3rd Street & 4th Street
two-way conversion plan

DAVENPORT, IOWA

APRIL 2017

3rd Street & 4th Street
two-way conversion plan

DAVENPORT, IOWA
APRIL 2017

prepared for:
DOWNTOWN DAVENPORT PARTNERSHIP

EDGE
PLANNING
LANDSCAPE ARCHITECTURE
URBAN DESIGN

1 INTRODUCTION

2 CONCEPTUAL PLAN

1 INTRODUCTION

In 2010, The City of Davenport adopted the Davenport-in-Motion 10 Year Comprehensive Transportation Plan. This plan established a comprehensive set of strategies to improve multiple modes of transportation throughout the City of Davenport. One of the highest short-term priorities of this study was to convert 3rd Street and 4th Street from a one-way pair of arterial streets to two-way streets with on-street parking and bike lanes. Such a conversion would provide economic benefits to downtown business while also improving the health, safety and welfare of those living and working along these corridors. The study also identified that this type of conversion was quite feasible based on traffic volumes and the existing width of the streets.

This plan – *The 3rd & 4th Streets Two-Way Conversion Plan* – applies the recommendations of the Davenport-in-Motion study to the specific existing conditions of the two corridors. This includes the introduction of two-way vehicular traffic, on-street parking, and dedicated bike lanes in both directions. The purpose of this plan is to more clearly communicate the benefits of the two-way conversions and encourage stakeholder dialogue about phasing, implementation, and potential funding sources.

3RD & 4TH STREET
PROPOSED CONVERSION

Image source:
Davenport in Motion

BACKGROUND

The streets of downtown Davenport are a critical functional element of the city. This network provides vehicular access to jobs and residences, establishes a public realm by which pedestrians circulate, and acts as a front door to Davenport's rich cultural history and rapid growth. With the upward trajectory of the downtown, the importance of a highly functioning street system is critical to ensuring the future of Davenport's economic potential and the public safety of its residents.

As Davenport grew outward from its initial location along the bluff parallel to the Mississippi River, both 3rd and 4th streets were initially two-way streets. In 1888, Davenport became the first city west of the Mississippi River to have an electric streetcar, running down 3rd Street until 1936. The multi-modal diversity of the streets, with two way traffic and streetcar service, was common in this period of strong growth brought on by settlers moving west into and through eastern Iowa.

Equally common in the mid-20th century was vehicular-focused planning. The prevailing thought of the period resulted in rapid changes to traditional city layout. Most of the country's rail-based city transit systems were removed, including Davenport's in 1936. Many downtown thoroughfares were also converted to one-way flow to move traffic into and out of downtown business districts at a high velocity. This occurred in Davenport on 3rd and 4th Streets in 1954.

While one-way streets are able to efficiently move traffic from one point source to another, side-effects have begun to be noticed and studied. These include increased difficulty in navigation due to confusing street layouts, increased overall mileage traveled per trip, decreased vehicular and pedestrian safety due to higher rates of speed, and negative economic effects due to decreased visibility for businesses along the converted streets.

1938

Historically, 3rd & 4th Streets were multi-modal corridors with two-way traffic. Electric streetcars ran along 3rd Street until 1936.

1954

3rd & 4th Streets were connected to a one-way pair of arterial streets to move traffic in and out of downtown more quickly.

2016

Today, the ramifications of the one-way traffic patterns include decreased pedestrian safety due to higher rates of speed and decreased visibility for retailers.

TWO-WAY CONVERSION BENEFITS

Many communities have debated the advantages and disadvantages of one-way versus two-way streets. Often the debate is centered on the balancing of safety and economic benefits with the desire for vehicular traffic to move quickly and efficiently. Generally, the advantages of two-way traffic are as follows:

Safety

- One-way traffic encourages higher speeds and decreased driver attention.
- Less stopping on one-way streets is more difficult for pedestrians and bicycles to cross.

Economic Vitality

- Two-way streets simplify way-finding and minimize confusion and frustration for visitors, shoppers, and those less familiar with the downtown.
- Two-way streets increase visibility to retailers by allowing traffic moving in both directions to see storefronts and signage.

Traffic Flow

- While the common assumption is that one-way traffic provides more efficient traffic flow, recent research shows that two-way traffic may be as efficient (or better) based on Trip Serving Capacity. This is a measurement of how quickly you reach your destination. In many trip scenarios, the extra driving time required to pass your destination on a one-way arterial and then return on the other arterial negates any traffic flow efficiency.

CONVERSION CRITERIA

While the advantages of converting one-way streets to two-way streets may seem compelling, research and practice suggest that many factors should be considered prior to conversion. The following criteria have been extracted from *Converting One-way Streets to Two-way: Managing Traffic on Main Street* by John D. Edwards. Following the criteria description is a summary of the current conditions in Downtown Davenport and whether the criteria is met.

In addition to the list of informal criteria, the following plan reflects changes made after careful review and feedback from Davenport Public Works Staff.

CRITERIA	DAVENPORT CONDITION	CRITERIA MET?
Will it help revitalization efforts? Two-way traffic is typically very helpful for recovering retail districts. A survey of 25 communities was conducted where all experienced reductions in vacant first floor space and some reported substantial private investments following the two-way conversion. Caution should be used when the area is heavy office, warehouse, and/or industrial with heavy peak hour traffic.	Davenport has experienced growth over the past decade in retailing, restaurants, and first floor uses but these corridors are still in transition as part of an overall downtown revitalization effort. Within the downtown, a mix of office, retail, and residential uses mitigates heavy peak hour traffic.	✓
What type of traffic flow? Two-way traffic is helpful when the traffic flow includes destinations within the corridor. If most traffic is through-way traffic with few people stopping at downtown destinations, then the conversion may have little impact on revitalization.	Particularly in the downtown area, numerous destinations exist along both 3rd and 4th Streets. Offices, residences, government centers, convention facilities, restaurants, and retailers are found along both corridors.	✓
What is the traffic volume? If both streets exceed 15,000 vehicles per day with no reasonable by pass route, then the conversion may increase congestion.	According to Iowa Department of Transportation Average Daily Traffic (ADT) volumes, the peak ADT along 3rd Street is 11,000 and 9,300 along 4th Street with less volume east and west of the downtown core. In addition, River Drive (U.S. Highway 67) functions as a bypass route for the downtown.	✓
How wide is the street? Street width should be sufficient to accommodate the two-way traffic and on-street parking.	The typical width of 3rd Street and 4th Street is 55-feet. This dimension accommodates two moving lanes of traffic with a dedicated left turn lane, two dedicated bike lanes, and parallel parking along both sides of the street.	✓

OTHER CONVERSION EFFORTS

Cities throughout the United States are planning for or have recently completed one-way street conversions to two-way traffic. Cedar Rapids, Muscatine, Des Moines, Louisville, Austin, Berkley, Cambridge, Chattanooga, Cincinnati, Columbus, Fargo, Sacramento, Tampa, St. Petersburg, Salina (KS), Kansas City, Denver, Dallas, Lubbock, Vancouver, Napa, are just a few of these communities.

The following is a summary of recent conversions in Columbus, Fargo, and Louisville that have made positive impacts on their downtown vitality and public safety.

Columbus, Ohio

Columbus, Ohio converted two downtown arterial one-way streets (Front Street and Civic Center Drive) to two-way traffic in 2011. The main goal of the project was to improve traffic flow and reduce speeds to encourage development along both corridors. In addition to the traffic flow conversion through striping and signalization changes, the road was repaved, bike lanes were added, streetscape improvements were made through new planters, trees, and sidewalks, and utilities were either relocated or improved. Many of these improvements were completed because the additional enhancement to the project allowed for increased state and federal funding availability, which would not have been available to a strict re-striping and signalization project.

Public perception of the project has been very positive. There was no resistance to the conversion, likely stemming from the lack of retail or residential along the corridor when the project was initiated. Many of the existing government buildings along the corridors were supportive of the project due to the improved vehicular/pedestrian interfaces and reduced speeds. Since completion, the area surrounding the conversion has seen a drastic increase in mixed-use redevelopment. A second phase of the conversion is currently planned and is waiting on additional funding.

Fargo, North Dakota

The conversion of two streets to two-way traffic in Fargo, North Dakota, has resulted in major growth in downtown mixed-use development. The project was implemented as strictly striping and signalization improvements, with long-term phased future streetscape improvements, protected bike lanes, repaving, and utility work as city budgets allow. Pre-construction support was split between downtown business owners, who welcomed increased visibility and pedestrian accessibility, and the general public who had concerns over driving confusion and increased congestion. Since installation, feedback from both parties has been positive, with no additional concerns on congestion or circulation. Development has also been spurred along both corridors, in coordination with streetscape improvements made on cross streets.

Louisville, Kentucky

In 2011, Louisville, Kentucky converted two residential one-way streets to two-way traffic. Analysis of these two converted streets has been compared to two adjacent one-way streets to provide additional information on the potential effects of street conversions. Research of the 4 total streets has shown a drop in collisions of 36% and 60% on the two converted streets, even while they have seen an increase in traffic volume of 13% and 40%, compared to their pre-conversion rates. Crime has also shown to be reduced, by 15% and 30%, and property values have increased 11.6% and 2.8%. While causation has not been determined, the correlations between two-way streets and collision rates, crime rates, and property values suggests that two-way streets contribute more to their surrounding neighborhood and users than one-way streets.

2 CONCEPTUAL PLAN

In order to further understand the potential for converting 3rd and 4th Streets to two-way traffic, this plan has applied the recommended street sections (from the Davenport in Motion Study) to the existing conditions of the corridors in order to create conceptual roadway plans. In addition to the lane recommendations for vehicular travel, bike travel and parallel parking, the plan also considers existing parcel access (i.e. curb cuts), loading zones, and bus stop locations.

The implementation costs for the conversion of one-way streets to two-way traffic can vary greatly. Relatively affordable aspects of these projects include paint striping and modifications of traffic control signage. A more costly aspect of conversion projects is often the changes required to existing signalized intersections. The following roadway plans identify recommendations for each intersection in these corridors. In many instances, an additional signal is required to accommodate the new direction of traffic. At other intersections, recommendations are made to eliminate signals in favor of stop control provided by stop signs. These intersection recommendations will require further study to better understand the ideal treatment that will best balance safety and vehicular traffic flow.

