

Church Row Neighborhood

Sustainable and Equitable Transportation Plan



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December 2020

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Introduction

The Church Row Neighborhood is located southwest of downtown Waterloo Iowa, across the Cedar River and just south of John Deere's Waterloo Works. The neighborhood, which consists of many historic homes and churches from the turn of the 20th Century, has evolved considerably over the years. The neighborhood is currently home to a sizeable population of racial and ethnic minorities and immigrants.

Though the neighborhood has good proximity to many of the major activity centers and employers in the region, the presence of roadways designed for high volume and/or speed make access to these amenities difficult. The neighborhood is bounded by US Highway 63 and 218 from northwest and northeast and arterial one-way streets (5th Avenue and 6th Avenue) on the east and southeast. The heart of the neighborhood is almost exclusively residential, requiring residents to traverse these highways to access local shops, jobs and schools. In addition, though public transportation is provided in the neighborhood, the most easily accessible routes serve a limited number of destinations. These conditions mean that although residents tend to have low household incomes, they are also heavily reliant on private cars to access work and daily necessities.

The problem of low-income residents' mobility being constrained by high volume roadways is not unique to Church Row or Waterloo. It is a common problem in cities across the United States. These factors have several negative effects on these neighborhoods, including limiting the usefulness of physically active transportation and inexpensive modes such as walking and cycling, even in a neighborhood whose design otherwise encourages these things. It also exposes residents to higher risk of being involved in crashes, even as motorists. Additionally, streets designed almost exclusively to handle large volumes of traffic adjacent to commercial spaces limit the use and vibrancy of these spaces, potentially stunting economic development in the area.

The goal of this plan is to examine transportation improvements that can improve the quality of life for residents in the Church Row Neighborhood. In particular, it focuses on the needs of the people who live along and use the neighborhood's streets every day and provides recommendations to equitably balance the needs and safety of residents with those of regional traffic. By rebalancing the transportation environment in Church Row, the hope is to achieve a more sustainable and equitable neighborhood from a social, economic, and environmental standpoint.

Equity Statement

When developing a sustainable transportation plan, three things need to be considered: environmental impacts, economic impacts, and social impacts. This Sustainable and Equitable Transportation Plan for the Church Row Neighborhood focuses on creating equitable mobility for Church Row and the people who live there while keeping in mind the potential environmental and economic impacts of the provided recommendations. There are several strategies that need to be employed in order to achieve mobility equity:ⁱ

- Incorporate public engagement into transportation changes. This document simply serves as a jumping off point and future initiatives should strongly incorporate community input.
- A combination of quantitative data and community experience "qualitative data" should be used to determine and support transportation changes.
- Examine what aspects, beyond street design, make people unsafe in streets.

- Create access to tools and knowledge.
- The people who live in the community should be the drivers of mobility changes. Their needs and struggles should be remediated first.
- Understand what mobility challenges the most vulnerable populations face.

Equity focuses on the intersectionality of vulnerabilities in our population. While conditions may be unfavorable or unsafe to all, we must examine how other factors increase or decrease these concerns. This compounded vulnerability must be examined to create conditions that provide all to move in a safe, efficient, and enjoyable way throughout space.

Existing Neighborhood and Street Conditions

Demographics

According to data from the 2018 American Community Survey, Church Row's population is 3,424. Of that population, fifty-three percent are white, nineteen percent are Asian, and eighteen percent are black. As well, a little over two percent of Church Row residents speak Asian or pacific island languages and no English at home. City-wide, Waterloo is seventy-five percent white, two percent Asian, and sixteen percent black, with only 0.2 percent speaking Asian or pacific island languages and no English at home.

The median age of the neighborhood is about 30 years. There is a higher percentage of children than Waterloo as a whole, twenty six percent vs. twenty percent. The neighborhood has fewer seniors than Waterloo, ten percent vs. seventeen percent. The average household size in Church Row is 2.4 persons. As well, there are 418 households with a disability in the neighborhood. Church Row's median owner-occupied housing value is \$74,000. Waterloo's median owner-occupied housing value is significantly higher at \$114,000.

Church Row's average income is \$16,000 less than Waterloo's average, and twenty-five percent of households are making less than \$15,000 a year. Twenty-one percent of Church Row's population does not have a high school diploma, thirty-three percent have graduated high school, thirty-six percent have obtained some college, and nine percent have received either a bachelor's, graduate, or professional degree. Thirty-seven percent of Church Row's population work white collar jobs, forty-one percent work blue collar, and twenty-two percent work in services. Sixty-nine percent drive alone to work, compared to eighty percent in Waterloo. Twenty-six percent carpool to work (thirteen percent in Waterloo). About one percent bike to work (.3 percent in Waterloo) and 0.8 percent walk to work (1.7 percent in Waterloo). Most have a commute time between five and twenty-five minutes, with the greatest percentage spending between fifteen and nineteen minutes.

Traffic Safety

Relevant crash data was collected from the Iowa DOT. Using the Iowa Crash Analysis Tool (ICAT) (*Iowa Crash Analysis Tool (ICAT)*, n.d.), data of the Church Row neighborhood ranges from 2010 to October 1, 2020. Figure 1 Shows the amount of traffic flow of each street. Much of the heavy traffic flow occurs on 4th, 5th, and 6th Street. This traffic occurs because these are the roads that connect to downtown Waterloo which is located Northeast of the neighborhood. The surrounding roads such as University Ave and Washington Street also have heavy amounts of traffic.

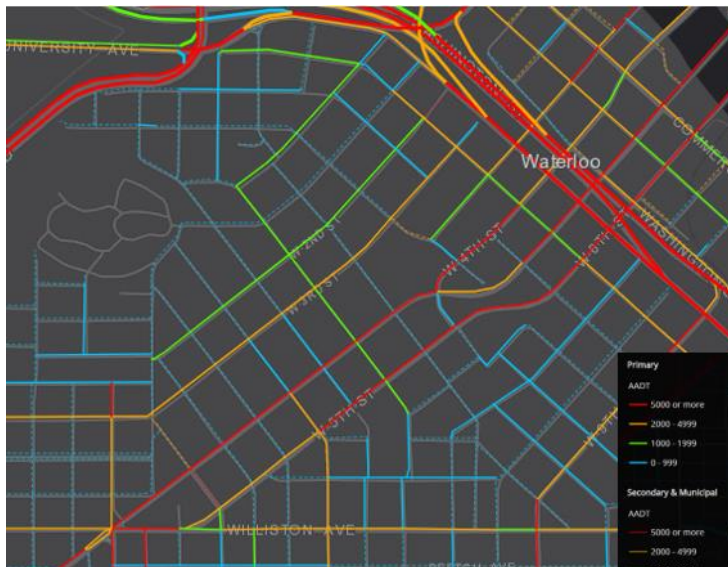


Figure 1: Church Row traffic volumes

According to the heat map with all crash data in Figure 2, the areas that have the most accidents are areas in which traffic flow is very high. One hotspot which is located at the Southwest corner, is located at a six-way intersection. Both 4th Street and 5th Street after merging onto Willison Ave lead into this intersection. The Northeast corner where 4th, 5th, and 6th, cross into downtown contain the highest concentration of accidents. Along 4th, and 5th, there are many hotspots of accidents.

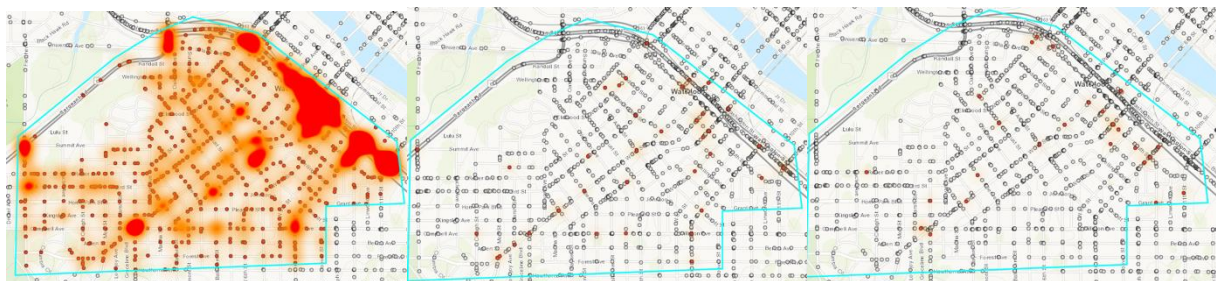


Figure 2. Crash heatmap all (left), crash heatmap pedacycle (middle), crash heatmap pedestrian (right).

The pedacycle heatmap shows hotspots along the roads connecting Church Row to downtown, particularly on 3rd, 4th, 5th and 6th. Where the roads approach Washington Street, there are also clusters of pedacycle crashes.

The pedestrian heatmap shows hotspots of pedestrian related crashes. One particular hotspot is located at the six-way intersection located on the Southwest corner of the neighborhood. South Street has quite a few hotspots. It is important to note that many intersections in this area have two way stops. In fact, most of the hotspots occur in intersections with just two way stops.

