minnesota’s Stillwater Correctional Facility, located on the city’s northern end. Bayport is considerably more diverse than other cities in our study, with 13 percent of residents identifying as Black/African American and 5 percent as American Indian/Alaskan Native. Much of this diversity is likely due to the race and ethnicity of residents of the correctional facility. Of 1,350 adult offenders in September 2021, 50 percent (N=669) identified as Black/African American and 9 percent (N=125) identified as American Indian/Alaskan Native (Minnesota Department of Corrections, 2021).

Bayport’s population closely mirrors the population of the state. Median household income is $78,211, slightly higher than Minnesota’s median income. The median age of Bayport residents is 37.8, with just over 15 percent of the population 65 years or older (U.S. Census Bureau, 2019). Despite projections for considerable population growth, the city has grown modestly over the past 30 years (City of Bayport, 2021).

With respect to the economy, the dominant industries in Bayport are construction and manufacturing. Andersen Corporation, an international window and door manufacturer, is headquartered in Bayport and accounts for a large number of jobs within the city itself. The company has expanded several times over the past ten years, increasing the total number of jobs available for Bayport residents and residents of neighboring communities (Lebens, 2018).

Table 3.7 Key findings, Bayport

Project Features	• Mill and overlay, upgraded utilities, drainage repairs, and Complete Streets features in the downtown area including sidewalk repairs, enhanced pedestrian crossings, medians islands, street lighting, and curb ramps.
Revenue/Economy	• While several businesses had increased revenue following reconstruction, this period coincided with the lifting of pandemic restrictions, making it difficult to isolate the impact of the project. • Most respondents agreed that the aesthetics of the road had improved, potentially leading to future economic impacts.
Transportation	• Few interviewees felt that the changes had altered transportation patterns. • Two residents of Bayport noted that people who live in town are now more inclined to walk downtown.
Safety	• A majority of respondents felt that the changes had made the road safer, particularly for pedestrians.
Other	• The coronavirus pandemic affected our interviewees' experiences of the reconstruction, as fewer people were going to work, school, or visiting businesses during the construction period.

3.4.4.1 Project Description

The 2020 reconstruction of Highway 95 in downtown Bayport was part of a larger pavement preservation project stretching 4.7 miles from north of 8th Avenue North in Bayport to south of 1-94 in Lakeland (see Figure 3.14). The project involved pavement resurfacing, updating of sidewalks and curbs, improved drainage, and the addition of several Complete Street elements. The city also updated water and sanitary lines. With the exception of road realignment and shoulder work completed south of Bayport to enhance bikeability, the Complete Street elements were largely concentrated in Bayport's downtown area. The project's pavement repair and drainage improvements were implemented along the entire construction corridor. Construction began on May 4th, 2020, and ended on November 1st, 2020 (West Lakeland Township, 2019).

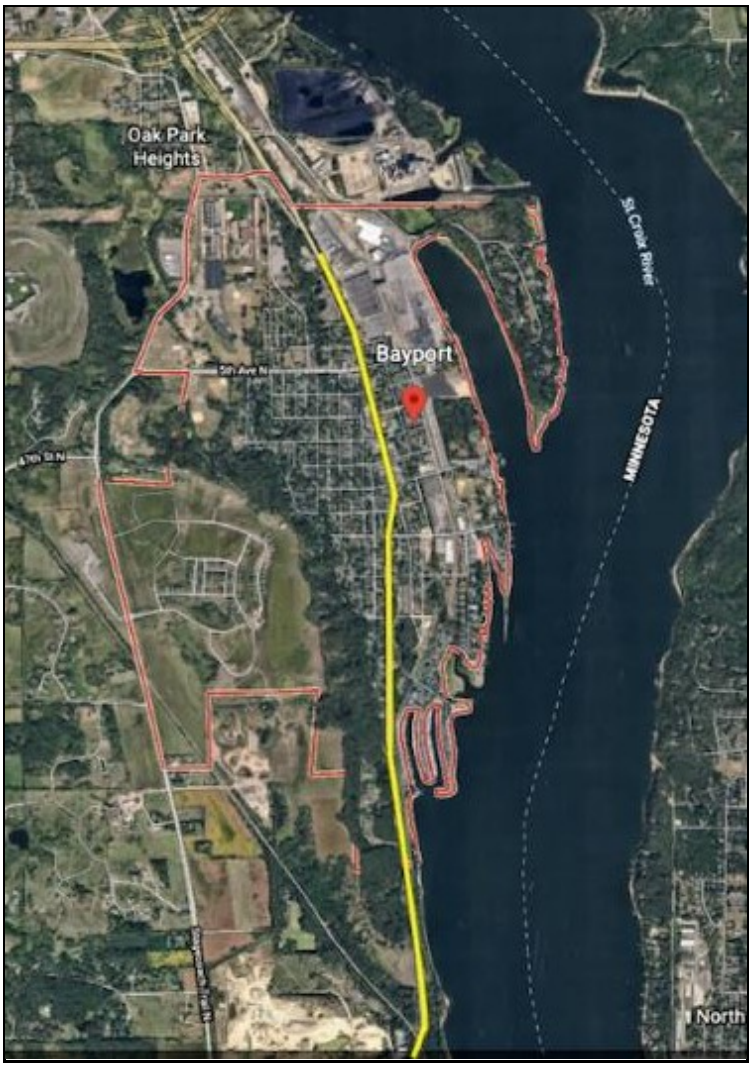

Figure 3.14 Bayport Highway 95 project area
Source: *Google Earth, project information added by author*

When MnDOT announced the project, the City of Bayport initiated a conversation about including Complete Streets elements to calm traffic and enhance safety. Improving the safety of pedestrian crossings across Highway 95 was a primary motivation for the city due to previous accidents and ongoing concerns from residents about the failure of cars to stop for pedestrians. In December 2019, a man was hit and killed by a vehicle while using a designated crosswalk to cross Highway 95 on his way to work at the Andersen Corporation headquarters (Divine, 2020). Twenty years prior, two young children and their mother had been critically injured after being struck by a van while crossing Highway 95 in front of Andersen Elementary School (Divine, 2019).

Complete Streets elements in the downtown area included sidewalk repairs, enhanced pedestrian crossings, medians islands, street lighting, and curb ramps. Though a bike lane was initially considered for inclusion in the project, it was ultimately removed due to concerns from the community about safety for bicyclists on Highway 95, the loss of on-street parking, and the decreased travel lane for vehicles.

Figure 3.15 shows the pedestrian facilities located near the elementary school on Highway 95 prior to and following construction. The second panel highlights several Complete Streets elements designed to calm traffic and improve safety for pedestrians and cyclists, including center medians, enhanced pedestrian crossings, additional signage, and updated curb ramps. The second panel also shows one of two flashing light beacon systems added to downtown intersections.

Panel A: Highway 95 before the reconstruction project (2019)

Panel B: Highway 95 after the reconstruction project (2021)

Figure 3.15 Example of enhanced pedestrian crossings in Bayport (pre/post reconstruction)
Source: *Google Maps for Panel A and author's image for Panel B*

Prior to the construction, MnDOT engaged in several types of outreach and engagement strategies. Staff held meetings with business owners and residents and established business liaisons during construction. MnDOT also distributed project area mailings and kept the community informed about construction through news releases, fact sheets, a project website, and email updates to residents, businesses and motorists. Construction schedule coordination with the City, county, schools, businesses, emergency services, postal and freight companies in the project area was another key component of this outreach strategy. In addition, the city hosted multiple open houses on the project and proposed improvements.

3.4.4.2 Analysis and Findings

The analysis draws from correspondence with MnDOT and city officials, as well as interviews with four nonprofit or public organizations and seven businesses located in Bayport. To supplement the interview data, we also draw upon documentation and reports from the City of Bayport, the Washington County Community Development Agency, MnDOT project documentation, and newspaper articles.

Prior to the construction phase, MnDOT and city staff engaged in numerous outreach and engagement strategies. Two of the interviewees who participated in planning activities reported that both MnDOT and city staff were responsive to requested changes, including the removal of a median and the placement of a crosswalk. Other individuals we spoke with had varying perceptions of communication from MnDOT and the city during the reconstruction, with several reporting that communication was adequate and others reporting a lack of communication towards the end of the project.

It is clear that the coronavirus pandemic affected our interviewees' experiences of the reconstruction. Construction began two months into the pandemic, when much of Minnesota was still under a "stay at home" order. During this time, many businesses and city offices were closed, schools were engaged in distance learning, and congregations had cancelled services and events or moved them online. Because fewer people were going to work, school, or visiting downtown businesses, maintaining access to organizations located along Highway 95 was less important than it would have been otherwise. As one individual noted: "It was not nearly as stressful as I thought it would be. We definitely saw a lot less traffic, and we did have to reroute people here occasionally over the phone but it wasn't as disruptive as it could have been" (Director, nonprofit/public organization).

With respect to safety, a majority of people that we spoke with felt that the changes had made the road safer. Several referenced the enhanced pedestrian crossings with flashing lights near the school and in the downtown area as being particularly important. One individual stated: "I drive through Bayport every day. It feels safer. I feel like pedestrians are safer. The signage, the median, even with the sidewalks...people must be slowing down given those new zones" (Director, nonprofit/public organization). Two respondents drew attention to newly designated parking spots as helping with safety. Another individual noted that the addition of more flashing lights at intersections would further improve safety in the downtown area.

Several of the individuals we spoke with noted that speeds within the downtown area of Bayport are kept somewhat in check due to the fact that the city is a well-known "speed trap." However, a few interviewees still felt the traffic was too fast. As one individual noted, "even though it's 30 miles an hour it still feels fast" (Office manager, business). Perhaps for this reason, the Bayport City Council began soliciting community feedback in 2021 about whether to invest in a traffic study - a necessary state requirement for reducing posted speeds on state highways (City of Bayport, 2021).

Few interviewees felt that the changes had altered transportation patterns to and from businesses, nonprofits, or city facilities. However, two residents of Bayport noted that people who live in town are now more inclined to walk downtown. Another noted that it was difficult to disaggregate the effect of the reconstruction on transportation patterns from the effect of COVID on transportation patterns.

When we asked specifically about the economic impact of the reconstruction, many respondents drew attention to the economic circumstances surrounding the coronavirus pandemic, both in terms of the shutdowns and the current labor shortage. While several organizations experienced an increase in revenue following reconstruction, this period coincided with the lifting of COVID restrictions, making it difficult to isolate any impact of the reconstruction. A few individuals we spoke with did note that the designated parking spots are helpful to businesses, as is the ability for residents to safely walk downtown.

While few respondents perceived a direct economic impact of the reconstruction, a majority agreed that the aesthetics of the road had improved. This in turn could contribute to the growth of the city as a whole. As one respondent noted: "...having the road redone makes it look like the community is being invested in." These interviews suggest that respondents perceive limited direct positive impact on business activity, though potential indirect impacts exist.

3.4.5 Glenwood

Glenwood is a small city of 2,657 residents, located approximately 120 miles northwest of the Twin Cities and just 20 minutes south of Alexandria. The city serves as the county seat for Pope County. Positioned on the eastern shore of Lake Minnewaska, Glenwood serves as a commercial center in an area dominated by farming and manufacturing. It relies heavily on tourism - nearly tripling the size of its population during the summer months (Pope County Press, 2021). The city hosts numerous events throughout the years, including *Waterama*, a summer celebration with live music and a street dance, a water ski show, Crazy Days Sales at downtown retail stores, and *Winterama*, held in February (Go Glenwood, 2021).

Glenwood's population is considerably older and less diverse than Minnesota as a whole. Less than 1 percent of city residents are people of color, compared to 24 percent for the state. Median age is 44.3 - six years older than in the state - and nearly 30 percent of residents are 65 years or older. The median household income is $47,000, which is lower than Minnesota's median income but comparable to other cities in this study (U.S. Census Bureau, 2019).

With respect to industry, the most common industries of employment for Glenwood residents work are education, health, or social services; manufacturing; or retail trade. A majority of employed residents work within the city or in Pope County and average travel time to work is 16 minutes. In addition, 5 percent of working residents walk to their jobs.

Table 3.8 Key findings, Glenwood

Project Features	• Mill and overlay, utilities upgrades, road diet, bike lanes on both sides of the street (Highway 28), streetscape and lighting improvements.
Revenue/Economy	• Perceptions of economic impact were mixed, with four respondents perceiving a positive impact, three perceiving a negative impact, and the remaining respondents uncertain.
Transportation	• Eight of ten respondents did not perceive a change in transportation patterns, with several drawing attention to the lack of use of cycling paths.
Safety	• Respondents had mixed perceptions about the impact on safety. Positive responses included the improved flow of traffic and enhanced safety for pedestrians. Negative responses included congestion and driver error, and inability for semi-trucks to make turns off the highway.

3.4.5.1 Project Description

Glenwood's Complete Streets project occurred during the 2018 construction season. The construction occurred at the intersection of Highways 28, 29, and 104 and involved Glenwood's downtown and primary commercial district. Figure 3.16 shows the project area (highlighted in yellow).

Figure 3.16. Glenwood Highways 28, 29, and 104 project area
Source: *Google Earth, project information added by author*

The initial MnDOT plan involved a mill and overlay project on four miles of highway (Highways 28, 29, and 104) as well as updating sidewalks to be ADA compliant. The city needed to repair aging utilities, including sewer and water and was interested in additional Complete Streets features to beautify the downtown area. Complete Streets improvements and facilities included a cycle track, streetscaping and lighting, and a lane removal. The width of car lanes and parking stalls was adjusted to provide 7 ft cycle tracks (along with bike racks on the amenity zones) on both sides of the street, intended to close a gap in the local bike trail network.

Trees, planters, benches, table sets, receptacles, and bike racks were added in the downtown area. In addition, to improve safety for cyclists and pedestrians, the project removed a lane from the existing Minnesota Avenue (Highway 28), repurposed one lane as a center turn lane, and reduced parking stall width. These adjustments were made to slow down traffic and improve traffic management to address

community concerns regarding the high speed in the area, while also freeing up some space for other user groups. Figure 3.17 shows a segment of Highway 28 before and after the improvement project.

Panel A: Highway 28/Minnesota Avenue prior to the construction (2015)

Panel B: Highway 28/Minnesota Avenue prior to the construction (2019)

Figure 3.17 Example of changed lane structure and updated sidewalks on Highway 28 (pre/post reconstruction)
Source: *Google Maps*

Because a large number of trucks use the three highways, accommodations were made to ensure that trucks were still able to utilize the roads and make turns from one highway to another. Travel lanes were maintained with a width of 12 ft (typically these are 11 ft) as the community was concerned about freight traffic (MnDOT, 2020). In addition, bike lanes were adjusted and curb bump-outs were not installed at the main intersection to enable trucks to make turns.

The project occurred in five phases.

1. Phase 1 involved the reconstruction of Highway 28 from just west of 5th Street NW and the replacement of street and sidewalks at the intersection of Franklin Street and First Avenue S.
2. Phase 2 involved rebuilding Minnesota Avenue from 5th Street NW to the intersection of Franklin Street.
3. Phase 3 involved the reconstruction of the intersection of Minnesota and Franklin streets, the replacement of utilities (water, sewer and storm sewers), and new signal lights at the intersection. This phase was planned to be completed prior to the city' annual Waterama event.
4. Phase 4 included the upgrade and widening of sidewalks to include a bike lane in the segment east on Minnesota Avenue from Franklin Street to 4th Street.
5. The final phase of the project included a mill and overlay of Highways 28 and 29 to the CP Rail bridge and Highway 55. Downtown sidewalks were upgraded to ADA accessibility standards at each intersection.

Both MnDOT and city staff engaged in extensive business and community engagement prior to and during the construction phase. Concerns from businesses centered around the loss of parking and potential construction impacts. In addition, communication challenges between the city and business community caused the project to be delayed by approximately six months. Confusion from the community about whether the project was city-led or MnDOT-led resulted in the city voting *not* to move forward with the Complete Streets after originally voting to do so. The project also became embedded in a local mayoral race, where one candidate was for the Complete Streets project and the other against it.

Once the city decided again to move forward with the project, MnDOT spent a great deal of time and energy working to enhance transparency and communication with the local business community. For instance, MnDOT hired a public liaison for the construction phase, held a series of public meetings, and went door-to-door talking with businesses.

3.4.5.2 Analysis and Findings

Our analysis is based on 11 interviews: ten with local businesses and one with MnDOT's project manager for Glenwood's improvement project. We supplement the interview data with additional documentation from MnDOT, the City of Glenwood, and local media reports.

Perhaps due to the communication challenges referenced above, several respondents appeared displeased about the design and construction phases. Two respondents noted that there had not been much negotiation or discussion with the community during the design phase and another referenced a lack of communication between MnDOT, the city, and the community. Another referred to the 'hiccups' that prolonged the project as a negative for local businesses. Several of these respondents also reported feeling like their opinions did not matter in the design phase.

With respect to economic impacts, just under half of our respondents felt that the reconstruction had a positive impact on their businesses and the city as a whole. These respondents drew attention to the improved aesthetics of the town and the addition of several new downtown businesses over the past two years. As one business owner noted: “I think it gave us a nice facelift and a few of the buildings have been redone… I think it was a nice improvement overall. I like the planters and the other things that got put in. It brought out little burb up to date.” Several interviewees also discussed hearing positive comments from customers about the town.