3RD STREET
EXISTING

3RD STREET
PROPOSED

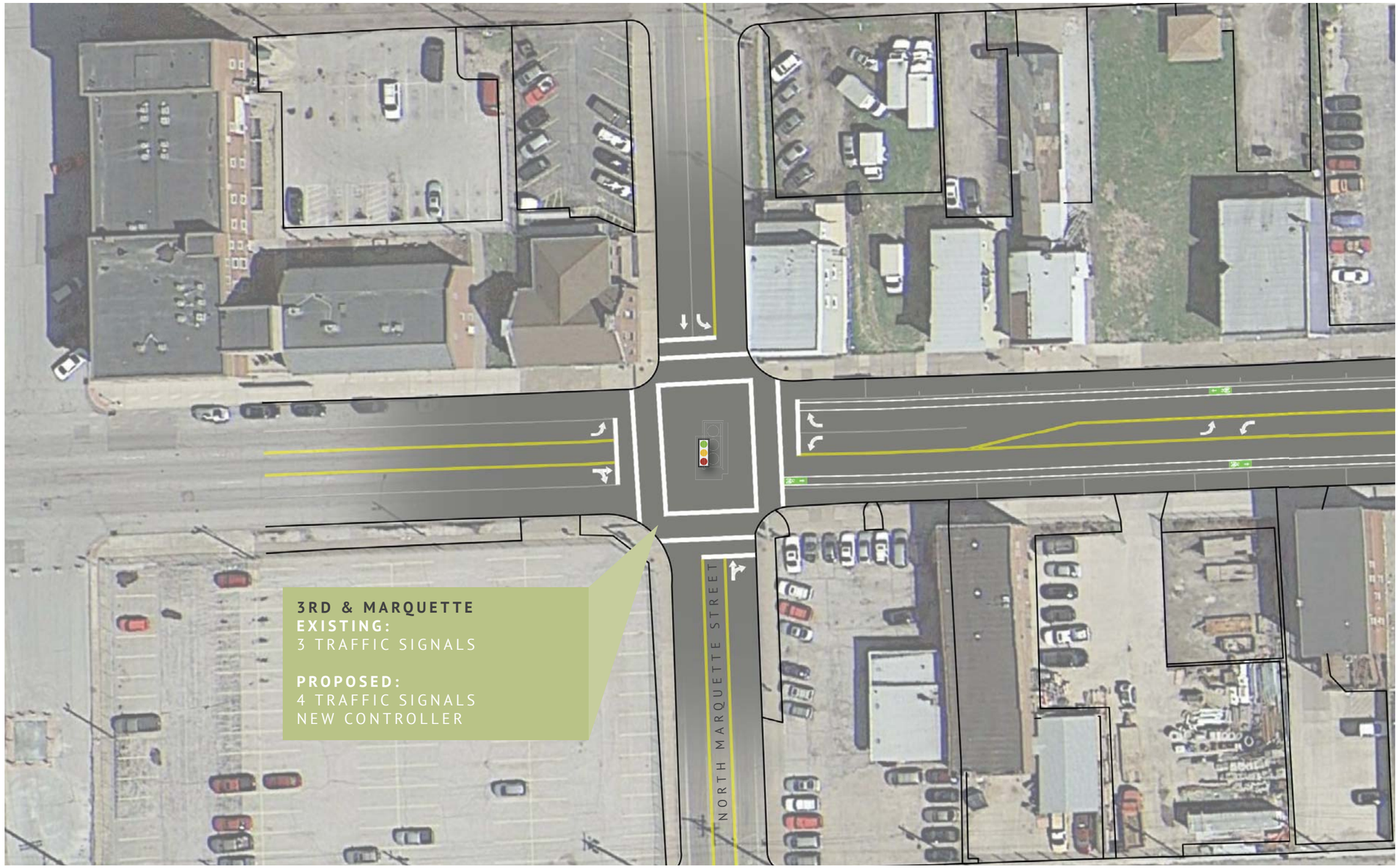
4TH STREET
EXISTING

4TH STREET
PROPOSED

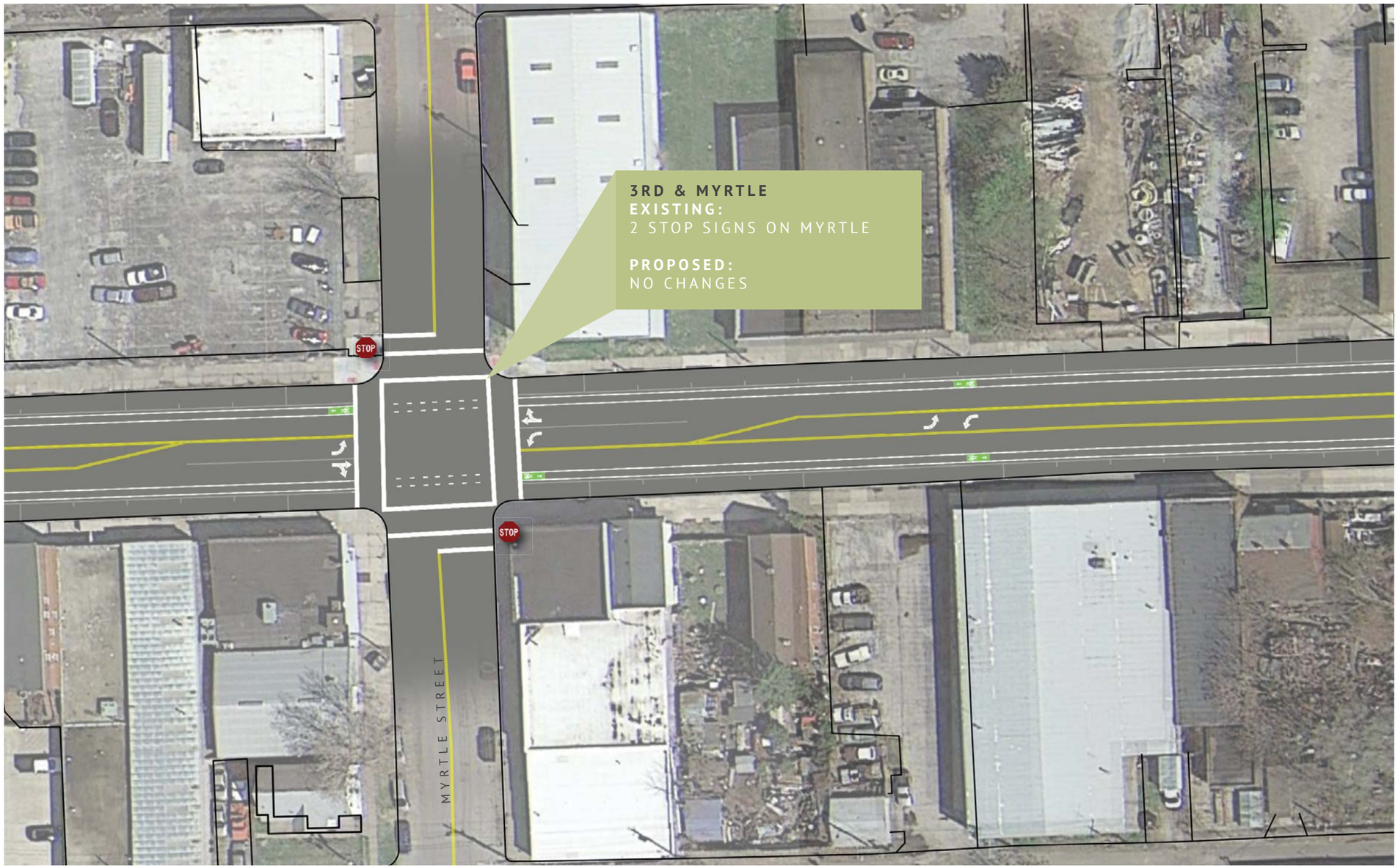
KEY PLAN

The following pages display the conceptual plans for each segment of the 3rd and 4th Street corridors from Marquette Street to East River Drive.

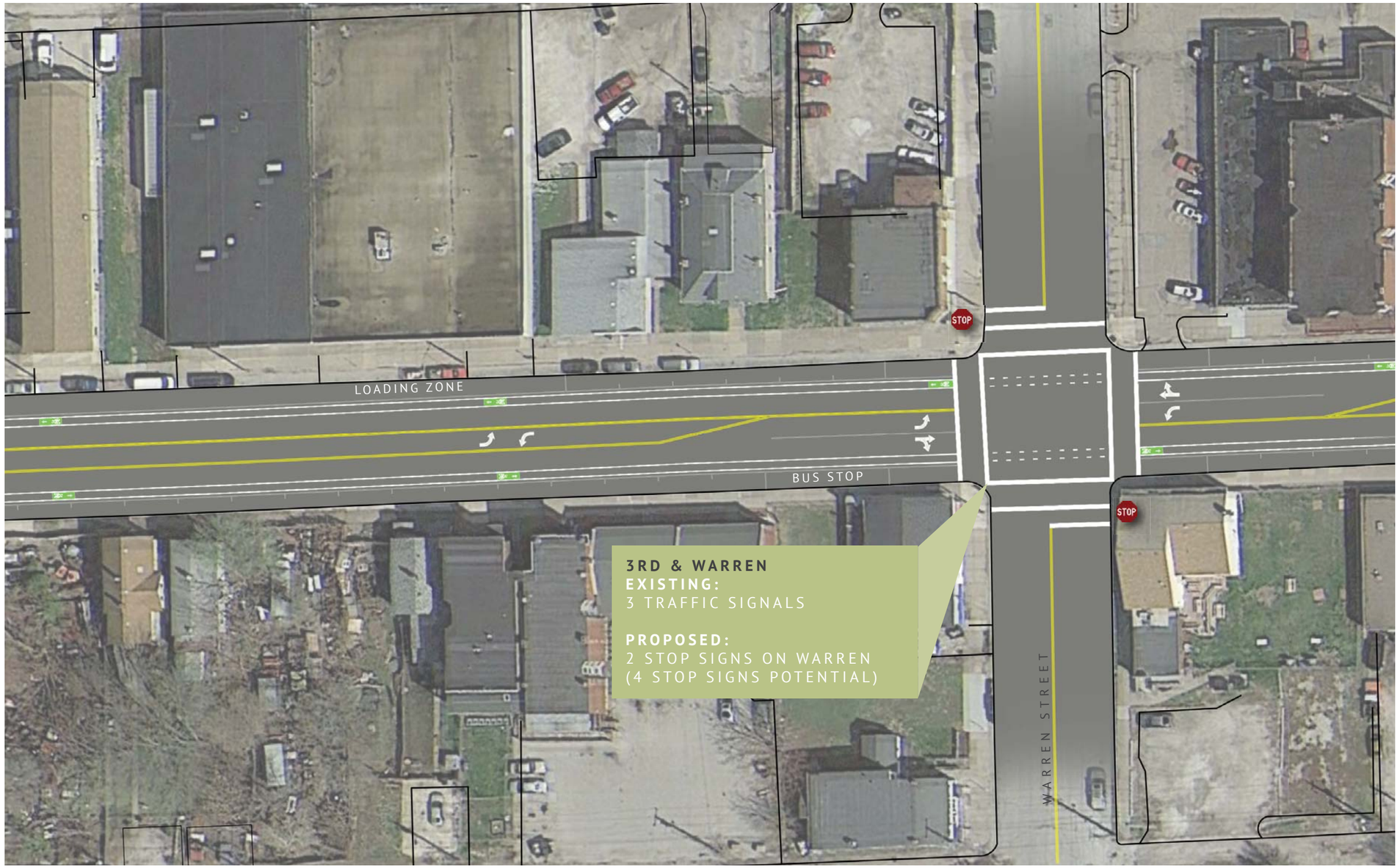
3RD STREET 1


NORTH MARQUETTE STREET
3RD & MARQUETTE
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
4 TRAFFIC SIGNALS
NEW CONTROLLER