Figure 3 shows a heatmap of Church Row and the surrounding area. There are noticeable hotspots along Washington Street which appear to be the largest hotspots in the area. Another hotspot to note is on 5th Street and the six-way intersection hot spot can also be seen. Other hotspots in the area include downtown Waterloo which is located Northeast of Church Row. This makes sense because as a downtown area, it is likely that there is a significant amount of traffic, pedestrian, and bicycle flow. The hotspots in Church Row remain a concern because this area is mainly residential.

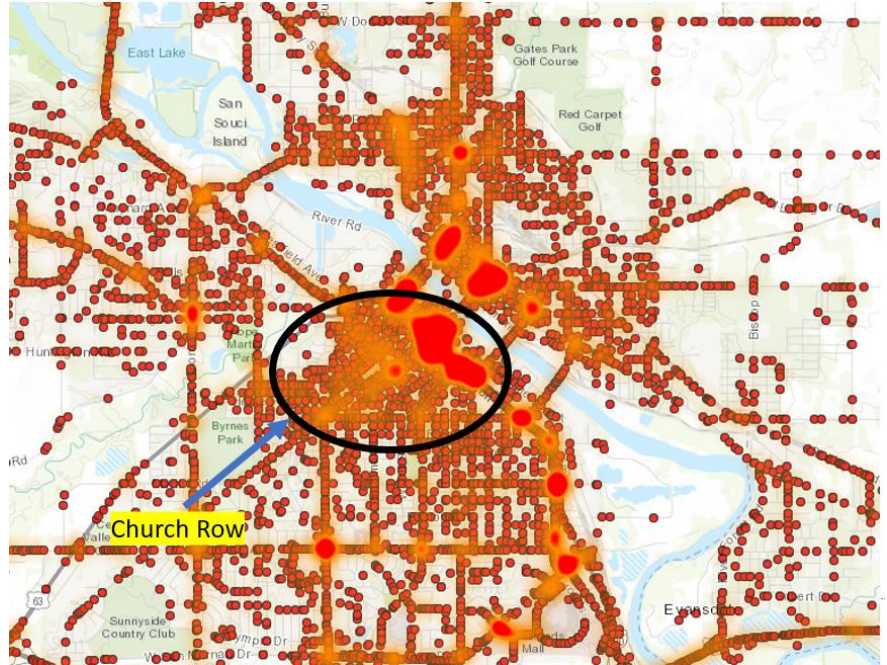


Figure 3: Heatmap of Church Row and the surrounding area

It is important to note, as Figure 4 shows, there are very few intersections with stop lights, or all-way stops. The roads that connect Church Row to downtown lack traffic lights, and the roads allow traffic to cut right through without having to stop very often. Along these routes there are a few opportunities for pedestrians to cross at a traffic controls. Many of the intersections in the neighborhood also lack four way stops. The majority are two way stops where two directions of travel do not have to yield or stop. On the Northeast side there are intersections with no stop signs or stoplights, where drivers must yield to other traffic.

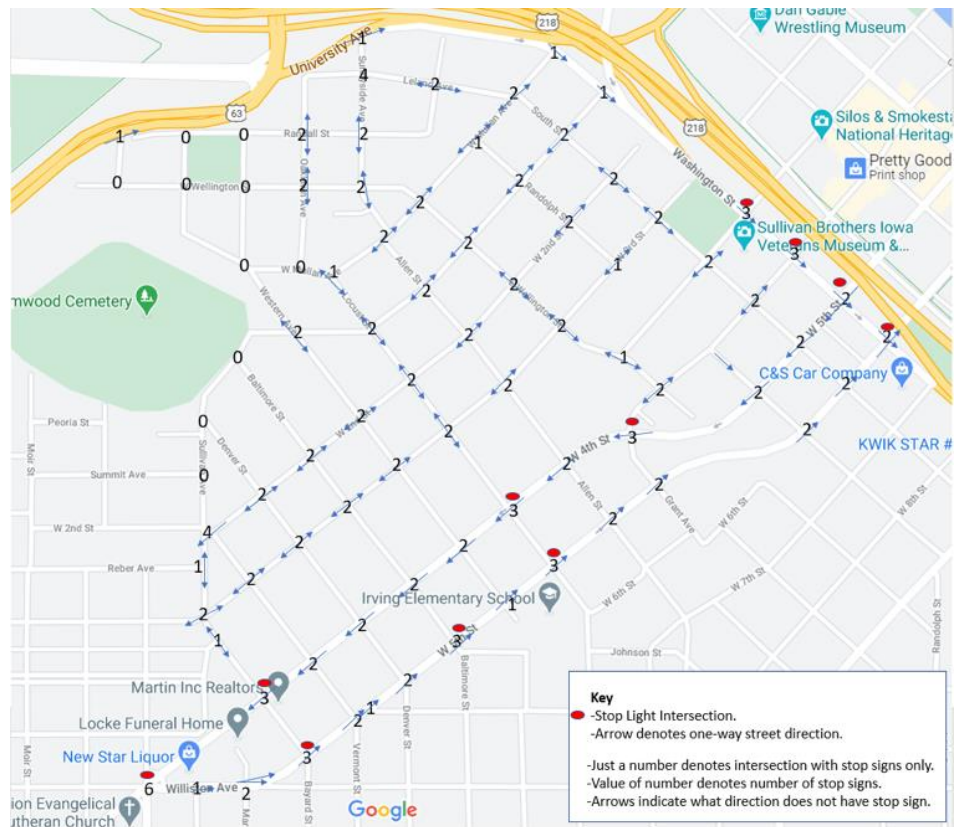


Figure 4: Intersection layouts

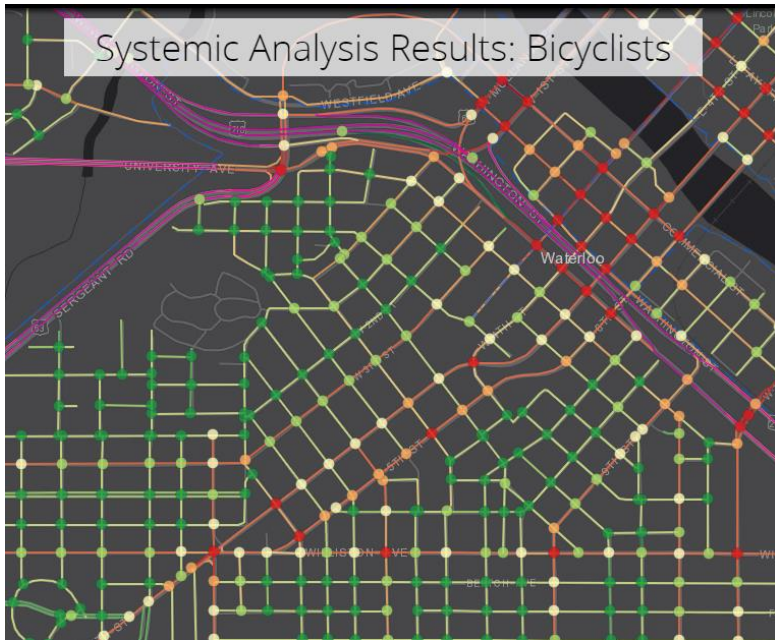


Figure 5: Systemic Safety Analysis: Bicyclists (IDOT)

The Iowa Department of Transportation completed a systemic safety analysis for both bicycles and pedestrians statewide.ⁱⁱ Each road segment and each intersection in the state were evaluated. The map is labelled such that green indicates that the road segment or intersection is safe, and as they get more red there are more safety concerns (Figures 5 and 6).

Figure 5 shows the systemic safety analysis for bicyclists. The six-way intersection and the southwest end has safety risks associated with it. Also, the stretches of 3rd, 4th, and 5th show high safety risks. The intersections along Washington St. also pose safety risks. These results align with what was discovered in the hotspot maps which were expanded upon earlier.

Figure 6 shows the systemic safety analysis for pedestrians. This analysis shows high safety risks around the six-way intersection, on 4th and 5th, and the intersections along Washington Street. This is similar to the findings from the heat map in Figure 3.

The systemic analysis differs from the heatmaps because, the systemic analysis looks at input, while the heatmaps look at output. To expand, the systemic analysis looks at the physical state of the intersections and streets and rates the safety based on that. The heatmaps look at what accidents have occurred and where.