Three respondents perceived that the construction had a negative impact on businesses due a loss of revenue during the construction phase, the loss of parking spots and lack of city parking lots, and rising rents for those who lease their property. Two respondents noted the difficulty of assessing impact due to COVID and the implications for tourist travel and business activity more generally.

Business owners were largely critical of their lack of ability to utilize the wider sidewalks for sales or marketing purposes. A cafe owner described having to remove a bench that provided a shady spot for customers to eat due to state rules prohibiting anything on the sidewalk (including a sandwich board). Several respondents contrasted the inability to use the sidewalks in Glenwood with Alexandria’s use of sidewalks for sales and marketing.

While two respondents felt there were more pedestrians utilizing the sidewalks post-construction, most respondents did not perceive a change in transportation patterns following the improvement. Indeed, several mentioned that the on-street bike lanes along Highway 28/Minnesota Avenue and Highway 29/Franklin Street are rarely used, with one respondent noting: “Bike paths are the most underused real estate.” Two respondents thought that the bike lanes had simply been added in order to gain access to state funding and another thought that they were intended to draw young families into town. Respondents highlighted a lack of connectivity beyond the downtown area, the topography of the city (it sits at the bottom of a hill) and the traffic speed on the highways as key deterrents to biking. Those we spoke with were generally supportive of the enhanced accessibility for those in wheelchairs.

Respondents were somewhat ambivalent about the impact of the street changes on safety. Several people we spoke with drew attention to the improved flow of traffic and enhanced pedestrian accommodations (such as the curb bump-outs). Perceived negative impacts involved the congestion caused by moving from four lanes to three and the response of drivers to changes in the road - such as using the center turn lane as a traveling lane or parking spots as a right-turn lane. Two respondents also discussed the high speed of traffic following reconstruction.

3.4.6 Grand Rapids

Grand Rapids is a rural city of 11,165 people, located 175 miles north of the Twin Cities in Itasca County. Due to its location, forest product manufacturing and mining industries are important parts of the local economy. The city also supports a range of regional educational and health care services, as well as commercial establishments targeted to a robust tourism economy (City of Grand Rapids, 2020). The

city's commercial areas contain a mix of popular national retail chains and locally-grown businesses, attracting both tourists and residents from across Itasca County (Bennett & Pesch, 2014).

The city's population has grown steadily over the past 20 years. While the city does have an aging population (23 percent are over the age of 65), there is a stable proportion of the population that consists of young families with children. Both older and younger age demographics thus represent important age demographics for the city's attention (City of Grand Rapids, 2020). The city's median household income is $48,287, considerably less than the state's median household income of $70,315 (American Community Survey 2019). Grand Rapids' proximity to lakes, hunting, golfing, and trails draws thousands of tourists throughout the year.

The city has long prioritized a Complete Streets approach to transportation planning. While the local economy depends on an efficient road and rail transportation network, in 2003 Grand Rapids updated its comprehensive plan to articulate the goal of becoming a "walkable city." Since that time, the city has made numerous bicycle and pedestrian improvements to enhance connectivity throughout the area. Surveys conducted as part of the comprehensive planning process indicate that while most residents use a vehicle for transportation purposes, many would prefer to use an alternate form of transportation (including biking and walking) in the future (City of Grand Rapids, 2020).

Table 3.9 Key findings, Grand Rapids

Project Features	• Mill and overlay; utilities updates; realignment of intersection and addition of new stoplight; consolidation of several access points; pedestrian enhancements, including new sidewalks on both sides of the highway, traffic signals with visual, audible, and tactile capabilities, pedestrian ramps with truncated domes acting as a warning surface, marked pedestrian crossings, and accessible pedestrian signals with push-button stations.
Revenue/Economy	• Apart from the construction phase, most respondents felt that changes had not affected the business or reported changing practices. Two mentioned increased traffic but could not isolate the reconstruction as the cause.
Transportation	• Few respondents perceived a change in transportation patterns following the reconstruction. For those that did, the change was minimal. Respondents did note that the sidewalks are frequently utilized by pedestrians and scooters.
Safety	• All but one respondent felt that the reconstruction made the road safer, though several noted that there are still accidents on the road due to the speed and volume of traffic.

3.4.6.1 Project Description

The Highway 169/Pokegama Ave project involved the full reconstruction of 9 blocks of Highway 169, from 1st Street S to 10th Street S. Figure 3.18 shows a map of Grand Rapids, with the city's borders shown in red. The Highway 169 project area (shown in yellow) runs north-south through the center of the city and is the city's primary commercial corridor. The project also involved a mill and overlay extending several blocks north and south of the project area, from 3rd Street N to 13th Street S. As of 2014, construction costs were estimated at $9.7 million (MnDOT, 2014).

The reconstruction area is an area intended for commercial uses that require larger lots and easy access along the highway. Businesses along this corridor have large parking lots and many have drive-throughs. There is no on-street parking. Immediately off the commercial corridor, land use is primarily residential (City of Grand Rapids, 2020). While many businesses are oriented to the highway, there are also residents nearby who could potentially use other transportation modes (e.g., walking) to access the commercial properties.

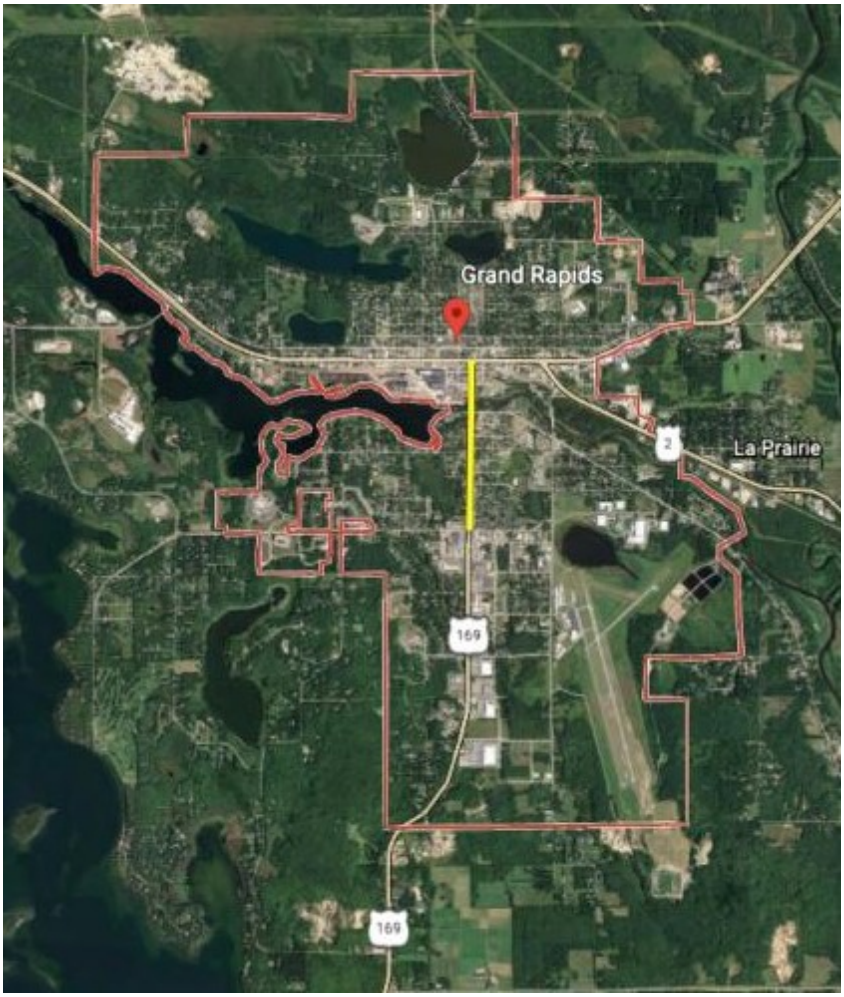

Figure 3.18 Grand Rapids Highway 169/Pokegama Avenue project area
Source: *Google Earth, project information added by author*

From the city's perspective, a critical project element involved the addition of a center turn lane, aimed at reducing rear-end collisions and improving the flow of traffic. The four-lane highway was converted into a five-lane highway with a dedicated center turn lane, with lanes narrowed to 11 ft to accommodate the change.

Several pedestrian enhancements were installed, including new sidewalks on both sides of the highway; traffic signals with visual, audible, and tactile capabilities; pedestrian ramps with truncated domes acting as a warning surface; marked pedestrian crossings; and accessible pedestrian signals with push-button stations (Grand Rapids Herald Review, 2013). As part of the project, a road that was misaligned by 50 ft was realigned and a traffic signal was installed at the intersection. A traffic signal was also installed at 1st Street (Rosemore, 2012). Figure 3.19 shows Highway 169 before and after the project.

Panel A: Highway 169 prior to the construction (2008)

Panel B: Highway 169 following the improvement project (2019)

Figure 3.19 Example of changed lane structure and updated sidewalks on Highway 169 (pre/post reconstruction)
Source: *Google Maps*

Although its role was primarily around updating utilities, the city did push to get numerous access points consolidated, including access to 2nd Street SW, 3rd Street SW, and 3rd Street SE (Rosemore, 2012), with the goal of improving traffic flow and limiting traffic conflict. Although the corridor could not accommodate a bicycle lane due to right of way, width, and traffic counts, the city installed a bike route two blocks off the corridor.

The project was conducted in two stages during the 2012 construction season. During the first stage (April to mid-summer), south-bound lanes of Highway 169 were closed, and traffic was one lane in each direction. During the second stage (mid-summer to fall), north-bound lanes were closed, and the south-bound lanes reopened to accommodate one lane of traffic in each direction. The project also included incentives for early completion and disincentives for late completion (Rosemore, 2012). These factors - maintaining one lane of traffic open in each direction and contractor incentives and disincentives - were generally seen as helping expedite the construction phase and minimize losses to local businesses during the busy tourism season.

Prior to the construction phase, MnDOT and city staff held meetings to alert local businesses to the schedule and anticipated impacts. Some interview respondents reported being adequately informed, while others reported little knowledge of what was happening during the construction phase. In general, respondents perceived that the construction phase went relatively well. Two individuals we spoke with

noted that this construction was much smoother than previous constructions they had experienced - including the reconstruction of Highway 2 in Grand Rapids several years prior.

3.4.6.2 Analysis and Findings

The analysis draws from interviews with 11 local stakeholders, including business owners/managers, landlords, and one city official. To supplement the interview data, the analysis also draws upon local newspaper articles and media reports, additional research on the project, and documentation from MnDOT.

Only one respondent perceived a direct impact of the construction on the business (apart from the construction phase). Two noted that the town was growing and that customer traffic had increased in the years since the construction, but could not directly credit those changes to the changes in the road. No respondent described changing business practices in response to the reconstruction.

At the same time, one individual we spoke with noted the value of progressive infrastructure in attracting younger demographics. This individual argued that young people often prioritize walkability and amenities that permit active living. Though it is just one aspect of the city, it is an important piece of attracting residents and likely part of the reason that Grand Rapids is growing.

With respect to transportation, few respondents perceived a change in transportation patterns following the reconstruction. For those that did, the change was minimal: “If I saw 10 [pedestrians] then, now I see 15.” While interviewees report that most customers and employees utilize vehicles to access businesses along Highway 169, many mentioned that the sidewalks are frequently utilized by pedestrians and those in wheelchairs due to all the businesses and restaurants located along the road. As one respondent noted: “It’s a busy sidewalk. There are always people running, walking, commuting.”

While there is considerable foot traffic up and down the sidewalks, there is limited crossing Highway 169 - despite the addition of marked crosswalks and push-button stations to alert traffic to pedestrians. One interviewee attributed the lack of crossing to the number and speed of vehicles traveling along Highway 169: “Dream as much as you want, but reality is that traffic rules.” This individual speculated that pedestrians perceived it as too dangerous to cross.

Finally, one individual also discussed the value of the ADA improvements. This person noted that she regularly sees three people in wheelchairs going past her business, and that the city does a good job of keeping the handicap areas open and accessible throughout the winter months.

All but one interview respondent felt that the reconstruction made the road safer, though several noted that there are still accidents on the road due to the speed and volume of traffic. Those we spoke with perceived the center turn lane, as well as the relocated traffic signal, as decreasing the number of accidents on the road.

As one respondent noted: “I had to call 911 so many times. Two times my sign outside was crooked and my landscaping was bad and I had to call insurance [from accidents involving traffic].” This respondent noted that since the center turn lane was added, they had not witnessed a single accident.

Another respondent said that prior to the construction they were calling 911 weekly to report major accidents. The respondent said they had witnessed four accidents alone in the month prior to the construction. When asked if the road was indeed safer now, the respondent answered: “I haven’t called (911) yet.” Despite the overall improvement in safety, one respondent did note that the narrowness of the turn lane seems dangerous to some customers and employees.

3.4.7 New London

New London is a small city in Kandiyohi County, located approximately 100 miles west of the Twin Cities metro and 50 miles southwest of St. Cloud. New London’s population of 1,197 is slightly older and less diverse than the rest of Minnesota. Thirty percent of New London’s population is age 65 or older and 99% are white, compared to 16% and 85% for the state. Median household income in New London is $53,456 - less than the state median income of $70,315 (U.S. Census Bureau, 2019).

New London’s scenic location - close to Sibley State Park, on the middle fork of the Crow River, and in the vicinity of numerous lakes - makes it a draw for local and out-of-state tourists. Though once a farming town, the city now relies heavily on tourists that come to the area as part of a day trip or extended visit to ‘Lakes Country.’ New London is home to numerous community events in the summer, such as the Willmar-Spicer-New London Studio Hop, Crow River Fishing Tournament, New London Water Days, and New Brighton Antique Car Run, and New London Music Festival.

The city is well-known for the locally-owned boutiques, salons, and artist studios that generate considerable foot traffic during the summer months (West Central Tribune). The small downtown hosts a combination of boutique retail shops, salons, artist galleries, and various professional services. The city has worked to cultivate an arts-based identity, in part through the activities of past-mayor Bill Grossman - a potter - and the engagement of local businesses and artists (Vogel, 2013). New London also has a strong business network, called the New London Merchants Group, that is active in aligning and promoting business interests throughout the city.

Table 3.10 Key findings, New London

Project Features	• Pavement preservation; utilities upgrades; narrowing street by 6ft/sidewalk widening; curb bump-outs; coloring concrete.
Revenue/Economy	• Some individuals perceived an impact of the altered street design on economic activity while others did not. Four interviewees saw the construction as having a

	positive impact on economic activity in the city. Several business owners reported using the wider sidewalks for sales and marketing.
Transportation	• With respect to access and transportation, interviews suggest that parking remained a concern after the construction phase, with customers continuing to complain about the lack of parking along Main Street. Two respondents mentioned the ADA-compliant sidewalks as particularly beneficial.
Safety	• Several interview respondents perceived that the changes had slowed traffic but had not affected the volume of cars and trucks on the road. At least one respondent noted that the narrower road felt less safe due to the narrowness and two individuals felt that the sloped edge of the sidewalk created a safety concern.

3.4.7.1 Project Description

Several years prior to the 2011 reconstruction of Highway 9/Main Street, a local civic organization asked landscape architect Adam Arvidson of the Minneapolis-based Treeline to design a master plan for enhancing New London's downtown area. The Downtown Master Plan recommended 15 changes, including calming traffic, redeveloping or updating outdated buildings, increasing access to scenic areas, and enhancing the aesthetic appeal of the downtown (Moudry, 2010). Although New London's City Council approved the Master Plan in 2010, city officials were uncertain whether or when elements of the plan would be implemented on the state highway.

Shortly thereafter, MnDOT alerted the City of plans to reconstruct Highway 9 to repair and preserve the pavement along the short stretch of highway. As part of this work, MnDOT had also decided to narrow the street and widen the sidewalks through New London's small downtown area. City officials asked MnDOT if they would be willing to consider adding curb bump-outs to the design. The bump-outs were a key aspect of Arvidson's design to slow traffic on main street and create safer crossings for pedestrians. MnDOT had completed a similar project that included curb bump-outs in Marshall earlier that year and was willing to incorporate this element into the redesign of Highway 9 (Moudry, 2010).

Project construction took place along a 0.8 mile stretch of Highway 9, just north of the junction with Highway 23 to 1st Ave NW. Complete Streets elements were installed on the two-block area between 1st Avenue SW to 1st Avenue. This area, shown in Figure 3.20, represents the heart of New London's downtown.

Figure 3.20 New London Highway 9 project area
Source: *MnDOT, State of Minnesota*

The Complete Street improvements involved narrowing down the street by six feet, making the sidewalk wider, replacing city utilities, coloring concrete, and installing curb extensions (also called bump-outs) at pedestrian crossings at the three major Main Street intersections (1st Avenue NW, Central Avenue W, and 1st Avenue SW.

A key component of the project was to narrow the street and widen the sidewalks with the goal of calming traffic and improving safety. According to a local report:

> "The urban design problem on the north end of Main Street is that when trucks come down the hill, all they see is pavement, with the car repair shop (Clark's Auto Clinic) on one side and the BP station (Skindelien's BP Amoco) on the other side. This creates the illusion of a street being wider than it actually is" (Moudry, 2010).