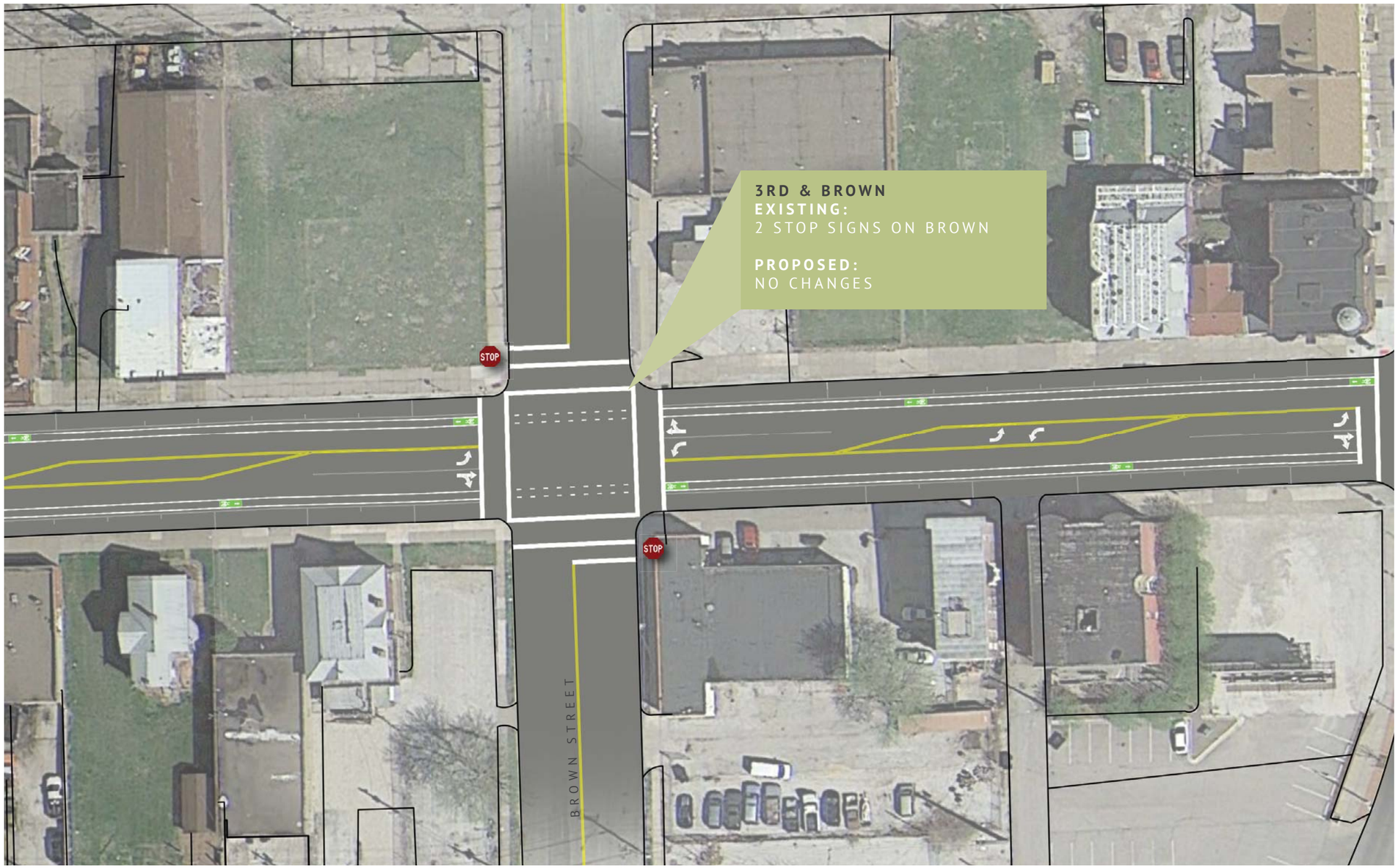
3RD STREET 2


3RD & MYRTLE
EXISTING:
2 STOP SIGNS ON MYRTLE
PROPOSED:
NO CHANGES
STOP
STOP
MYRTLE STREET

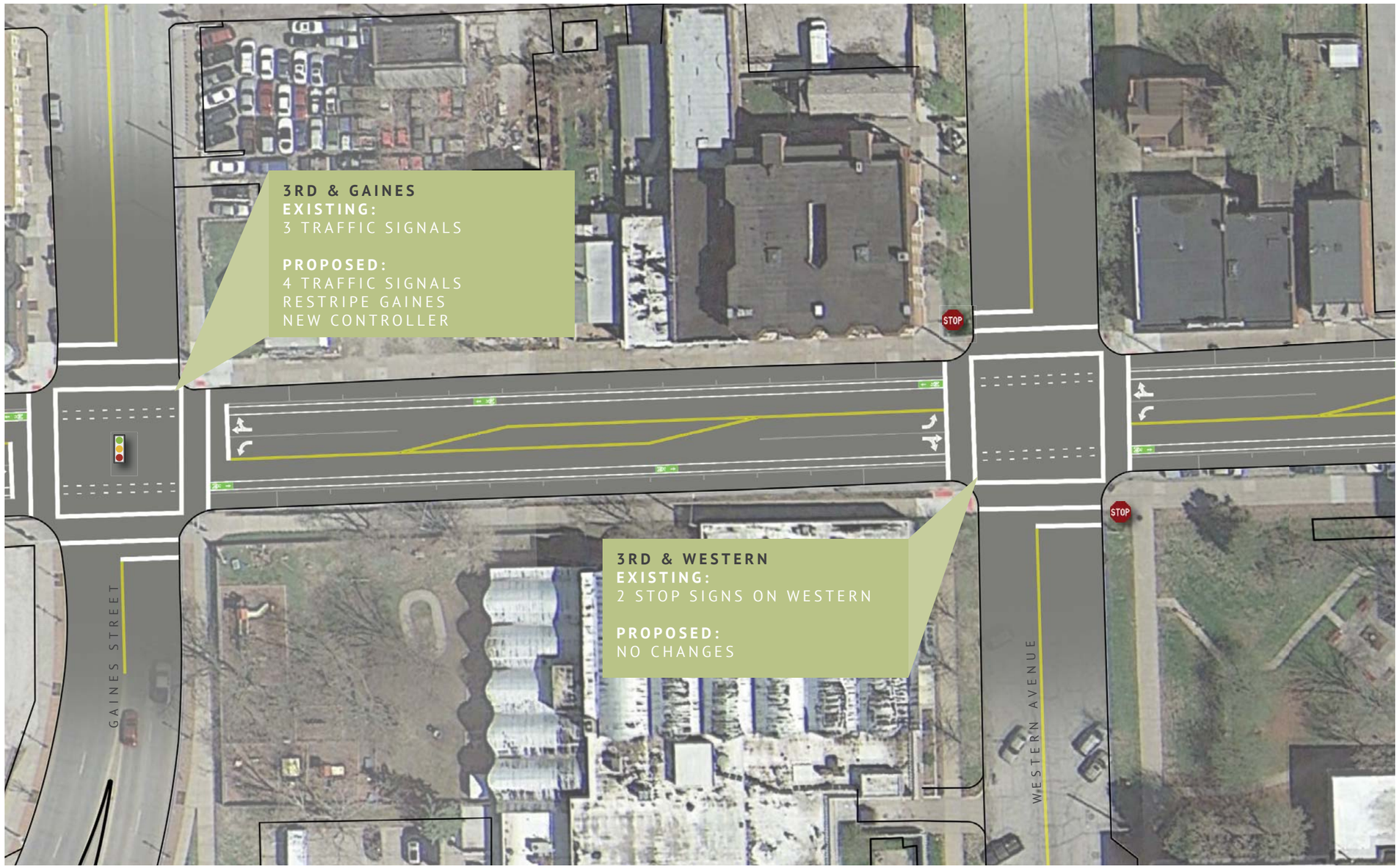
3RD STREET 3


STOP
LOADING ZONE
BUS STOP
STOP
WARREN STREET
3RD & WARREN
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
2 STOP SIGNS ON WARREN
(4 STOP SIGNS POTENTIAL)

