

Station 1

Downtown Rolla Improvements Study (Pine Street and Rolla Street)



Purpose of the project:

The MoveRolla TDD will evaluate the parking, circulation and intersection control for the downtown transportation system to meet the needs of the downtown residents, visitors and business owners.

Benefits of project:

The benefits of the improvements to the downtown transportation system are a complete multi-modal transportation system that addresses the needs of all users, enhances the economic conditions of downtown businesses and maximizes the Downtown Rolla experience.

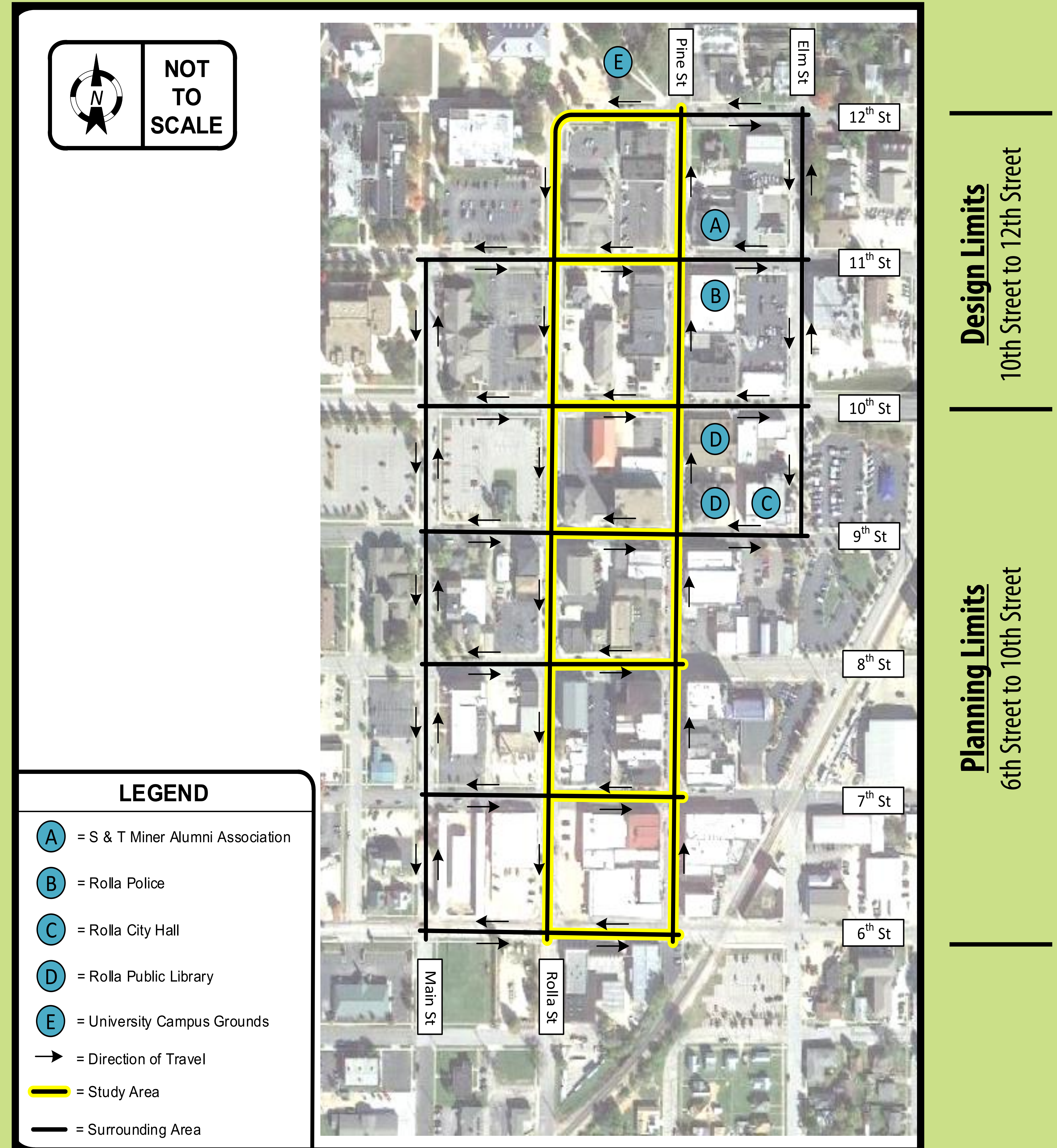
Improvements may include:

- Update traffic circulation
- Update parking configuration
- New ADA compliant sidewalks
- Update or remove traffic signals
- New curb and gutter
- Repave existing road

This study does not include analysis of urban design, streetscape, lighting or other non-transportation elements of downtown.

Schedule for project:

- Downtown stakeholder meeting: Summer 2021
- Public meeting: Fall 2021
- Design complete: Winter 2022
- Construction start: To be determined

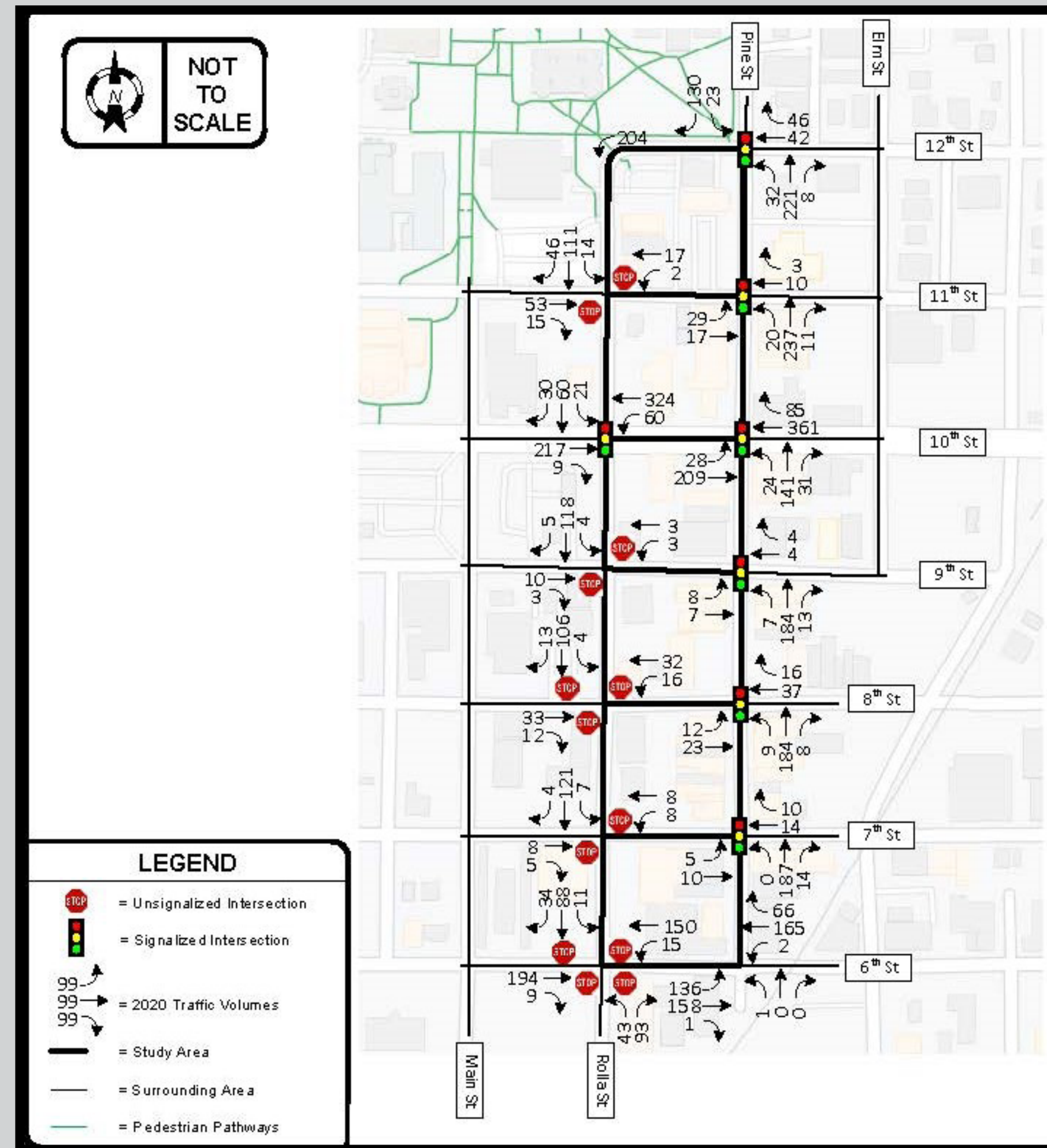


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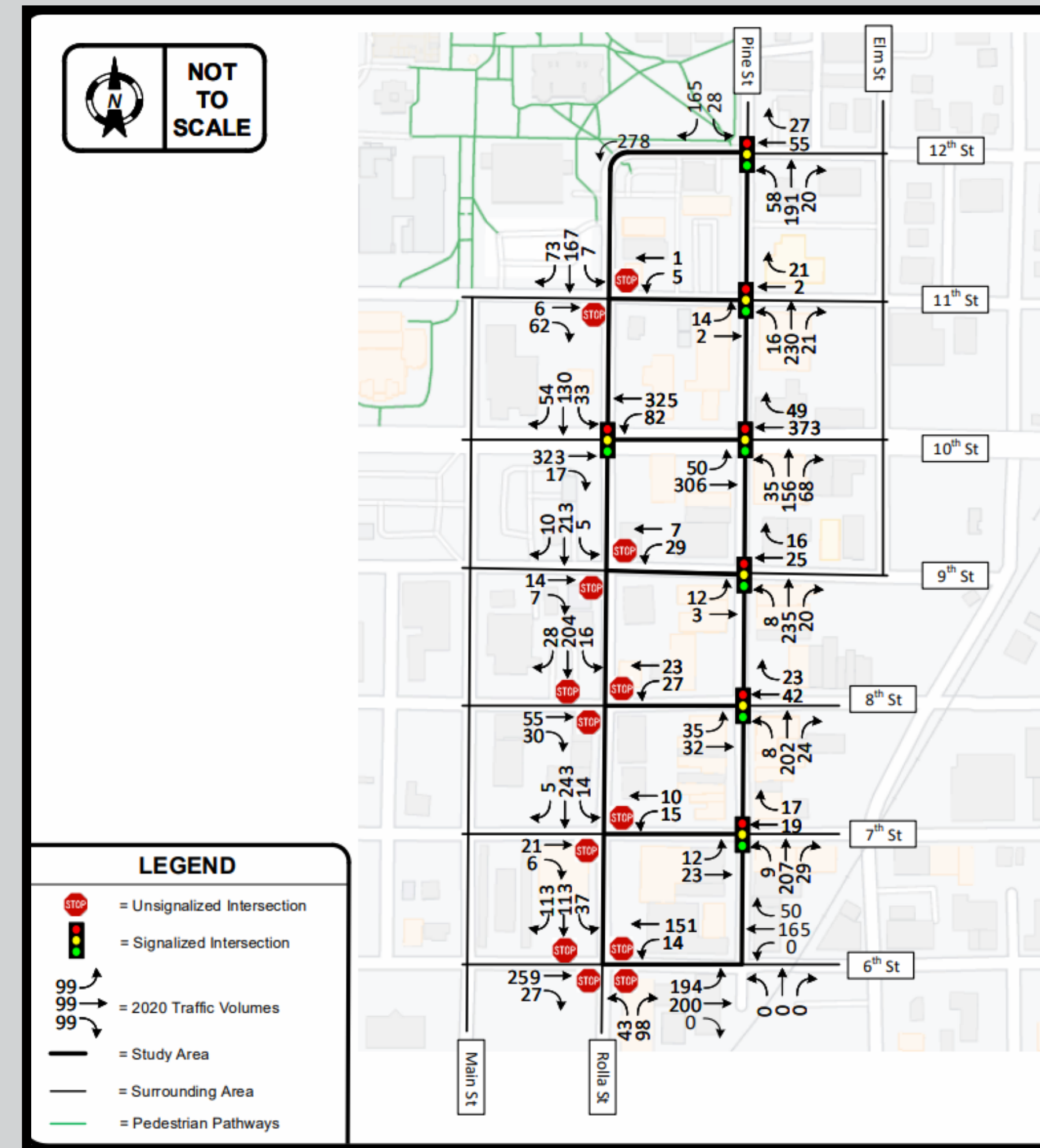