A narrower street, especially with cars parked on both sides, was expected to slow down truck traffic coming down the highway.

Though not initially part of MnDOT's design, the City pushed to include curb extensions in the project in an effort to both slow traffic and enhance the pedestrian experience. MnDOT was willing to work with the city on incorporating this element. The extensions meet ADA safety standards, make pedestrians more visible to motorists, and shorten the distance pedestrians have to cross streets. Figure 3.21 shows before and after pictures at the southern end of downtown. Panel B offers a view of the narrower street, curb bump-outs on the eastern sidewalk, an enhanced pedestrian crossing, and considerable improvement to the pavement.

Panel A. Highway 9/Main Street, from the southern end of downtown New London (2008)

Panel B. Highway 9/Main Street, from the southern end of downtown New London (2018)

Figure 3.21 Example of changed lane structure and updated sidewalks on Highway 169 (pre/post reconstruction)
Source: *Google Maps*

In the months preceding construction, outreach was largely conducted by MnDOT, though city staff did work to educate local business owners about elements of the street redesign. A public open house was

held to discuss widening the sidewalks and installing curb extensions. MnDOT staff talked with business owners along Main Street to discuss the project and inform them of any impacts and what to expect. City officials also provided periodic updates via social media and the city's website and regularly forwarded updates from MnDOT to local businesses via an established business network.

Leading up to the construction, business owners expressed concerns about losing parking due to curb extensions and lost parking width. Some concerns related to deliveries and the lack of back entrances at some locations. One city official that we spoke with noted that business owners generally became more supportive once they learned that the narrower road was designed to slow traffic, as the speed of truck traffic was a frequent complaint along Main Street.

The construction was completed during the summer construction season, from September 6, 2011 - October 31, 2011. The project was phased, with the City updating utilities prior to the curb/gutter and mill/overlay work. MnDOT completed one side of the road at a time to maintain traffic heading in one direction and access to the store fronts. Traffic going in the other direction was diverted via a detour several blocks to the east. In addition to meeting with business owners prior to construction, MnDOT staff regularly talked with and updated owners when work was happening directly in front of their store.

MnDOT worked to maintain access to all businesses during the construction. Many of the stores along Main Street utilized back or side entrances, alerting customers to the construction ahead of time. Those with only one entrance had a more difficult time, but MnDOT worked to keep store access open with walkways and ramps. Business owners used a variety of tools to share information with customers, including direct email, social media, and print marketing explaining the construction, parking, and store access. One business owner noted that "having a communication game plan helped lessen the hurt and problems during construction."

Unsurprisingly, some businesses struggled during the construction phase, in part due to the disruption in foot traffic on which the businesses rely. One individual noted that "financially it put a squeeze on the business," while another said: "I do believe our sales were negatively impacted during the construction." A commercial landlord talked about working with individual businesses to make arrangements for paying rent because they were unable to pay on time. Not all businesses perceived an impact, however. One shop owner and commercial landlord noted: "I don't remember that the construction negatively impacted my business at the time."

In addition, most business owners described the construction as more of a nuisance than a major disruption to business activity. One owner said that the city kept business owners up to date about the timing of construction. Another noted: "As I recall, the impact was minimal considering the scope of the project."

3.4.7.2 Analysis and Findings

Our analysis draws from a wide range of sources, including documentation from both MnDOT and City of New London, local news reports prior to and following the construction period, quantitative data

related to population demographics and economic trends, and online content from local businesses. We also conducted interviews with 11 MnDOT and city staff, commercial landlords, and owners of several types of local businesses, including cafes and restaurants, boutiques and specialty shops, and professional services.

In our interviews, some individuals perceived an impact of the altered street design on economic activity while others did not. Four interviewees saw the construction as having a positive impact on economic activity in the city. Others saw a limited direct impact. One stakeholder discussed the construction as the onset of a series of projects related to the implementation of the Downtown Master Plan.

Business owners did report using the wider sidewalks to promote or advertise services, enhance the aesthetics of the sidewalk, and provide outdoor seating. Figure 3.22 shows storefront images from several shops in downtown New London. These images show how sandwich boards are used to advertise when a business is open, has specials, or to display business hours. Owners also use the area in front of their store to offer seating or put flower boxes - making the sidewalks attractive for customers who prefer outdoor seating. Several online reviews of the Middle Fork Café, for instance, reference the various outdoor seating areas as a benefit.

Figure 3.22 Images of business use of reconstructed sidewalks in New London
Source: *New London Merchants Facebook Page*

One owner noted that the street changes have helped in terms of visibility. Prior to construction, it was difficult to see the business from the sidewalk or the road. This owner noted that the wider sidewalks allow signage in front of the store, which increases visibility and helps to bring in customers.

In general, New London respondents pointed to larger economic trends as explaining the prosperity of individual businesses and the city in general. The reconstruction of Highway 9 in downtown New London occurred in the years immediately following the Great Recession. Between 2008 and 2009, several longstanding Main Street businesses, including the hardware store, boat shop, construction company,

and a grocery store that had served the community for 142 years, closed their doors. By the time of the construction, several buildings remained vacant – with some in need of considerable repair.

In interviews and news reports, business owners and landlords largely attributed the closures to economic trends, including the recession and changing consumer behavior. Brian Hedtke, owner of the grocery store, noted that high fuel prices, weakened tourism in summer 2008, and the emergence of Walmart in neighboring Willmar, contributed to his decision to close the grocery store (Daily Globe News 9/8/09). Roger "Tiger" Hanson, owner of a boat shop called the Tiger Marine, reported that a dwindling customer base contributed to his decision to close the shop in late 2008 (Felder 2008).

By 2011, employment and retail sales had begun to increase. In the years following the reconstruction of Main Street, the County HRA applied for funding from the MN Department of Employment and Economic Development (DEED) to fix up residential and commercial buildings. These funds were used to provide exterior updates to several downtown buildings. The city also used Tax Increment Financing to support the razing and renovation of downtown businesses. A strong business network also worked to promote business activity and attract tourists to downtown New London. The network collects dues to support the vitality of all businesses in the network by doing group advertising. The network also coordinates activities, such as purchasing similar flower boxes on Main Street.

Such factors make it difficult to isolate the impact of the reconstruction. In addition, there is some evidence to suggest that a large impact of the reconstruction may have been indirect. A city official that we spoke with noted that the Downtown Master Plan, which had been created in the years leading up to the reconstruction, did not spur any real changes to the downtown area until the reconstruction brought some of the changes to life. One business owner affirmed this idea, reporting that the changes to the road had encouraged business owners to update the exterior parts of their shops. This suggests that the MnDOT project may have acted as a catalyst for continued investment in the downtown area. As the creator of the Downtown Master Plan noted: "If you have plans in place, as projects come along, you can leverage those to get where you want to be," (Moudry, 2010).

With respect to access and transportation, interviews suggest that parking remained a concern after the construction phase, with customers continuing to complain about the lack of parking along Main Street. One respondent felt that parking concerns had dissipated somewhat over time as customers adjusted to the new street design. In the years following construction, the city also installed two parking lots near Main Street to provide more parking, which one business owner described as "a godsend." One individual told us that the brewery uses that parking lot as do business owners who will park there in order to leave spots open on Main Street for customers. However, because one parking lot is located down a hill, it is less accessible to the elderly or those with disabilities.

Disability accommodations, including curbs that are compliant with the American Disabilities Act (ADA), are particularly important for a city like New London that has an aging population. Though only two respondents independently mentioned the curbs, one business owner viewed the ADA-compliant curbs as the most beneficial part of the reconstruction. A provider of professional services, this respondent discussed how elderly clients preferred to come into the office because of hearing issues. The new curbs made it considerably easier for these clients to navigate the downtown area.

Several interview respondents perceived that the changes had slowed traffic somewhat, but had not affected the volume of cars and trucks on the road. While the narrower streets were intended to improve safety, at least one respondent noted that the narrower road felt less safe because cars parked along Main Street are so much closer to the truck traffic. Two individuals felt that the sloped edge of the sidewalk created a safety concern.

3.4.8 St. James

St. James is a city of approximately 4,444 residents (US Census Bureau 2019), located in southern Minnesota about 120 miles from the Twin Cities. It is the Watonwan County Seat. The city hosts a series of events throughout the year, including the Railroad Days - an event celebrating the city's railway heritage, the Watonwan County Fair, and the Multicultural Fiesta, which celebrates the diversity of the community (City of St. James, 2021).

St. James is a multicultural community, with over 40 percent of the population identifying as Hispanic. The city's population is relatively young: median age in 2019 was 37.1 years compared to 38.4 years for the state as a whole. Median household income is also lower than the rest of the state, at $48,025 in St. James compared to $74,593 in Minnesota (U.S. Census Bureau, 2019). To accommodate growth in the city's young and immigrant population, St. James has received numerous infrastructure investments in recent years. Between 2016 and 2018, over $22 million was invested in community roads, water and sewer infrastructure, and a new stormwater system.

With respect to the economy, the city has an industrial park that has had several new businesses coming in or expanding since 2016. Top industries in the city are manufacturing and educational, healthcare, and social service industries and the top employer in St. James is Smithfield Foods, a food manufacturing company that has undergone several expansions in recent years (SJEDA, 2019; Bolton and Menk, 2019). The downtown area is also home to a collection of unique retail stores, restaurants, and a theater (Discover St. James, 2021).

Table 3.11 Key findings, St. James

Project Features	• Full reconstruction of 1.6 miles of highway, a lane adjustment that removed one traffic lane, the installation of two mini-roundabouts, the replacement and updating of sidewalks to be ADA compliant, updates to city utilities, replacement of parallel parking stalls with back-in diagonal parking stalls, and aesthetic improvements.
Revenue/Economy	• Of eight respondents, one perceived a positive economic impact, two perceived no impact, and five perceived a negative impact.

Transportation	• Few respondents perceived that the vehicle, pedestrian, and cycling traffic had changed following the reconstruction.
Safety	• With respect to safety, a majority of respondents perceived that the road had become less safe because of the mini-roundabouts and back-in parking.

3.4.8.1 Project Description

St. James' Complete Streets project, which was finished in 2018, involved the reconstruction of approximately 1.6 miles of Highway 4 and the installation of two mini-roundabouts in the city's downtown area. The project aimed to repair the highway's deteriorating pavement, replace aging utilities, and enhance pedestrian accommodations (MnDOT, 2021). Figure 3.23 shows an image of the Highway 4 project area (highlighted in thick yellow line).

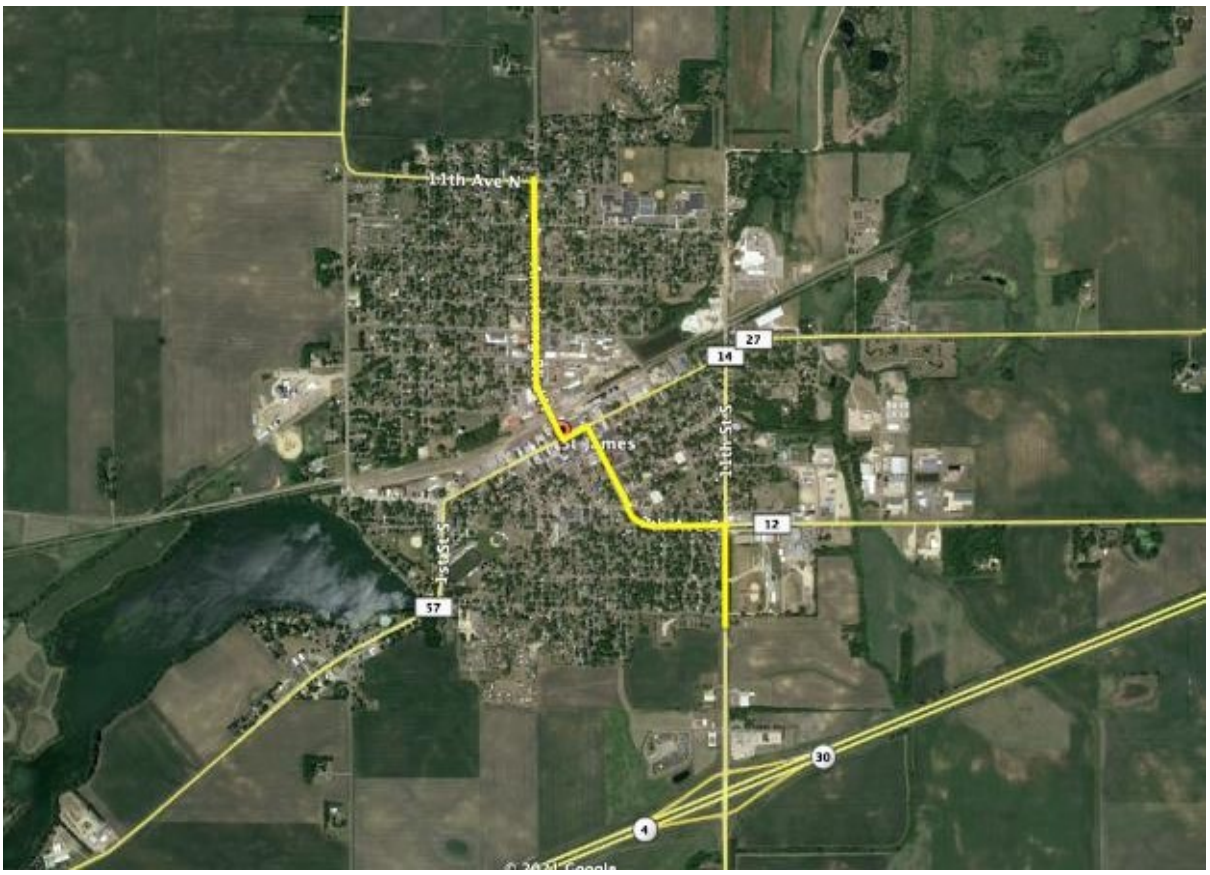

Figure 3.23 St. James Highway 4 project area
Source: *Google Earth, project area added by author*

Complete Streets features included a lane adjustment that removed one traffic lane, the installation of two mini-roundabouts, the replacement and updating of sidewalks to be ADA compliant, updates to city utilities, and replacement of parallel parking stalls with back-in diagonal parking stalls. The downtown improvement also included aesthetic elements such as ornamental trees, landscape berm and vegetable screen, planters, and decorative lighting (MnDOT, 2021; Cross Counties Connect, 2016). Figure 3.24 presents an aerial view of the reconstructed highway, showing one of the mini-roundabouts and the back-in parking stalls.

Figure 3.24 Aerial view of downtown St. James, showing mini-roundabout and back-in parking stalls
***Source**: City of St. James Public Facebook Page*

Like other cities in our analysis, St. James pursued a phased approach, with the three phases occurring in 2016, 2017, and 2018. Phase 1 involved pre-construction work, Phase 2 included the installation of the mini-roundabouts, and Phase 3 involved the completion of the north end of the project.

The community engagement process helped to address community concerns regarding the new corridor design. A church located along the corridor, for instance, was concerned about the shoulder not being wide enough for funeral vehicles and service attendees. MnDOT provided a 10 ft shoulder, instead of a regular 9 ft shoulder. This same design feature was later applied to another church located along the corridor. Similarly, community members along three blocks in the west end of the corridor (between 7th to 10th Avenue S) opposed the construction of new sidewalks. The City Council requested not to build sidewalks in that segment as there was still some walkability in the east side of the road that is adjacent

to the county fairgrounds. In addition, the road diet was implemented after consultation with the residents during the public engagement process (MnDOT, 2017).

3.4.8.2 Analysis and Findings

Our analysis is based on eight interviews with business owners and managers in St. James and one MnDOT representative. We supplement the interview data with additional documentation from MnDOT and the City of St. James.

With respect to economic impacts, only one respondent felt that the changes had a positive impact for an individual business or the city. Of the remaining respondents, two perceived no impact and five perceived a negative impact, due to the lack of revenue during the construction phase, negative perceptions of back-in parking, and the concurrent decline in the economy of the town. One business owner, who felt that the back-in parking spots had a negative impact on her business, noted: “Even to this day people are complaining about the parking.”

Though few respondents felt that the reconstruction had positive economic impacts, several did comment favorably on improved aesthetics. One long-time business owner offered: “I guess they dressed it up, it probably looks better than what it did. I’ll have to give them that.” Another noted: “It definitely is nicer looking when you get a new road put in; it’s going to make everything look better. The boulevards finally have grass on them, and the trees are starting to look nice. Overall, it did make it look nicer than what it was.” Though several respondents viewed the improvements favorably, no respondent connected this to business activity.

With respect to safety, a majority of respondents perceived that the road had become less safe due to the mini-roundabouts and back-in parking stalls. In general, those we spoke with perceived that decreased safety resulted from drivers using the turns or parking stalls incorrectly, rather than the design elements themselves. For example, respondents reported observing drivers who did not know how to back into parking spots as well as drivers becoming impatient while waiting for others to reverse into the spots.

Respondents viewed the mini roundabouts as particularly unsafe. Although three individuals perceived that the roundabouts were convenient and improved the flow of traffic, a majority viewed them quite unfavorably. One respondent noted: I just hope nobody gets hurt. It didn’t stop any of the safety stuff at all. I think it’s more dangerous now.” Another reported: “I’ve almost been hit about three times while driving because people just fly through….”