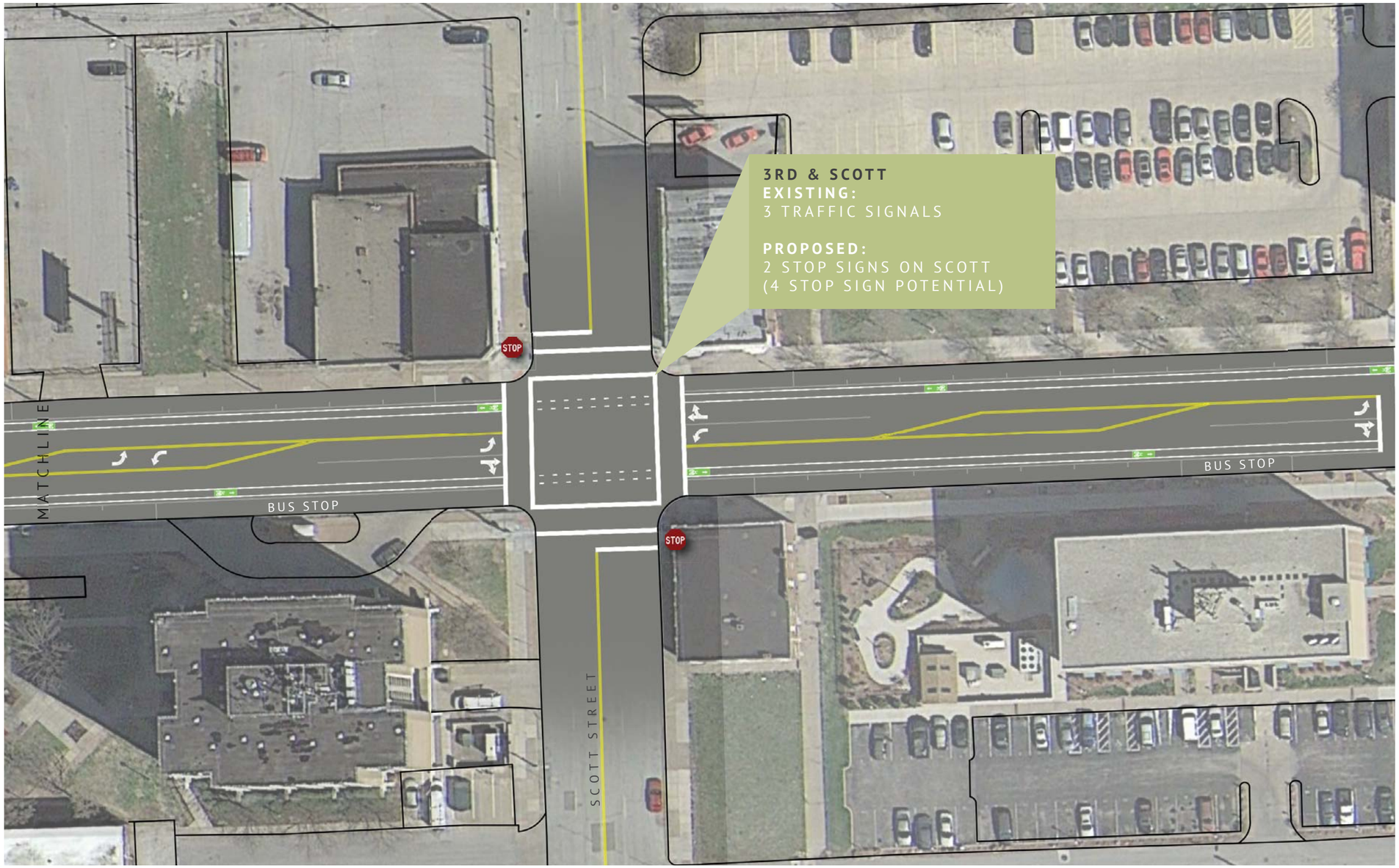
3RD STREET 4


3RD & BROWN
EXISTING:
2 STOP SIGNS ON BROWN
PROPOSED:
NO CHANGES
STOP
STOP
BROWN STREET

3RD STREET 5


3RD & GAINES
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
4 TRAFFIC SIGNALS
RESTRIPE GAINES
NEW CONTROLLER
STOP
3RD & WESTERN
EXISTING:
2 STOP SIGNS ON WESTERN
PROPOSED:
NO CHANGES
STOP
GAINES STREET
WESTERN AVENUE

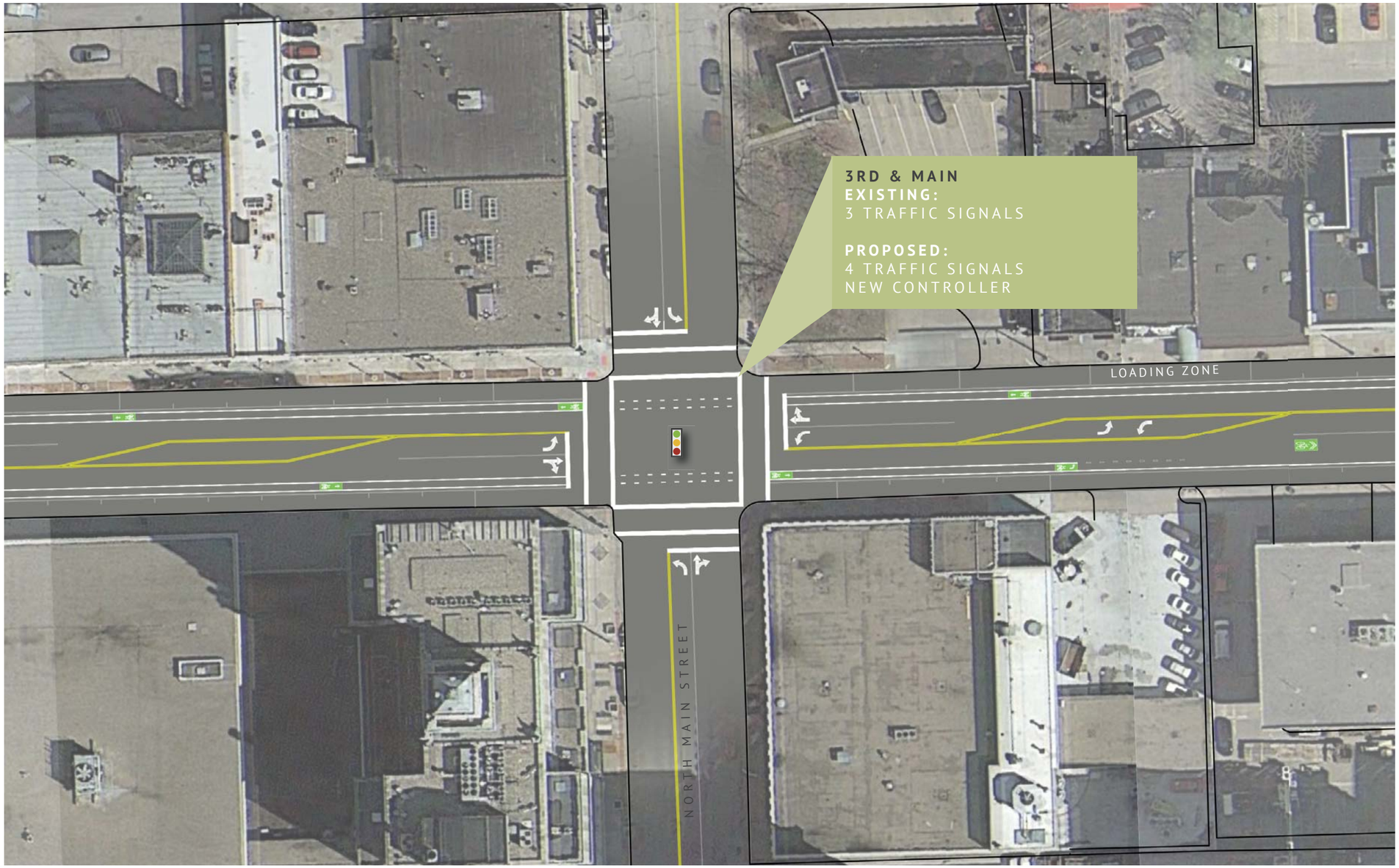
3RD STREET 6


3RD & SCOTT
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
2 STOP SIGNS ON SCOTT
(4 STOP SIGN POTENTIAL)
STOP
STOP
MATCHLINE
BUS STOP
BUS STOP
SCOTT STREET

3RD STREET 7


3RD & RIPLEY
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
4 TRAFFIC SIGNALS
(POTENTIAL NEW CONTROLLER)
LOADING ZONE
LOADING ZONE
LOADING ZONE
3RD & HARRISON
EXISTING:
2 TRAFFIC SIGNALS
PROPOSED:
3 TRAFFIC SIGNALS
NORTH RIPLEY STREET
NORTH HARRISON AVENUE

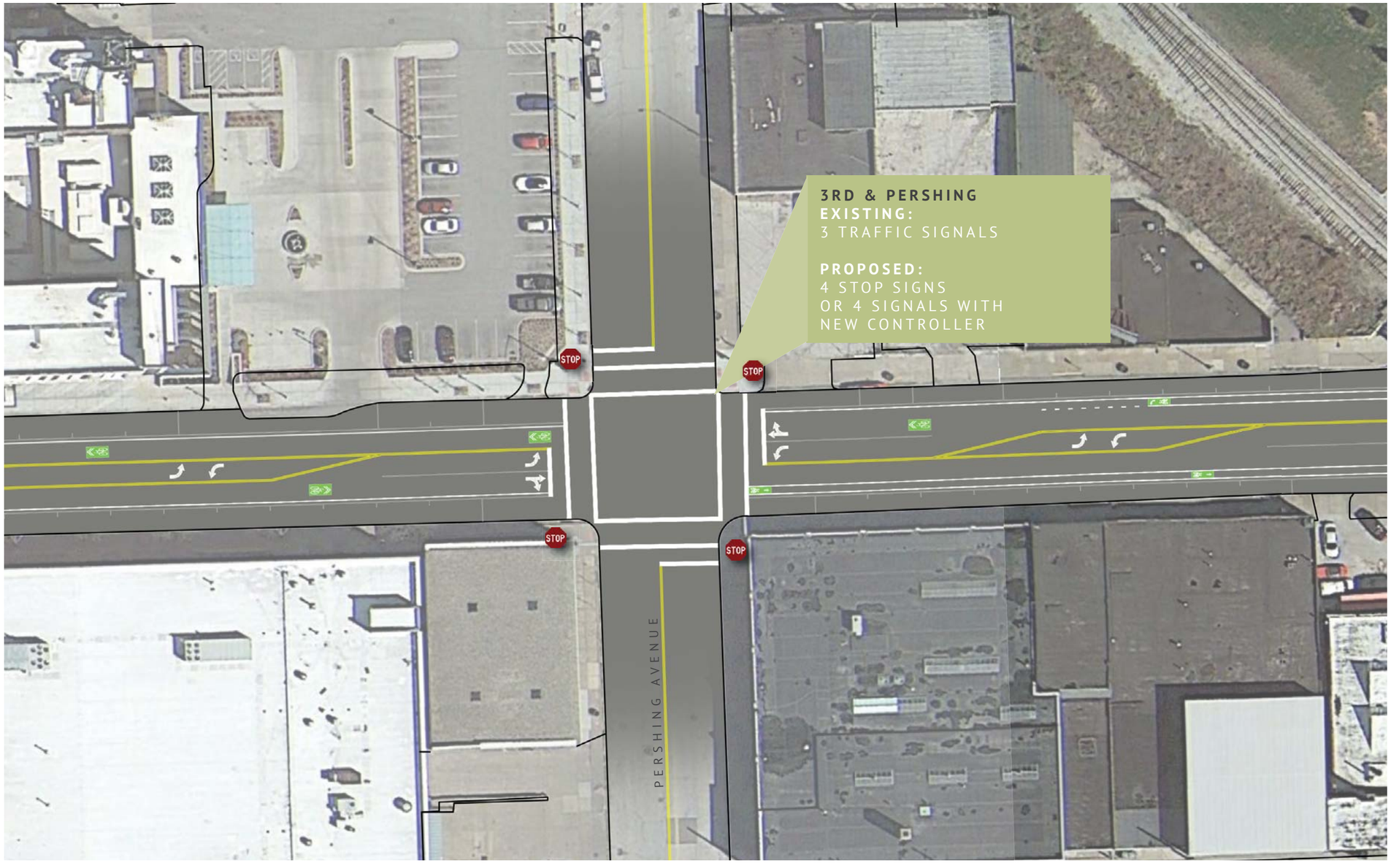
3RD STREET 8


3RD & MAIN
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
4 TRAFFIC SIGNALS
NEW CONTROLLER
LOADING ZONE
NORTH MAIN STREET