Traffic (2020)

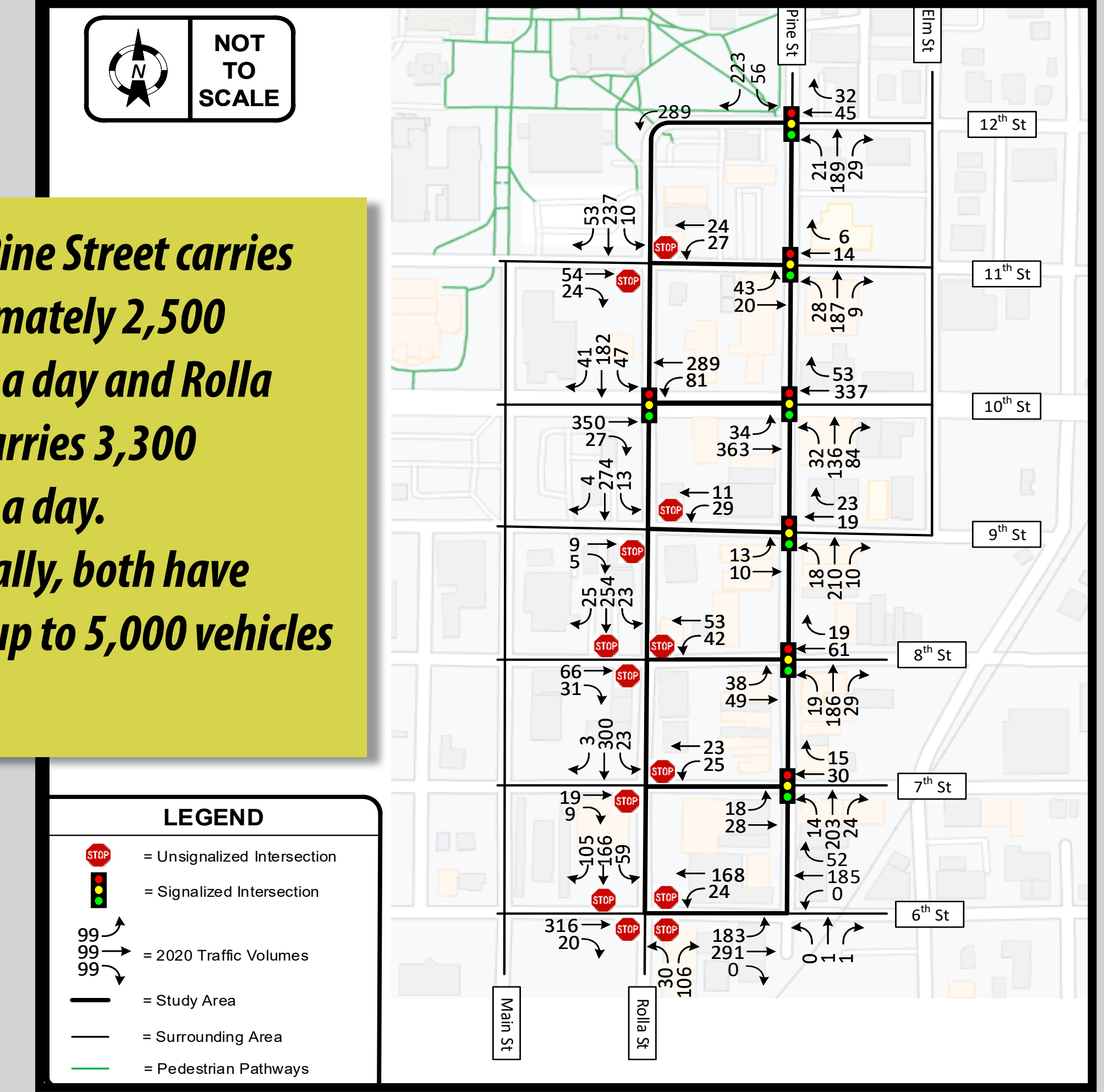
Morning Peak Traffic Volumes



Mid-day Peak Traffic Volumes

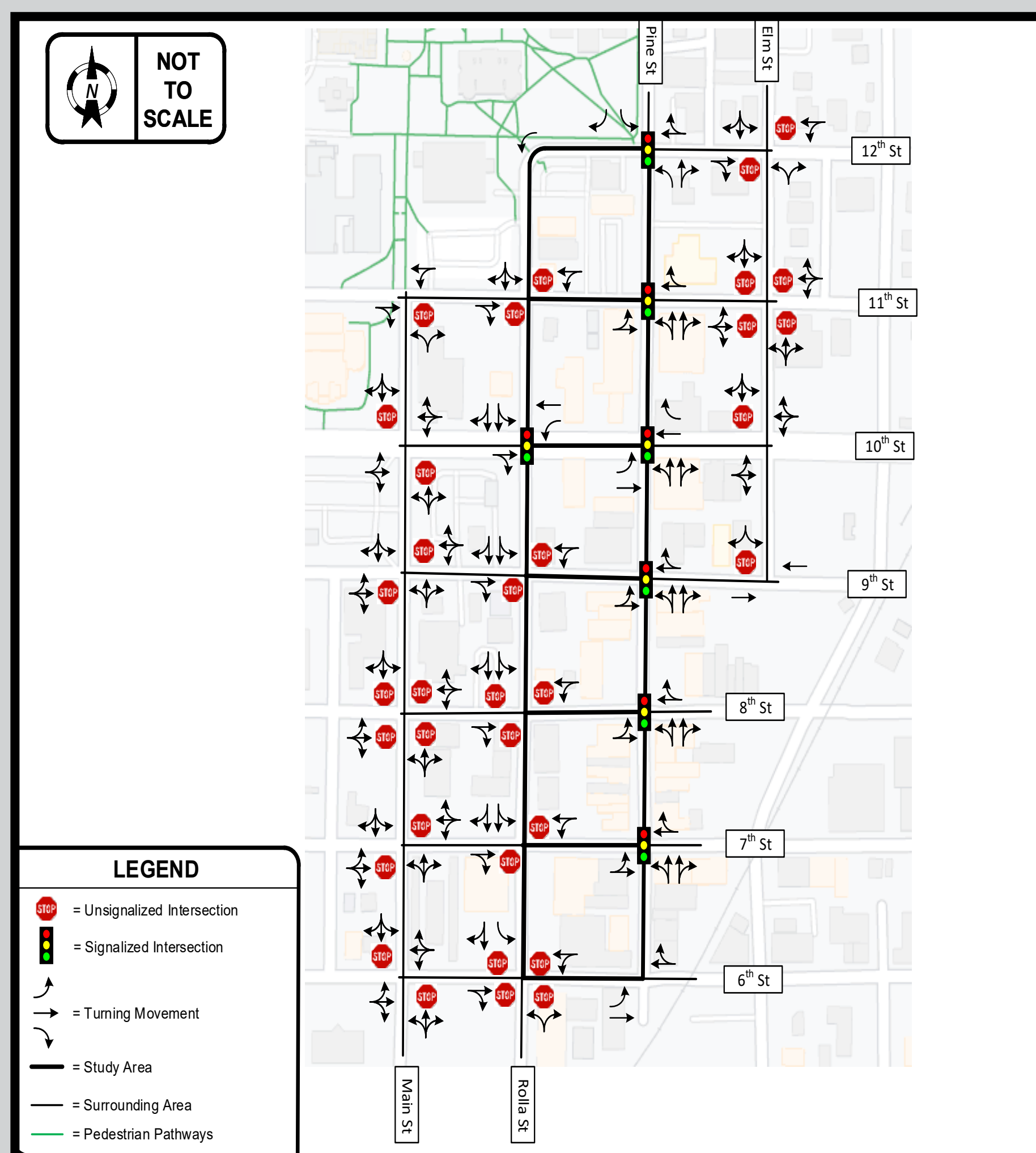


Afternoon Peak Traffic Volumes

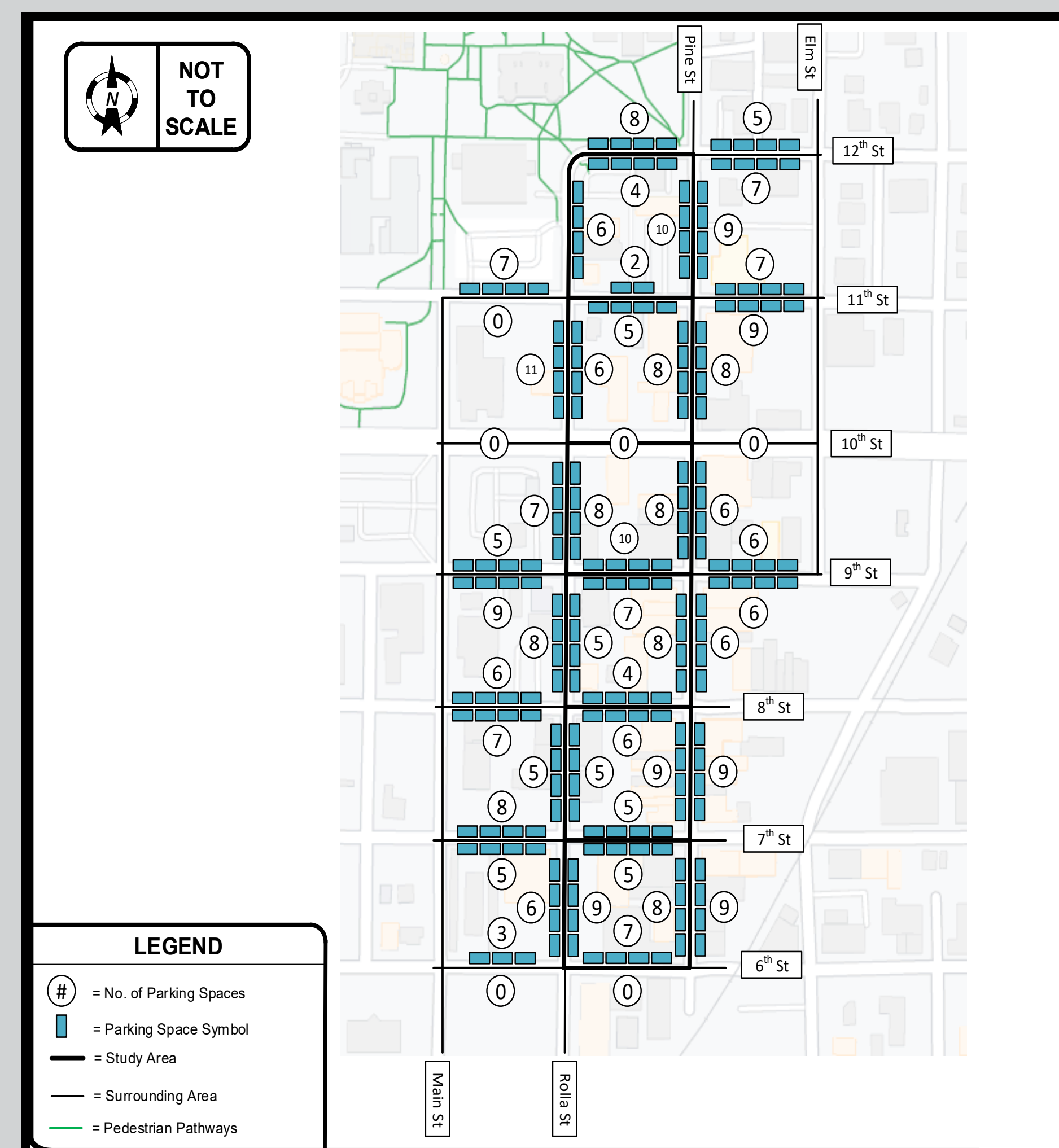


Today, Pine Street carries approximately 2,500 vehicles a day and Rolla Street carries 3,300 vehicles a day. Historically, both have carried up to 5,000 vehicles a day.