Safety Summary

Church Row is bordered by dangerous intersections, while many of the other Waterloo neighborhoods are not, as shown in the Safety component of this plan. Because

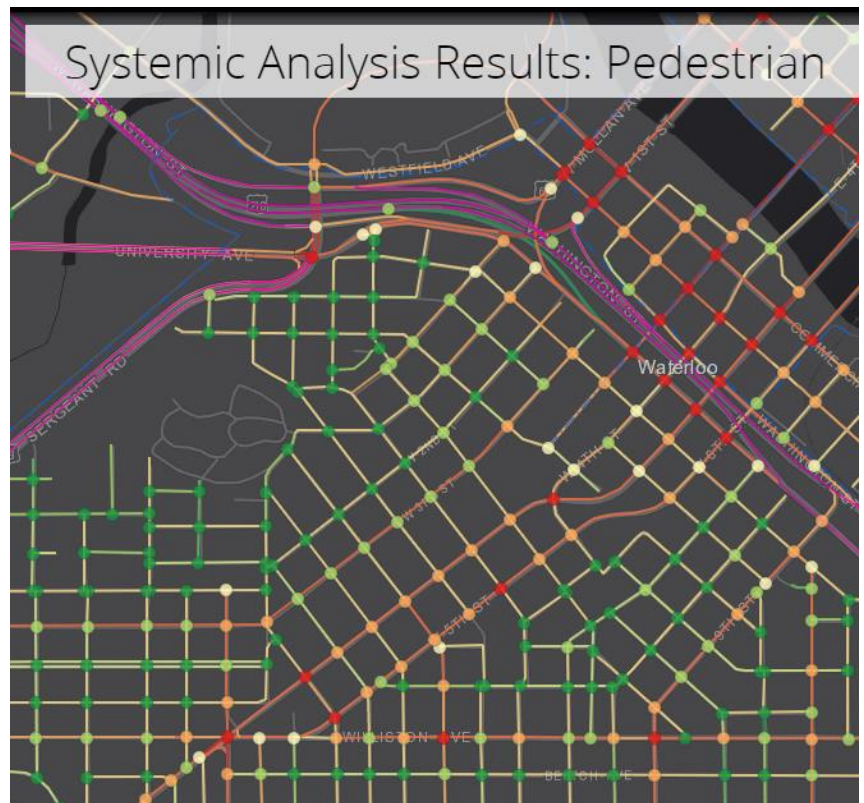


Figure 6: Systemic Safety Analysis: Pedestrian (IDOT)

Church Row residents face safety concerns when they wish to leave the neighborhood or venture to another part of town, they are deterred from accessing resources beyond the neighborhood. It is vital that safety concerns not be the reason that residents feel they cannot access vital resources such as schools, grocery stores, employment, parks/recreation, and healthcare. It is inequitable to allow this neighborhood to be restricted by dangerous intersections on most of its borders when other neighborhoods and parts of the city do not face this issue. It is especially inequitable when the neighborhood already faces other transportation challenges, such as Church Row.

Walkability Assessment

As part of this study, a block level walkability assessment was conducted to identify barriers for pedestrians and unsafe conditions. The walkability assessment method used was the Built Environment Assessment Tool developed by the US Centers for Disease Control. From the walkability assessment, points of concern for walkability were highlighted. Concerns associated with the Church Row neighborhood include crosswalks, sidewalks, lack of street trees and street amenities such as lighting, bike lanes, and bus stops.

Crosswalks

The walkability assessment highlighted the poor conditions of crosswalks within the Church Row neighborhood. This includes poor conditions on the crossing surfaces as well as faded or worn cross markings (Figure 7).



Figure 7: Example of poor conditions of crosswalk

Sidewalks

The Engineering Department reviews and inspects public sidewalks on a ten-year cycle as required by City Ordinance (Title 7, Chapter 2, Article A). The City is divided into ten zones and one zone is inspected each year. As of now, the walkability assessment found that while most sidewalks are maintained and usable by pedestrians, there are still concerns for sidewalks which can accommodate those with disabilities (Figure 8). This



Figure 8: Example of crosswalk in Church Row neighborhood

presents itself in sidewalks in which the ramp does not line up with the crossing, or the ramp may be impassable for wheelchairs due to the degree of slope or other contributing conditions that make the

ramp non-ADA compliant. The Church Row Neighborhood sidewalks will be reviewed by the City's engineering department in 2022.

Street Trees

Many areas in the Church Row neighborhood lack trees with areas surveyed commonly having either 0 or 1 street trees within 5 feet of the road. With that, in some areas, less than 25 percent of the length of the road has tree covering. From an active transportation perspective, tree cover can be a valuable addition to city landscape because it provides shade for walkers and bikers, promote home cooling in the warmer months, and increases the aesthetic value of the neighborhood.

Street Amenities

The walkability assessment also highlighted the lack of street amenities in the Church Row neighborhood. This can include benches, bicycle racks, trash bins, and more. There is also a lack of windows on building fronts in the Church Row neighborhood, and little to no street lighting in some areas. This can deter active transportation, and even make the neighborhood less safe for walkers. Lastly, there is a lack of bike lanes within the neighborhood's roads to provide segregation and safety to users of all ability levels on busier streets.

Survey Areas of Interest

This study looks at three streets within the Church Row neighborhood and prioritizes recommendations regarding impactful possible changes. These streets are 3rd Street, 4th Street, and 5th Street. Figure 9 shows the location of these streets within the neighborhood study area.

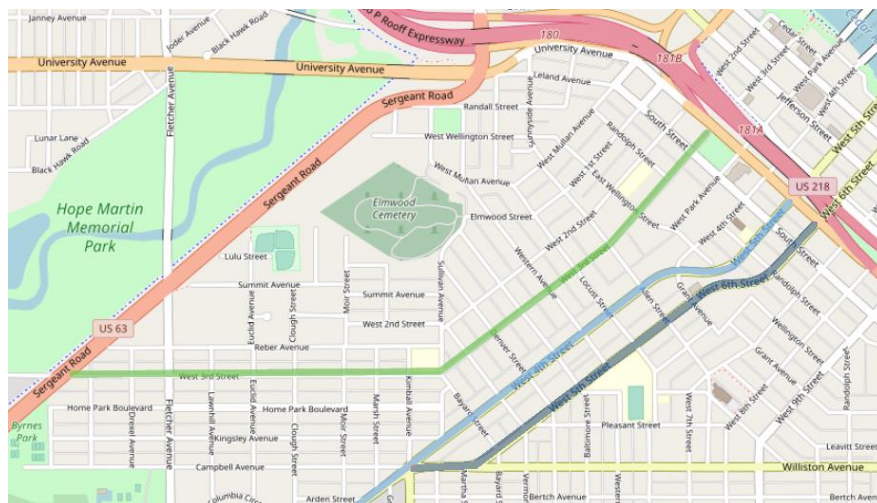


Figure 9 Church Row Area Map with major streets highlighted

3rd Street Existing Conditions: 3rd Street is a two-lane road running from Highway 63 to the Cedar River. The road generally consists of two twelve-foot lanes with eight feet of parking on either side. There are no pavement markings to delineate either the street centerline or parking. The neighborhood is a mix of small business and residential. The speed limit on the road is 30 miles per hour (mph).



Figure 10: Existing conditions of 3rd Street looking North

4th Street Existing Conditions: 4th Street is a one-way road with a parking lane, shown in the left-hand side of Figure 11. The speed limit on this road is 35 mph. The road generally consists of two lanes of traffic and parking totaling 40 feet. This road enters a complex intersection with Kimball Ave, Williston Ave, and Campbell Ave at its southern terminus (Figure 12).

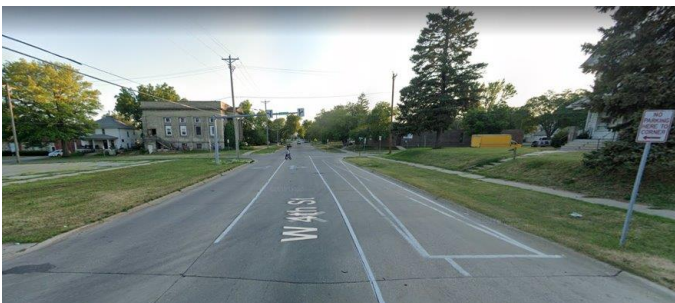


Figure 11: Existing conditions of 4th Street looking North



Figure 12: Intersection of Kimball Ave, Williston Ave, Campbell Ave

5th Street Existing Conditions: 5th Street is a one-way, shown in Figure 13. Between the intersections of Western Avenue and Locus Street is Irving Elementary School (Figure 14). In this section of the roadway, there is a 12-foot lane for loading and unloading children. The road generally consists of 3 lanes of traffic and parking totaling 40 feet. The current speed limit on this street is 25 mph within the school block during school hours, and 35 mph in all other areas. An ariel view of 5th Street is shown in Figure 14.



Figure 13: Existing conditions of 5th Street looking South and between Western Ave and Locust Street

Street Design Recommendations

An initial review of the types of roadway alternatives and improvements was conducted to determine feasibility and whether they would meet the project's goals and objectives. The following sections document that evaluation and identify alternatives to be carried forward for further evaluation. Those alternatives that were determined not to be feasible/prudent were eliminated from further evaluation.

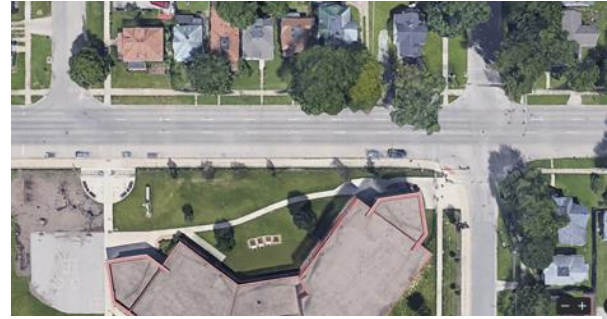


Figure 14: Aerial view of 5th Street

3rd Street Recommendation 1: Stop Signs and Markings

Prioritize the installation of stop signs and lane markings to demarcate the road edge and centerline. This paint treatment will help to visually narrow the travel lanes which has been shown to reduce speeds.