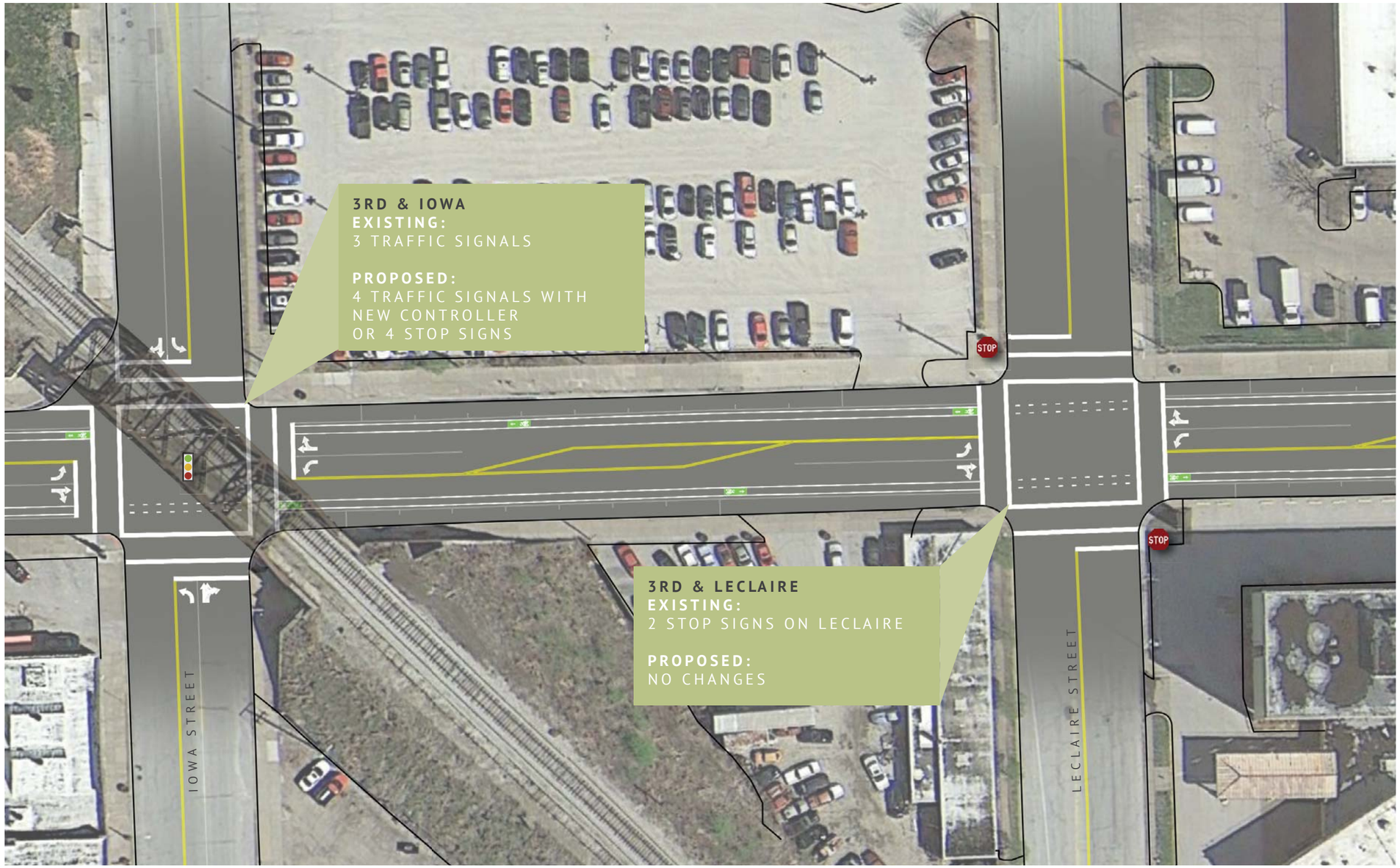
3RD STREET 9


3RD & BRADY
EXISTING:
2 TRAFFIC SIGNALS
PROPOSED:
3 TRAFFIC SIGNALS
LOADING ZONE
LOADING ZONE
BRADY STREET

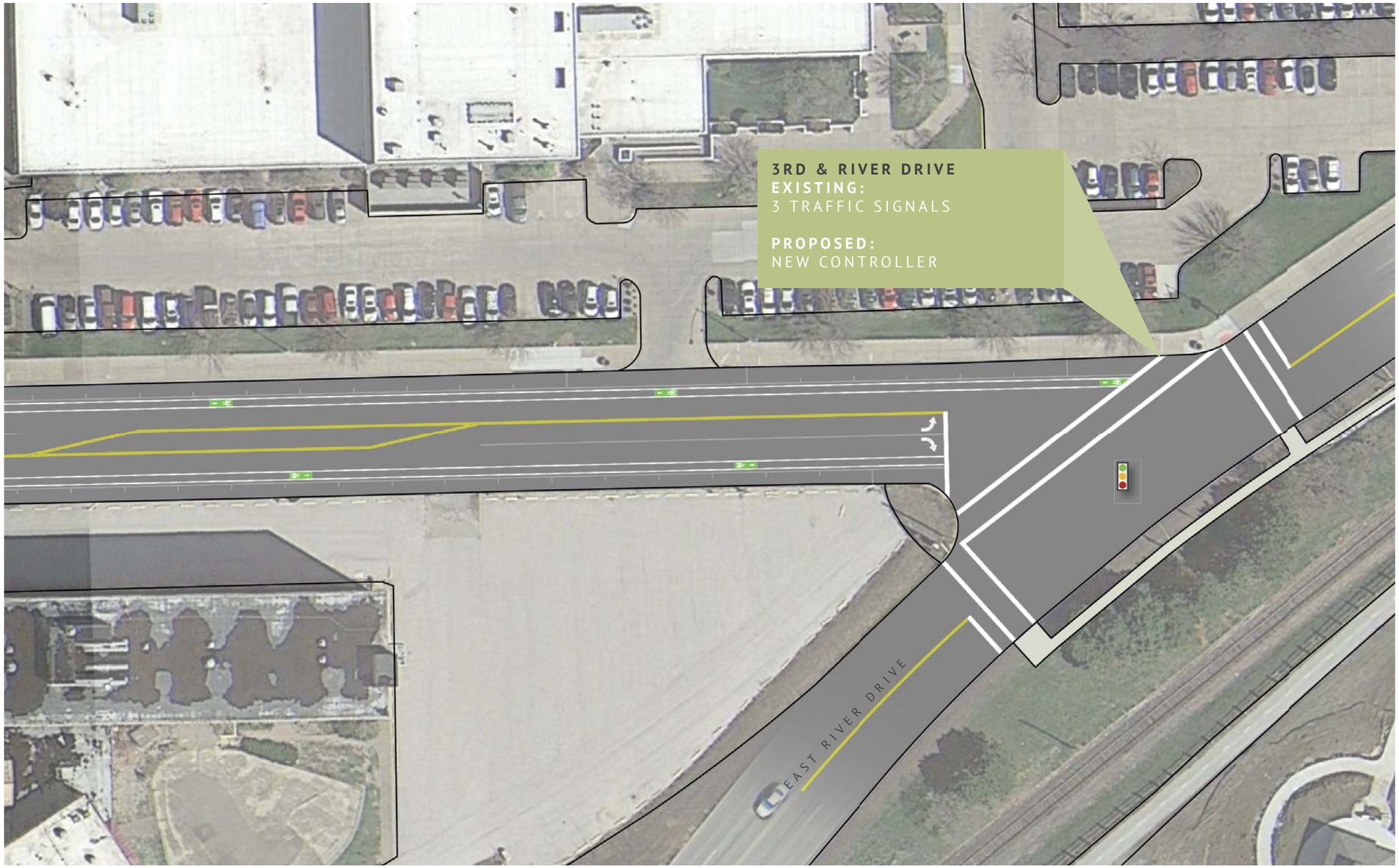
3RD STREET 10



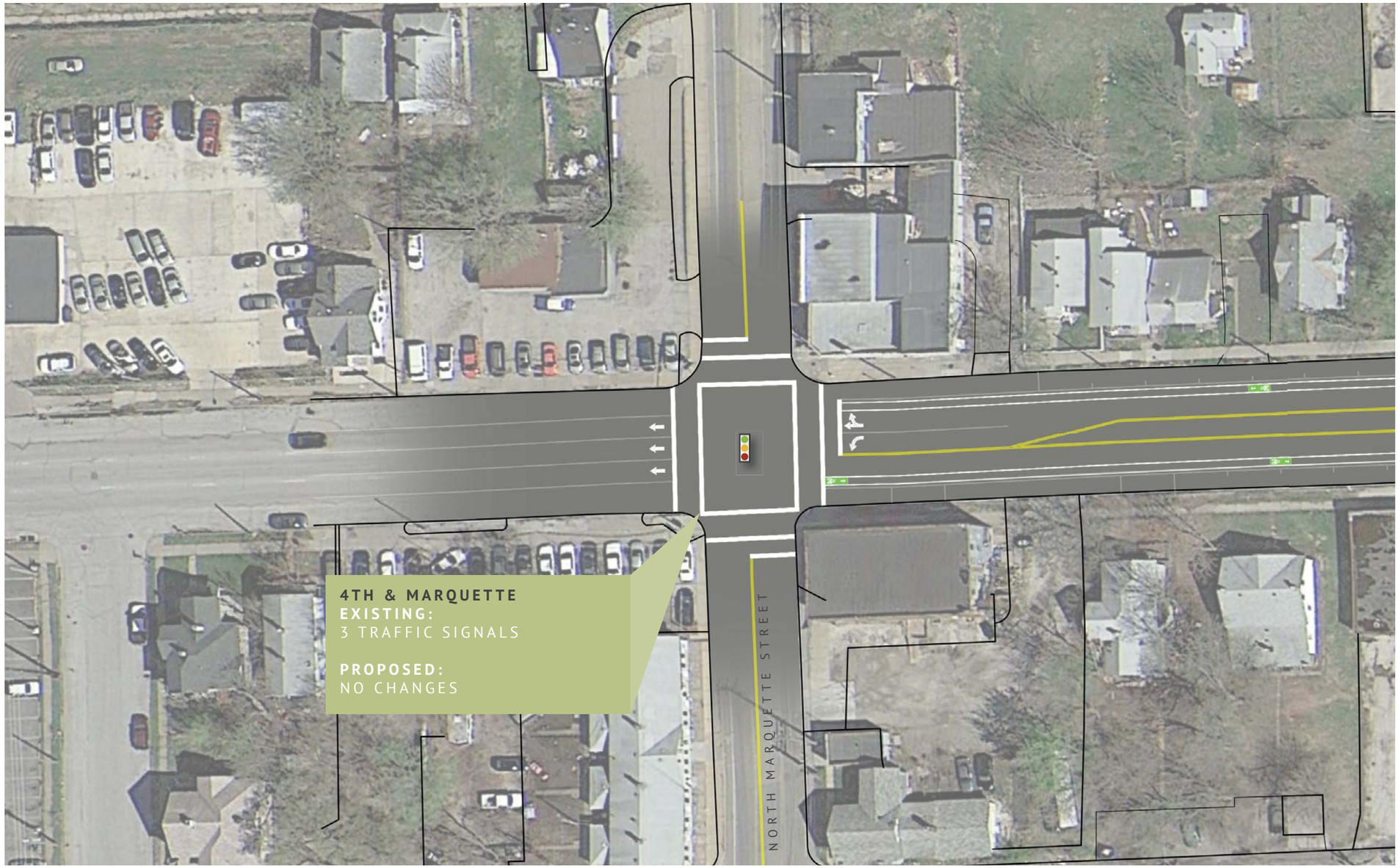
3RD STREET 11



3RD STREET 12



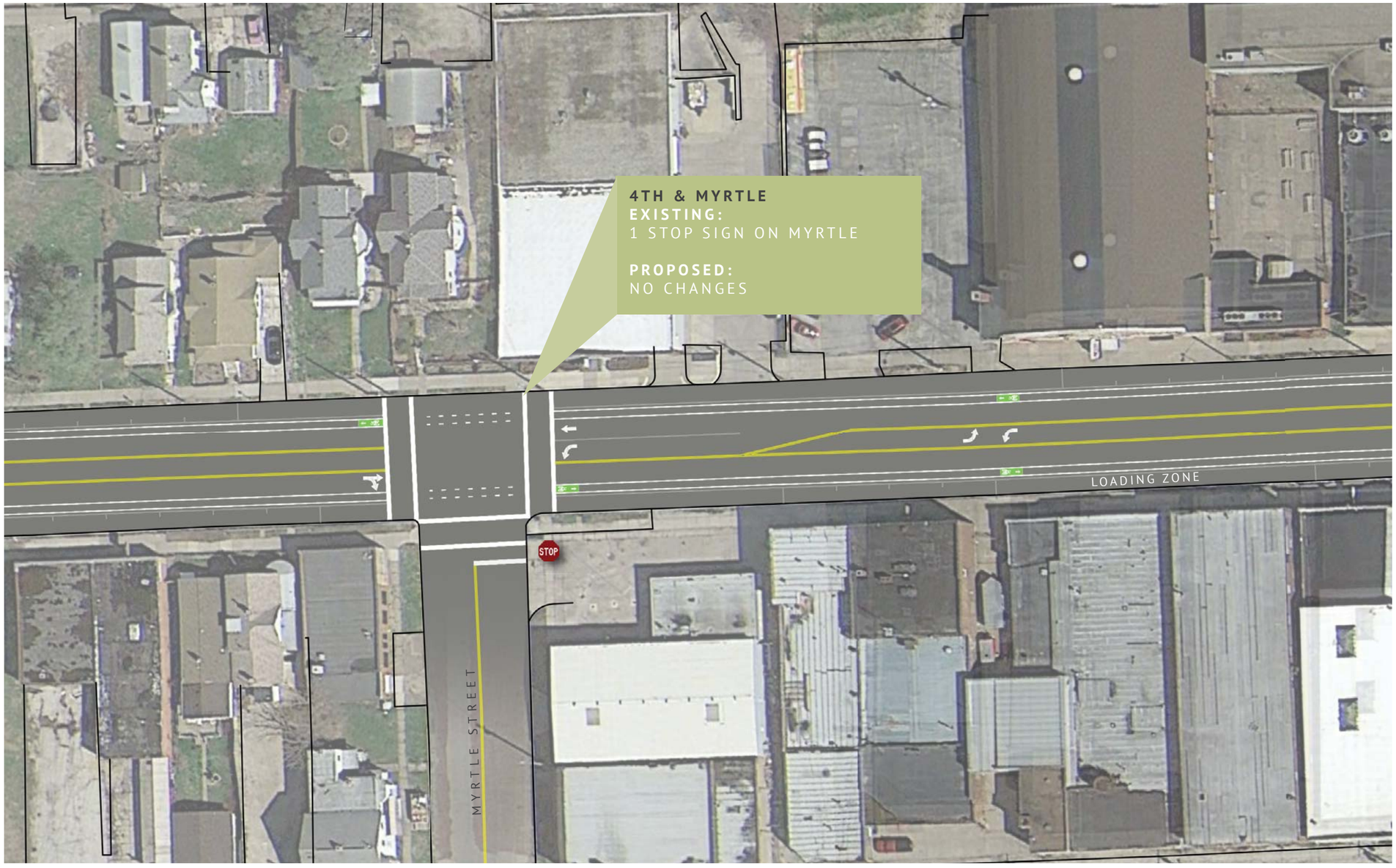
4TH STREET 1



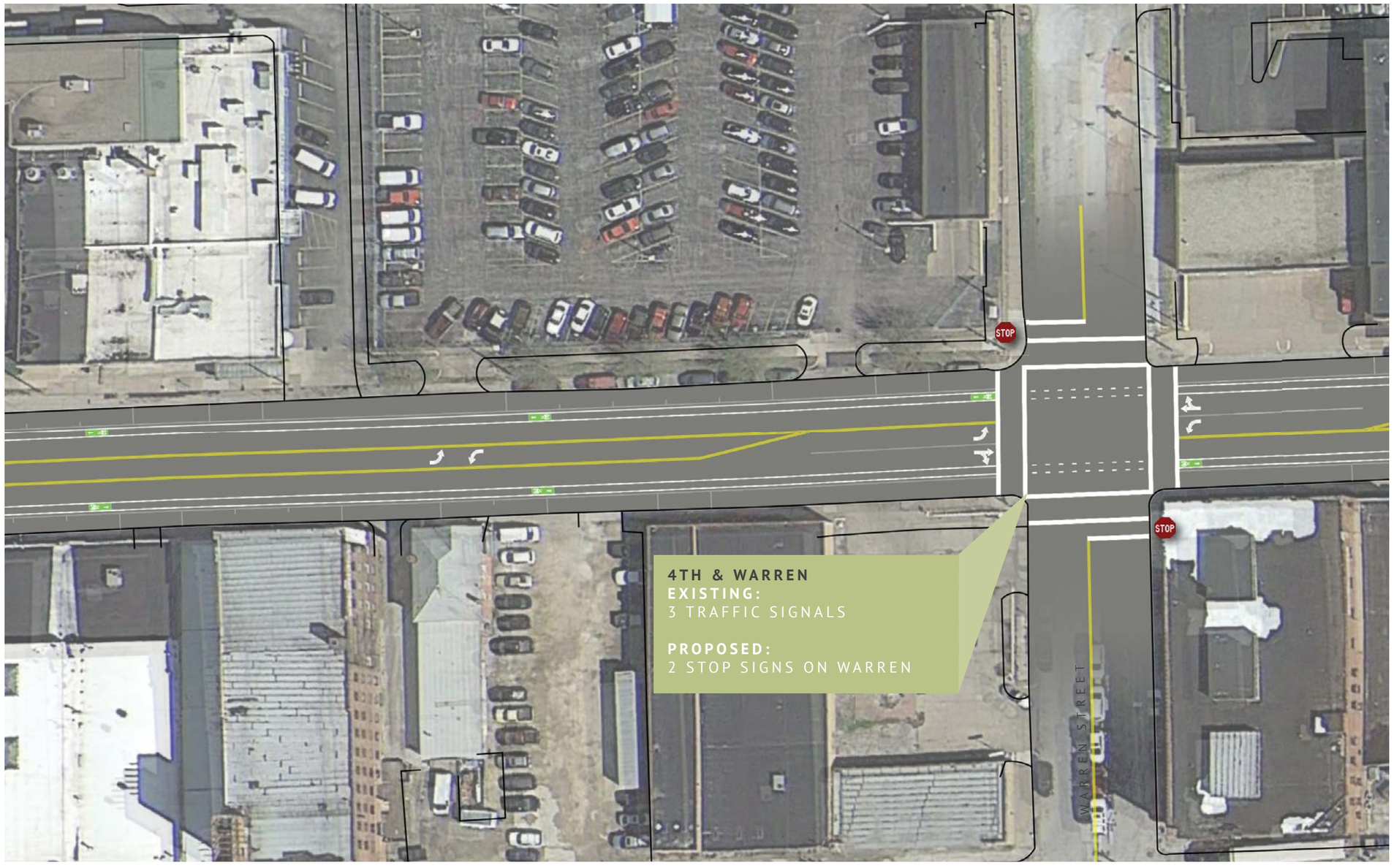