Intersection Control



Parking

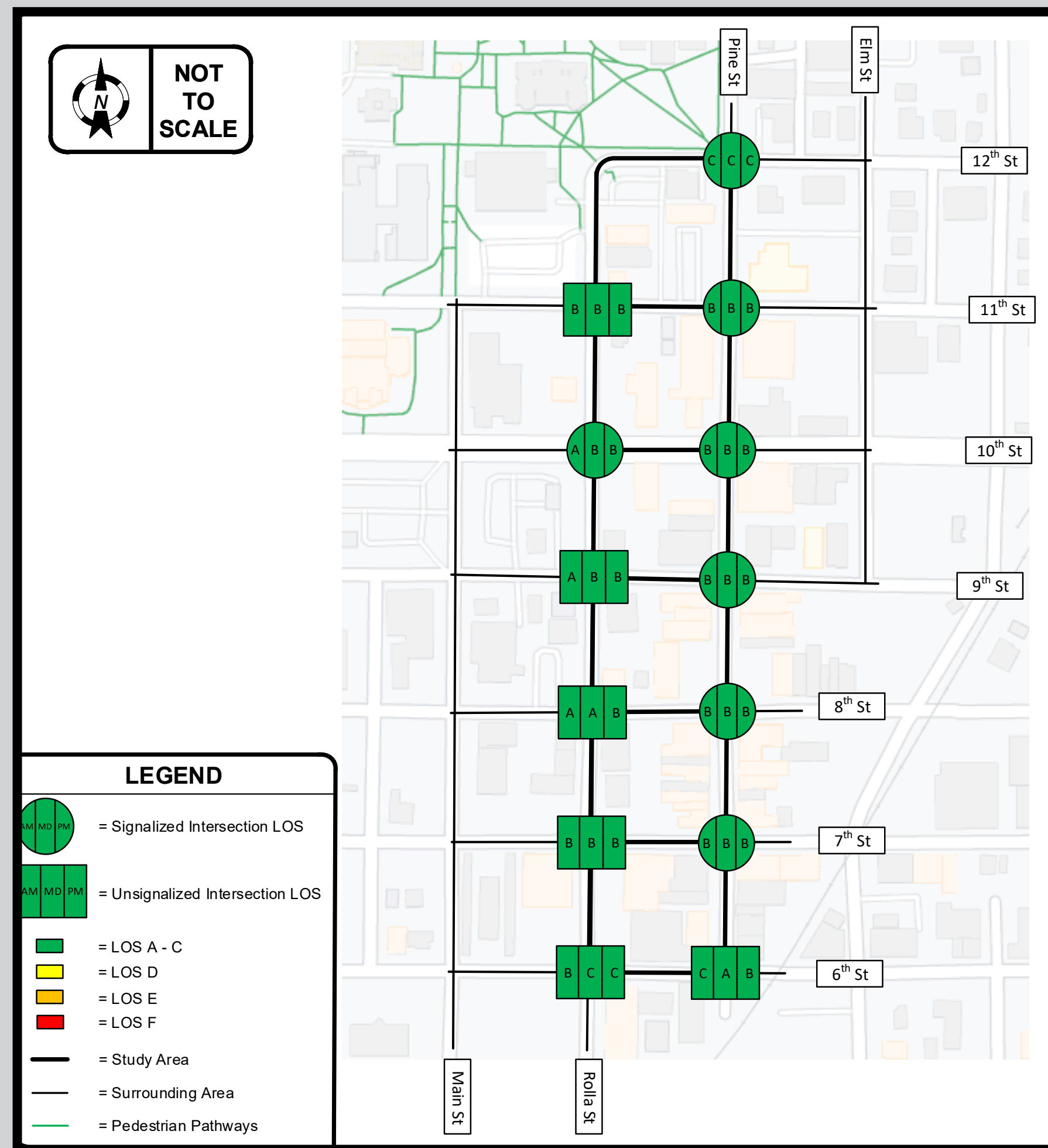


This board shows existing traffic volumes, intersection control and parking supply. Each of these transportation elements plays an important role downtown.

[Click here to take survey & provide input](#)



Existing 2020 Intersection Level of Service (LOS)

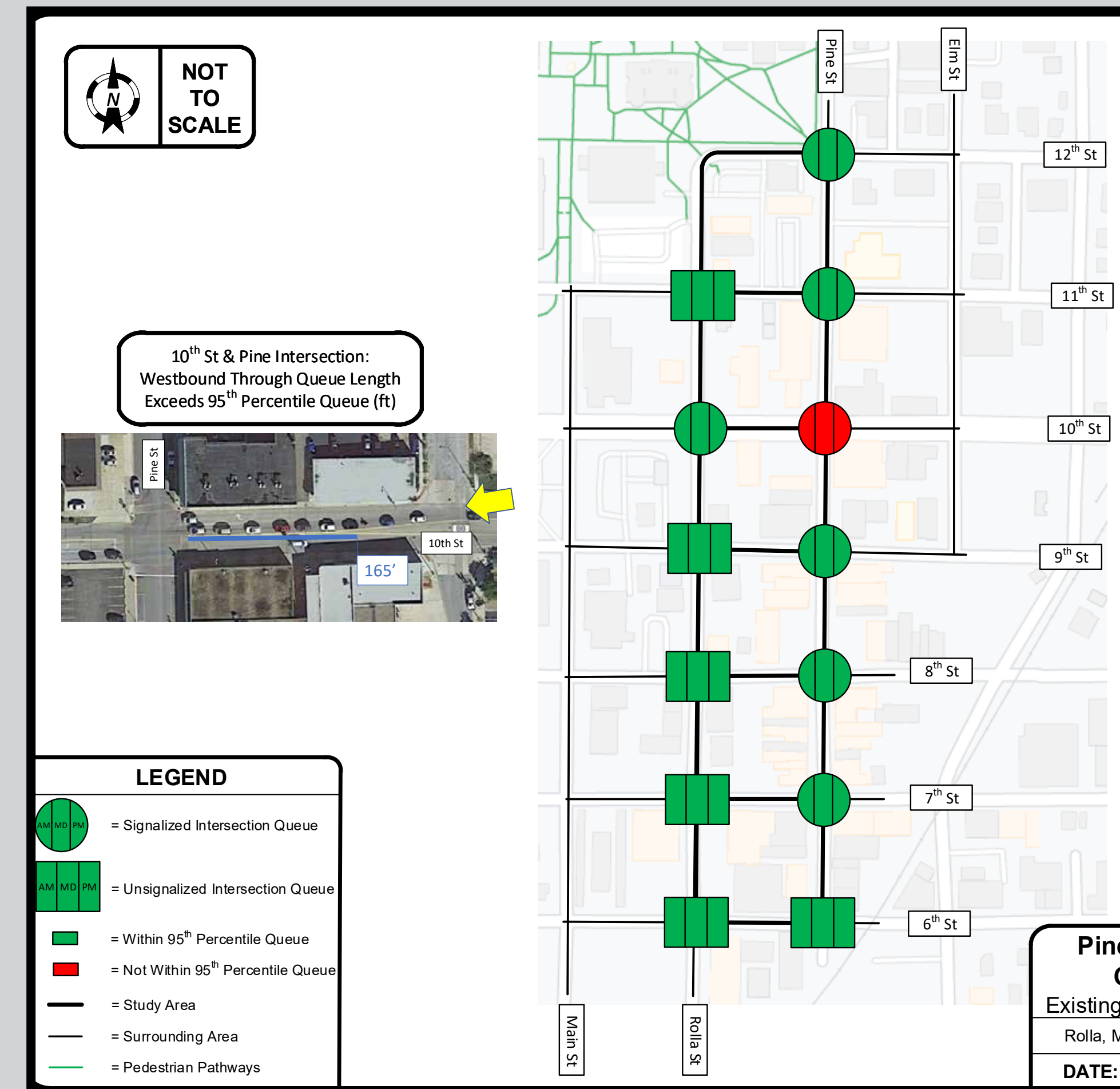


The existing 2020 level of service, which measures traffic performance for vehicular traffic during the morning, mid-day and afternoon peak hours along Rolla Street and Pine Street is very good with minimal motorists delay. However, with multiple consecutive traffic signals, a high number of corridor stops with minimal delay could occur without proper signal progression.

Notes:
Signalized Intersection LOS reported by overall intersection delay.
Unsignalized Intersection LOS reported by worst movement delay.

Pine Street / Downtown Circulation Study
Existing Intersection Level of Service
Rolla, Missouri Prepared By **HNTB**
DATE: June 2021 **Sheet 13**

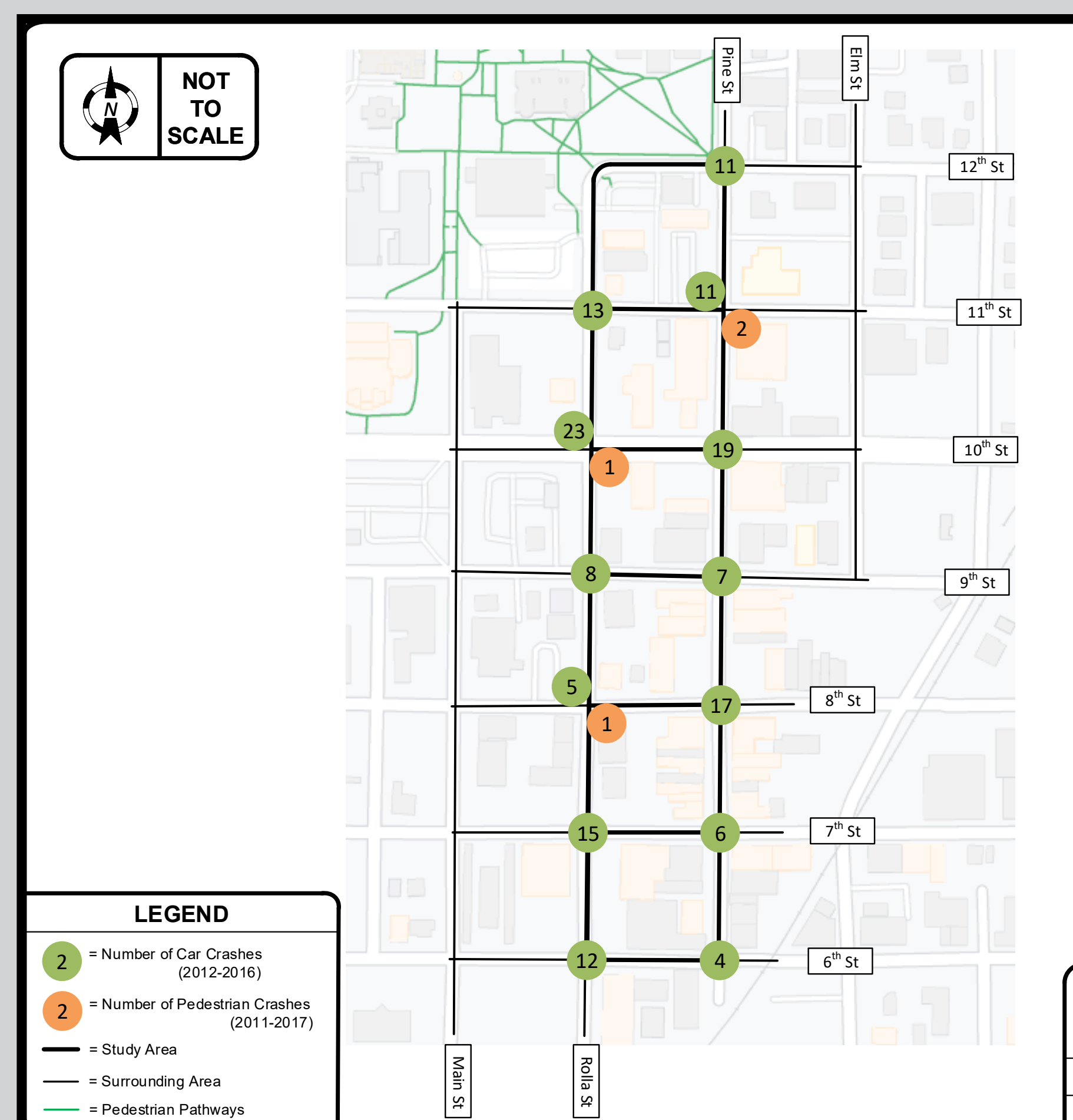
Existing 2020 Intersection Queue Results



The existing 2020 vehicle queues were analyzed during the morning, mid-day and afternoon peak hours along Rolla Street and Pine Street. Vehicle queues were found to be within the available storage during most peak hours. The only location that was found to have some vehicle queue storage problems was the westbound direction at 10th and Pine Street in the PM peak hour.