One respondent described drivers as confused about how to use the roundabouts, stating: “[m]any were uncomfortable where the crosswalks are on a roundabout. Cars were confused as to where to stop for pedestrians. With the constant flow of traffic, sometimes drivers forget about the cross-walk area.” Respondents also drew attention to the fact that drivers frequently fail to slow down or yield in the roundabout and that semi-trucks are unable to make the turn.

With respect to transportation, few respondents perceived that the vehicle, pedestrian, and cycling traffic had changed following the reconstruction.

3.4.9 Watertown

The city of Watertown is located in the northern part of Carver County, approximately 36 miles east of Minneapolis. It is designated by the Metropolitan Council as a *rural growth center*, which means that the city is financially capable of providing its residents with sewage and other services and has long-term plans to expand beyond its current service area. Watertown's population has grown from 3,032 to 4,408 in the past 20 years, which represents an increase of 45 percent. By 2040, the Metropolitan Council projects that the city will be home to nearly 7,200 residents (Metropolitan Council 2021).

Watertown's population is younger, more highly educated, and higher-income than the population of Minnesota. Relative to the state as a whole, Watertown has a lower median age (36.5 years compared to 38.4 years), higher rate of high school graduation (94.3 percent compared to 93.6 percent) and higher median income ($83,542 compared to $74,593). Perhaps due to its proximity to the Twin Cities, nearly 60 percent of Watertown residents report working outside of Carver County (American Community Survey, 2019).

The city's economy consists of a mix of industrial and commercial. The downtown area - a focal point for surrounding communities - is home to a number of different businesses and services including grocery, liquor, auto parts, dental, medical, pharmacy and restaurants. The city has been active in working to revitalize its downtown, utilizing grants and tools such as Tax Increment Financing to improve downtown buildings and attract new businesses. In an effort to concentrate industrial development and attract new businesses, the city developed an industrial/business park along Highway 25 in 2005 (City of Watertown, 2018).

Table 3.12 Key findings, Watertown

Project Features	• Mill and overlay, road diet, addition of ADA-compliant sidewalks, curb and gutter installation, addition of trail to connect to Luce Line State Trail.
Revenue/Economy	• Most business owners/managers felt that the changes would lead to an increase in sales/revenue for both individual businesses and the city, though typically via indirect means.
Transportation	• Most business owners felt that the road changes would increase pedestrian activity. Roughly half of our interviewees perceived that the changes would increase access to local businesses.

Safety	• All but one business owner (who was not located on Highway 25) felt that the changes would make the road safer.

3.4.9.1 Project Description

Watertown's City Council has long prioritized increasing connectivity throughout the city. In 2019, the Council worked to develop a master plan for safely connecting bicyclists and pedestrians throughout the city. The construction phase of Watertown's project occurred during the 2021 construction season. Prior to 2021, most facilities for pedestrians and cyclists were located in newer developments on the eastern side of the city (City of Watertown, 2020). Residential areas to the west of the Highway 25 corridor lacked a safe pedestrian route across the highway to downtown. In addition, individuals living in higher-density housing and two assisted living facilities on Highway 25 lacked a safe route along the highway to businesses such as the gas station and Subway. Increasing connectivity by adding pedestrian enhancements along Highway 25 was thus a primary aim for the city (City of Watertown, 2020).

For MnDOT, the project's aims included improving traffic flow and safety, extending pavement life, and updating accessibility to meet current ADA standards. Figure 3.25 shows the Complete Streets project area within Watertown (yellow line). In addition to resurfacing pavement along Highway 25, the Watertown improvements added a 12 ft center turn lane as well as 13 ft driving lanes in each direction. From State Street to White Street, existing sidewalks were upgraded to be ADA-compliant. Between White Street and High Street, new ADA-compliant sidewalks were added to both sides of the road, as well as curb and gutter installation. Finally, a trail was constructed on the east side of Highway 25 from High Street to Hutchinson Road (City of Watertown, 2020; MnDOT, 2021). This trail creates a connection to the Luce Line State Trail, a 63-mile trail that stretches from the metro area into west-central Minnesota.

Figure 3.25 shows a map of Watertown, with the city's borders shown in red and the project area highlighted in yellow along the city's western edge. Watertown differs from other sites in this study in that the highway does not cut through the downtown area, which is approximately three blocks to the east. In addition, while Watertown does have a dedicated downtown, there are commercial and industrial sites scattered across the city's 2.6 square-mile area. The city has worked to concentrate new industrial development along Highway 25, with much of the recent residential development on the city's eastern side (City of Watertown, 2018).

Figure 3.25 Watertown Highway 25 project area
Source: *Google Earth, project area added by author*

The lots adjacent to Highway 25 project are a mix of residential, commercial, and industrial. The northern section contains both single-family detached and multifamily housing units. Several retail, commercial, institutional, and industrial lots are located in the southern section of the project, with additional single-family detached homes on the eastern side of Highway 25. The businesses located on Highway 25 include a gas station, several food establishments, a second-hand shop, specialty car dealership, a mental health facility, and an assisted living facility (City of Watertown, 2018). With the exception of the gas station and Subway restaurant, the businesses in this area reported that customers rely almost exclusively on vehicles to access the business.

During the development phase of the project, city staff held meetings and went door to door to talk individually with business owners along the Highway 25 corridor. Larger meetings were also held during this phase to inform the community about the changes and timeline. In March 2021, MnDOT hosted a virtual Open House event to describe the upcoming construction and answer questions.

Interviewees reported strong business involvement during the development stage of the project, and most felt as though there was adequate communication with MnDOT and city staff prior to and during

the construction phase. Two interviewees reported having little to no knowledge of the project prior to construction, though one of these businesses was only open for very limited hours.

The individuals we interviewed appeared to have mixed experiences with the construction. One viewed the construction as a temporary inconvenience that would yield future benefits, stating: “If you’re cutting wood there is going to be sawdust; the benefits come down the line.” Others described problems ranging from the inconvenient (misplacing a mailbox) to more significant (residents missing medical appointments due to the uneven road). In addition, consistent with other projects, access remains a key issue for businesses during the construction phase.

Despite early skepticism, city staff and business leaders perceived businesses as generally supportive of the changes. When interviewees expressed frustration or described problems with the project, they mentioned limited business access during construction or vehicles trying to avoid the detour (approximately 5 miles) and driving unsafely through residential areas.

3.4.9.2 Analysis and Findings

Our analysis draws from a wide range of sources including documentation from MnDOT and the City of Watertown, project meetings, local news reports and community newsletters, quantitative data related to population demographics and economic trends, and online content from local businesses. We also conducted 12 interviews with MnDOT and city staff, business owners and managers located along Highway 25, as well as downtown Watertown.

Unsurprisingly, many businesses located on Highway 25 during the construction phase experienced a decline in revenue, with one reporting a decrease of 40 percent and another of over 80 percent. Interviewees largely attributed this decline to the limited access and confusing signage. They also mentioned a lack of signage as many of the businesses were not mentioned in the signs.

Most business owners/managers felt that the changes would lead to an increase in sales/revenue for both individual businesses and the city, though typically via indirect means. For instance, an individual from the mental health facility noted that the safety enhancements of the area surrounding the facilities would act as a draw for families looking for the placement of a loved one. A downtown business owner stated that the city had seen tremendous growth over the past 3-4 years and that “because the highway is going to be that much nicer it's just another amenity people can use.” Those owners/managers who did not anticipate a change in their revenue attributed this to the fact that they were not located downtown and/or had a customer base outside of the city.

Business owners/managers did not think they would use the road differently with respect to advertising or marketing, though one did suspect that they would take pictures of the establishment and new road to use in advertisements.

Most business owners felt that the road changes would increase pedestrian activity, for varying reasons. One noted that the changes would lead to more walking because the sidewalks would connect to the Luce Line Trail. Another noted that residents (especially families) would perceive the road as safer,

leading to more pedestrian activity. Still another noted that because people are generally more active now, they would be more likely to use the new enhancements for pedestrians and cyclists. This point was drawn out by another business owner, who anticipated that the updated roads might lead newer residents - particularly, families with children - to cycle around town.

Roughly half of our interviewees perceived that the changes would increase access to local businesses. One owner of a downtown business noted that the sidewalks on Highway 25, along with the addition of sidewalks connecting Highway 25 to downtown, would increase access for those in residential areas. Another felt that because downtown is hard to get to and Highway 25 is "becoming the town," the changes would contribute to a growing number of individuals accessing their business. Though few interviewees directly mentioned the addition of ADA-compliant curbs, several discussed the benefit of a sidewalk and curbs for the elderly and those in wheelchairs.

Safety was frequently mentioned by respondents. Although the segment of Highway 25 that runs through Watertown did not have many accidents prior to the reconstruction, the lack of sidewalks and a dedicated center turn lane created a hazard for those using the road. As shown in Figure 3.26, pedestrians or cyclists had to use a relatively narrow shoulder to travel north or south on the road.

Figure 3.26 Watertown Highway 25, pre-reconstruction
Source: Google Maps

All but one business owner (who was not located on Highway 25) felt that the changes would make the road safer. Individuals noted that the sidewalks and other changes would make it easier for young adults to walk to work, or for families to cross the highway to access the ballpark. Four interviewees also discussed how the changes would improve safety for individuals living in the mental health and assisted

living facilities on Highway 25. Prior to the reconstruction, individuals would travel along the shoulder to access the Food and Fuel and Subway restaurant, often using wheelchairs.

One interviewee explained that several years prior, a resident of the assisted living facility had been killed after being struck by a vehicle:

> "One of our customers was killed two years ago. He resided at the assisted living and always drove his electric scooter up here at 5:30am in the dark to buy cigarettes. I told him that it was really dangerous and he should wait until it was light. Because there is no shoulder for them to drive on."

Several individuals mentioned this incident during our interviews. Figure 3.27 shows the reconstructed highway with sidewalks.

Figure 3.27 Watertown Highway 25, post-reconstruction
Source: *MnDOT representative*

Interestingly, one interviewee discussed multiple ways that the updated road might impact those living in the mental health facility. In some instances, the presence of sidewalks might make the road safer. In other instances, the updated road might act as a draw for an individual who might go for a walk and wander away from the facility.

Finally, our interviews suggest two additional factors that may contribute to the impact of the reconstruction for economic vitality. First, the City of Watertown is engaging in additional activities to promote economic activity and connectivity. As discussed above, the city has utilized grants and other economic tools to update downtown businesses and create an industrial/business along Highway 25. To accommodate population growth and attract new businesses, the city created a flexible land use district along Highway 25. This district allows for high-density residential development as well as flexible commercial and industrial land use. In addition, the city also self-funded a connection to link the Highway 25 pedestrian enhancements to the Luce Line State Trail and to connect the central portion of the project to the downtown area.

Second, city staff that we interviewed viewed the project as a catalyst for other action that would promote better connectivity for the entire community. Specifically, MnDOT's investment in the reconstruction and willingness to accommodate the city's goals helped motivate the City Council to make additional enhancements to promote connectivity. Although the city might have invested in similar projects without MnDOT's involvement, the final product would likely have been weaker. The city "would have had a situation where we'd still have the old roadbed, we'd have the ditches, we wouldn't have the safety improvements and the city would have tried to slam in a sidewalk on one side of the road." Working alongside MnDOT, the city was able to achieve a better end product, both due to the investment of MnDOT and the investment of the city itself.

3.5 RECOMMENDATIONS FROM CASE STUDIES

The analysis of Complete Streets projects in nine small Minnesota cities yields several recommendations for MnDOT and for cities interested in pursuing such projects.

With respect to engaging and communicating with local businesses, the recommendations include:

1. ***Clearly and consistently communicate with local businesses throughout the planning, design, and construction phases of a project.*** Respondents in our study spoke favorably about efforts by both MnDOT and city staff to clearly and consistently communicate with local businesses via regular meetings, radio/newspaper updates, emails/website updates, and drop-in meetings. During the planning and design phases, information about and rationale for proposed changes appeared particularly important to business owners. In addition, several owners appreciated the ability to discuss and potentially modify proposed changes (such as the presence of a median) given the needs of the businesses in the area. Pertinent information during the construction phase included the overall timeline of construction and presence of construction work immediately in front of or adjacent to a business, as well as knowledge of/ability to contact an MnDOT representative if questions or concerns arose.

2. ***Continue efforts to engage with local businesses, consider project phasing in all Complete Streets projects, and emphasize to local businesses how phasing can alleviate access barriers***

during construction. Respondents spoke favorably about MnDOT's work engaging with the business community. Most viewed the construction as difficult but necessary and felt that MnDOT did the best that they could in the circumstances. Respondents also appreciated efforts to phase projects, as this allowed for one lane of traffic or one part of the street to be open.

3. ***For MnDOT, provide cities with examples of successful approaches to engaging the business community in the planning and construction phases of a Complete Streets project.*** Though construction projects are difficult for businesses, cities can utilize innovative approaches to engaging businesses in Complete Street projects, such as:
    a. Creating a local group to develop and implement a marketing and communications strategy for the Complete Streets project (Alexandria);
    b. Activating a local business network to disseminate information about the project to local businesses (New London); and
    c. Creating a guide with tips for business planning, logistics, signage, and ways to stay updated during the construction phase (St. James).

With respect to the potential impacts on business activity, transportation, and safety, the recommendations include:

4. ***For MnDOT, emphasize to cities interested in pursuing Complete Streets projects that concurrent city investments may magnify the impacts of a reconstruction.*** The case studies provide numerous examples of the ways in which cities built upon efforts to revitalize their downtown areas or enhance active living, including:
    a. Investing in streetscaping to further beautify a downtown area (Alexandria);
    b. Funding sidewalks or bike paths to connect newly reconstructed streets to other important amenities (Glenwood, Watertown); and
    c. Providing incentives for local businesses to improve building exteriors on reconstructed roads (Albert Lea, New London).

5. ***For cities, consider ways to alleviate the financial burden of assessments on local businesses.*** In our study, business owners that perceived a negative economic impact often reported difficulty recovering from the construction phase of a Complete Streets project. For some of these businesses, assessments implemented as part of the reconstruction made recovery more difficult. Cities may be able to alleviate some of the financial burden on businesses by partially funding or seeking grant support to cover the cost of assessments, as was the case in Alexandria.

6. ***For MnDOT, highlight the economic impacts for the city rather than for individual businesses.*** A minority of our respondents felt that the Complete Streets project had a direct and positive economic impact on their business. Many felt that larger economic trends (recessions, changes in regional economies, and the pandemic) or individual business activities (marketing or business plans) were more influential in shaping the prosperity of their business. More

respondents recognized a direct and positive economic impact for the city as a whole, suggesting the economic impact is stronger at the city level.

7. ***Highlight the relationship between Complete Streets and improved safety.*** Safety concerns were salient to respondents across the nine case studies. In Bayport, Grand Rapids, and Watertown, nearly all respondents viewed the Complete Streets project as improving safety for cyclists and pedestrians. Notably, safety concerns were also prevalent in these cities prior to the reconstruction.

8. ***Monitor indicators of active living in small Minnesota cities to assess change in transportation patterns over time.*** Though few respondents felt that the Complete Streets project led to changes in transportation patterns, it may be that such impacts will take longer to materialize. For example, one city official noted that Complete Streets can attract young families to a city. If young families move to a city in part due to its walkability, then we would see change over time in the number of people walking in the city. However, because the impact is indirect, this change would occur over the longer rather than shorter term. Monitoring indicators of active living will allow MnDOT and cities to assess this long-term change.

CHAPTER 4: STATISTICAL ANALYSIS

4.1 METHODOLOGY AND DATA

Researchers conducted a difference-in-difference (DID) analysis to estimate the economic impacts of Complete Streets on small cities. The DID analysis is a quasi-experimental research design that allows an estimation of the effects of an intervention (or treatment) over time by comparing to similar groups, only one of which experiences the intervention or treatment. In this analysis, researchers analyzed the relationship between Complete Streets reconstructions (the treatment) and local economic activity by comparing trends in the gross sales and the number of firms in cities with Complete Streets reconstructions (the treatment group) with the trends of similar cities that did not have Complete Streets reconstructions (the control group). This analysis focuses on small cities in Minnesota, that is, cities with populations of between 10,001 and 20,000 (Class 3) and cities with populations of 10,000 and less (Class 4).

The specification of the model is as follows:

$$Y_{it} = X_{it}\beta + \delta D_{it} + \alpha_i + \eta_t + \upsilon_{it}$$

where Y_{it} is the local economic activity variable for city i at time t, X_{it} is a vector of control variables and D_{it} defines the treatment. Note that this variable only gets turned on for the treatment group after treatment occurs. This, this variable takes the value of 1 in the year the city had the Complete Streets Reconstruction and the years after the intervention, otherwise it takes the value of zero. In addition, α_i is the time-invariant component of the error term, η_t is the common unobserved time trend; and υ_{it} captures the remaining time-varying unobserved characteristics. Thus, the DID model controls for factors that differ across cities but are constant over time and eliminates the bias from unobservable factors that change over time but are constant over cities.