4TH & MARQUETTE
EXISTING:
3 TRAFFIC SIGNALS

PROPOSED:
NO CHANGES

4TH STREET 2


4TH & MYRTLE
EXISTING:
1 STOP SIGN ON MYRTLE
PROPOSED:
NO CHANGES
LOADING ZONE
STOP
MYRTLE STREET

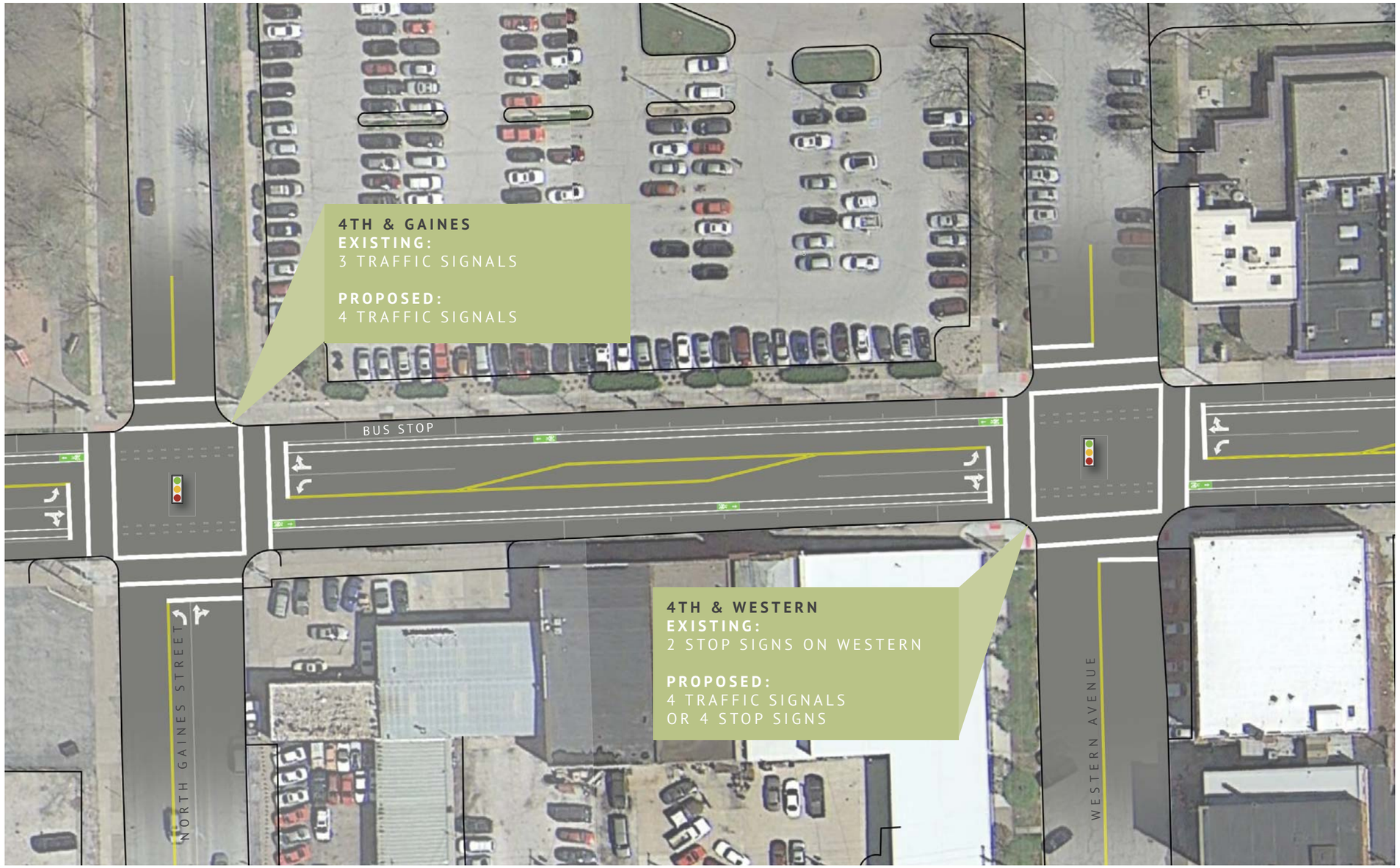
4TH STREET 3


STOP
STOP
WARREN STREET
4TH & WARREN
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
2 STOP SIGNS ON WARREN