Addition of a stop sign is also recommended at the intersection of Churchill and 3rd and/or Winston and 3rd. This will help to prevent long stretches on 3rd Street that have no traffic control for through traffic and improve pedestrian and bicycle crossing safety.



Figure 15: Future 3rd Street with painted yellow line and stop sign.

Investment in improving bus stops and pedestrian infrastructure accessibility by providing shelters, seating, signage, and trash cans is also recommended. Improved bus stops are associated with a statistically significant increase in overall ridershipⁱⁱⁱ. Align current and future plans with existing complete streets.

Potential funding for 3rd Street lane restriping may be available from Iowa DOT's Transportation Safety Improvement Program (TSIP), Transportation Alternatives Program (TAP). More information is available in the Funding section at the end of this document.

4th Street Recommendation 2: Roundabout

Installation of a roundabout at the intersection of 4th, 5th, and Kelly at the edge of the Church Row Neighborhood is recommended. A roundabout is a circular intersection in which traffic flows counterclockwise around a center island. Entering traffic yields to circulating traffic in the roundabout, deflecting traffic and slowing speeds. While the vast majority of roundabouts are single lane, one-quarter of the roundabouts in the U.S. have two lanes, which also provide safety benefits. Roundabouts with up to three lanes have been successfully built. The USDOT's Federal Highway Administration

(FHWA) has identified modern roundabout intersections as one of nine proven life-saving roadway safety strategies. Modern roundabouts are not only safer than traditional signalized and stop-controlled intersections, where appropriate and properly designed, roundabouts operate more efficiently, often have lower life cycle costs, and result in increased fuel efficiency. Align current and future plans with existing complete streets.

5th Street Recommendation 1: High Visibility Crosswalks

The poor conditions of Church Row neighborhood crosswalks are a point of concern. Crosswalk visibility enhancements can reduce crashes by 23 to 42 percent. On streets with speeds greater than 20 mph, or two lanes or more, crosswalks should be normally found. At schools, crosswalks may be beneficial regardless of traffic conditions. High visibility crosswalks are preferred over parallel line crosswalks and should be paramount at a mid-block school crossing. High visibility ladder, zebra, and continental crosswalk markings have been shown to improve yielding behavior. The most effective high visibility crosswalks combine treatments, including warning beacons or signals, signage and striping, and geometric enhancements. Our suggestions for crosswalk placement on 5th Street are depicted in Figure 16.



Figure 16: Example of high visibility crosswalk placement on 5th Street near Irvine Elementary

Lane Reconfiguration/Conversion: 4th and 5th Street

In general lane configuration describes a removal of a travel lane to increase the utilization and efficiency of the roadway for the traveling public. Reallocating this space in the right locations has been shown to increase the safety and operation of the corridor. In many cases the reallocation of space has provided municipalities an opportunity to grow their network of bike and pedestrian infrastructure and/or align with existing complete streets policies.

The Iowa Department of Transportation's Office of Traffic and Safety (TAS) has expressed interest in developing a list of potential candidate sites for 4- to 3-lane conversion. Several factors are considered to determine the feasibility of converting a four-lane roadway to a three-lane roadway. These factors

include roadway function and environment, overall traffic volume, level of operational service, turning volumes and patterns, frequent-stop and/ or slow-moving vehicles, weaving, speed, and queues, crash types and patterns, pedestrian and bike activity, right-of-way availability, cost and acquisition impacts, general characteristics: parallel roadways, offset minor street intersections, parallel parking, corner radius, and at-grade railroad crossings.

Reducing the number of lanes from four to three can have a substantial effect on the number of crashes on a roadway. Previous studies have indicated a 19 to 47 percent reduction in overall crashes when a roadway is reconfigured from four lanes to three lanes. Including crash rates into this analysis increases the ability for candidate sites with the greatest potential for crash reductions to be identified.

Historically, wider travel lanes (11–13 feet) have been favored to create a more forgiving buffer to drivers, especially in high-speed environments where narrow lanes may feel uncomfortable or increase potential for side-swipe collisions. Lane widths less than 12 feet have also historically been assumed to decrease traffic flow and capacity, a claim new research refutes. NACTO guidelines suggest that lanes greater than 11 feet should not be used as they may cause unintended speeding. More appropriate are lanes of 10 feet, which provide adequate safety in urban settings and discourage speeding.

NACTO guidelines suggest that streets with high traffic volume, regular truck traffic, high parking turnover, or speed limit > 35 mph, implement treatments that provide greater separation between bicycles and motor traffic should be considered. This could include bike lanes with buffers or cycle tracks. Given the infrastructure of 5th Street, buffered lanes may be the most viable option. With that, buffers are expected to be at least 18 inches wide.

Option 1: Two Lane Divided Road with Bike Lanes – 5th Street

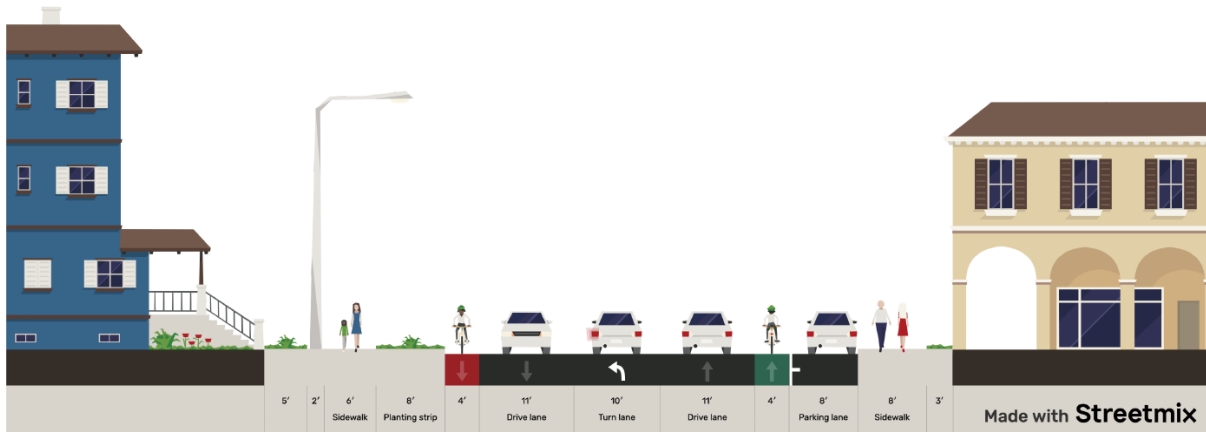


Figure 17: 5th Street Recommendation 2 Option 1, two-way road diet and redesign

The two-way lane conversion is depicted in Figure 17. This two-way redesign has reduced lane width and an added bike lane traveling in both directions. There is an option for a turn lane or no turn lane depending on allowable space. The two-way traffic design leaves less room for extra amenities. The bike lanes cannot be larger than approximately four feet and there is no room for a buffer. The parking lane cannot be as large as in the one-way design. Despite this, two-way traffic allows for greater accessibility as well as business exposure. The turn lane allows for a safe space for crossing traffic, which may lead to reduced collisions. The lane configuration may create the illusion of less space, leading to slower traffic and a safer roadway. Similarly, Cedar Rapids has taken the approach of converting almost all downtown one-way roads to two-ways roads to make the downtown district easier to navigate, enhance opportunities for pedestrians and cyclists, and support the district's ongoing economic development. These road design changes have significantly changed the feel and function of downtown streets.

Option 2: Two Lane One-Way Road with Bike Lanes – 5th Street

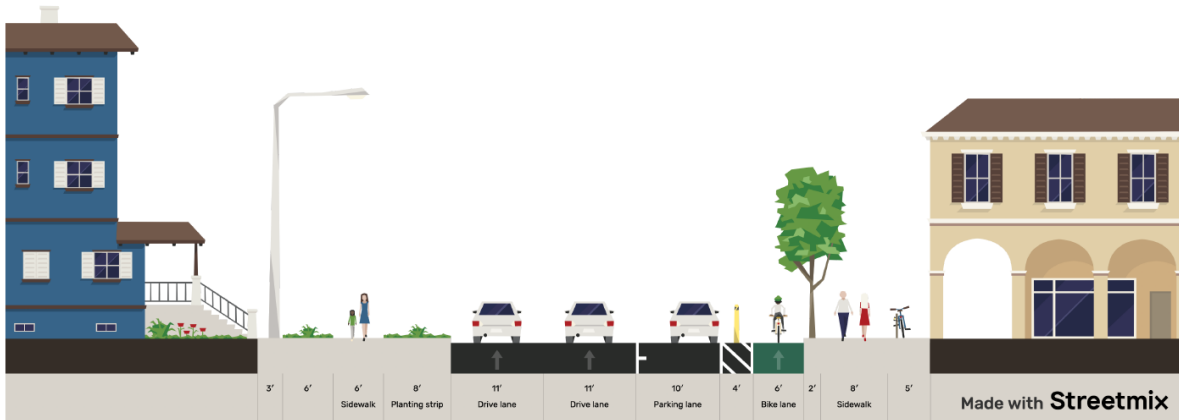


Figure 18: 5th Street Recommendation 2 Option 2, one-way road diet and redesign

The one-way lane redesign is depicted in Figure 18. The one-way design provides room for a large buffer and bike lane. In this version, like the two-way lane conversion, the street width would be reduced to 11 inches to discourage speeding. This design allows for the street to stay in its original form as a one-way as to not create confusion. The one-way design provides space to add extra off-street amenities, such as bike racks, trees, etc. This design does not allow for the added benefits of which two-way lane conversion allows for, such as safety benefits and business exposure.