Pine Street / Downtown Circulation Study
Existing Intersection Queue Results
Rolla, Missouri Prepared By **HNTB**
DATE: June 2021 **Sheet 14**

Safety - Crash Data



There were 150 total vehicle crashes and 4 pedestrian crashes over the study period. Of the 150 total vehicle crashes, 75 occurred in the Pine St. corridor and 75 occurred in the Rolla St. corridor. The 10th Street corridor saw the greatest number of crashes per intersection. Pedestrian crashes were spread out with 3 of the crashes occurring at a traffic signal and 1 at a stopped controlled intersection.

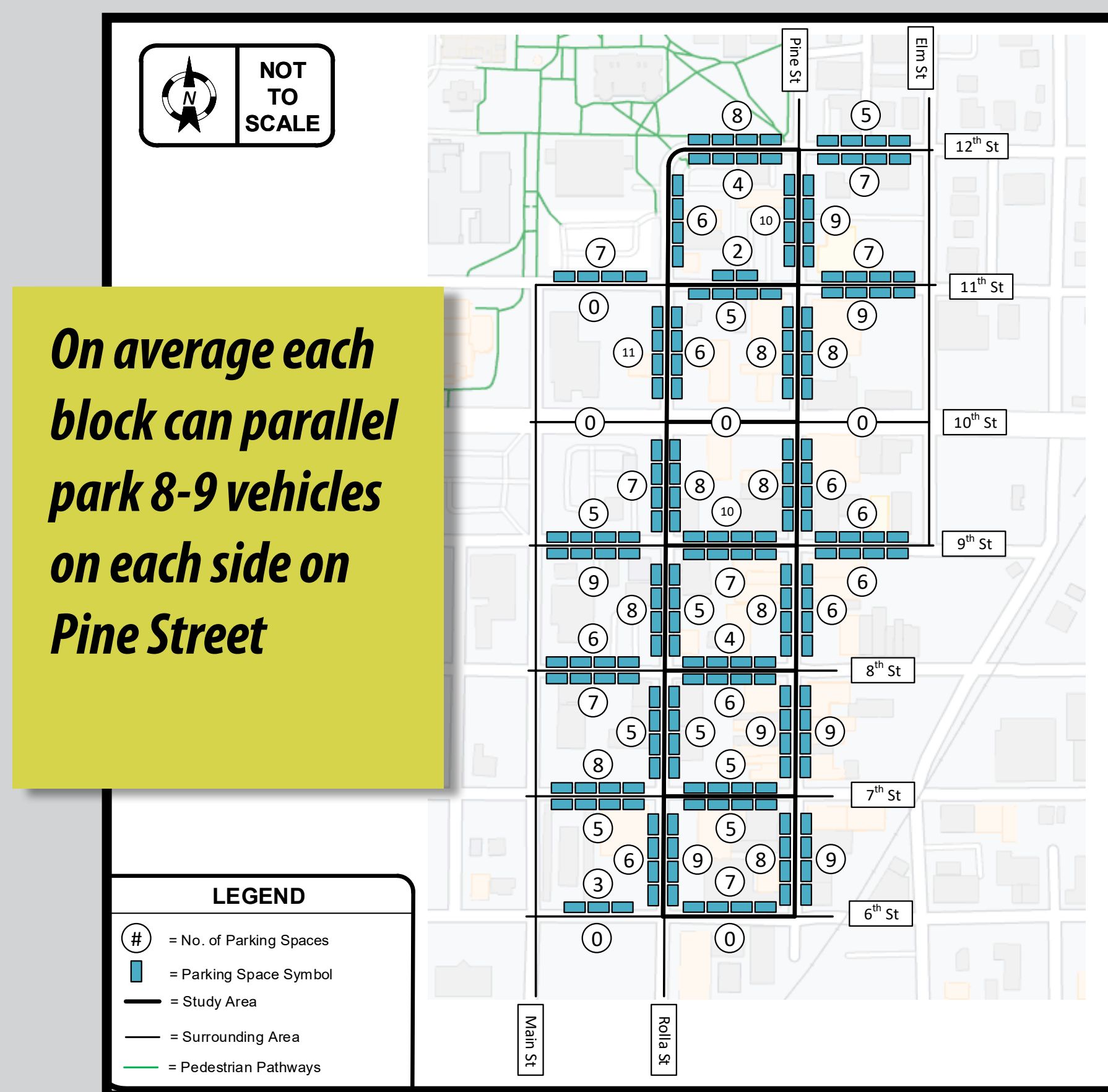
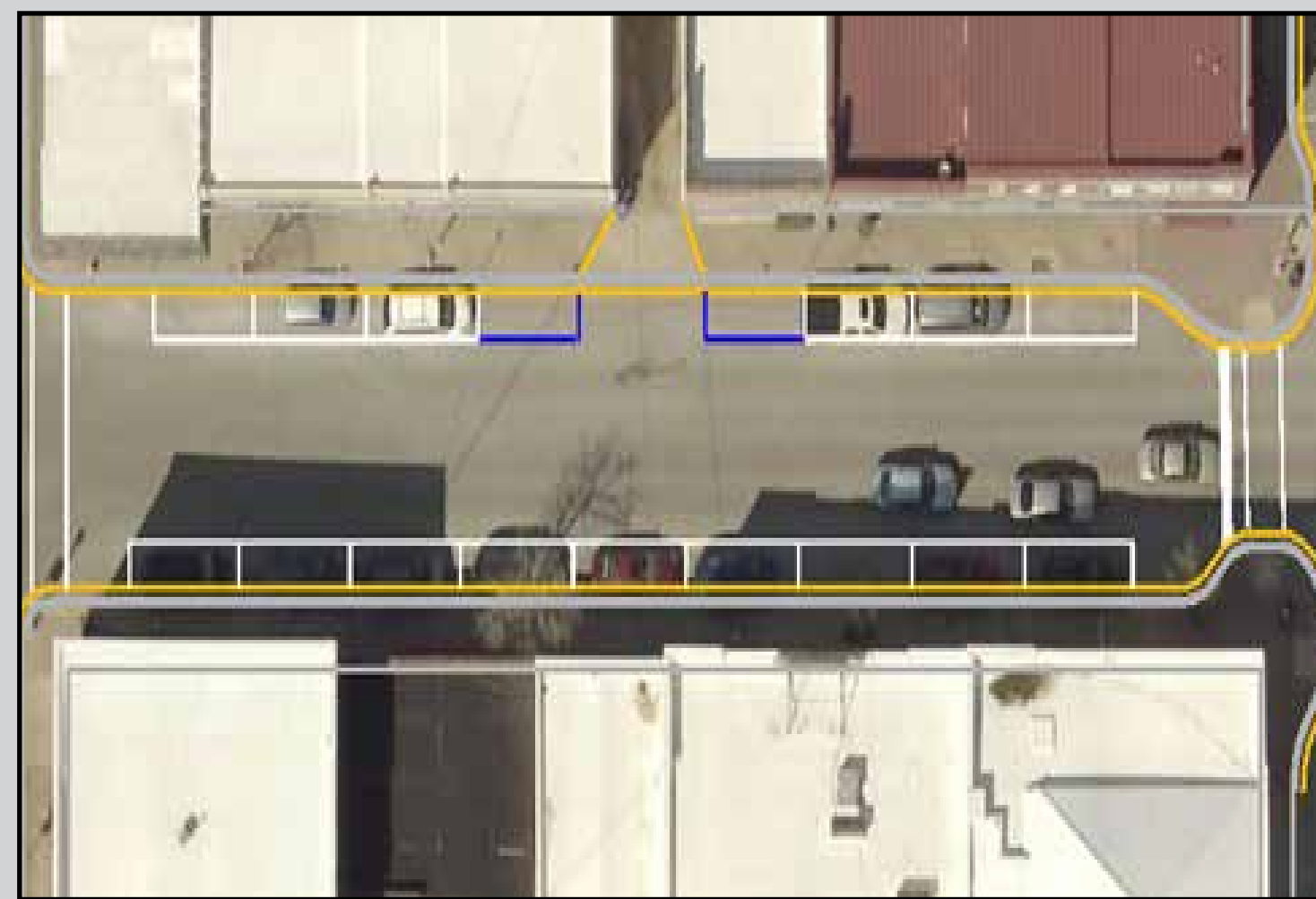
Pine Street / Downtown Circulation Study
Total Vehicle and Pedestrian Crashes
Rolla, Missouri Prepared By **HNTB**
DATE: July 2021 **Sheet 15**

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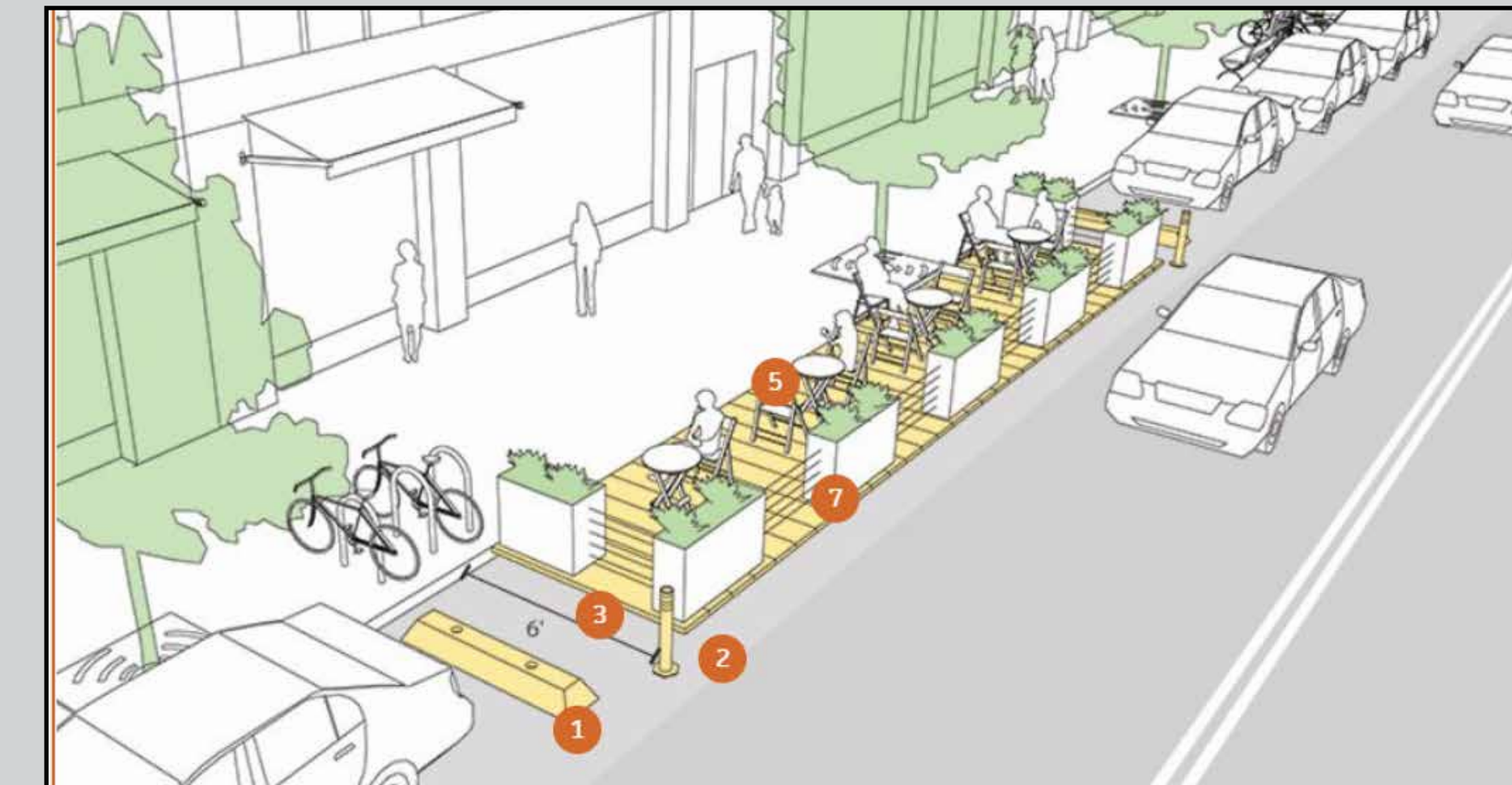
Parallel /Current Parking:

The current parallel parking configuration on Pine Street primarily allows nine parking spaces on each side of a typical block. Some blocks have more, some blocks have less. Within the study area there are a total of 327 on-street parking spaces available today per the exhibit below.