4TH STREET 4


4TH & BROWN
EXISTING:
2 STOP SIGNS ON BROWN
PROPOSED:
NO CHANGES
STOP
STOP
BROWN STREET

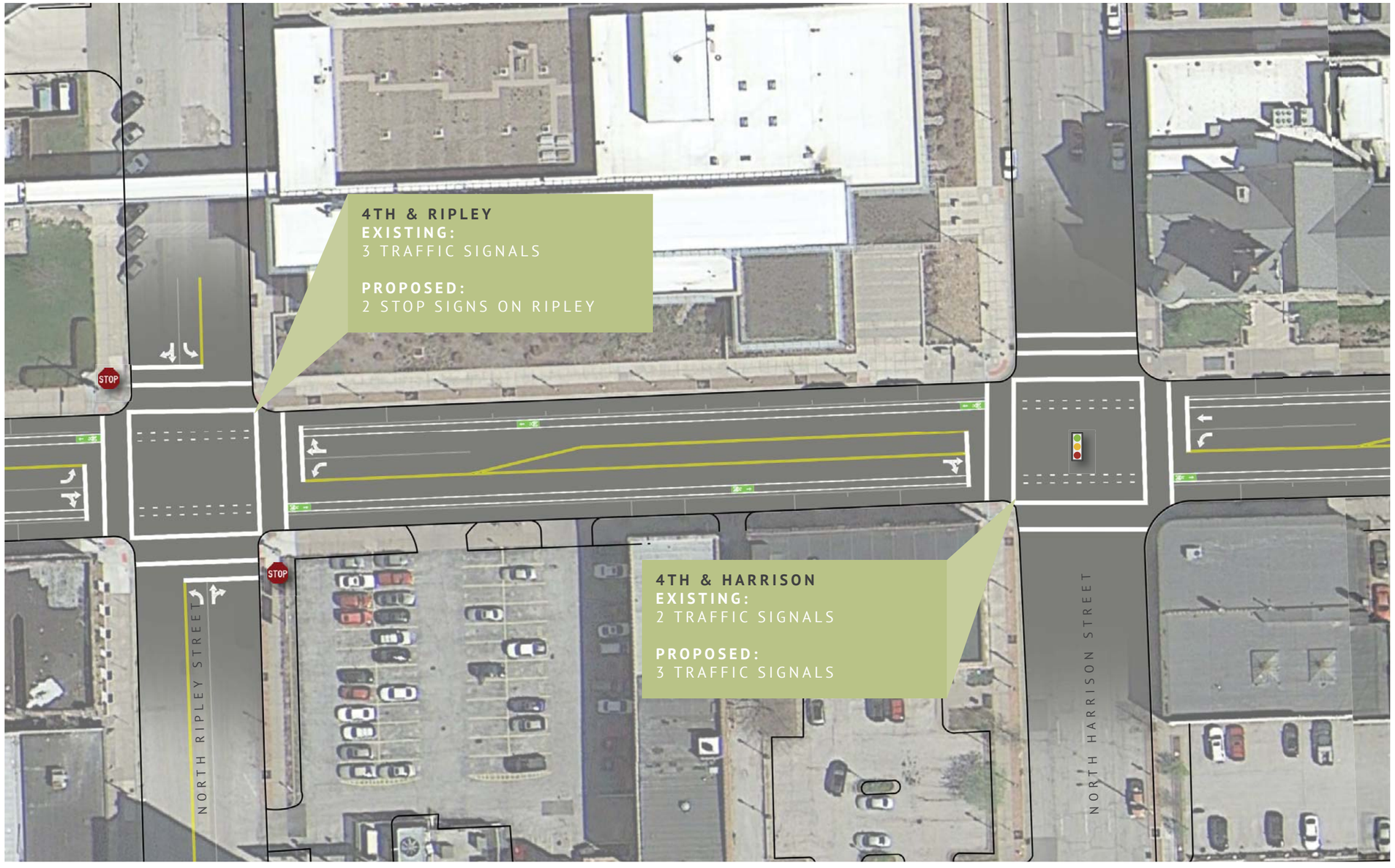
4TH STREET 5


4TH & GAINES
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
4 TRAFFIC SIGNALS
BUS STOP
4TH & WESTERN
EXISTING:
2 STOP SIGNS ON WESTERN
PROPOSED:
4 TRAFFIC SIGNALS
OR 4 STOP SIGNS
NORTH GAINES STREET
WESTERN AVENUE