Potential funding for lane reduction, bicycle lane, and crosswalks comes from Iowa DOT’s Transportation Safety Improvement Program (TSIP), Transportation Alternatives Program (TAP). More information is available in the Funding section at the end of this report.

Case Study

In 2010, the City of Des Moines conducted a lane reduction on four-lane Ingersoll Avenue. The two-mile-long Road diet was implemented to enhance the business environment with traffic calming, improved pedestrian and bicycle access, and added landscaping. After the completion of the Road diet, the final cross section included a three-lane roadway with parking and bicycle lanes in both directions (Figure 19). The city provided right-turn lanes at the signalized intersections by prohibiting parking prior to the traffic signal.



Figure 19: Des Moines' Ingersoll Avenue Road diet

The community initially expressed concerns about reducing traffic lanes to accommodate bicyclists. The proposed road diet was thought to cause congestion and encourage motorists to avoid the area negatively impacting the neighborhood economically. The community was also worried the change could result in an increase in crashes.

Six months after the conversion, no major traffic problems had developed during the Ingersoll Avenue road diet. Although the road diet was not initially proposed and promoted as a safety improvement project, a simple before-and-after crash study revealed a 50 percent reduction in crashes. Overall, traffic volumes did not decrease. In fact, there was a five percent increase in traffic from 11:00 AM to 1:00 PM over the workday lunch hour.

The city conducted an online survey to gauge the public's view of the road diet after implementation. Although there remained some opposition, the results revealed that fewer people opposed the project after implementation than when the project was first proposed, and a majority favored keeping the road diet and felt the road was safer. As a result of these findings, the Des Moines City Council voted to retain the Ingersoll Avenue road diet.

Safety Recommendations

When it comes to reducing crashes to increase safety, the FHWA lays out some guidelines that can be used. Some recommendations they make that are applicable to Church Row are; prohibit turning movements, installing or improving warning signs, improving roadway lighting, providing stop signs, and installing or improving pedestrian crosswalks.^{iv}



Figure 20 Transverse roadway marking example

Within the area of Church Row, there is a plethora of one-way streets. According to the Pennsylvania DOT which received their information from the National Association of City Officials (NACTO), one-way streets are more restrictive on residents. This is because it redirects traffic and because speeds tend to increase on one-ways due to fewer conflicts and wider travel lanes.^v The PA DOT instead recommends that streets revert to two-way street with more narrow lanes.

The PA DOT also makes recommendations when it comes to pavement markings. 9 to 10 feet lanes generally reduce speeds from 1-2 mph. This reduction in lane

width is appropriate on local streets that are not major collector or arterial streets. When assessing 3rd, 4th, and 5th Street, it is important that they are classified non-arterial or major collector streets if this type of change is to be made. Research has shown that the use of transverse marking (Figure 20)

reduces speeds by 1-3 mph. The drawback of transverse markings is that travelling over them can be loud for residents. Before instituting this change this drawback must be taken into consideration.

Intersections that contain hotspots also need to be explored and researched further. Speed tests of the surrounding area are necessary. It is also important to decide if the intersection can be altered. 2-way stop sign intersections can be altered by adding 4 way stops. The FHWA does make it clear that there are downsides to adding 4-way stops signs and they should only be installed in certain situations (Federal Highway Administration, n.d.). Before changing a 2-way into a 4-way it is important to review the pros as well as the cons. It is also important that each intersection be evaluated individually.

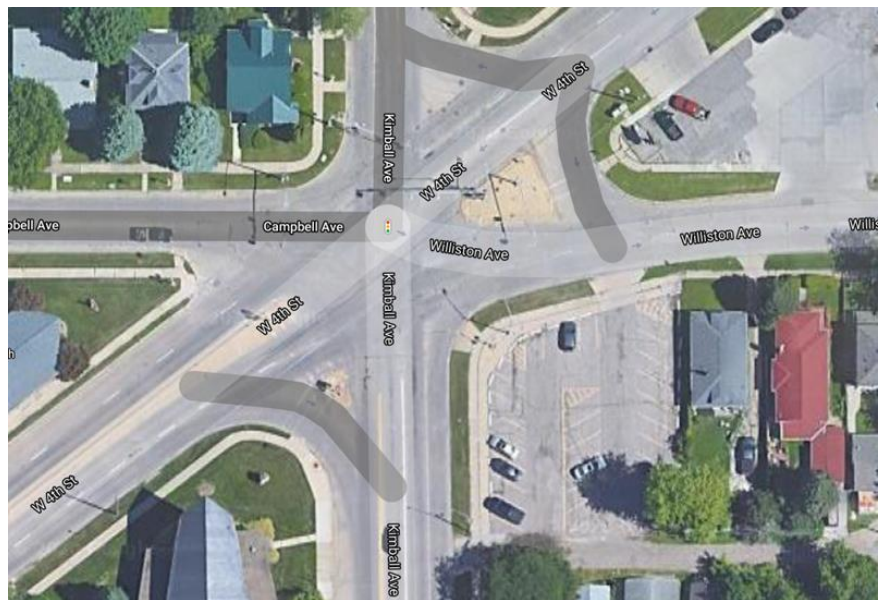


Figure 21: Church Row's Six-Way Intersection (Google Maps)

Another point of interest when it comes to safety is the six-way intersection pictured in Figure 21 and located at the Southwest corner of church row. Not only are six-way intersections rare, but they are also difficult to navigate. Referring to the heatmap in Figure 14, there is a hotspot of accidents that occur at this intersection, and with its proximity to residential housing, it is imperative that this gets looked at. Figure 22 below shows an example of a six-way roundabout used in a similar context in Richmond, Virginia This roundabout uses an oval shaped center island, and would likely be the best option to replace the six-way intersection in Church Row.



Figure 22: Six-way Roundabout Example, Richmond, VA – Blakemore Const.

With all these options, it is important to note, that eminent domain may be needed to acquire enough space to install these roundabouts. It is important to research the safety impacts the roundabouts would have before violating the rights of the property owners that would be affected. The FHWA reports that roundabouts reduce the types of crashes where people are seriously hurt or killed by 78-82 percent

when compared to conventional stop-controlled and signalized intersections.^{vi}

Potential funding sources for a roundabout come from Iowa DOT’s Transportation Safety Improvement Program (TSIP). More information in Funding section.

Transportation and Neighborhood Accessibility

Church Row neighborhood contains a mix of land uses surrounded by Highway 218 on the northeastern and eastern boundaries and Highway 63 on the northern and western boundaries. The majority and interior of the neighborhood is zoned multi-family residential (Figure 23). A mixture of single-family houses, multi-unit housing, row houses, and apartments can be found with a resulting density of 6,642 people per square mile.^{vii}

In order to get to and from their desired destinations many Church Row residents carpool to work and may also rely on carpooling to run

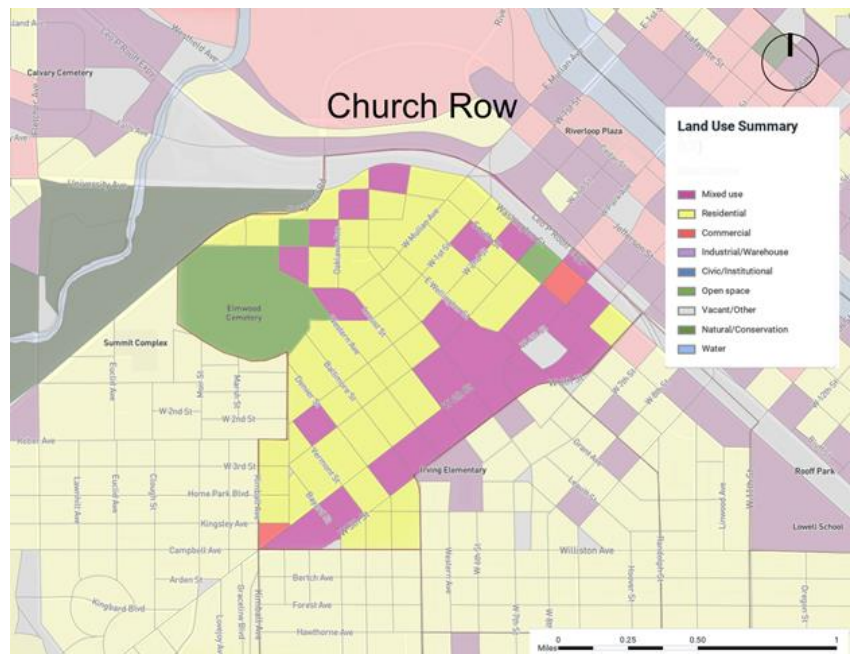


Figure 23: Church Row Land Uses. Source: Urban Footprint 2020

errands. Some may rely on public transportation, walking, or biking to get to their desired location but due to a lack of appropriate infrastructure this may not be possible. Ride-sharing companies like Uber have gained popularity in recent years but there are many barriers that stand in the way of this being a sustainable mode of transportation.