Data used to determine the treatment and the control groups came from a report of Complete Streets projects and State Transportation Improvement Program (STIP) projects provided by MnDOT.[5] The Complete Streets project data dated back to Fiscal Year 2015, thus defining the beginning of the study period. The dataset also included Complete Streets projects in 2020, but researchers decided to take projects up to 2019 to avoid the impact the COVID-19 pandemic could have on the dependent variables. In addition, according to the literature review, the economic impacts of Complete Streets projects may emerge one to two years after project completion (NYDOT, 2013).

[5] For many projects in MnDOT's STIP database, the City attribute was not populated. Researchers ran a query to search for Minnesota small city names in the Project Description field and manually reviewed the results for accuracy. Researchers assumed that any projects that did not have a city assigned after this process did not occur within city limits and were thus removed from the sample.

The treatment group is composed of cities that had Complete Streets projects between 2015 and 2019. Data on Complete Streets projects comes from the MnDOT Complete Streets Project Report Form. Most MnDOT projects are required to complete this form. Currently, there is not an additional step following the submission of the form to clean the data and delete the projects that do not fully utilize a Complete Streets approach. The research team, in collaboration with the Technical Liaison for this project, reviewed the data attributes and agreed that the "Overall Project Improvement" attributes best reflected Complete Streets project elements. Researchers excluded all projects that included zero "Overall Project Improvements".[6] Although the research team eliminated projects that did not have any Complete Streets elements, several cities with projects that do not fully utilize a Complete Streets approach could be included in the sample.

Cities may have had reconstruction projects that did not utilize a Complete Streets approach or no reconstruction projects at all between 2015 and 2019. Therefore, researchers identified two control groups. The first control group is composed of cities with reconstruction projects that were not Complete Streets projects (non-Complete Streets reconstructions). Information for these projects comes from the STIP database. Cities with reconstruction projects that were comparable to MnDOT's list of Complete Streets projects were included.[7] The second control group is composed of cities that did not have any roadway reconstruction projects between 2015 and 2019.

Between 2015 and 2019, 96 small cities had a Complete Streets project, 159 had non-Complete Streets reconstructions (control group 1) and 538 had no reconstruction projects (control group 2). Table 4.1 presents the number of cities by type of project and city class.

Table 4.1: Type of project by city class

City Class	Complete Streets (Treated)	Non-Complete Streets (Control group 1)	No Reconstruction (Control group 2)
Class 3	21	14	8
Class 4	75	145	530

[6] Projects included in the Complete Streets treatment group include one or more of the following project elements; sidewalk, shared use path, improved crosswalks, oversize/overweight pass through, center left-turn lanes, lowered traffic speeds, curb extension/bump out, curb cuts with ramps, pedestrian refuge islands, bus lanes/shoulder, adjusted lane widths, signalized timing improvement/bikeable shoulder, park & ride facility, access management, lighting improvements, truck acceleration lanes, improved rails crossing, roundabout, bike lanes, landscaping, lane removal, bus shelter, and bike sharrows.

[7] Researchers used the Program and RouteSystem attributes in the database to identify non-Complete Streets reconstruction projects. The non-Complete Streets control projects were limited to projects with RouteSystem attributes of Interstate, Trunk Highway, and US Designated Trunk Highway and projects with Program attributes of maintenance, repair, and reconstruction, and safety.

The local economic activity, the dependent variable, is measured through two variables: the total gross sales and the number of firms. This information was collected from the Minnesota Department of Revenue and was mostly available for Class 3 cities.[8] Gross sales and the number of firms are expected to be positively impacted with Complete Streets reconstructions as the improved transportation environment would boost local business output. According to the American Public Transportation Association (2020), higher mobility would create more opportunities for employment as well as higher income, which would stimulate gross sales. In addition, a better transportation system performance would reduce traffic congestion, which would provide substantial travel cost savings and freight transport reliability improvement for businesses. It also leads to higher visitor flow, thus encouraging more establishments in town.

Due to the limited data available for small cities, researchers also considered property tax revenues to assess the economic impact of Complete Streets on small cities. This information was collected from the Minnesota Transportation Finance Database (TPEC). Some economic impacts could be captured through proceeds from property taxes. According to Smart Growth America, property values are a valuable economic indicator for Complete Streets projects, as these projects can result in appreciation in commercial real estate and home values (Smart Growth America, 2021). Additionally, previous studies in Florida, California, and Washington, DC have indicated that Complete Streets projects can provide a safer and more accessible neighborhood for people, which improves the connection across communities, expands the walking range, thus increases the rents and the property value (Smart Growth America, 2012). The pedestrian and cycling improvements tend to reduce motor vehicle traffic impacts such as noises, which increases real estate value as well (Litman, 2010).

Independent variables included in the model are population density and median household income. These variables are intended to separate the potential effects caused by factors other than Complete Street projects on economic activities. Population density is an important indicator of the intensity of economic activity. Several studies have consistently documented that population measures are positively correlated with sales (Matherly, Arens, & Arnold, 2018). Population density also affects pedestrian safety, and hence indirectly affect economic activity (Guerra, Dong, & Kondo, 2019). Population density was calculated by the authors using annual estimates of the resident population for incorporated places in Minnesota from the U.S. Census Bureau and land area (in square miles, 2010) from USA.com. Median household income is also included as municipalities with higher income could be more likely to adopt Complete Streets policies (Song & Knaap, 2003; Vandegrift & Zanoni, 2018). The data come from the American Community Survey, the 5-year estimates from 2012 to 2019.

[8] Information regarding gross sales and number of firms was available for 81 cities: 42 Class 3 cities and 39 Class 4 cities.

In the analysis, *Gross Sales* and *Property Tax* are in per capita terms. The analysis includes data from 2012 to 2019. Table 4.2 provides a summary of the statistics of the variables used in the analysis.

Table 4.2: Descriptive statistics

	Treatment (CS)			Control I (NCS)			Control II (None)		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
All Class 3 and Class 4 Cities									
Gross Sales (PC)	256	57.49	35.55	231	53.07	37.75	152	45.77	34.03
Firms (No.)	256	329.86	133.10	231	280.32	153.47	160	278.29	118.47
Property Tax (PC)	768	426.62	239.33	1,273	420.66	220.97	4,295	392.75	218.28
Population Density	768	1,009.83	725.42	1,273	935.07	836.71	4,295	718.14	1,127.01
Median Income	762	51,993.17	14,276.55	1,269	54,364.48	23,954.43	4,219	51,625.38	21,156.76
Class 3 Cities									
Gross Sales (PC)	168	60.64	36.66	104	51.24	33.44	64	39.05	23.20
Firms (No.)	168	390.61	105.70	104	378.58	171.72	64	372.14	108.24
Property Tax (PC)	168	437.56	204.06	112	404.60	142.94	64	428.29	112.43
Population Density	168	1,475.12	1,059.84	112	1,634.14	1,109.20	64	2,710.26	1,917.52
Median Income	168	60,334.04	18,776.14	112	69,492.21	22,991.14	64	54,311.30	13,498.17
Class 4 Cities									
Gross Sales (PC)	88	51.47	32.71	127	54.56	41.02	88	50.66	39.53
Firms (No.)	88	213.88	98.74	127	199.86	66.31	96	215.72	76.36
Property Tax (PC)	600	423.56	248.38	1,161	422.21	227.07	4,231	392.21	219.45
Population Density	600	879.55	531.92	1,161	867.63	773.44	4,231	688.01	1,083.35
Median Income	594	49,634.13	11,704.54	1,157	52,900.08	23,544.31	4,155	51,584.01	21,251.55

4.2 FINDINGS

An important assumption for the DID analysis is that the outcome variable of the treatment group and the control group have parallel trends prior to the treatment. This assumption allows the inference that changes in the outcome variable can be attributed to the treatment. For this, gross sales per capita, and the number of firms, and property tax per capita in cities with Complete Streets projects (treatment group) and cities with non-Complete Streets reconstructions or no roadway reconstruction projects (control groups) should have parallel trends prior to the Complete Street reconstruction.

Researchers conducted a t-test to compare the trends of (1) cities with Complete Streets projects with (2) cities with non-Complete-Streets reconstruction projects, and (3) cities without projects before Complete Streets projects were implemented in Minnesota. Table 4.3 presents the results for the t-tests. The parallel trends assumption holds when comparing (1) Class 3 and Class 4 cities with Complete Streets projects and (2) Class 3 and Class 4 cities with non-Complete-Streets reconstruction projects, which indicates that cities in these two groups had similar trends of the gross sales per capita, firms, and property tax per capita before the implementation of Complete Streets projects. The parallel assumption also holds when comparing (1) Class 3 and Class 4 cities with Complete Streets projects and (3) cities without roadway reconstruction projects. However, the assumption is not satisfied for gross

sales in Class 3 cities and property taxes in Class 4 cities. To test the parallel assumption, researchers consider the years prior to the Complete Streets reconstructions, that is, between 2012 and 2014. When the parallel-trend assumption is not satisfied, we have less confidence about DID results. This should be noted as a caveat of the analysis, which may be further addressed in future studies.

Table 4.3: T-test results

		Obs. Treatment	Obs. Control	Mean Treatment	Mean Control	Diff	P-Value
			Class 3 Cities				
cs/ncs	Gross Sales (PC)	63	39	54.37	48.55	-5.822	0.333
	Firms	63	39	385.68	367.36	-18.323	0.505
	Property Tax (PC)	63	42	384.49	371.81	-12.681	0.651
cs/none	Gross Sales (PC)	63	24	54.37	38.92	-15.452	0.014
	Firms	63	24	385.68	367.88	-17.808	0.499
	Property Tax (PC)	63	24	384.49	395.68	11.185	0.732
			Class 4 Cities				
cs/ncs	Gross Sales (PC)	33	48	52.07	56.47	4.407	0.625
	Firms	33	48	215.09	197.90	-17.195	0.334
	Property Tax (PC)	225	438	388.85	395.40	6.548	0.727
cs/none	Gross Sales (PC)	33	33	52.07	48.41	-3.655	0.673
	Firms	33	36	215.09	210.92	-4.174	0.842
	Property Tax (PC)	225	1587	388.85	360.02	-28.829	0.052

4.2.1 Comparison of Cities with Complete Streets and Cities with non-Complete Streets Projects

Table 4.4 presents the effects of Complete Streets reconstruction projects on the gross sales per capita, firms, and property tax per capita when comparing cities with Complete Streets reconstructions and cities with non-complete reconstructions. In this table, the first panel presents results for Class 3 cities, and the second panel presents results for Class 4 cities.

Table 4.4: DID results – Cities with Complete Streets and cities with non-Complete Streets projects

	Class 3 Cities			Class 4 Cities		
	Gross Sales (PC)	Firms	Property Tax (PC)	Gross Sales (PC)	Firms	Property Tax (PC)
DID	3.065	-5.143*	20.29**	4.426	-4.442	8.153*
	(3.240)	(3.007)	(10.13)	(2.956)	(3.282)	(4.815)
Pop Density	0.0640*	0.135***	-0.152	0.0292	0.124***	-0.185***
	(0.0346)	(0.0321)	(0.108)	(0.0315)	(0.0349)	(0.0578)
Median Income	-0.000291	0.000410	-8.18e-05	-0.000168	-0.000126	-0.000177
	(0.000276)	(0.000256)	(0.000806)	(0.000185)	(0.000206)	(0.000240)
Observations	238	238	245	189	189	1,534
R-squared	0.115	0.363	0.495	0.078	0.130	0.259
Number of City	34	34	35	27	27	221
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

***Notes**: Standard errors in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.*

When comparing (1) cities with Complete Streets projects and (2) cities with non-Complete Streets reconstructions, having a Complete Streets project has a positive and significant effect on property taxes (per capita) of Class 3 and Class 4 cities. On average, property taxes per capita increased by $20.29 in class 3 cities and $8.15 in Class 4 cities with Complete Streets projects compared to cities with non-Complete Streets roadway projects. Contrarily, the effect on the number of firms is negative and significant in Class 3 cities. The number of firms decreased by 5.1 in cities with Complete Street projects compared to cities with non-Complete Streets roadway projects.

Researchers also assessed the effects of Complete Streets reconstructions on the local economic activity of metro and non-metro cities. Table 4.5 presents the effects of Complete Streets reconstruction projects on the gross sales per capita, firms, and property tax per capita when comparing (1) cities with Complete Streets reconstructions and (2) cities with non-Complete Streets projects in Class 3 and 4 metro and non-metro cities. The first panel of the table presents results for cities in the metro area and the second panel presents results for cities outside the metro area.

Table 4.5: DID results – Cities with Complete Streets and cities with non-Complete Streets projects in metro and non-metro area

Class 3 Cities						
	Cities in Metro Area			Cities outside Metro Area		
VARIABLES	Gross Sale (PC)	Firms	Property Tax (PC)	Gross Sale (PC)	Firms	Property Tax (PC)
DID	7.591	4.530	29.41***	-2.889	-11.19***	15.48
	(6.451)	(4.391)	(10.45)	(1.824)	(3.490)	(14.10)
Pop Density	-0.0352	0.0705**	0.219**	0.0451**	0.244***	-0.442***
	(0.0517)	(0.0352)	(0.0833)	(0.0198)	(0.0379)	(0.153)
Median Income	-0.000986*	0.000637	0.00357***	-0.000341**	2.69e-05	-0.00185*
	(0.000581)	(0.000395)	(0.000813)	(0.000134)	(0.000256)	(0.00103)
Observations	112	112	120	160	160	160
R-squared	0.284	0.451	0.732	0.182	0.445	0.552
Number of City_ID	14	14	15	20	20	20
Class 4 Cities						
	Cities in Metro Area			Cities outside Metro Area		
VARIABLES	Gross Sale (PC)	Firms	Property Tax (PC)	Gross Sale (PC)	Firms	Property Tax (PC)
DID	-18.23***	-1.840	36.54*	8.405**	-5.023	10.02**
	(3.303)	(7.293)	(20.47)	(3.407)	(3.460)	(4.825)
Pop Density	-0.0232	0.0355	-0.102**	0.121***	0.179***	-0.356***
	(0.0184)	(0.0407)	(0.0426)	(0.0402)	(0.0408)	(0.0731)
Median Income	-7.25e-05	-6.47e-06	5.62e-05	-0.000432	-2.03e-07	1.93e-05
	(7.47e-05)	(0.000165)	(0.000452)	(0.000321)	(0.000326)	(0.000258)
Observations	48	48	262	168	168	1,489
R-squared	0.582	0.319	0.228	0.140	0.167	0.329
Number of City_ID	6	6	33	21	21	188

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

When comparing cities with Complete Streets projects with non-Complete Streets projects, having a Complete Streets project has a positive and significant effect on property taxes (per capita) of Class 3 metro cities but not on non-metro cities. In terms of the effect on the number of firms, the results in Class 3 non-metro cities are consistent with the combined sample. The number of firms decreased by 11.19 in Class 3 non-metro cities with Complete Street projects compared to Class 3 cities with non-Complete Streets projects.

When comparing cities with Complete Streets projects and those with non-Complete Streets projects, having a Complete Streets project has a positive and significant effect on property taxes (per capita) of Class 4 non-metro cities. This is consistent with the results of the combined sample. On average, property taxes per capita increased by $10.02 in Class 4 non-metro cities with Complete Streets projects compared to Class 4 cities with non-Complete Streets roadway projects. In addition, the effect on gross sales (per capita) of Class 4 non-metro cities is positive and significant unlike the effects in the combined sample. On average, gross sales (per capita) of Class 4 non-metro cities increased by $8.40 with Complete Streets compared to Class 4 cities with non-Complete Streets projects. It is important to note

that the sample size for Class 4 cities in the metro area in this model is small and therefore, the results should be interpreted with caution.

4.2.2 Cities With Complete Streets Reconstruction Projects and without Reconstruction Projects

Table 4.6 presents the effects of Complete Streets reconstruction projects on the gross sales per capita, firms, and property tax per capita when comparing cities with Complete Streets reconstructions and cities without roadway reconstructions. The first panel of the table presents results for Class 3 cities, and the second panel presents results for Class 4 cities.

Table 4.6: DID results - Cities with Complete Streets and cities without reconstruction projects

	Class 3 Cities			Class 4 Cities		
	Gross Sales (PC)	Firms	Property Tax (PC)	Gross Sales (PC)	Firms	Property Tax (PC)
DID	4.814	3.693	21.49*	-3.038	-6.985**	4.545
	(3.700)	(2.812)	(11.87)	(2.133)	(3.299)	(4.510)
Pop Density	0.0625*	0.166***	-0.161	-0.0188	0.0834***	-0.0990**
	(0.0364)	(0.0277)	(0.117)	(0.0176)	(0.0275)	(0.0477)
Median Income	0.000133	0.000999***	0.00122	-0.000589***	-0.000774***	0.000138
	(0.000404)	(0.000307)	(0.00130)	(0.000188)	(0.000285)	(0.000109)
Observations	203	203	203	154	161	4,161
R-squared	0.094	0.350	0.475	0.131	0.203	0.273
Number of City	29	29	29	22	23	606
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

***Notes**: Standard errors in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.*

When comparing cities with Complete Streets projects and cities without roadway reconstruction projects, having a Complete Streets project has a positive and significant effect on property taxes (per capita) in Class 3 cities and a negative and significant effect on the number of firms in Class 4 cities. On average property taxes (per capita) of class 3 cities with Complete Streets increased by $21.4 compared to cities without roadway reconstruction projects. On the other hand, the number of firms in class 4 cities with Complete Streets decreased by 6.9 compared to cities with no roadway reconstruction projects.