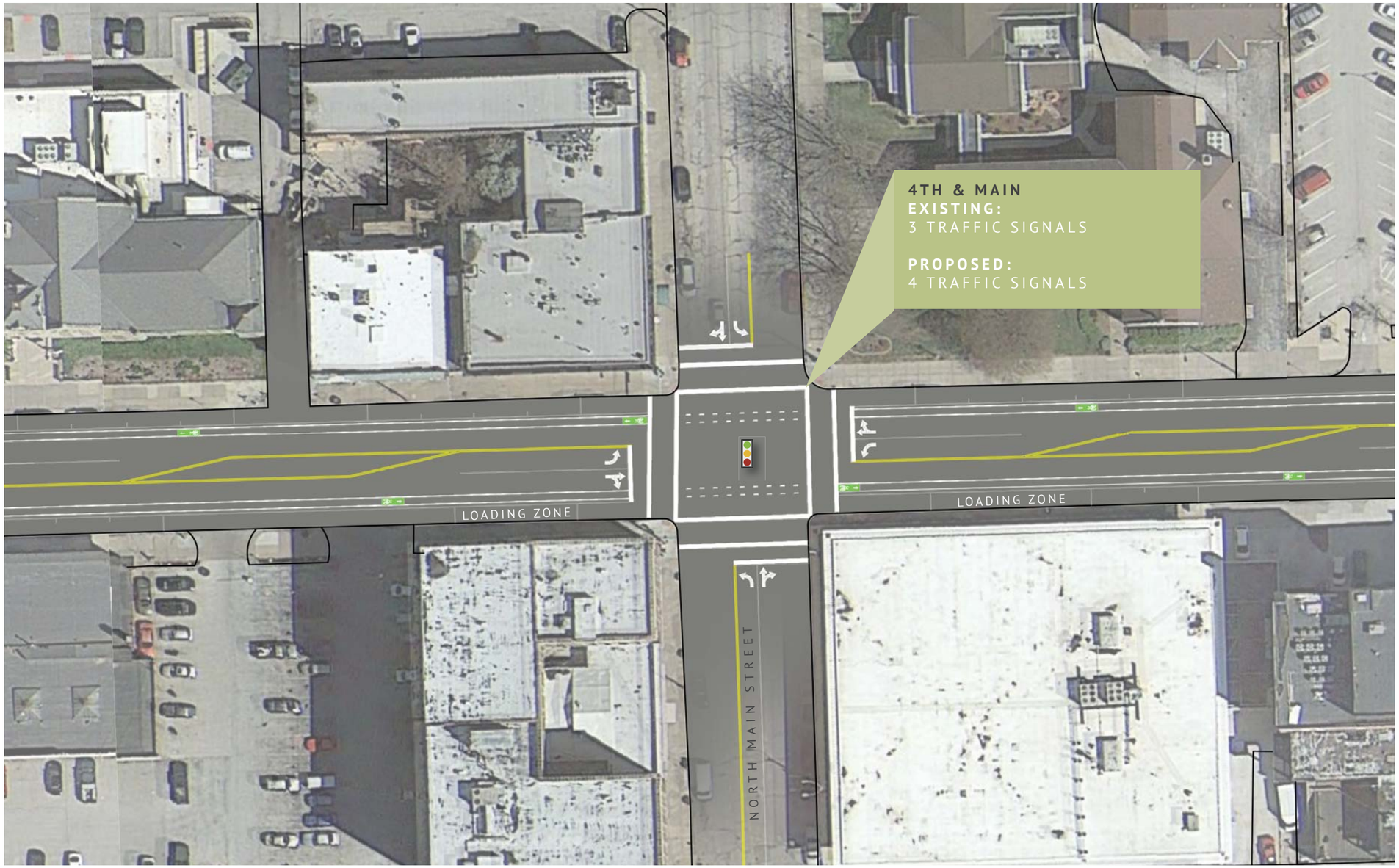
4TH STREET 6


4TH & SCOTT
EXISTING:
2 STOP SIGNS ON SCOTT
PROPOSED:
4 STOP SIGNS
STOP
STOP
STOP
STOP
SCOTT STREET

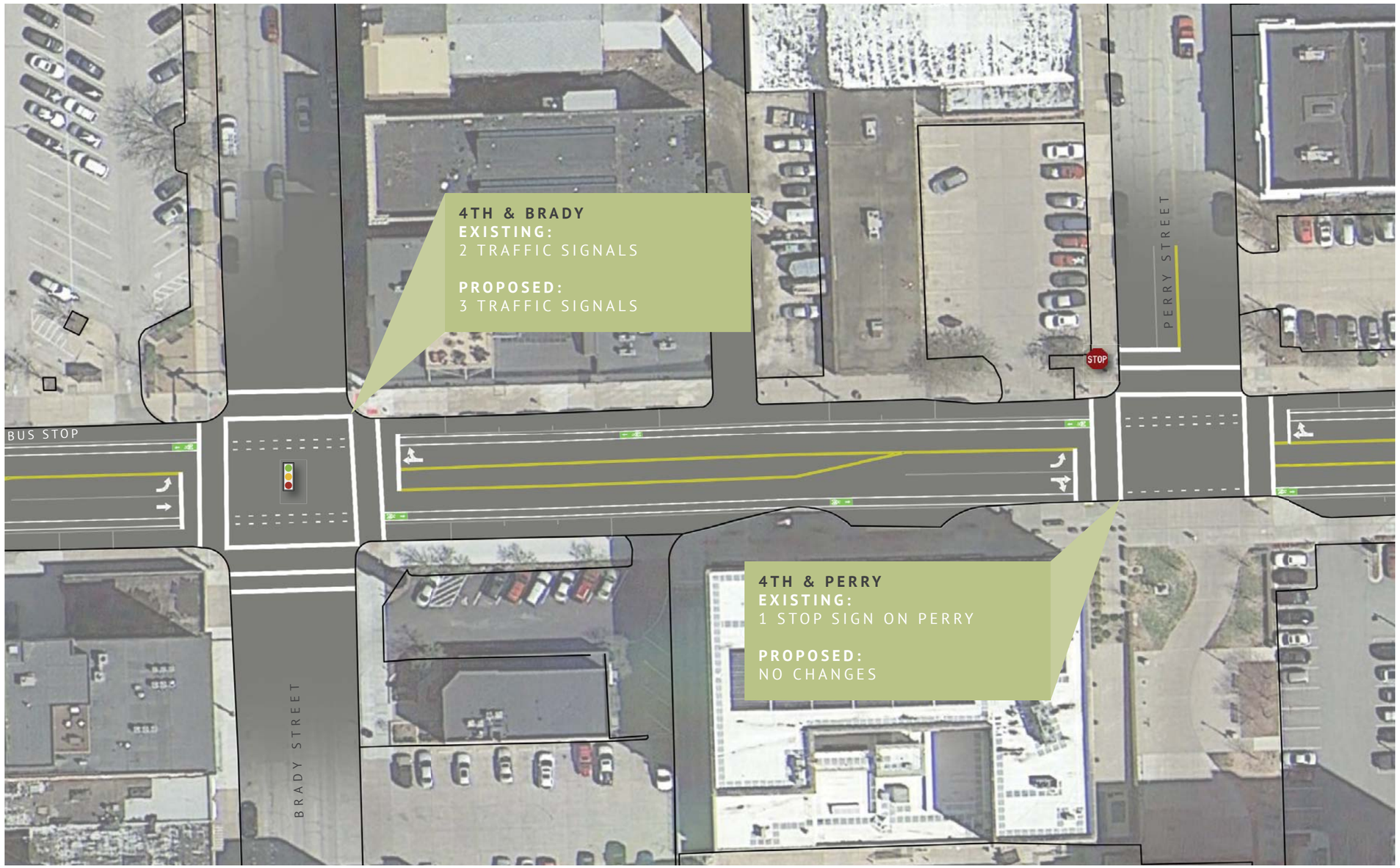
4TH STREET 7


4TH & RIPLEY
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
2 STOP SIGNS ON RIPLEY
4TH & HARRISON
EXISTING:
2 TRAFFIC SIGNALS
PROPOSED:
3 TRAFFIC SIGNALS
STOP
STOP
NORTH RIPLEY STREET
NORTH HARRISON STREET

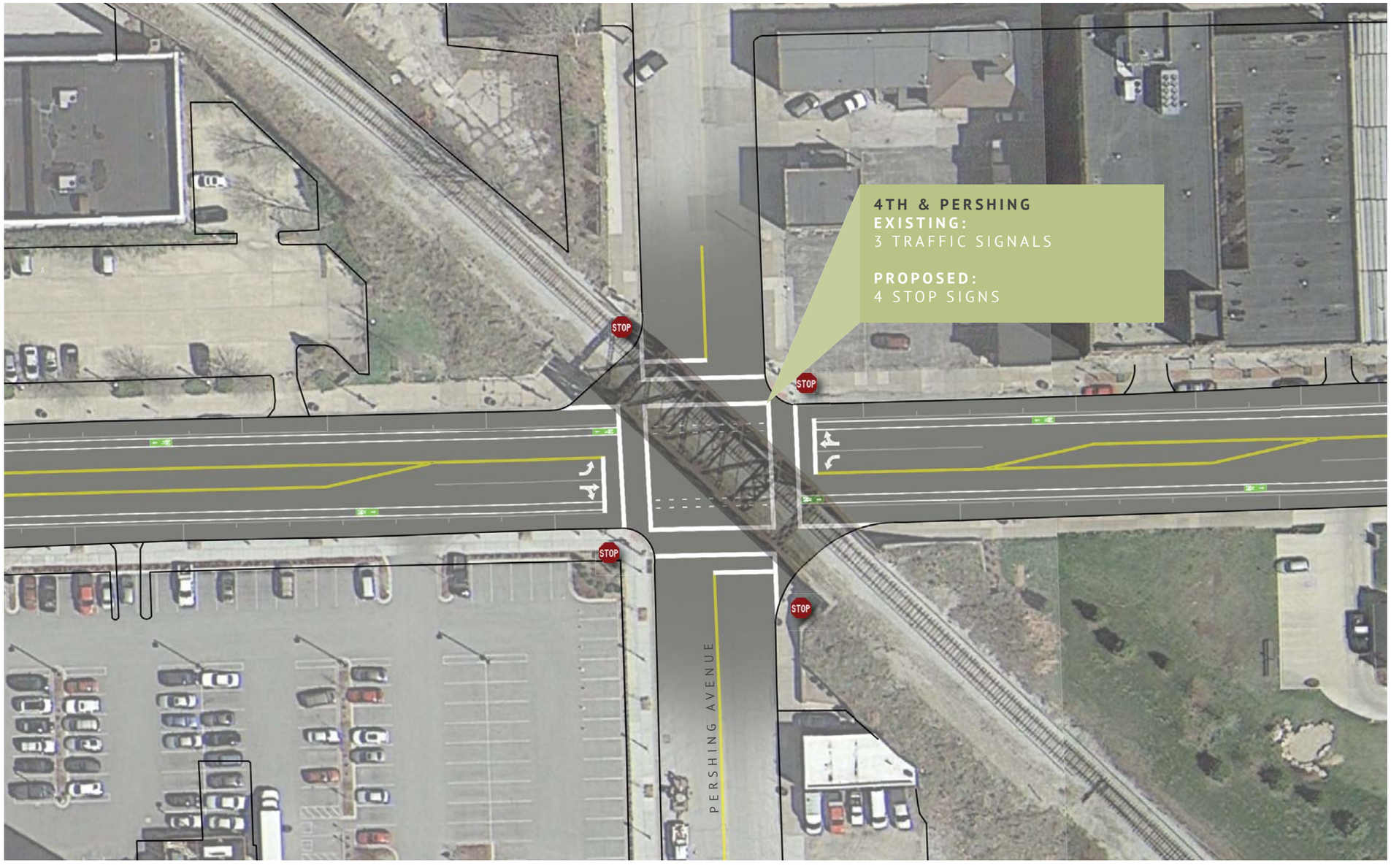
4TH STREET 8


4TH & MAIN
EXISTING:
3 TRAFFIC SIGNALS
PROPOSED:
4 TRAFFIC SIGNALS
LOADING ZONE
LOADING ZONE
NORTH MAIN STREET

4TH STREET 9


4TH & BRADY
EXISTING:
2 TRAFFIC SIGNALS
PROPOSED:
3 TRAFFIC SIGNALS
PERRY STREET
STOP
BUS STOP
BRADY STREET
4TH & PERRY
EXISTING:
1 STOP SIGN ON PERRY
PROPOSED:
NO CHANGES

4TH STREET 10



4TH STREET 11

4TH STREET 12

4TH STREET 13