Neighborhood Retail



Figure 24: Neighborhood business locations and type

The southern streets of 4th and 5th contain the majority of the neighborhood’s commercial activities (Figure 24). There are 106 businesses, churches, and non-profits that call Church Row home.^{viii} This means Church Row residents have easy access to a select assortment of amenities. However, many of these businesses are small service businesses such as insurance companies, funeral homes, and law firms that are not often frequented. There are two corner stores, four small restaurants, and a consignment store. Along the eastern portion are automotive stores which use the easy access off

Highway 218 to provide service to Waterloo as a whole.

The four small grocery stores, a corner mart, and Dollar General meet the needs of only a portion of Church Row residents (Figure 25). The large grocery stores, such as Hy-Vee and Fareway, are located towards the edges of Waterloo (Figure 26). A combination of 33 percent of the neighborhood’s population living in low-income households located 1.5 miles from the nearest supermarket makes Church Row a low-food access community, according to USDA.^{ix} With 21 percent of households without access to private vehicles, it is more of a challenge for these residents to access daily needs like fresh, healthy, and affordable food.^x

Employment

Although there is a high concentration of businesses in Church Row, there is not a high concentration of jobs. The major job centers for area residents are John Deere Tractor and Tyson, located on the outskirts of Waterloo's eastside. John Deere Tractor is located 5.8 miles and Tyson is 4.7 miles from Church Row. The Waterloo Metropolitan Transit Authority buses runs from 5:45 AM to 6:15 PM but do not provide service near either location.

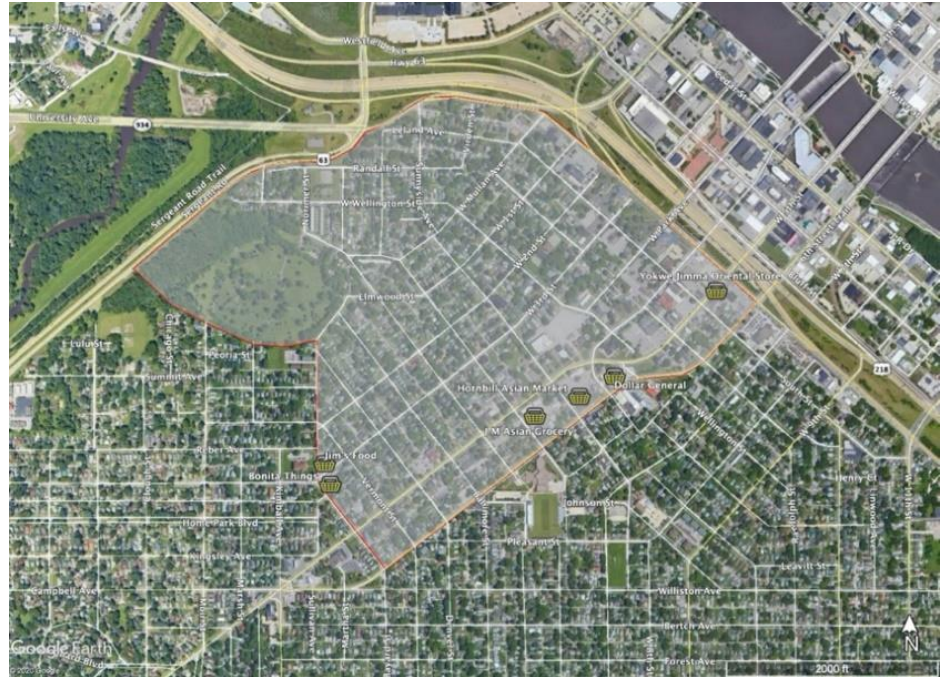


Figure 25: Church Row Neighborhood Grocery Stores

Commuting by bicycle to John Deere Tractor would take 30 minutes and no bicycle facilities are located nearby. However, Tyson is only 23 minutes by bicycle and is located near an off-road bicycle trail.

Access to Employment

While some employment opportunities exist inside the boundaries of the neighborhood, the vast majority do not. (Figure 26) With employment centers being in other parts of the city, it makes transportation all the more important and critical to providing equitable opportunity to the residents of Church Row. Most of the land uses in this area are single- and multi-family residential parcels; people live in Church Row, but land uses that provide employment, such as commercial or industrial, are limited.

As mentioned previously, two main employers of the neighborhood's residents are Tyson and John Deere. These destinations are beyond walking distance and necessitate some sort of other transportation, whether it be biking, driving, transit, or rideshare. The neighborhood has a high percentage of commuters who carpool to work. While this method can be effective and more environmentally friendly, it is not without its problems. Carpooling can stress personal relationships. The ride-taker is ultimately dependent on the ride-giver, something that can cause stress when the destination is something as important as employment^{xi}. As well, dependence on carpooling can limit the possible places of employment that residents may seek. If the ride-giver works on the north side of town, so too must the ride-taker. These features of carpooling can severely limit the employment opportunities and social relationships of the commuters. Since twenty-six percent of commuters in Church Row (twice the percentage of Waterloo commuters) use this method, it is important to understand the limitations and stresses it can impose on residents.

Transit may be an effective possibility for commuters in the region. The Land Use component of this plan discusses the possibilities for transit changes in the region. For transit to be an effective source of access to employment, the routes would need to access multiple sources of employment and operate at intervals besides '9:00-5:00', allowing Church Row residents to access a variety of employment options throughout the region and time of day.

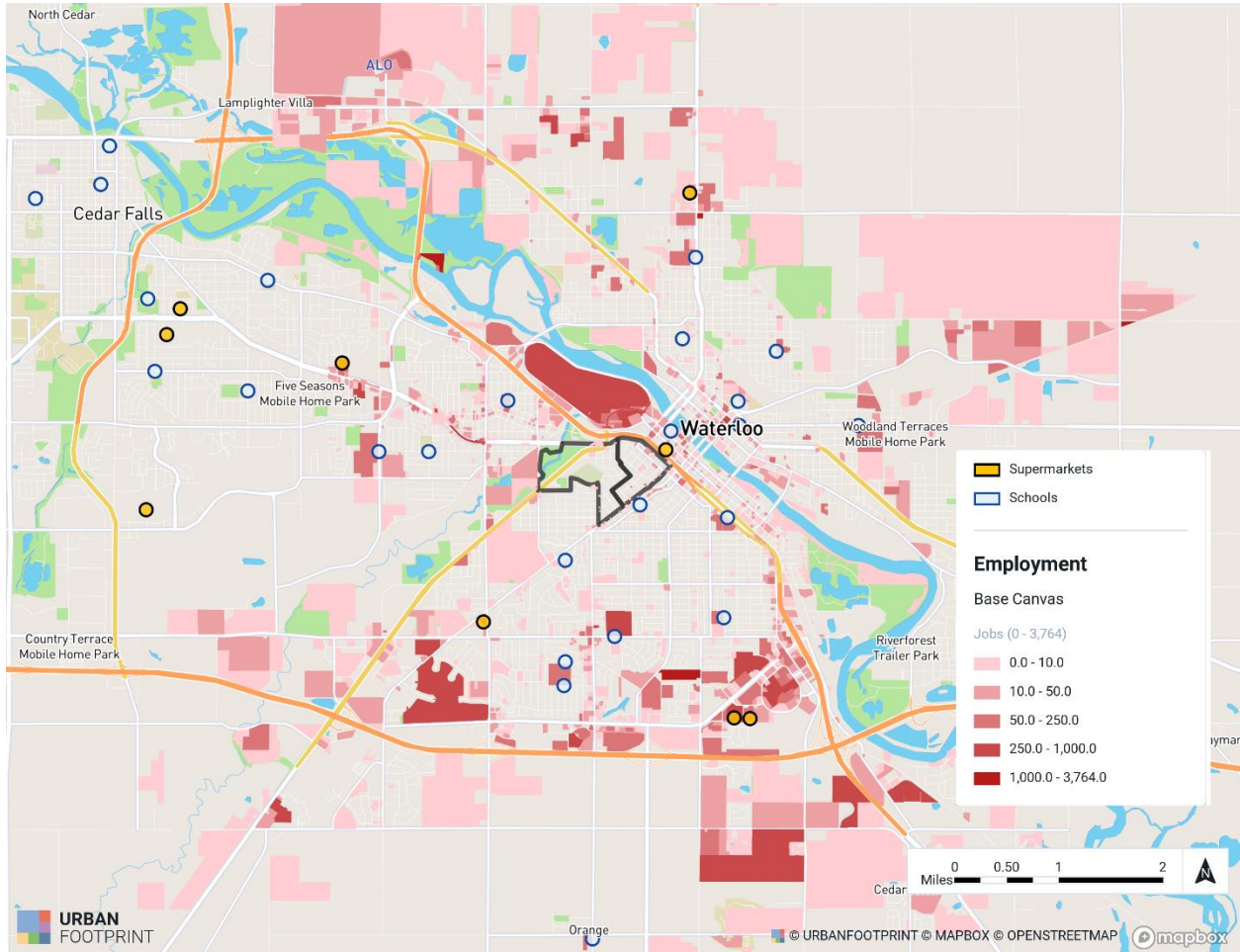


Figure 26 Waterloo employment, school and supermarket locations

Schools

The most significant educational institution is Irving Elementary School, located at the south boundary of the neighborhood (Figure 26). This elementary school contains children from Church Row neighborhood and the neighborhood south of Church Row. Irving Elementary is located within the Church Row neighborhood boundaries and within walking and biking distance, but the one-way streets of 4th and 5th are unsafe barriers for children to walk or bike school.