Table 4.7 presents the effects of Complete Streets reconstruction projects on the gross sales per capita, firms, and property tax per capita when comparing cities with Complete Streets reconstructions and cities without roadway reconstructions in Class 3 and 4 metro and non-metro cities. The first panel of the table presents results for cities in the metro area and the second panel presents results for cities outside the metro area.

Table 4.7: DID results - Cities with Complete Streets and cities without reconstruction projects in metro and non-metro area

Class 3 Cities						
	Cities in Metro Area			Cities outside Metro Area		
Variables	Gross Sale (PC)	Firms	Property Tax (PC)	Gross Sale (PC)	Firms	Property Tax (PC)
DID	9.425	1.123	-0.791	1.752	5.502*	38.93**
	(6.999)	(4.054)	(11.78)	(1.653)	(3.303)	(17.60)
Pop Density	-0.0109	0.121***	0.135	0.0202	0.182***	-0.467***
	(0.0516)	(0.0299)	(0.0868)	(0.0161)	(0.0322)	(0.172)
Median Income	-0.00103	0.000238	0.00424***	0.000397*	0.000689*	-0.00202
	(0.000685)	(0.000397)	(0.00115)	(0.000202)	(0.000405)	(0.00216)
Observations	104	104	104	128	128	128
R-squared	0.268	0.564	0.747	0.125	0.308	0.492
Number of City_ID	13	13	13	16	16	16
Class 4 Cities						
	Cities in Metro Area			Cities outside Metro Area		
VARIABLES	Gross Sale (PC)	Firms	Property Tax (PC)	Gross Sale (PC)	Firms	Property Tax (PC)
DID	-22.01***	-1.603	-4.793	-2.343	-6.859*	8.650*
	(4.596)	(7.379)	(27.63)	(2.478)	(4.018)	(4.422)
Pop Density	-0.00882	-0.00750	0.0332	0.122***	0.217***	-0.190***
	(0.00674)	(0.0107)	(0.0615)	(0.0435)	(0.0706)	(0.0517)
Median Income	0.000425*	-0.000334	-2.87e-05	-0.000760***	-0.000698*	0.000133
	(0.000225)	(0.000347)	(0.000328)	(0.000239)	(0.000388)	(0.000114)
Observations	55	63	447	121	121	4,302
R-squared	0.401	0.373	0.350	0.231	0.185	0.306
Number of City_ID	7	8	56	16	16	551

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

When comparing cities with Complete Streets projects without roadway reconstructions, having a Complete Streets project has a positive and significant effect on property taxes (per capita) of Class 3 non-metro cities. This result is consistent with the results in the combined sample. On average, property taxes per capita increased by $38.93 in Class 3 non-metro cities with Complete Streets projects compared to cities without roadway projects. Contrary to the results in the combined sample, the effects on the number of firms are positive and significant in Class 3 non-metro cities. On average, the number of firms in Class 3 non-metro cities with Complete Streets increased by 5.5 compared to cities without roadway reconstruction projects.

Similarly, when comparing cities with Complete Streets projects without roadway reconstructions, having a Complete Streets project has a positive and significant effect on property taxes (per capita) of

Class 4 non-metro cities. On average, property taxes per capita increased by $8.65 in Class 4 non-metro cities with Complete Streets projects compared to cities without roadway projects. In terms of firms, the effect is negative and significant in Class 4 non-metro cities, which is consistent with the results in the combined sample. On average, the number of firms in Class 4 non-metro cities with Complete Streets decreased by 6.85 compared to cities without roadway reconstruction projects. The sample size in the Class 4 metro cities is also small and therefore, the results should be interpreted with caution.

4.2.3 Discussion

The results suggest that having a Complete Streets reconstruction project may improve the economic activity of small cities to some extent, particularly when considering revenues from property taxes. Overall, there is little research looking into the impacts of Complete Streets on revenues from property taxes. Most research in this area has focused on the impacts on property values; and while some studies have found little evidence of a significant, positive impact on property values (McCormick, 2012; Phinney, Fonseca, Bean, & Zhao, 2020), others have found positive impacts on property values that were not tested for statistical significance (Smart Growth America, 2015; Yu, Xu, Towne, & Iman, 2017). Our results show that Complete Street reconstructions have a significant and positive impact on property taxes when comparing class 3 and class 4 cities with Complete Streets and cities with non-Complete Streets projects. It is possible that the cities in the sample experienced an increase in properties' assessed value, which increases the tax base, and thus revenues collected from property taxes. It is also possible that Complete Streets reconstructions bring additional investments in the city that are also reflected in an increase in revenues from property taxes.

Contrary to the results of some previous study findings suggesting that business sales are positively impacted by Complete Streets projects (NYDOT, 2013; Liu & Shi, 2020), our results did not provide evidence of it. Our results show that Complete Street reconstructions have a positive impact on gross sales when comparing class 3 and class 4 cities with Complete Streets and cities with non-Complete Streets projects, but the results are not significant.

The results regarding the impacts of Complete Streets reconstructions on the number of firms in this study were not as expected. The existing literature on impacts on the number of firms is very limited, but previous research found overall increases in businesses in communities with Complete Street improvements (Smart Growth America, 2015). Our results with regard to the impact on the number of firms suggests that future research work is needed in this area. In particular, it is possible that the number of small firms leaving the market was higher than the number of bigger new firms emerging. However, the variable does not consider the size of these firms.

Several elements may limit the findings from this analysis to some extent. First, the lack of data available reduced the sample size used to make statistical inference, therefore the results should be interpreted with caution. Second, Complete Streets improvements may have been part of a bigger local effort to incentivize economic activity, such that its effects could not be isolated. For instance, according to the

case study findings, the Complete Streets improvements in Albert Lea were implemented at the same time as the Blue Zones Project as part of a city effort to improve economic activity in the downtown area and the overall community well-being.

CHAPTER 5: RECOMMENDED METRICS

This chapter discusses the recommended metrics for assessing the economic impacts of Complete Streets projects in small cities as well as the methodology for collecting data.

5.1 RECOMMENDED METRICS FOR SMALL CITY COMPLETE STREETS

This section describes quantitative and qualitative variables recommended for assessing the economic impacts of Complete Streets projects in small cities. Researchers selected these variables based on the literature review, case studies, and data analysis conducted for this project. These recommended metrics are intended for either local studies of the impacts of individual Complete Streets projects, or for statewide studies of Complete Streets projects in small cities.

We categorize these metrics into variables that measure the economic impacts of Complete Streets projects directly and indirectly. Direct measures of economic impacts are outputs of business activity, including revenues, business growth, or private investment. Indirect measures of the economic impact are variables that may channel economic impacts, that is, those that affect factors that may affect business activities, such as safety improvements. Other indirect economic benefits of Complete Streets projects, such as public health benefits of active lifestyles, are not included in these metrics.

For each measure, we provide a description, currently available data sources and their limitations, as well as methods to collect additional information. The scale at which data are available is a common limitation for these variables, as some data are only available for select cities. For other variables that need to be collected, we recommend that local authorities (either the city staff or MnDOT district or through a collaboration between the two parties) collect the data; however, staff capacity and additional resources needed for data collection would be a limitation to this approach.

5.1.1 Direct Measures of Economic Impacts

Measures of the economic impact are outputs of business activity. Table 5.1 provides a list of measures to consider when evaluating the direct economic impacts of Complete Streets projects in small cities.

Table 5.1 Direct measures of economic impacts

Measures	Description	Data sources	Limitations
Gross sales	Annual revenue of a business measured by gross sales (quantitative)	Minnesota State Sales Tax Totals by select cities (DOR)	Not available for all cities
	Perceptions of changes in business sales (qualitative)	Data to be collected	Additional resources needed
Firms	Number of establishments (quantitative)	Minnesota State Sales Tax Totals by select cities (DOR) Quarterly Census of Employment Wages by city (BLS)	Not available for all cities
	Perceptions of business relocations to the project corridor area, local business presence or relocation in the area, and firm size (qualitative)	Data to be collected	Additional resources needed
Jobs	Jobs per firm (quantitative)	Block-level data from Longitudinal Employer-Household Dynamics (Census)	Detailed data is restricted
	Perceptions of changes in the availability of jobs along the project corridor (qualitative)	Data to be collected	Additional resources needed
Storefront vacancies	Vacant storefronts along project corridor (quantitative)	Data to be collected	Additional resources needed
	Perceptions of impacts in storefront vacancies (qualitative)	Data to be collected	Additional resources needed
Property value	Estimated property value (qualitative)	Property Boundaries by county (parcel data) (MNIT)	Not available for all counties
	Property sales data from market transactions (quantitative)	Certificate of Real Estate Value data by parcel (DOR)	Records available upon the sale of a property

	Perceptions of impacts on property values (qualitative)	Data to be collected	Additional resources needed
Public / Private investment	Perceptions of public and private investment along the project corridor (qualitative)	Data to be collected	Additional resources needed
Tax revenues	Sales tax revenues	Minnesota State Sales Tax Totals by select cities (DOR)	Not available for all cities
	Property tax revenues Lodging tax revenues	Minnesota City Governmental Fund Data (OSA)	Not available for all cities

Gross sales

Gross sales are the total revenue of a business over the course of a year from all retail sales, as measured by the sales price (Minnesota Legislature, 2021). Gross sales are expected to be positively impacted by Complete Streets reconstructions, as the improved transportation environment is expected to boost local business output (Transportation Research Board, 1998; Smart Growth America, 2021).

Gross sales data are available through the Minnesota Department of Revenue's (DOR) Annual Statistics for Minnesota State Sales Tax Totals for selected cities.[9] Gross sales data are currently available for 136 of the 854 cities in the state.[10] These data are available by industry (at the three-digit North American Industry Classification System -NAICS- subsector level) and have been available annually since 1998. A key limitation of this dataset is that gross sales data are not available for all cities, particularly for Class 4 cities.

Another way to capture gross sales data is through qualitative instruments. For instance, Complete Streets reconstructions may result in expanding transportation options for customers or increased sidewalk space business owners can use to advertise or sell their products or services. For example, business owners from three of the case study cities conducted as part of this research (Bagley, New London, and Alexandria) referenced using the widened sidewalks for holding sidewalk sales or

[9] This database also contains information about taxable sales, and revenues from sales and use tax.

[10] Cities were historically included in this database based on population size (Clayton, 2021). This database includes all Class 1 and 2 cities in Minnesota, all Class 3 cities except for Rodgers, and only 39 of the 755 Class 4 cities.

advertising. City officials or MnDOT District staff could collect the perceptions of the Complete Streets project's impacts on business gross sales through surveys or interviews. These could be performed with business owners and staff of the businesses along the project corridor before, during, and after the project (preferably one year after the project and a follow-up two or three years after). Potential questions to include in the survey include the following:

- [Did you/do you expect to] change your business activities following the Complete Streets project? [Probe: different marketing, use of the public right-of-way for sidewalk seating or sales, etc.]
- Do you think that the Complete Streets changes [affected/will affect] sales? [Probe: How so? Why/why not?]
- Have you noticed or do you expect new customers/more customers to visit your business following the Complete Streets project?
- On average, how have your gross sales changed in the 3 years [preceding/since] the Complete Streets reconstruction?

Firms

This metric measures the impact of a Complete Streets project on the number of businesses, or firms, in a city. The number of firms in a city are expected to be positively impacted by Complete Streets reconstructions (Smart Growth America, 2015). For example, in the Albert Lea Complete Streets case study, 33 businesses relocated to the city, including more than a dozen along the project corridor, in the years following the Complete Streets projects (Thoman, 2018).

Data on firms are available through the Minnesota Department of Revenue's Annual Statistics for Minnesota State Sales Tax Totals by selected cities. Gross sales data are currently available for 136 of the 854 cities in the state. These data are available at the city-level and by industry at the three-digit NAICS subsector level for each year starting from 1998. The number of firms in this dataset includes both public and private firms (Clayton, 2021). However, a key limitation of this dataset is that data on the number of firms is not available for all cities, particularly for Class 4 cities.

Data on firms are also available through the U.S. Bureau of Labor Statistics' (BLS) Quarterly Census of Employment and Wages (QCEW). The QCEW database reports total firms in a city, total firms by sector (private or public), and firms by type of industry (based on standard NAICS industry codes from the 2 to 6-digit level). This database also includes data on changes in employment due to firm opening/closing, and weekly and annual wages. The data are available for all cities, including Class 4 cities, and are reported by quarter and also as an annual average. QCEW data are available by quarter and by year from 2000. However, similar to the DOR dataset, a key limitation of this dataset is that data on the number of firms is not available for all cities, particularly for Class 4 cities.

Finally, information about firms' dynamics could be captured through qualitative measures. Questions regarding the perceptions of business relocations to the project corridor area, perceptions of local business presence or relocation in the area, and perceptions of firm size would be important. Data for

this variable could be collected through surveys or interviews with business owners or city officials. Potential questions to include in the survey include the following:

- Do you think that the Complete Streets changes [affected/will affect] the number of businesses along the project corridor? [Probe: How so? Why/why not?]
- Has your city experienced any changes in the number/rate of permits secured for new business along the project corridor after the Complete Streets project? [Probe: How so?]
- Have you seen more local businesses along the project corridor after the Complete Streets project? [Probe: How so? Why?/Why not?]
- Do you think that the Complete Streets changes [affected/will affect] the size of the firms along the project corridor? [Probe: How so? Why/why not?]

Jobs adjacent to Complete Streets projects

Another measure is related to the changes of jobs within the blocks adjacent to the corridor with the Complete Streets project. Complete Streets projects are found to be correlated with the creation of new jobs, both permanent and temporary (NCTR, 2015).

Currently the Longitudinal Employer-Household Dynamics (LEHD) data from the U.S. Census Bureau provides information on the location of jobs (NCTR, 2015). The publicly available database includes statistics by state and by Metropolitan Statistical Area (MSA) and statistics are available by firm characteristics (industry, age, and size) and by worker demographics (sex, age, education, and race). There is also restricted microdata that is more detailed but requires approval (Vilhuber, 2018; U.S. Census Bureau, 2021).

This variable could be captured using a qualitative measure of perceptions of changes in the availability of jobs along the project corridor before and after the Complete Streets project. This could be measured through surveys or interviews with business owners and city officials. Potential questions to include in the survey include the following:

- Do you think that the Complete Streets changes [affected/will affect] employment along the project corridor? [Probe: How so? Why/why not?]
- Have you noticed or expect any changes in the number of permanent and/or temporal jobs created following the Complete Streets reconstruction? [Probe: How so? Why/why not?]

Employment data are currently available through two data sources, but some caution is recommended when using these data sets to assess the economic impacts of Complete Streets projects. These data sets include information about employment in the city, which may be affected by numerous factors that are not related to Complete Streets improvements. These databases are the U.S. BLS' QCEW database and the U.S. Census Bureau's County Business Patterns (CBP) dataset. The first data set reports total employees, total employees by sector (private or public), and employees by type of industry (based on standard NAICS industry codes from the 2 to 6-digit level). These data are available for all cities and are

reported by quarter and also as an annual average starting from 2000. The CBP dataset reports total employment for the week of March 12 each year at zip code level that can be aggregated at the city or county level. This data is available from 1994 to 2019. The Census Bureau does not recommend using CBP data as a time series for a number of reasons. First, while this data is published annually, it is meant to present a snapshot in time. Second, CBP does not revise the data for prior years. Lastly, CBP data is based on administrative data that is subject to non-sampling error (CBP, 2021).

Storefront vacancies

Storefront vacancies could also be a measure of the economic impacts of Complete Streets projects. The impact of Complete Streets projects on storefront vacancies emerged as a theme in the Albert Lea case study. After the Complete Streets project was implemented, project staff noted that many businesses moved into empty storefronts along the project corridor (Kehr, 2021).

A quantitative measure of storefront vacancies can be captured by collecting a simple count of vacancies along the project corridor. This quantitative measure of storefront vacancies could be accompanied by a qualitative measure of perceptions of the impact of the Complete Streets project on storefront vacancies. This could be collected through surveys or interviews with business owners and city officials. Potential questions to include in the survey include the following:

- Do you think that the Complete Streets changes [affected/will affect] the number of storefront vacancies along the project corridor? [Probe: How so? Why/why not?]
- Have you noticed any change in the amount of time it takes to rent vacant stores? [Probe: How so? Why/why not?]

Property values

Property value can be measured by the estimated value of a property at a given time determine by the assessor's office (used for property tax purposes) or the market value of a property when it is sold (property sales). Property values are expected to be positively impacted by Complete Streets reconstructions (Smart Growth America, 2021).

Property value data are available by parcel from the corresponding county government and can be accessed from the Minnesota IT Services Geospatial Information Office's webpage (Minnesota IT Services, 2021).