Potential Parklet Concept:

Parklets are a small public area that aim to improve pedestrian experience and create a safer, more walkable community. While parklets do use existing parking spots, they provide businesses the opportunity to create an outdoor patio experience that could be temporary based on the season.

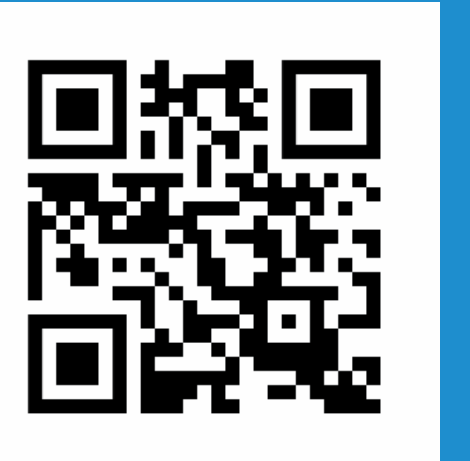


Potential Mixed Parking (Parallel and Angle):

An additional option is to maintain parallel parking on one side of the street and modify the other side of the street to angle. This would require reducing traffic to one lane, one way and **add 5 parking spots** on a typical block. In order to increase the parking stalls, 45 degree angle parking would be utilized.

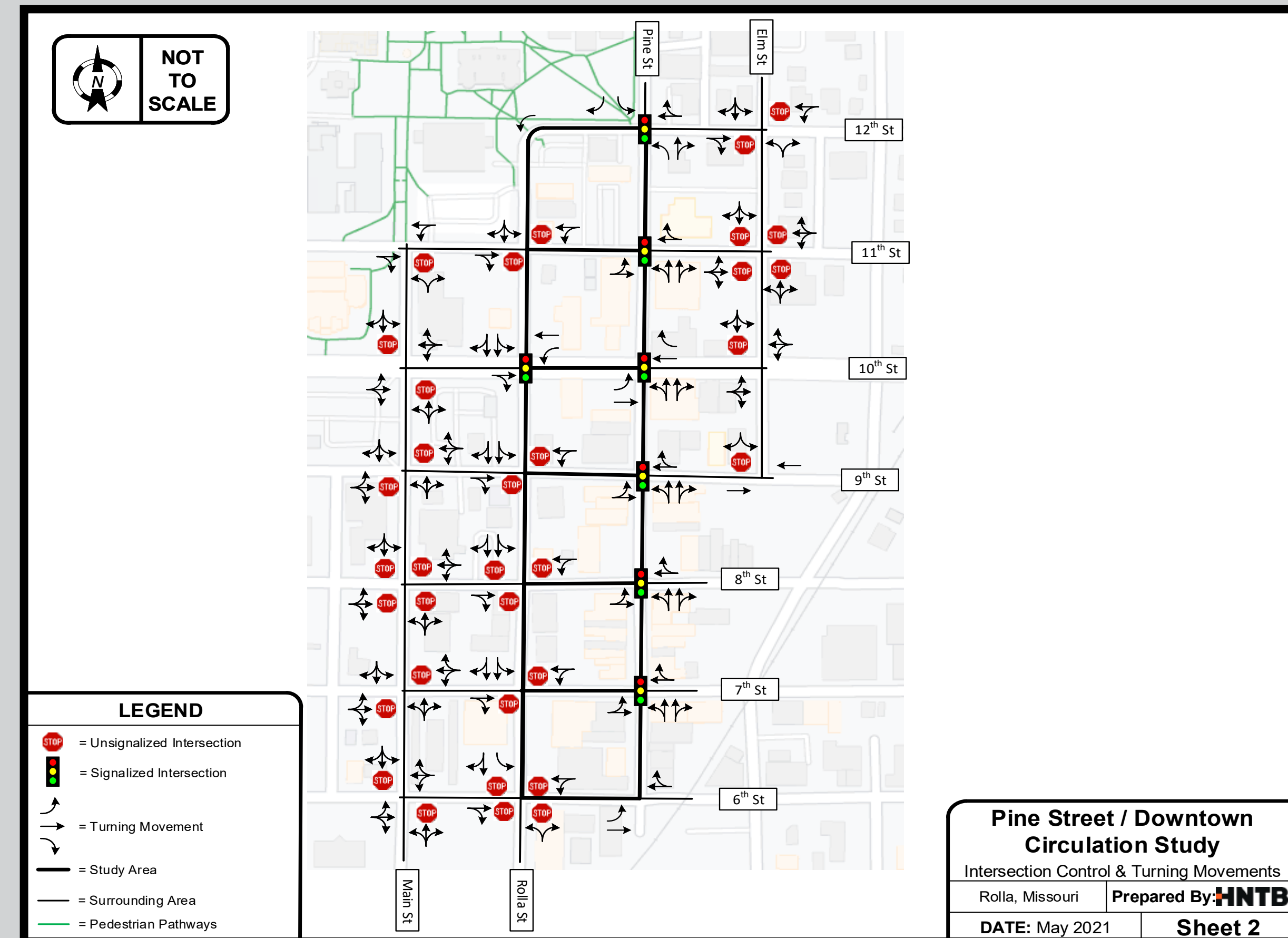


Angle parking is easier for people to pull into versus parallel parking. One drawback may be blind spots while backing out when leaving the parking spot.



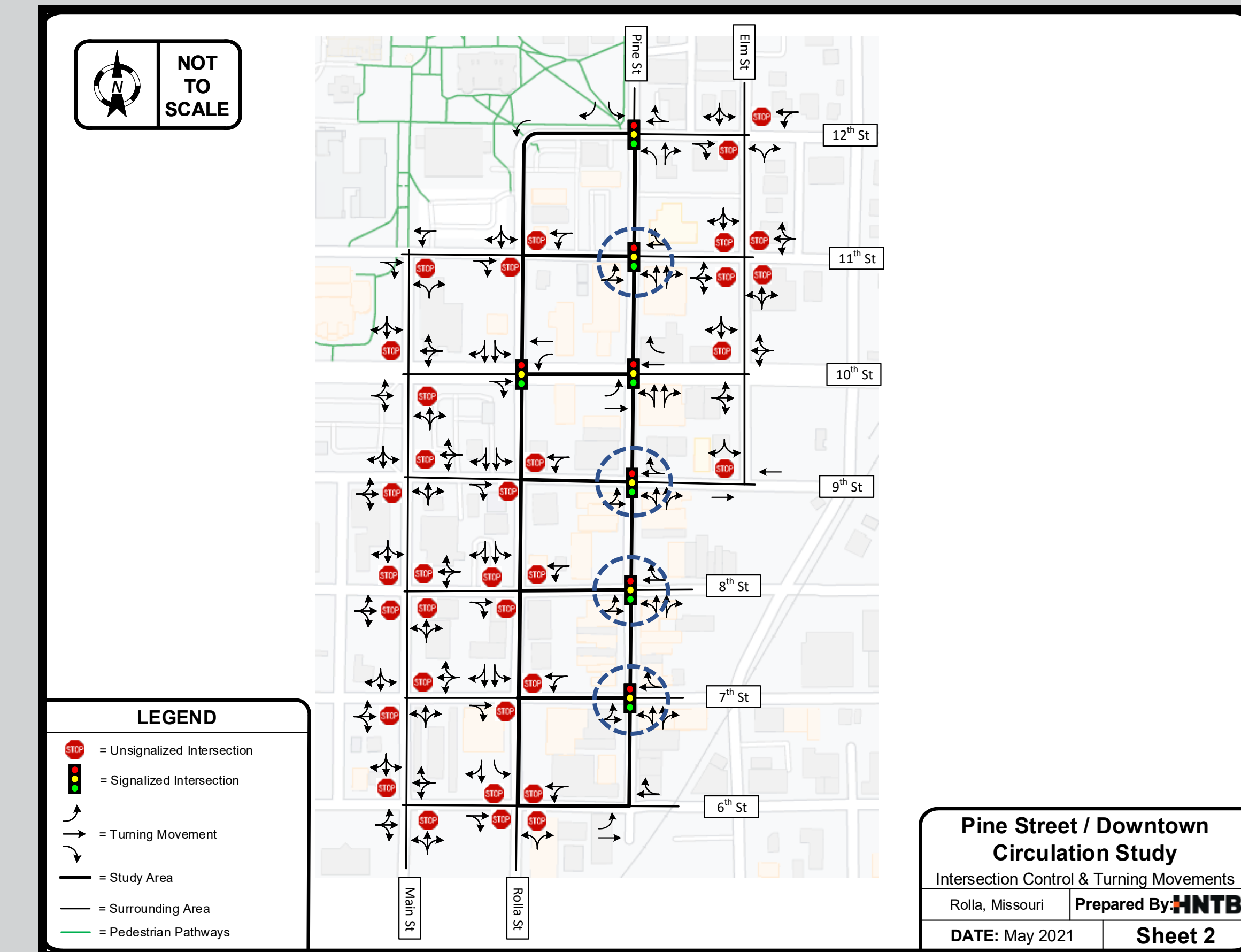
Existing Intersection Control:

Today, Pine Street has a traffic signal at every intersection between 7th Street and 12th Street. The only other traffic signal in the study area is at 10th and Rolla St.



Potential Signal Removal:

Based on reduced traffic volumes today and the goal of making downtown a more walkable area, the four intersections that are circled are locations of potential traffic signal removal.



Existing Signal Warrants (Pine Street and Rolla Street):

The locations where signals are recommended based on existing traffic and pedestrian volumes are :

- 12th Street and Pine Street
- 10th Street and Pine Street
- 10th Street and Rolla Street

Future Signal Warrants (Pine Street and Rolla Street):

When future traffic is considered, a traffic signal is also warranted and recommended at the 6th Street and Rolla Street intersection due to anticipated traffic volumes.

Future Signal Removal Considerations:

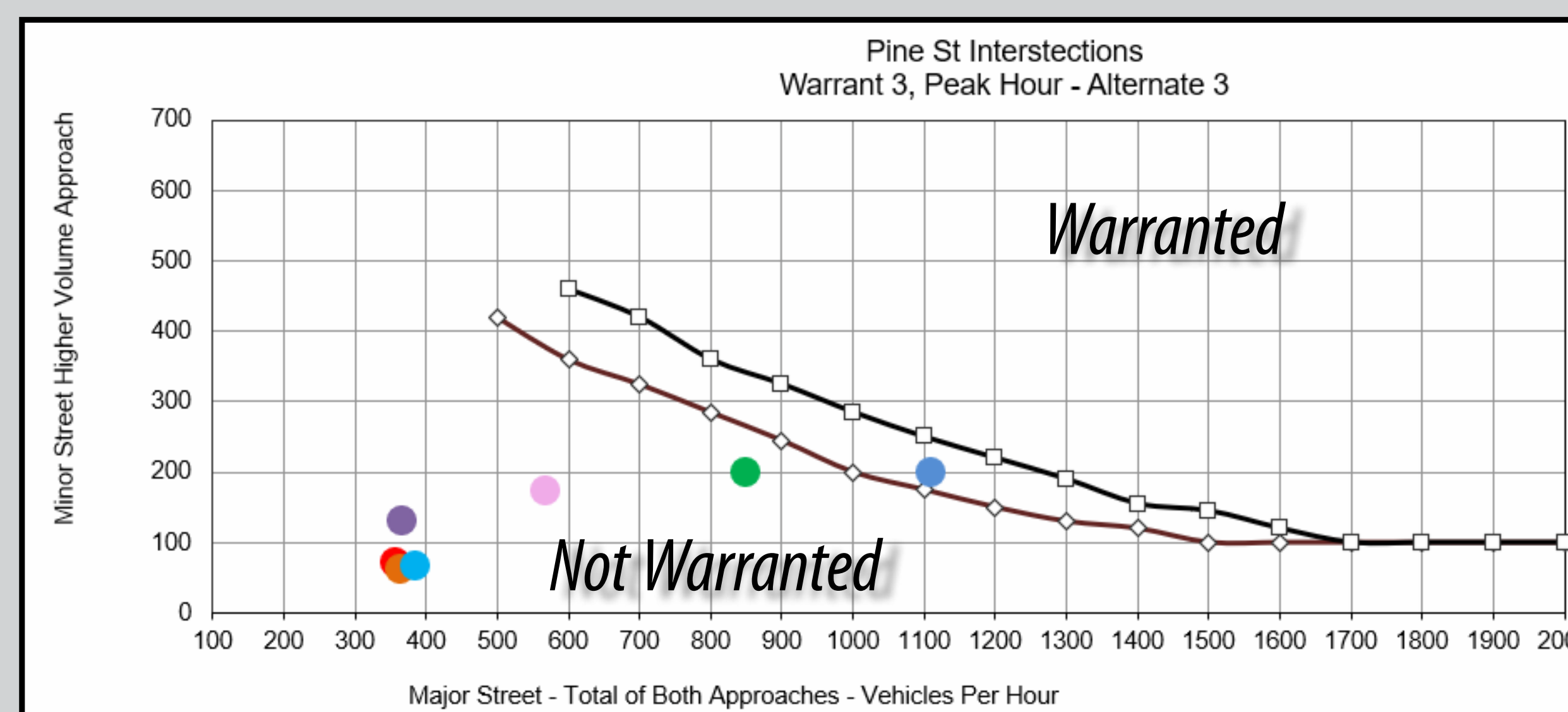
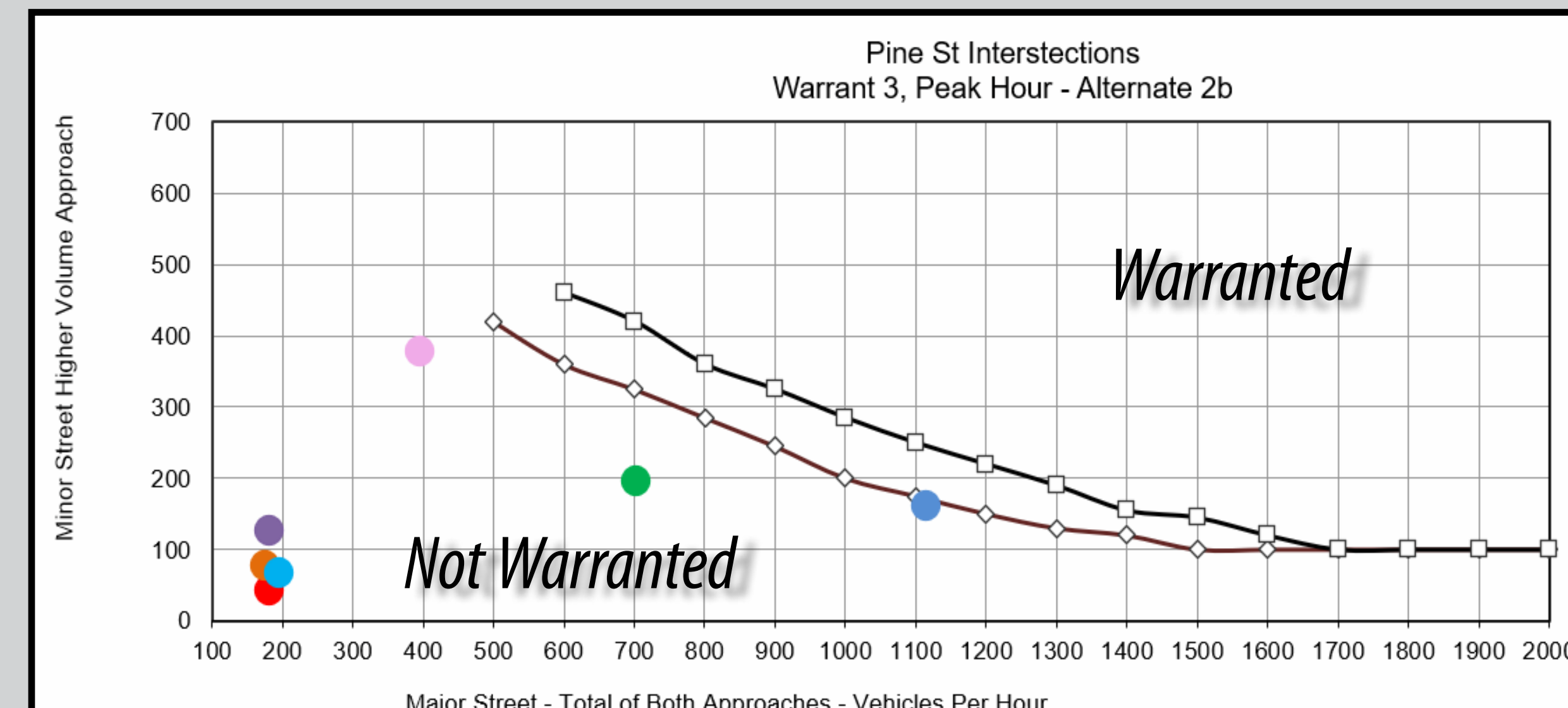
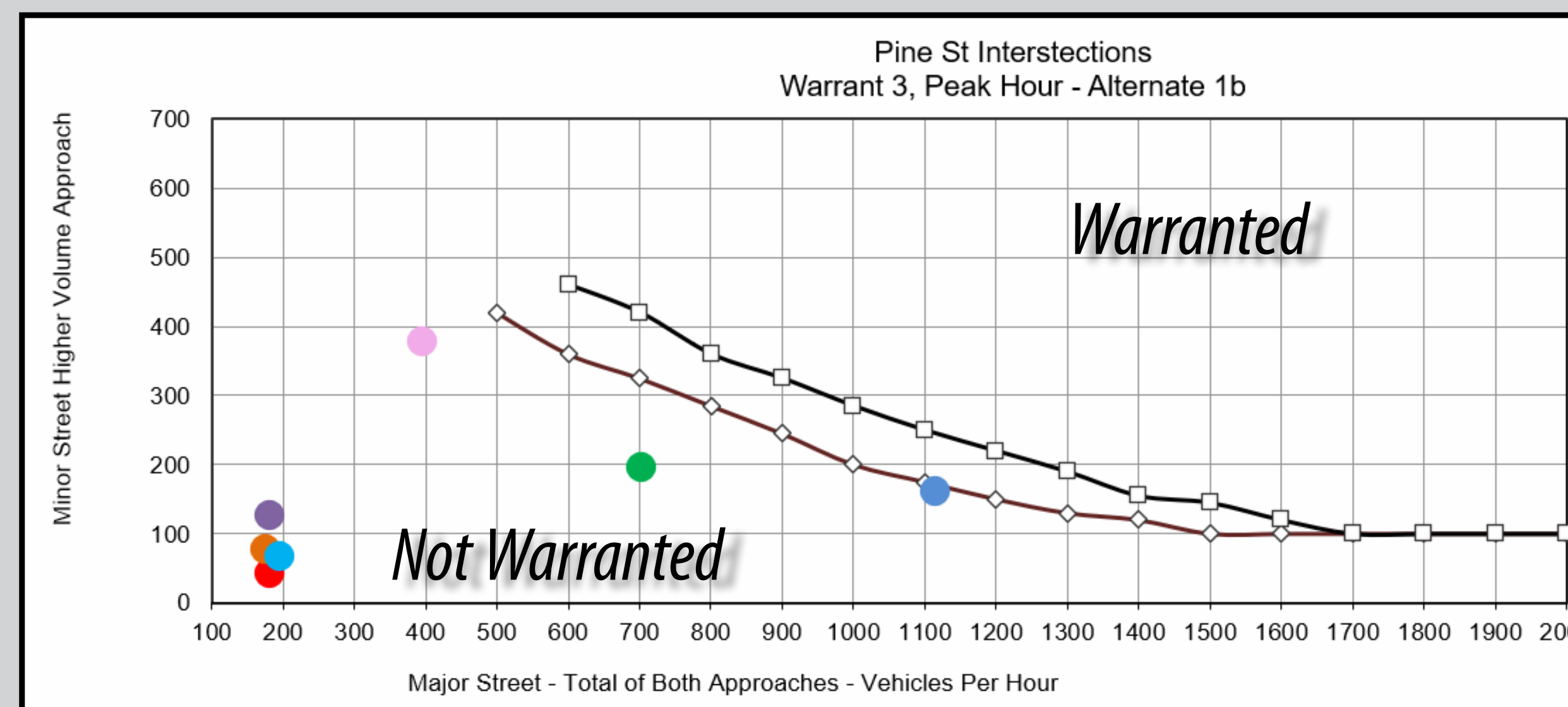
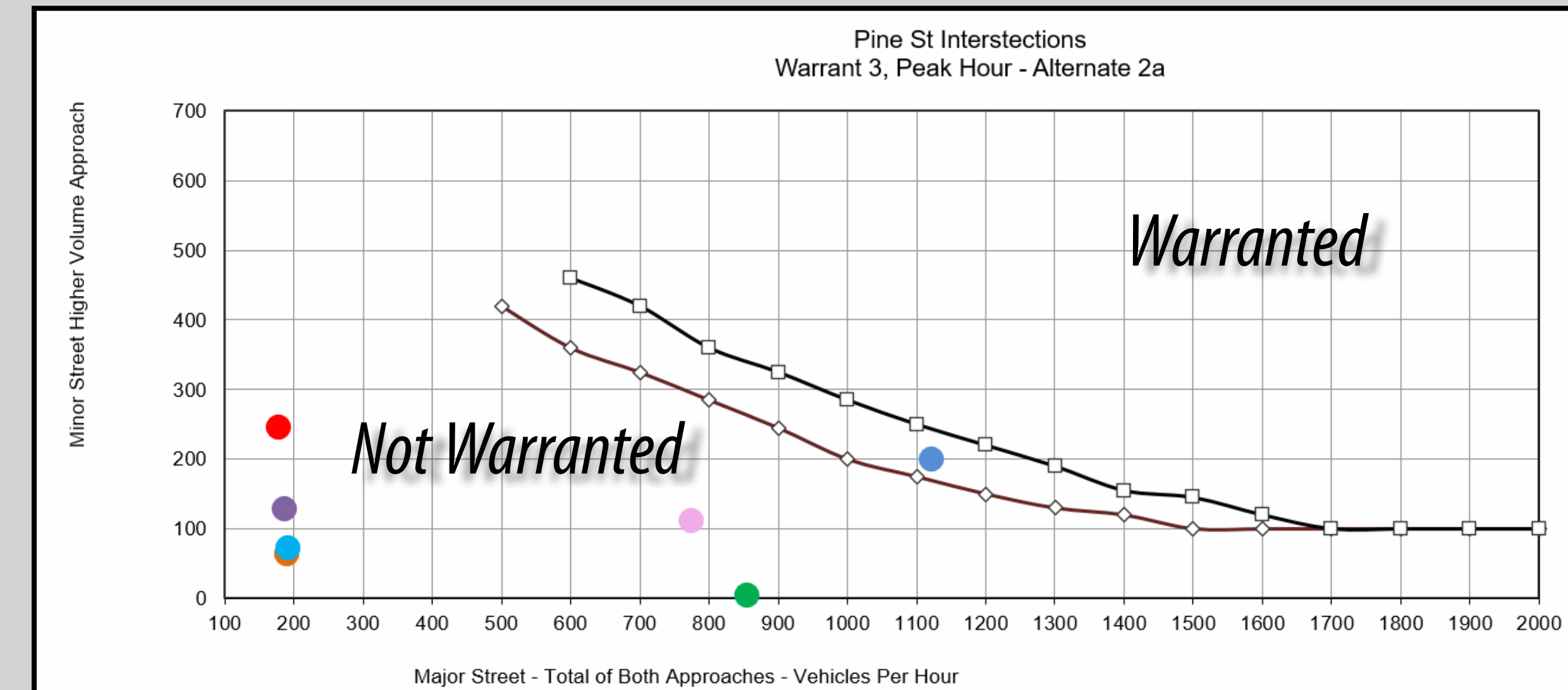
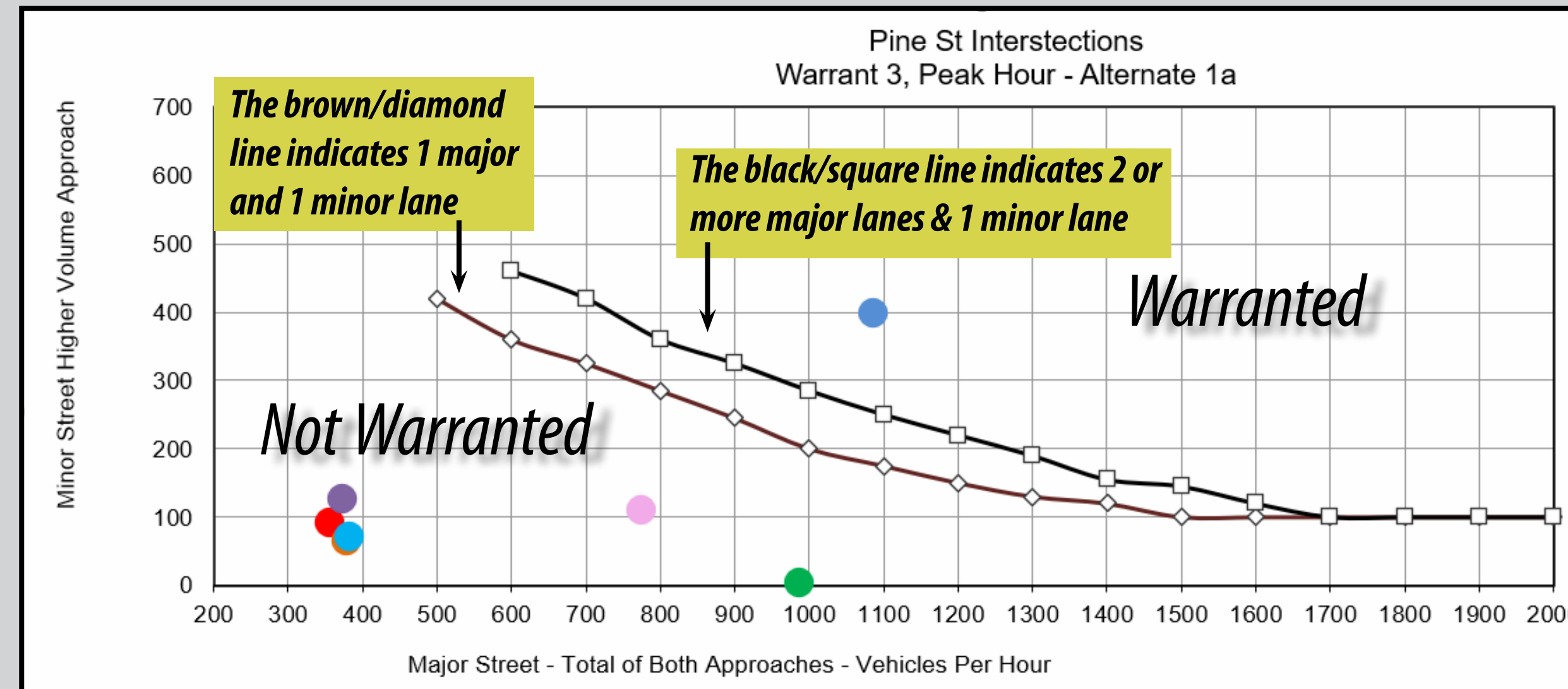
Due to anticipated future volumes, traffic signal removals may be considered at the following intersections:

- 11th Street and Pine Street
- 9th Street and Pine Street
- 8th Street and Pine Street
- 7th Street and Pine Street



Pine Street Future Signal Warrants:

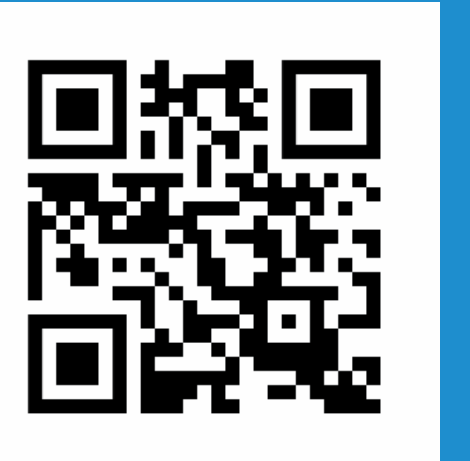
- ◆ 1 Lane Major & 1 Lane Minor
- 2 or More Lanes Major & 1 Lane Minor
- Pine & 12th PM Future
- Pine & 11th PM Future
- Pine & 10th PM Future
- Pine & 9th PM Future
- Pine & 8th PM Future
- Pine & 7th PM Future
- Pine & 6th PM Future



The graphs show if an intersection warrants a traffic signal based on future peak hour volumes using national traffic standards.

Only Pine Street and 10th Street warrants a traffic signal based on traffic demand. On Rolla Street, only 6th Street warrants a traffic signal in the future.

* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.



Alternative 1a (existing):

Existing circulation - Pine Street two lane, one-way northbound and Rolla Street two lane, one-way southbound.

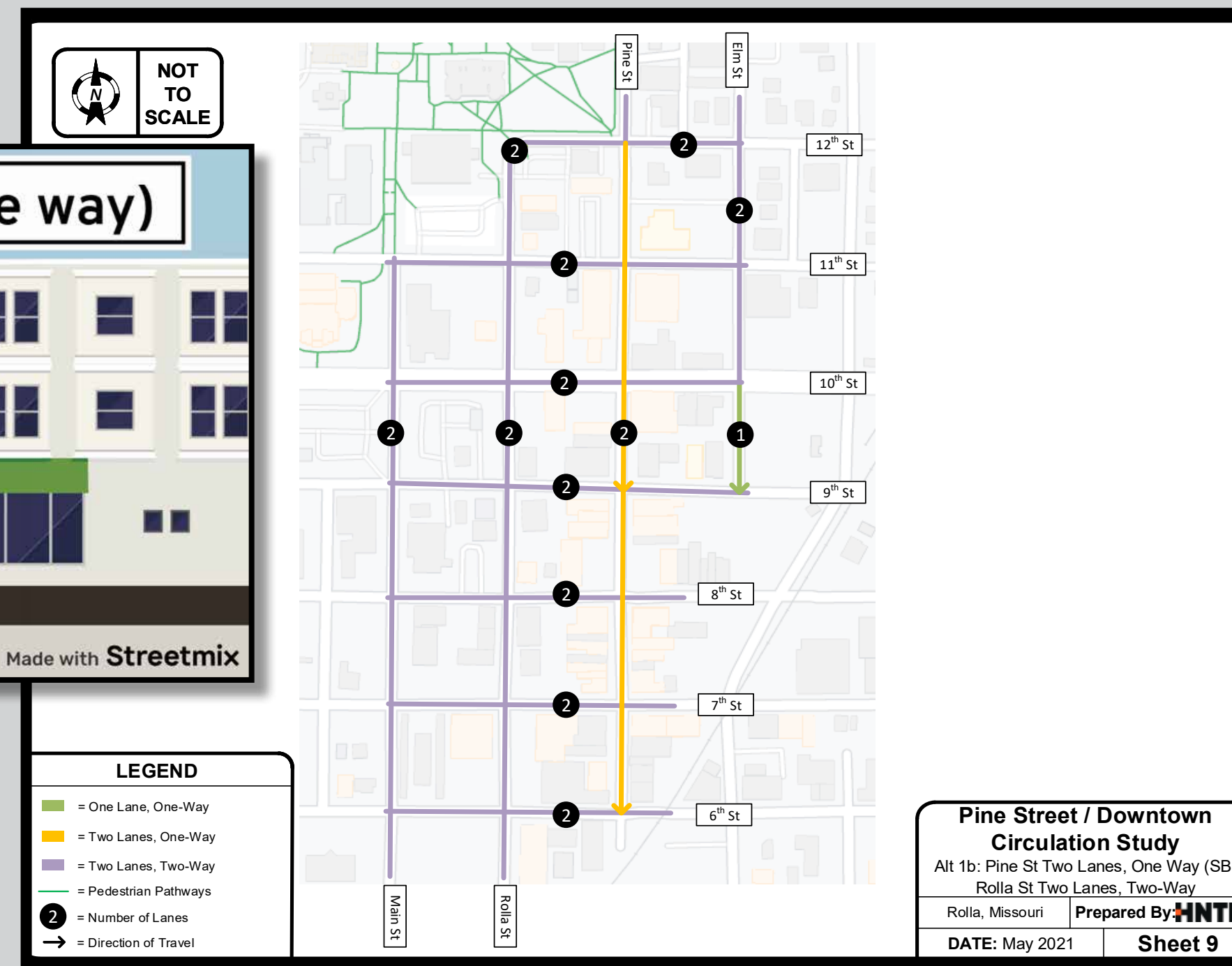
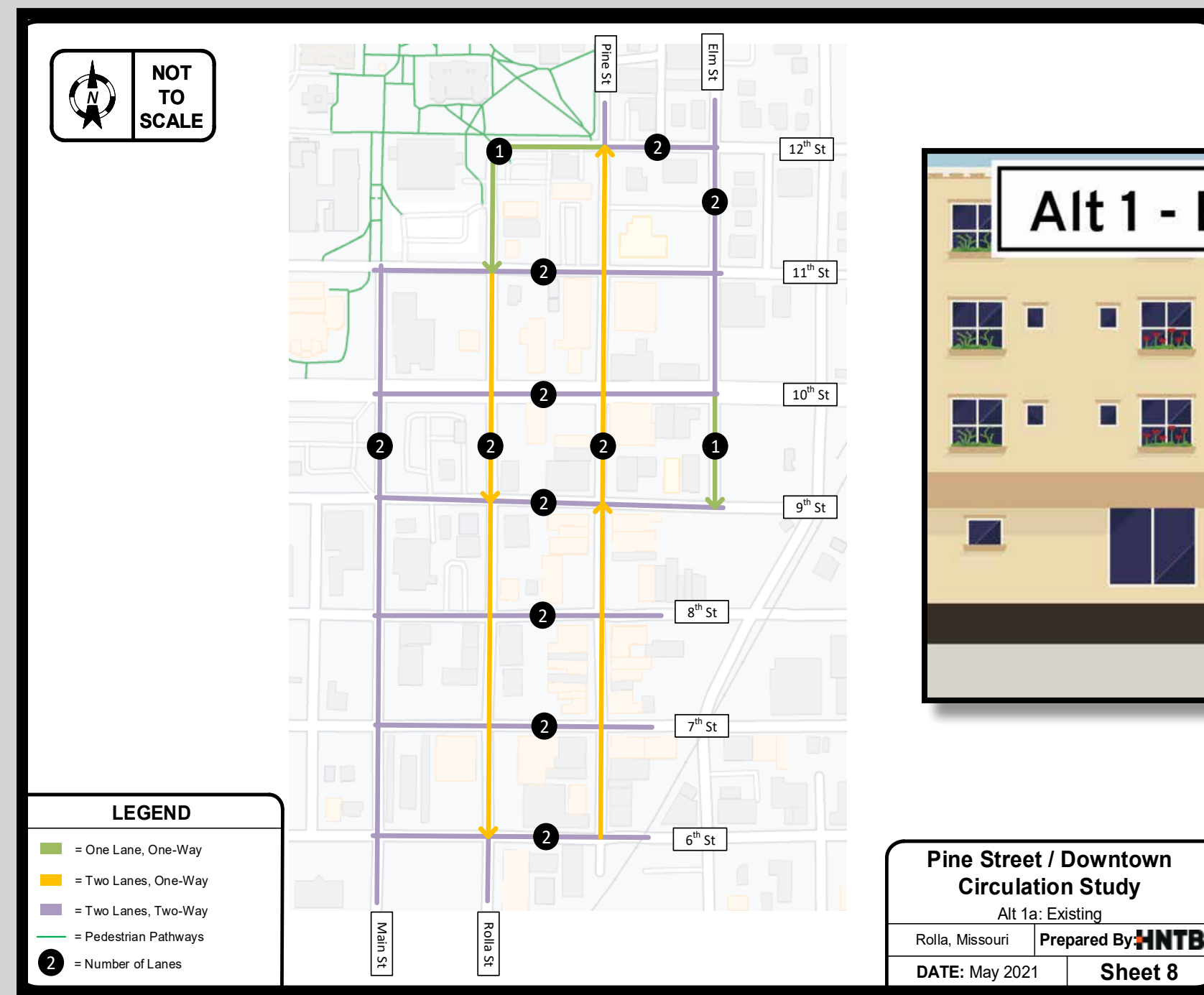
Alternative 1b:

Pine Street two lane, one-way southbound and Rolla Street two lane, two-way.