Parks & Open Spaces

Church Row has two small parks, Washington and Elks Memorial Park, but is isolated from the rest of Waterloo’s bike trails and approximately sixty-five parks (Figure 27). Northwest of the neighborhood is Hope Martin Memorial Park and a bike trail that connects into the Waterloo/Cedar Falls trail network. Church Row residents are blocked from easy and safe access to these amenities by Sergeant Road.

Figure 2720: Parks in Church Row

Equitable Access to Open Spaces

Of the approximately sixty-five parks in Waterloo, only two parks are in Church Row, Elks Memorial Park and Washington Park. These parks are quite small and offer limited recreation and open space for the residents of the neighborhood. There are 670 more people per park on average than compared to the city as a whole. While some additional parks and recreation spaces beyond the neighborhood are relatively accessible, Hope Martin Memorial Park and its adjoining series of trails is cut off from the neighborhood by a busy highway. The only crossway that allows people from Church Row to get to the park, is an informal “desire line” made from footprints and tire tracks (Figure 28).

Access to green spaces and parks has been shown to improve overall physical, mental, and social health. There are numerous benefits, but a few include the following:^{xii}



Figure 28: Desire line path across Sergeant Road

1. a stronger sense of community, better coping with stress
2. mental health benefits
3. increased concentration
4. lower blood pressure
5. improved environmental conditions
6. more rapid healing
7. crime reduction
8. increased economic activity

These benefits for wellbeing mean that access to recreation and open space is a vital equity concern. With limited access to these benefits,

the residents of Church Row have reduced opportunity to use these spaces to better their health and wellbeing. As well, parks and green spaces allow people to gather. Without access to these destinations, social connectivity and enjoyment may be reduced.

With improved and safer access to Hope Martin Memorial Park and the trail system that extends beyond it, Church Row residents would have the opportunity to reap the benefits of open/green spaces, parks, and recreation.

Health Care

Healthcare is another area where Church Row faces accessibility problems. The two nearest drug stores, Walgreens and CVS, are both located one mile away. Also, within a mile radius is a family practice clinic. However, a healthcare center with an emergency room are located two miles from Church Row.

Bicycle Infrastructures

The bicycle trail network in Waterloo-Cedar Falls is quite extensive (Figure 29). However, Church Row is blocked from accessing the Sergeant Road Trail that links into the rest of the trail network by Sergeant Road on the northwest side. Access to the Washington Street Trail is blocked by Interstate 218. This makes Church Row residents just outside of easy access to the bike trail network. The Waterloo-Cedar Falls bicycle network is set up for recreational purposes winding along the Cedar River and through such areas as George Wyth State Park. The trails do not cross many places of employment, education, or shopping making bicycling for utility purposes difficult. This could be one of the reasons that just 1.7 percent of workers commute via walking or cycling.^{xiii} The only bicycle facility in the neighborhood is a one block stretch of separated bike lanes on Park Avenue.

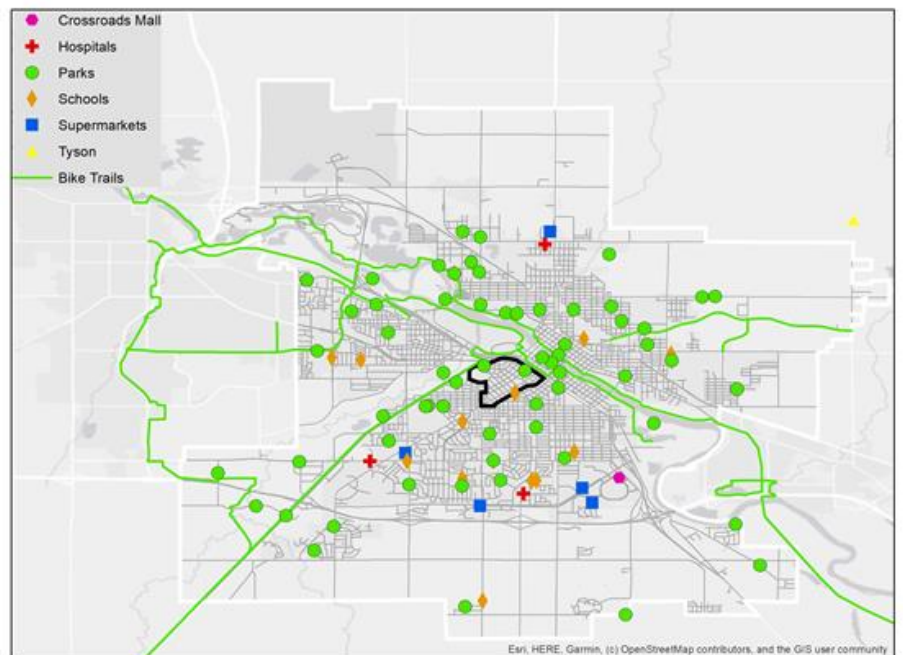


Figure 29: Bike Trails

Active Transportation and Equity

Active modes of transportation provide many benefits. The ability to walk or cycle allows people to move cheaply and efficiently to their destination, while providing other health and enjoyment benefits. Cycling is easy on joints, builds muscle, and provides an aerobic workout, all important factors for short- and long-term health^{xiv}. Regular walking can help maintain a healthy weight, prevent heart disease, improve coordination, strengthen bone & muscle, and improve mood.^{xv} These modes are zero-carbon, creating lowering emissions that are dangerous to both human and environmental health. Many factors feed into why people may choose to walk or bike, and whether or not they can do that safely. This plan

has discussed why walking and biking in Church Row is low and recommended a few strategies to improve active transportation infrastructure and safety within the neighborhood. Once again, the ability to walk and bike within and out of the neighborhood allows the residents of Church Row to access opportunities and resources. These include employment, education, recreation, and essential goods & services. As well, it allows for transportation cost savings and health benefits, both important concerns to the wellbeing of residents.

Bus Routes

The five main bus routes that run throughout Waterloo match up fairly well with supermarkets, schools, and hospitals (Figure 30). However, the routes do not allow for access to Crossroads Mall or Tyson

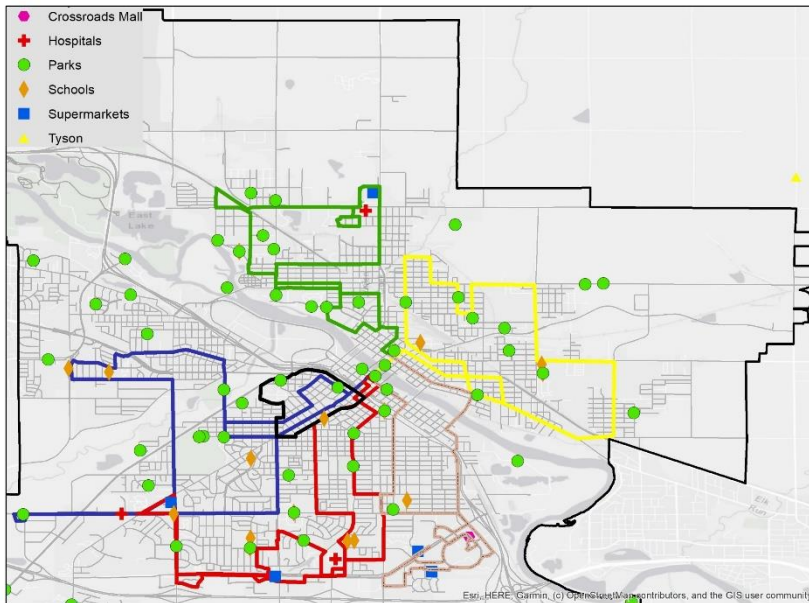


Figure 30: Bus routes in Church Row

which is one of the main areas of employment for the Church Row's Burmese community. This could be a reason that Church Row had only 2.2 percent of workers commute via public transit.^{xvi} The routes do not seem very efficient with routes overlapping or moving in a more circuitous manner than necessary. The bus runs Monday through Friday 5:45 AM to 6:15 PM and Saturday 8:45 AM to 4:45 PM. No service is available on Sundays.