Property sales data at a parcel level are publicly available from the state's Department of Revenue. The DOR has an Electronic Certificate of Real Estate Value (eCRV) that must be filled when Minnesota real property is sold or transferred (DOR, 2022).[11] The records are available since October 2014 by county (all counties), jurisdiction (cities and townships), and by property use group (includes agriculture/rural,

[11] With a value of more than $3,000.

entertainment/sports, institutional, lodging, manufacturing, office, other/special use, residential, restaurants/bars/clubs, retail, unimproved/vacant land, utility/energy, and warehouse).

Impacts on property values could also be captured using qualitative methods. This could include surveys or interviews with city officials and property owners to understand their perceptions of changes to property values or the cost of rent during the study period. Potential questions to include in the survey include the following:

- Do you think that the Complete Streets changes [affected/will affect] property values? [Probe: How so? Why/why not?]
- On average, how have your property values changed in the 3 year [preceding/since] the Complete Streets reconstruction?
- Have you noticed or do you expect any changes in the amounts of rents of the rental properties [preceding/since] the Complete Streets reconstruction?

Public or private investment along corridor

According to the case studies conducted in this study, Complete Streets projects in small cities can trigger public or private investments, this in turn could have economic impacts. For example, in the Albert Lea case study, the downtown area experienced over $2 million in private investments and the relocation of 33 new businesses to the area (Thoman, 2018). Other case studies provided examples where the Complete Streets project prompted the city government or city council to change behavior and/or increase investments on or near the project area. In New London, for instance, respondents noted that around the time of the improvement project, the city began investing in business subsidy work – such as applying for grants for facade improvements and establishing tax-increment financing districts to enable the rebuilding of downtown buildings.

Similarly, in Watertown, the improvement project led the City Council to approve additional investments to connect the highway to the downtown area. A Watertown respondent described the improvement project as “the catalyst…for the city to make those other investments to make the connections to the project area. Having MnDOT make this investment along Highway 25 really motivated the council to do that.” Other cities invested in streetscaping, improved lighting, or decorative railing to add to the enhanced aesthetics of the reconstructed road.

These measures could be captured through stakeholder interviews or surveys. Potential questions to ask city officials, local business owners, and business leaders include:

- [Do you expect/have you observed] changes in public or private investment in the project corridor following the Complete Streets project?
- Has your city experienced any changes in the number/rate of permits issued for business remodels along the project corridor after the Complete Streets project? [Probe: How so?]

- Were any steps taken after the construction phase to promote or enhance business/economic activity? [Probe: Public/Private nature; why?] (example: hosting community events)
- What were the most successful activities? [Probe: why?]
- Were there other things that the city or project team could have done to support businesses following the construction phase? [Probe: How so? why?]

Tax revenues

Government tax revenues can be used to assess the economic impacts of Complete Streets projects. Complete Streets improvements may affect business activities and property values, which in turn affect municipal tax revenues. As mentioned earlier, businesses may experience increased sales which in turn affect sales tax revenues. In Minnesota, sales tax revenue data are available through the DOR Annual Statistics for Minnesota State Sales Tax Totals for select cities. These data are available annually for a limited number of Class 4 cities. Another limitation of this measure is that it captures a portion of increased sales given the tax exemptions. Similarly, Complete Streets may affect property values, which can in turn affect property tax revenues. Property tax revenue data are available from the Office of the State Auditor (OSA), Minnesota City Governmental Fund Data. These data are available annually for all cities. Lastly, several small cities rely on the tourism industry and may be getaway destinations, which may affect proceeds from lodging taxes. This emerged as a theme in the conversations with city officials in Albert Lea. Lodging tax revenue data are available from the Minnesota City Governmental Fund Data. These data are available annually for all cities that collect the tax. As of 2019, 98 cities in Minnesota collected lodging taxes.[12] Data from the OSA typically has a lag of two years.

5.1.2 Indirect Measures of Economic Impacts

Indirect measures of the economic impact are variables that may channel economic impacts, that is those that affect factors that may affect business activities. This category includes pedestrian and bicycle activity and measures related to safety such as crashes and speed. These variables have been found to generate good conditions for business and be positively related with business sales (Smart Growth America, 2012; Drennen, 2003). In addition to business related outputs, there are individual economic benefits associated with safety improvements. For instance, a study of 34 Complete Streets projects across the U.S. found that these Complete Streets improvements collectively averted $18.1 million in costs associated with car crashes in one year (Smart Growth America, 2015). Table 5.2 provides a list of

[12] Lodging tax revenue is called Hotel Motel Tax in this dataset. A lodging tax is a tax that cities can collect on rentals of 30 days or less for lodging at a “hotel, motel, rooming house, tourist court, or resort” (Dalton, 2019).

indirect measures to consider when evaluating the economic impacts of Complete Streets projects in small cities as well as their description.

Table 5.2 Indirect measures of economic impacts

Measures	Description	Data sources	Limitations
Pedestrian and Bicycle Activity	Counts of pedestrians and bicyclists along the project corridor (quantitative)	American Community Survey (ACS) commuting data by city	Includes only commute travel modes
		Manual or automated counts to be collected	Additional resources needed
	Perceptions of changes in pedestrian and bicycle activity along the project corridor (qualitative)	Data to be collected	Additional resources needed
Availability of parking	Number of available parking spaces along the project corridor (quantitative)	Data to be collected through counts or project design documents	Additional resources needed
	Perceptions of changes in availability of parking along the project corridor (qualitative)	Data to be collected	Additional resources needed
Crashes	Number of crashes along the project corridor (quantitative)	MnDOT crashes dataset by roadway type and city	
	Severity of crashes along the project corridor (quantitative)	MnDOT crashes dataset by roadway type and city	
	Perceptions of changes in crashes along the project corridor (qualitative)	Data to be collected	Additional resources needed
Average Vehicle Speed	Average vehicle speed along project corridor (quantitative)	Data to be collected	Additional resources needed
	Perceptions of average speed traveled along the project corridor (qualitative)	Data to be collected	Additional resources needed

Pedestrian and bicycle activity

Complete Streets are expected to have higher rates of use by pedestrians and bicyclists due to improvements that make streets safer (Smart Growth America, 2015). Increased pedestrian and bicycle activity has been found to positively affect business. For instance, cycling could bring economic benefits through increased tourism, bicycling manufacturing, bike tours, and retail among others (Smart Growth America, 2012). In addition, commercial areas depend on walkable environments to attract customers (Litman, 2018).

Data for pedestrian and bicycle activity is available through the American Community Survey (ACS) and through private sources. First, ACS data on commuting mode shares are available annually for all small cities in Minnesota.[13] This could be a valuable data source and could be applied for a statewide scale of collection, but a key limitation is that it only reflects commuters travel modes and does not account for other roadway users, such as visitors (U.S. Census Bureau, 2021). Second, cities can explore private sources of data. For instance, pedestrian, biking, and vehicle patterns data is available through StreetLight, a mobility analytics platform. However, the data may not be available for small cities. In addition, it requires a paid subscription, which limits its accessibility.

Pedestrian and bicyclist usage data can be collected through manual or automated counts. Cities could conduct counts of pedestrians and bicyclists using MnDOT's standards to collect and analyze the data.[14] The city could conduct these counts manually or using automated counters that cities can borrow for free from MnDOT through their Portable Counter Borrowing Program.[15] We recommend these counts to be collected during the same season in different years. Figure 5.1 shows an example of an automated bicycle counter being installed on a bike lane in Alexandria, Minnesota, one of the case studies for this report. City staff capacity to collect data from these counts is a key limitation of this approach.

[13] For cities with populations under 65,000 people, annual ACS data are only available in 5-year averages as opposed to 3 and 1-year estimates for larger cities (U.S. Census Bureau, 2021).

[14] Information on MnDOT's standards for bicycle and pedestrian counts are available on their website: https://dot.state.mn.us/bike-ped-counting/manual.html

[15] MnDOT has eight counter kits available through this program. Eligible organizations include cities, counties, metropolitan planning organizations, regional development commissions, and active transportation advocacy organizations (MnDOT, 2021).

Figure 5.1 Installation of an automated bicycle counter in Alexandria

In addition to quantitative measures, qualitative information could be collected to assess changes in pedestrian and bicycle activity. These measures could be captured through stakeholder interviews or surveys with business owners and city officials. Potential questions include:

- Have you noticed or do you expect any changes in pedestrian and bicycle activity along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales]?

Availability of parking

Changes in the availability of parking space could impact business activity, either business sales or business supply. From the case studies, conducted as part of this research business owners in Glenwood mentioned that businesses left downtown due to the loss of parking. Conversely, businesses in Grand Rapids and Watertown were less concerned about potential loss of parking as most businesses had access to a parking lot off the highway.

Information about on-street parking availability along the corridor with Complete Streets improvements could be available through the city's parking authority.

The impacts of Complete Streets on the availability of parking could be measured through a qualitative variable on perceptions of roadway users, local officials, and business owners. Data collection would require stakeholder interviews or surveys. Potential questions include:

- Have you noticed or do you expect any changes in the availability of parking along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales/supply]?

Crashes

Crash data is an important way to measure how safe a street is for users. These data refer to 1) the number of crashes on a roadway, both crashes involving cars only and those that involve pedestrians or bicyclists, and 2) to severity of crashes, including both motorist traffic fatalities and non-motorist traffic fatalities (MnDOT, 2021). Since Complete Streets projects often include traffic calming elements, crashes are expected to decrease with the implementation of a Complete Streets project (Huang, Stewart, & Zegeer, 2002; Zegeer & Bushell, 2012; Smart Growth America, 2015).

Currently, MnDOT maintains a database of crashes on MN Trunk Highways that could be used as a data source for this variable. The database contains information about the number of crashes by city/township and by route number, the severity of crashes (type of injury or damage to property, number of deaths), and the manner of collision (angle, turn, etc.). This data is available for all cities, including Class 3 and Class 4 cities. The data corresponds to crashes reported by the law enforcement and sent into the DPS MNCRASH System.[16] As part of the case studies, the research team received crash data along the Complete Street project corridor for a city between 2006 and 2016. Cities can request this data from MnDOT's traffic section.

The impacts of Complete Streets on crashes could be measured through a qualitative variable on perceptions of roadway users, local officials, and business owners. Data collection would require stakeholder interviews or surveys. Potential questions include:

- Have you noticed or do you expect any changes in the number of crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales]?
- Have you noticed or do you expect any changes in the severity of crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales]?

[16] It is legally required to report the crash if damage to the property is greater than $1,000 or any individual is injured.

- Have you noticed or do you expect any changes in the severity of the crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/businesses sales]?

Average Vehicle Speed

Complete Streets projects often incorporate design elements intended to reduce the average speed traveled along the corridor. This variable assesses the actual speed that vehicles travel rather than the posted speed limit. Vehicle speed could be monitored as part of an evaluation of Complete Streets projects' outcomes (MnDOT, 2013), but also as a way to understand impacts on other variables. For instance, slower streets are safer for pedestrians and bicyclists (Zajac & Ivan, 2003; Kim, Kim, Ulfarsson, & Porello, 2007). In addition, average vehicle speed could be used in cases where crash data are not available.

MnDOT district offices collect most traffic data in the state, although some cities and counties (especially in the seven-county Metro area) gather their own traffic counts (MnDOT, 2012). MnDOT currently has the Minnesota Speed Monitoring Program that analyses and reports roadway speeds on five roadway types (MnDOT, NA). The program has a total of 57 automated speed monitoring stations that continuously collect roadway speed data (MnDOT, 2022) and some of these stations may be on city streets. However, the program does not collect regular speed data for all cities. Cities may perform speed analysis using StreetLight data.[17] Cities could also collect their own data through different technologies.[18] Lastly, cities could also collaborate with MnDOT to expand speed monitoring efforts to collect continuous speed data for the city, however, this would require additional resources.

This measure can also be captured through stakeholder interviews or surveys with roadway users, business owners and city officials, however, the staff time required to collect the data is a key limitation of this variable. Potential questions include:

- Have you noticed or do you expect any changes in the average speed of travel along the project corridor following the reconstruction? [Probe: How do you expect this to affect city revenue/ businesses sales]?

[17] Currently MnDOT has a subscription to StreetLight data. City staff could explore accessing the data through collaborations with MnDOT.

[18] A summary of detector technologies is available in the Transportation Research Synthesis on collecting and managing traffic data on local roads (MnDOT, 2012).

This measure can be captured through stakeholder interviews or surveys with roadway users, business owners and city officials, however, the staff time required to collect the data is a key limitation of this variable. Potential questions include:

- Have you noticed or do you expect any changes in the average speed of travel along the project corridor following the reconstruction? [Probe: How do you expect this to affect city revenue/ businesses sales]?

5.2 DATA COLLECTION METHODS

This section details the recommended methodology for collecting data on the variables that are not already collected and reported from other sources. These are data that cities or MnDOT district staff will need to collect to analyze the impacts of Complete Streets projects. We recommend conducting interviews/surveys with several stakeholders to capture the different perspectives on the same topic and to triangulate/validate the information.

We recommend collecting data before, during, and after the Complete Streets reconstruction for all the variables. Data collected before the Complete Streets project serve as a baseline for comparison. Pre-construction counts and qualitative information could be collected in the months leading up to the beginning of construction. Post-construction information should be collected a few years after project completion.

Data collection for the qualitative variables could be integrated into the existing business and community engagement that MnDOT District Offices and cities do for Complete Streets projects to reduce the demands on staff capacity. Collecting pre-construction and mid-construction data could be integrated into the engagement activities that MnDOT and cities undertake as part of the project. The post-construction data can be collected as part of a monitoring strategy following the Complete Streets reconstruction. Similarly, we recommend partnering with a local chamber of commerce or business association to promote engagement activities and increase survey/interview response rates. In addition, small cities could partner with counties that may have a subscription to access private data to meet their data needs. Appendix B includes an example of survey questions for these variables.

The collection of data at several stages of the Complete Street project enables the before and after comparison, trends analysis, and also helps with identifying short- and long-term impacts. For some of the variables, the impacts are expected to emerge in the short term while in others the impacts are expected to emerge in the long term. Short term impacts are those that can be measured immediately after project completion, such as changes in the availability of parking. Long term impacts are those that will take a number of years to emerge, such as the impact on private investment. For the direct measures of economic impacts, the literature recommends evaluating the effects of these variables one to three years after project completion (NYDOT, 2013). For indirect measures related to traffic safety,

including crash rates and severity, a minimum of three years of data is a recommended standard (Smart Growth America, 2015).

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

Having a Complete Streets reconstruction project may improve the economic activity of small cities. Based on the case studies, local businesses noted positive changes at the city level resulting from the Complete Streets improvements, which were consistent with data presented by city officials. Officials pointed to fewer vacancies, relocation of businesses to the downtown or commercial area, increased investment dollars, and increased property values after Complete Streets reconstructions. Overall, three mechanisms through which Complete Streets might impact businesses and the local economy were identified: altering business practices (increased sidewalk area that allows for sidewalk sales and advertising), changing city practices (activities that drive economic activity), and acting as a catalyst for additional investment (increased investments on or near the project area). Similarly, the results from the DID analysis suggested that having a Complete Streets reconstruction project had a significant and positive effect on property taxes. It is possible that the cities in the sample experienced an increase in properties' assessed value, increasing the tax base, and thus revenues collected from property taxes. It is also possible that Complete Streets reconstructions brought additional investments to the city also reflected in increased revenues from property taxes.

Several elements may limit the findings from this analysis. With respect to the case studies, the COVID-19 pandemic profoundly impacted the economic activity of businesses in our study, with some seeing increases in revenue (furniture and liquor stores, for example) and others seeing sharp decreases (restaurants and retail shops). Pandemic-induced disruptions also impacted the extent to which businesses could discern an impact of a Complete Streets improvement project.

In terms of the DID analysis, the results should be interpreted with caution. First, the current Minnesota Complete Streets database included some projects that did not follow a Complete Streets approach and the data was not validated for accuracy. Second, the lack of data available at the city level reduced the sample size used to make statistical inference. Third, Complete Streets improvements in some cases were part of a bigger local effort to incentivize economic activity, such that its effects could not be isolated.

Future research on the economic impacts of Complete Streets reconstructions could explore, for instance, changes in the firms' characteristics after the completion of such projects. This includes changes in firm size, type, and business model (e.g., local vs national chain, minority business enterprises). Future research could also explore factors that affect business recovery after the reconstruction as well as strategies that could help in the recovery phase. Finally, future research might rely on additional case studies to investigate the economic impacts of Complete Streets for cities in addition to businesses. The case studies provide evidence that in at least some cities, respondents perceived a benefit for the city as a whole — even if they did not perceive an impact for a specific business. Such analyses might also investigate complementary investments by cities to maximize the impacts of the road reconstruction.

Based on the research findings, the research team developed recommendations to support MnDOT and local agencies in small cities in developing Complete Streets projects, communicating effectively, and monitoring the impacts of context-sensitive main street highway projects.

The following are recommendations for MnDOT and city staff when developing Complete Streets projects:

1. ***Align Complete Streets reconstructions schedule with other city investments***

   Cities should consider aligning Complete Streets project schedules with other city investments to magnify the impacts of roadway reconstructions. The case studies provide numerous examples of the ways in which cities built on efforts to revitalize their downtown areas or enhance active living. Concurrent investments will allow the cities to make lower-cost improvements and capitalize improvements in their downtown areas.