Accessibility Recommendations

Sergeant Road Pedestrian Underpass

To allow Church Row residents safe and easy access to Waterloo-Cedar Falls bicycle trail network, a pedestrian underpass beneath Highway 63 to Sergeant Road trail should be created. This underpass would provide the most direct access to the trail network and Hope Martin Memorial Park which contains Black Hawk Creek and Singing Bird Lakes. West Wellington Street would provide an easily accessible and safe place to build a pedestrian underpass. Making sure the underpass is well lit to increase safety is an important consideration in the design.

Potential funding for an underpass comes from Iowa DOT's Transportation Alternatives Program (TAP), Iowa Clean Air Attainment Program (ICAAP), Recreational Trail Program (RTP). More information in Funding section.

3rd Street Alternative Bike Route Connector

Church Row could be connected with the bicycle trail network via 3rd Street (Figure 31). Designing a safe bicycle pedestrian crossing from Sergeant Road Trail across Sergeant Road to 3rd Street combined with traffic calming suggestions 3rd Street, would allow bicyclists to cycle through Church Row and the adjacent neighborhood to the east. At South Street the route would turn southeast and then turn northeast onto W Park Avenue's bicycle lane and continue underneath Interstate 218 and onto the 218 Bicycle Trail. This would allow two points of connection for Church Row to the



Figure 31: Bike route in Church Row

bicycle network. As a neighborhood that has been isolated by transportation infrastructure projects, multiple points will be needed to help rejoin it. Special attention needs to be paid in the cross of Sergeant Road with high visibility crosswalks and pedestrian islands to allow safe crossing from Sergeant Road Trail to 3rd Street. Once within the residential 3rd Street, the use of “Bikes May Use Whole Lane” and “Wayfinding” signs along the route would help establish it as a bicycle corridor.

Potential funding for 3rd Street lane restriping comes from Iowa DOT's Transportation Safety Improvement Program (TSIP), Transportation Alternatives Program (TAP). More information in Funding section.

Improved Neighborhood Transportation Options

Public transportation is underused with only 2.2 percent of residents using it in 2018. As stated above, the bus system does not reach Tyson one of the main employment areas for Church Row Burmese. The bus service does not serve those who work second and third shift jobs. Extending the Yellow Line to Tyson is not a viable option but setting up a neighborhood community transportation similar to Cedar Rapids Horizon Family Alliance's Neighborhood Transportation Services might be. This service would provide transportation when Waterloo-Cedar Falls' Metropolitan Transportation Authority bus routes do not run. Those needing a ride would call 24 hours in advance and the van would pick and drop them off at the exact location. There are several Federal Transit Administration grants that could help fund this project. Alongside this, looking into funding sources such as United Way and other charitable organizations could help bolster this project off the ground.

Bus Route Reconfiguration

The bus routes in Church Row, although relatively well connected to some services, lack accessibility to Hy-Vee, Crossroads Mall and Tyson. To increase accessibility to these services and perhaps increase rideshare of public transit, rerouting the blue line and extending the red line could potentially solve these issues (Figure 32). The following are ways in which Church Row can reroute the Blue and Red bus lines to increase accessibility to services.

In this proposal, the Blue Bus Line would no longer cross the neighborhood to decrease the traffic flow on 4th but would still

allow residents to access services located on the southwestern side of Church Row. The Red Bus Line was extended further south to allow accessibility to Crossroads Mall, the hospital, and pharmacy.

Potential funding for bus rerouting comes from Iowa DOT's Iowa Clean Air Attainment Program (ICAAP). More information in Funding section.

Conclusion

The Church Row Neighborhood, while well positioned with respect to downtown Waterloo and many amenities, is impacted by the barriers imposed by high-traffic highways and streets that prioritize through traffic. This report offers suggestions designed to improve traffic safety and multi-modal accessibility in and around the neighborhood.

The recommendations here include low-cost measures, such as road marking, that could make immediate improvements for neighborhood residents without altering traffic patterns. The report also suggests longer-term changes in road design, including reconfiguration of one-way streets to two-way, that could improve conditions for cyclists and pedestrians, while providing better visibility for local businesses. Finally, key improvements to better connect Church Row to the remainder of Waterloo include the construction of a bike/pedestrian underpass to connect to the regional trail system, and a reconfiguration of the bus route system to allow more direct access to jobs, shopping, and health care facilities.

Though these improvements may take time to implement, they represent a significant step toward making Waterloo a more equitable city that provides its residents access to all that the region has to offer.

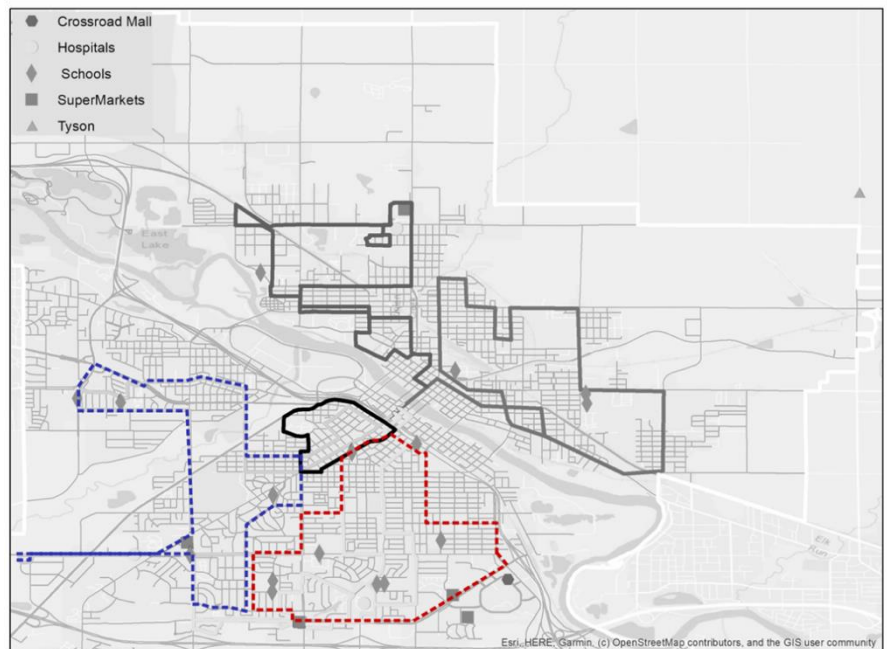


Figure 21: Bus Lines proposed routes

Appendix: Funding Sources

The following is a list of potential funding sources for the projects listed in this report. Some are general sources of transportation funding, where others are targeted to specific project types, such as safety projects or bicycle infrastructure.

Iowa Clean Air Attainment Program (ICAAP)

ICAAP funds highway/street, transit, bicycle/pedestrian, or freight projects or programs which help maintain Iowa's clean air quality by reducing transportation related emissions. Eligible highway/street projects must be on the federal aid system, which includes all federal functional class routes except local and rural minor collectors.

Iowa's Transportation Alternatives Program (TAP)

TAP funds programs and projects defined as transportation alternatives, including on-and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation. TAP also funds safe routes to school projects and works in designing or constructing boulevards and other roadways largely in the right-of-way of formerly divided highways.

Iowa Traffic Safety Improvement Program (TSIP)

TSIP funds site specific or corridors with a crash history for safety improvements along with traffic control devices. Funding is available for cities and counties. Previously funded projects included road diets, pedestrian crosswalk and warning signs, and bicycle safety media campaigns. Projects can be awarded up to \$500,00.

Wellmark Foundation Large MATCH Grant

Wellmark's Large MATCH Grant is for a maximum of \$100,000 available and the project must be completed within two years. The grant must be matched dollar-for-dollar with cash or in-kind contributions. At least one-half of the matching support must be cash. Although not a transportation specific grant, projects advancing active transportation have been funded before such as: Safe Routes to School projects, walking school buses, bicycle trails, and additional bicycle parking.

Wellmark Foundation Small MATCH Grants

Wellmark's Small MATCH Grant is available for a maximum of \$25,000, and the project must be completed in one year. The grant must be matched at 50 percent with cash or in-kind contributions. At least one-half of the matching support must be cash. Although not a transportation specific grant, projects advancing active transportation have been funded before such as: Safe Routes to School projects, walking school buses, bicycle trails, and adding bicycle parking.

PeopleForBikes Community Grant Program

PeopleForBikes Community Grant Program funds up to \$10,000 for bicycle infrastructure projects. The grant must not fund over 50 percent of the project's total budget, but no matching fund is required after that. The grant is bicycle infrastructure focused such as bike paths, lanes, and trails and end-of-ride facilities such as bike racks, bike parking, bike repair stations, and bike storage.

Black Hawk County Gaming Association (BHCGA)

Black Hawk County Gaming Association funds projects for public and nonprofits. All projects must be for the public and help make a “better place to live”. Projects do not have a set matching fund and grant sizes vary from \$5,000 to \$750,000. A strong focus on financial sustainability of the project once BHCGA’s initial funding is done must be shown in application.

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