2. ***Consider alternative funding mechanisms to alleviate the financial burden on local businesses***

   Cities should consider alternative funding strategies to alleviate the financial burden of construction on local businesses**.** As found in the study, business owners that perceived a negative economic impact often reported difficulty recovering from the construction phase of a Complete Streets project. For some of these businesses, for instance, assessments implemented as part of the reconstruction made recovery more difficult. Cities may be able to alleviate some of the financial burdens on businesses by partially funding or seeking grant support to cover the cost of assessments. For instance, in Alexandria, the costs of assessments to businesses were covered through grants from organizations such as Blue Cross Blue Shield. Proactively anticipating these financial burdens and supporting local businesses can alleviate some of the potential negative impacts of reconstructions on local economic activity.

3. ***Continue emphasizing business access throughout the Complete Streets reconstruction***

   MnDOT and city staff should continue efforts to minimize business disruptions and maintain business access during construction. According to the case studies, most business owners viewed the construction period as difficult for their businesses and appreciated the efforts to phase the reconstruction project and engage them in the conversation to establish access points. Phasing the construction project allowed for one lane of traffic or one part of the street to be open during the reconstruction. Similarly, establishing access points in collaboration with businesses helped identify resources available that could be used such as back entrances, or identified other tools that enabled the community to access business such as boardwalks. These efforts allowed for business access and mitigated potential negative impacts of construction on the local businesses.

4. ***Continue the coordination of reconstruction schedules with local representatives and the community***

   MnDOT should continue the coordination of reconstruction schedules with local representatives and the community including businesses, emergency services, and postal and freight companies. In addition, it is critical to coordinate construction schedules to avoid interference with special events, particularly in cities that rely on tourism. These efforts will avoid disruption in services and potential negative impacts on the local economy.

Based on the case study findings, stakeholders were pleased with MnDOT and city engagement and communication efforts. The following are recommendations/best practices identified for engaging and communicating with local businesses:

5. ***Continue clear and consistent communication with local businesses throughout all phases of a Complete Streets project***

   As part of their engagement efforts, MnDOT and city staff should continue to clearly and consistently communicate with local businesses to identify and address any concerns that businesses may have about Complete Streets reconstructions. MnDOT and city staff should proactively maintain communications with local businesses throughout the planning and design, construction, and post-construction phases of a Complete Streets project.

   Communications could occur via planned and drop-in meetings (both in-person and online), local radio/newspaper updates, emails, and project website updates. In addition, communication should be available in languages other than English to reach diverse populations.

   During the planning and design phases, MnDOT and city staff should provide information about and rationale for proposed changes to businesses affected by reconstructions. In addition, it is important to gather feedback and modify the proposed changes when feasible to address the needs of businesses in the area.

   Similarly, during the construction phase, it is important to communicate information such as the overall timeline of construction and the phases, the presence of construction work immediately in front of or adjacent to a business, and construction delays. The project staff should also establish business liaisons to address questions or concerns.

   Lastly, MnDOT and city staff should maintain a communication channel with businesses to identify and address post-construction challenges, as well as ways to improve the development of future projects.

6. ***Adopt innovative approaches to engage local business***

   Cities should adopt innovative approaches to engage the business community in the planning and construction phases of a Complete Streets project. Some examples of innovative approaches from this study include creating a local group to develop and implement a marketing and communications strategy for the Complete Streets project (Alexandria); activating a local business network to disseminate information about the project to local businesses (New London); and creating a guide with tips for business planning, logistics, signage, and ways to stay updated during the construction phase (St. James). Proactive engagement with the local business community throughout the project will help MnDOT and city staff to identify and mitigate any concerns that businesses may have about Complete Streets reconstructions.

Regarding data for measuring the economic impact of Complete Streets projects, the recommendations include:

7. ***Revise processes for data entry and validation to improve data quality***

   MnDOT currently compiles a database with information about all Complete Streets projects developed across Minnesota. However, the Complete Streets form entries are open to interpretation and as a result, there are inconsistencies in the way project managers fill the form. In addition, this data is not validated for accuracy. Due to these limitations, the current database includes some projects that do not follow a Complete Streets approach. MnDOT should revise its data entry and validation processes as part of the agency's process to update its Complete Streets policy. Consistent data on Complete Streets projects will be essential for MnDOT as it continues evaluating the economic impacts of Complete Streets projects across the state.

8. ***Develop project-specific evaluation plans for all Complete Streets projects***

   Using the recommended measures in Task 6, MnDOT and cities should consider developing a project-specific evaluation plan for all Complete Streets projects. As part of this, MnDOT and cities should consider collecting and monitoring recommended metrics[19] before, during, and after the completion of the Complete Streets project**.** Since the data available varies by city, it is necessary for cities and MnDOT staff to create a project-specific evaluation plan. Collecting this data on the economic benefits of a Complete Streets project will allow MnDOT and cities to measure and communicate the impacts of Complete Streets reconstruction projects.

[19] Recommended metrics refer to direct measures of economic impacts such as gross sales, jobs, property value etc., and indirect measures such as indicators of active living and safety measures.

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APPENDIX A SURVEY INSTRUMENTS

DRAFT INTERVIEW INSTRUMENT

Opening

Thank you for taking the time to speak with me today. As you know, I am working with the University of Minnesota and the MN Department of Transportation on a research project about the economic impact of Complete Streets on small cities and towns in Minnesota. As part of this project, we are talking with local leaders, project managers, business owners, and property owners on current and former Complete Street project sites. The purpose of our discussion today is to learn more about how the Complete Streets have affected your business, property, or the larger business community both during and following construction. We will use this information to help Minnesota better understand how Complete Streets affect businesses and communities like yours.

I want to stress that everything we discuss today is anonymous. With your permission, we will record the interview to assure the accuracy of our understanding, but nothing will ever appear that would identify you specifically without your permission. Your participation is completely voluntary and you don't have to answer any questions that make you uncomfortable.

Do you have any questions or concerns about this process or the project before we begin?

[CHOOSE INSTRUMENT FOR PROJECT MANAGERS/LOCAL OFFICIALS, BUSINESS LEADERS, OR BUSINESS/PROPERTY OWNERS]

Project Managers/Local Officials

Individual's Name and Position:

1. Can you tell me a little bit about [PROJECT NAME/YEAR] and your involvement in it? *[Probe (depending on position): Project rationale, key features, etc.]*

2. What type of outreach/engagement was conducted with business owners, commercial landlords, or other community members during the project's development? From your perspective, was the business community supportive of the changes?

3. Were any steps taken to minimize the disruption to businesses/economic activity during the construction phase? Can you elaborate on these activities? Do you feel like they were tailored to the needs of the community?

4. Did you run into any problems during construction with business/economic activity?

5. Were any steps taken after the construction phase to promote or enhance business/economic activity? Which activities were most successful/why? Which activities were not successful/why?

6. What is your perspective about how owners or commercial property owners located on/near the site have reacted following the construction? *[Probe: supportive, pleased, upset, etc. Probe turnover as well].*

7. [LOCAL OFFICIALS] One of purposes of Complete Streets is to make the road more accommodating for walkers, bikers, public transit users, etc. From your perspective, did the Compete Street change business or economic activity in the city? (The focus here is on the complete street features aside from the typical roadway improvements.) *[Probe: Why/why not? How so?]*

8. **SITE SPECIFIC QUESTIONS HERE**

9. Is there anything that we haven't talked about that you think is important for understanding the economic effects of this Complete Street project?

Local Business Leaders

Individual's Name and Position:

1. Can you tell me a little bit about your involvement in the business community here in [CITY/TOWN]?

2. In your opinion, were businesses, property owners, or others in the business community, supportive of the [PROJECT NAME/YEAR]? *[Probe: ask them to elaborate, reasons why]*

3. Was there any outreach/engagement to the business community during the project's development?

4. Were any steps taken to minimize the disruption to businesses/economic activity during the construction phase? How successful were they? Were there other things that the city or project team could have done to support businesses during this phase?

5. Were any steps taken after the construction phase to promote or enhance business/economic activity? What were the most successful activities/why? Were there other things that the city or project team could have done to support businesses following the construction phase?

6. What is your perspective about how business owners, commercial property owners, or the larger business community have reacted to the changes now that they are complete? *[Probe: supportive, pleased, upset, etc. Probe turnover as well].*

7. One of purposes of Complete Streets is to make the road more accommodating for walkers, bikers, public transit users, etc. From your perspective, did the Compete Street change business or economic activity in the city? (The focus here is on the complete street features aside from the typical roadway improvements.) *[Probe: Why/why not? How so?]*

8. **SITE SPECIFIC QUESTIONS HERE**

9. Is there anything that we haven't talked about that you think is important for understanding the economic effects of this Complete Street project?

Local Businesses and Commercial Property Owners

Individual's Name & Position:

Business Name/Property Location:
My first questions are about your business/property.

a. [FOR BUSINESS OWNERS] What type of business is this?
b. [FOR BUSINESS OWNERS] How long has the business been at this location?
c. [FOR BUSINESS OWNERS] Does the business own/lease this property?
d. [FOR BUSINESS OWNERS] Whom does the business typically serve (type of clientele – local/regional, families/individuals, individuals/businesses, etc.)?

e. [FOR PROPERTY OWNERS] What types of businesses are located at this location?
f. [FOR PROPERTY OWNERS] Do you own/lease other properties in the city?

2. My second questions are about the Complete Streets construction project on [ROAD] in [YEAR]. Was your business located here/did you own property here during the construction phase of the project?
    a. IF YES:
        i. Did you do anything prior to/during construction to address or prepare for the challenges of construction?
        ii. Can you tell me a little bit more about that phase of the project? Did you encounter any problems? Could the city/project team have done anything differently to make the construction phase easier for you?
        iii. How about after the construction phase? Did you encounter any problems? Could the city/project team have done anything differently to make the post-construction phase easier for you?
        iv. Did you receive any feedback from business owners (LANDLORDS)/customers (BUSINESS OWNERS) during or following the construction phase?
    b. IF NOT:
        i. Can you tell me a little bit more about why you decided to start/move your business or purchase property here? *[Probe impact of Complete Street]*
        ii. Have you received any feedback from business owners (LANDLORDS) or customers (BUSINESS OWNERS) about the street/road?

3. The next set of questions are about business activity and revenue.
    a. On average, how have your gross sales/property values changed in the 3 years [preceding/since] the Complete Streets reconstruction?
    b. [Did you/do you expect to] change your business activities following the Complete Streets project? *[Probe: diff. marketing, use of the streets, etc.]*
    c. Do you think that the Complete Streets changes [affected/will affect] sales/property values? *[Probe: How so? Why/why not?]*

4. One of purposes of Complete Streets is to make the road more accommodating for walkers, bikers, public transit users, etc.
    a. Did you notice or do you expect a change in transportation patterns for your employees or customers following the reconstruction of [ROAD]? *[Probe: did you see/do you expect to see people accessing business differently?]*
    b. Did you notice or do you expect any changes in safety for road users following the reconstruction of [ROAD]?

5. Is there anything that we haven't talked about that you think is important for understanding the economic effects of this Complete Street project for your business/property

APPENDIX B SAMPLE QUESTIONNAIRE

The following are examples of questions that could be integrated into the existing engagement activities and potential monitoring strategies that city officials and MnDOT district staff conduct for Complete Street projects. These lists are a compilation of the questions proposed for qualitative measures in Section 2, organized by the appropriate stakeholder and topic. These questions should be adapted to the specific project context and engagement strategies that city and MnDOT staff use for the project.

Questions for Local Officials

Firms

- Do you think that the Complete Streets changes [affected/will affect] the number of businesses along the project corridor? [Probe: How so? Why/why not?]
- Has your city experienced any changes in the number/rate of permits secured for new business along the project corridor after the Complete Streets project? [Probe: How so?]
- Have you seen more local businesses along the project corridor after the Complete Streets project? [Probe: How so? Why?/Why not?]
- Do you think that the Complete Streets changes [affected/will affect] the size of the firms along the project corridor? [Probe: How so? Why/why not?]

Jobs

- Do you think that the Complete Streets changes [affected/will affect] employment along the project corridor? [Probe: How so? Why/why not?]
- Have you noticed or expect any changes in the number of permanent and/or temporal jobs created following the Complete Streets reconstruction? [Probe: How so? Why/why not?]

Storefront Vacancies

- Do you think that the Complete Streets changes [affected/will affect] the number of storefront vacancies along the project corridor? [Probe: How so? Why/why not?]

Property Values

- Do you think that the Complete Streets changes [affected/will affect] property values? [Probe: How so? Why/why not?]
- On average, how have your property values changed in the 3 year [preceding/since] the Complete Streets reconstruction?

Public or Private Investment along the Corridor

- [Do you expect/have you observed] changes in public or private investment in the project corridor following the Complete Streets project?
- Has your city experienced any changes in the number/rate of permits issued for business remodels along the project corridor after the Complete Streets project? [Probe: How so?]
- Were any steps taken after the construction phase to promote or enhance business/economic activity? [Probe: Public/Private nature; why?] (example: hosting community events)
- What were the most successful activities? [Probe: why?]
- Were there other things that the city or project team could have done to support businesses following the construction phase? [Probe: How so? why?]

Pedestrian and Bicycle Activity

- Have you noticed or do you expect any changes in pedestrian and bicycle activity along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales?]

Availability of Parking

- Have you noticed or do you expect any changes in the availability of parking along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales/supply]?

Crashes

- Have you noticed or do you expect any changes in the number of crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales]?
- Have you noticed or do you expect any changes in the severity of crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales]?
- Have you noticed or do you expect any changes in the severity of the crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/businesses sales]?

Actual Speed Traveled

- Have you noticed or do you expect any changes in the average speed of travel along the project corridor following the reconstruction? [Probe: How do you expect this to affect city revenue/ businesses sales]?

Questions for Business Owners and their Staff

Gross Sales

- [Did you/do you expect to] change your business activities following the Complete Streets project? [Probe: different marketing, use of the public right-of-way for sidewalk seating or sales, etc.]
- Do you think that the Complete Streets changes [affected/will affect] sales? [Probe: How so? Why/why not?]
- Have you noticed or do you expect new customers/more customers to visit your business following the Complete Streets project?
- On average, how have your gross sales changed in the 3 years [preceding/since] the Complete Streets reconstruction?

Firms

- Do you think that the Complete Streets changes [affected/will affect] the number of businesses along the project corridor? [Probe: How so? Why/why not?]
- Have you seen more local businesses along the project corridor after the Complete Streets project? [Probe: How so? Why?/Why not?]
- Do you think that the Complete Streets changes [affected/will affect] the size of the firms along the project corridor? [Probe: How so? Why/why not?]

Jobs

- Do you think that the Complete Streets changes [affected/will affect] employment along the project corridor? [Probe: How so? Why/why not?]
- Have you noticed or expect any changes in the number of permanent and/or temporal jobs created following the Complete Streets reconstruction? [Probe: How so? Why/why not?]

Storefront Vacancies

- Do you think that the Complete Streets changes [affected/will affect] the number of storefront vacancies along the project corridor? [Probe: How so? Why/why not?]

- Have you noticed any change in the amount of time it takes to rent vacant stores? [Probe: How so? Why/why not?]

Public and Private Investment along the Corridor

- [Do you expect/have you observed] changes in public or private investment in the project corridor following the Complete Streets project?
- Were any steps taken after the construction phase to promote or enhance business/economic activity? [Probe: Public/Private nature; why?] (example: hosting community events)
- What were the most successful activities? [Probe: why?]
- Were there other things that the city or project team could have done to support businesses following the construction phase? [Probe: How so? why?]

Pedestrian and Bicycle Activity

- Have you noticed or do you expect any changes in pedestrian and bicycle activity along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect your businesses sales?]

Availability of Parking

- Have you noticed or do you expect any changes in the availability of parking along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales/supply]?

Crashes

- Have you noticed or do you expect any changes in the number of crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales]?
- Have you noticed or do you expect any changes in the severity of crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/ businesses sales]?
- Have you noticed or do you expect any changes in the severity of the crashes along the project corridor following the reconstruction of the road? [Probe: How do you expect this to affect city revenue/businesses sales]?

Actual Speed Traveled

- Have you noticed or do you expect any changes in the average speed of travel along the project corridor following the reconstruction? [Probe: How do you expect this to affect city revenue/ businesses sales]?

Questions for Property Owners

Property Values

- Do you think that the Complete Streets changes [affected/will affect] property values? [Probe: How so? Why/why not?]
- On average, how have your property values changed in the 3 year [preceding/since] the Complete Streets reconstruction?
- Have you noticed or do you expect any changes in the amounts of rents of the rental properties [preceding/since] the Complete Streets reconstruction?

Questions for the General Public/Roadway Users

Availability of Parking

- Have you noticed or do you expect any changes in the availability of parking along the project corridor following the reconstruction of the road?

Crashes

- Have you noticed or do you expect any changes in the number of crashes along the project corridor following the reconstruction of the road? [Probe: Do you feel safe using this street]?
- Have you noticed or do you expect any changes in the severity of the crashes along the project corridor following the reconstruction of the road? [Probe: Do you feel safe using this street]?

Actual Speed Traveled

- Have you noticed or do you expect any changes in the average speed of travel along the project corridor following the reconstruction? [Probe: Do you feel safe using this street]?