Other Considerations:

The following are additional considerations that can be incorporated into the Alternatives.

-  Designated Bike Lanes
-  Wider Sidewalks
-  Parklets
-  Back-in Parking



Alternative 2a

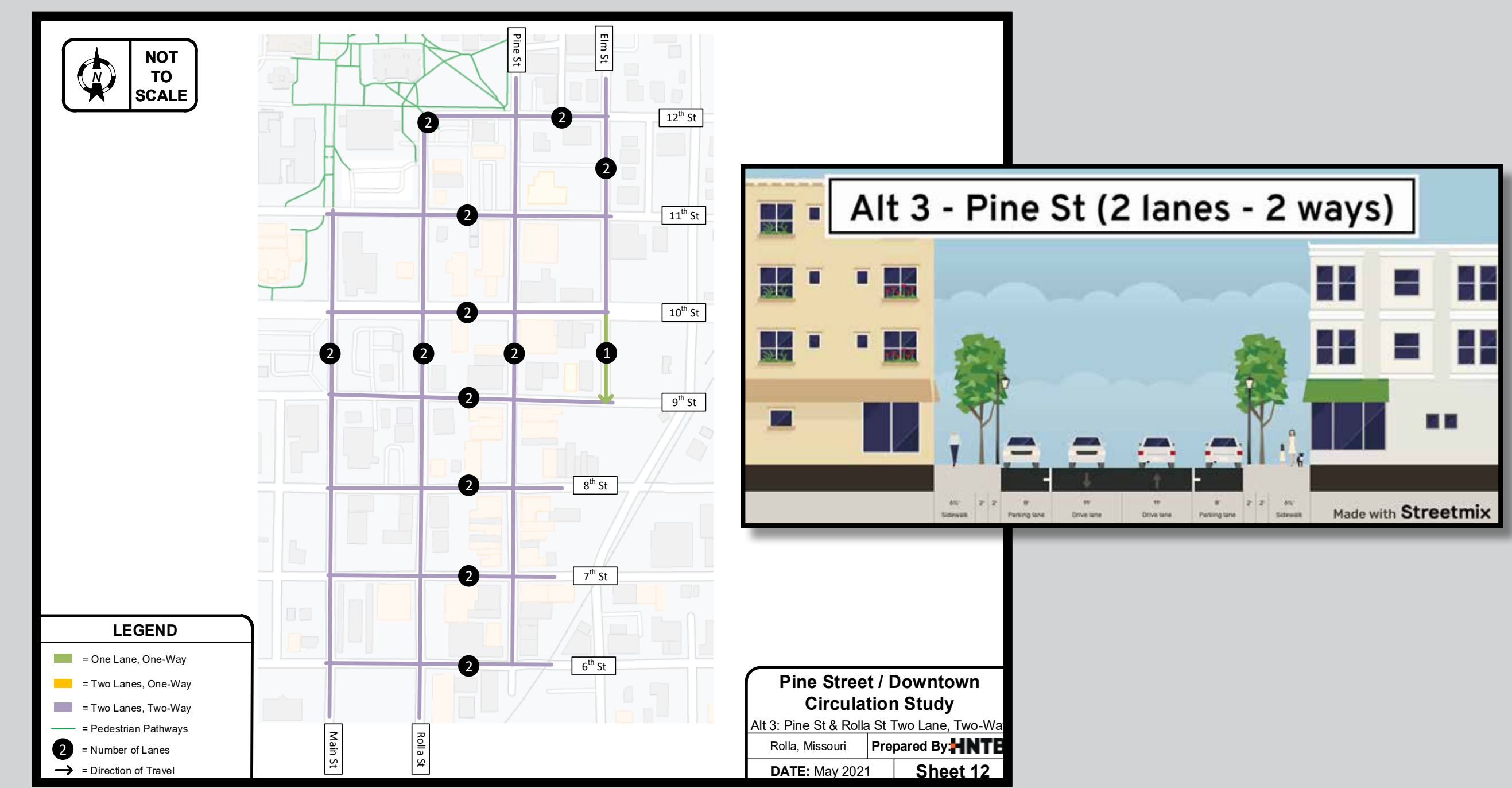
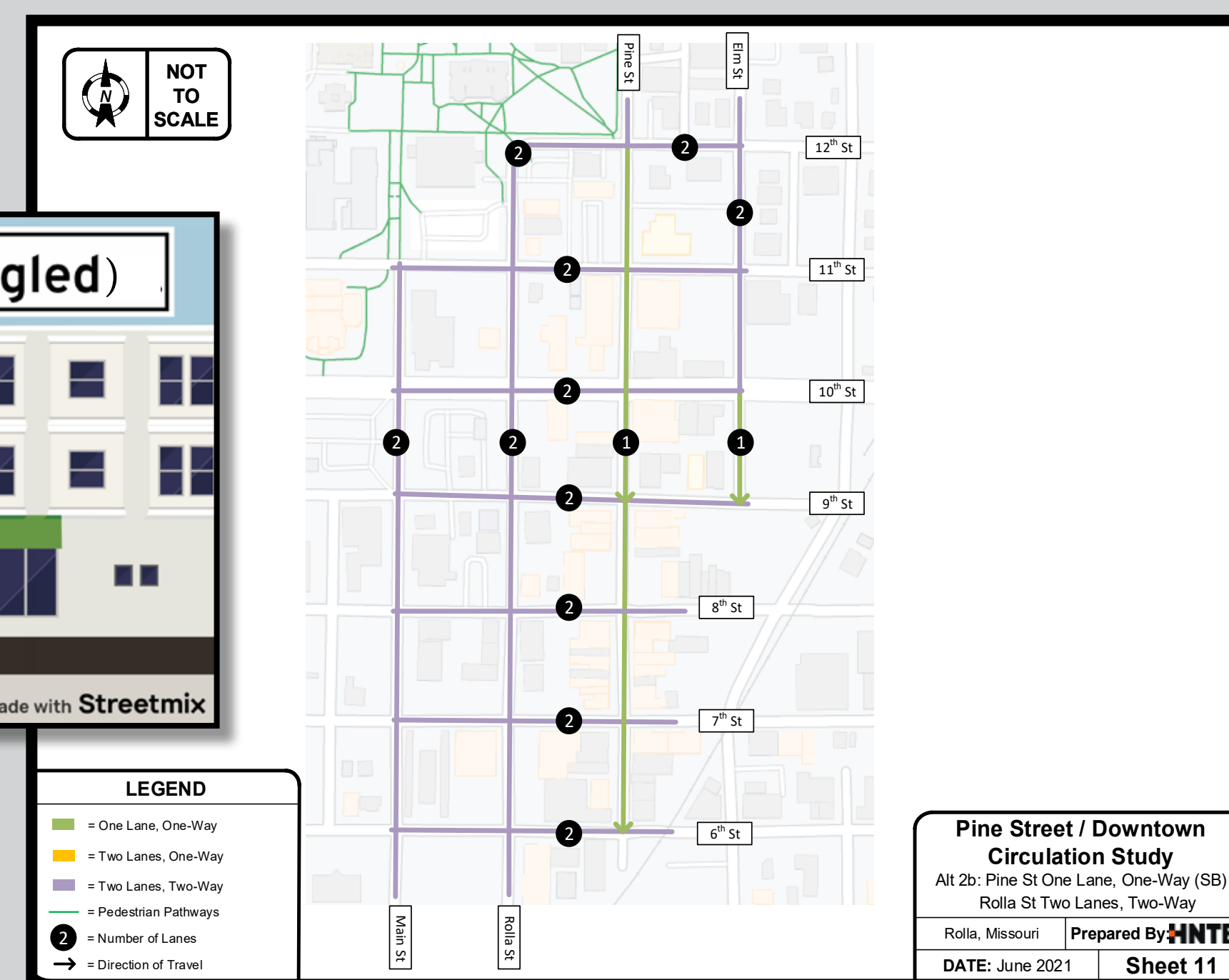
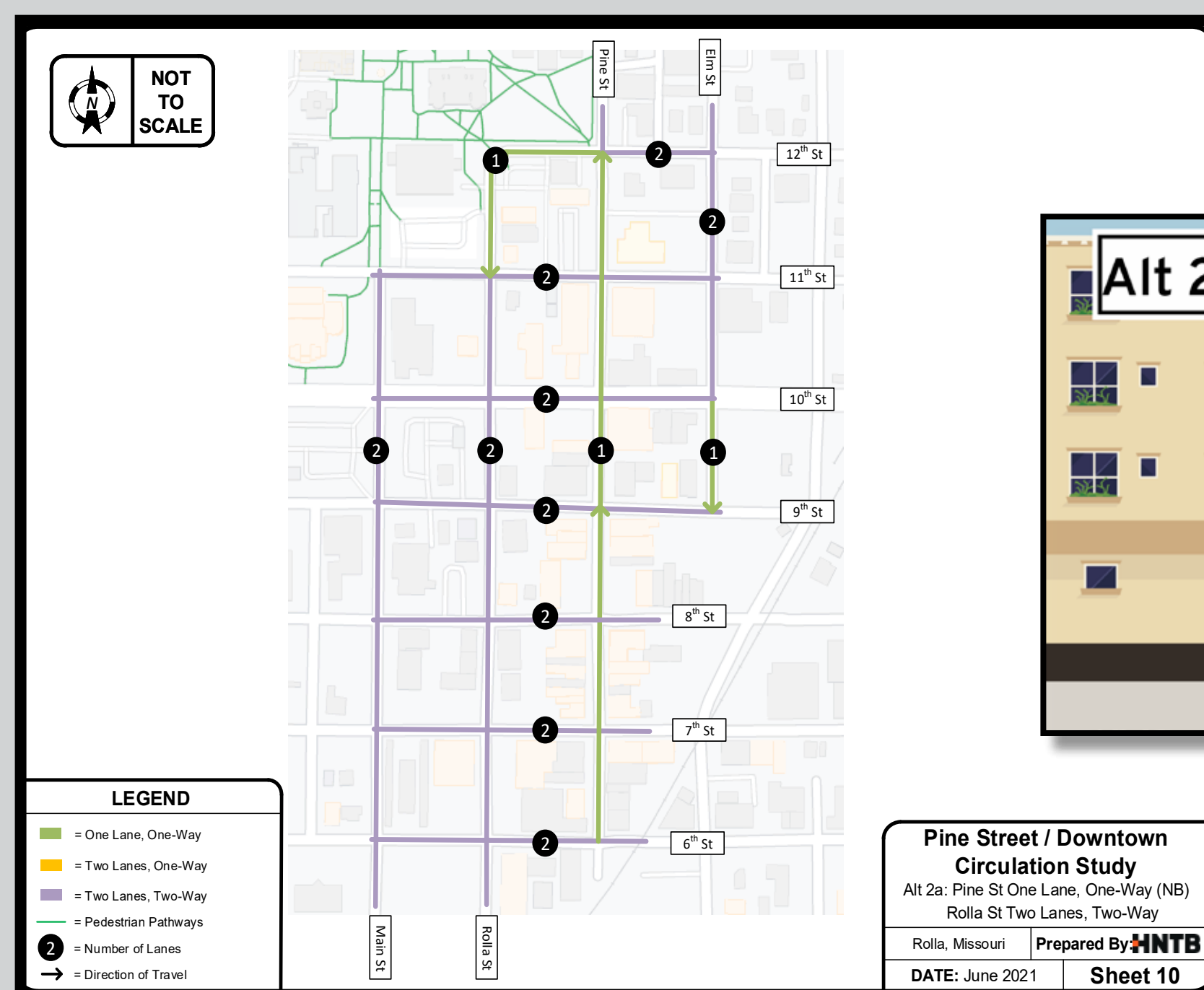
Pine Street one lane, one-way northbound and Rolla Street two lanes, two-way.

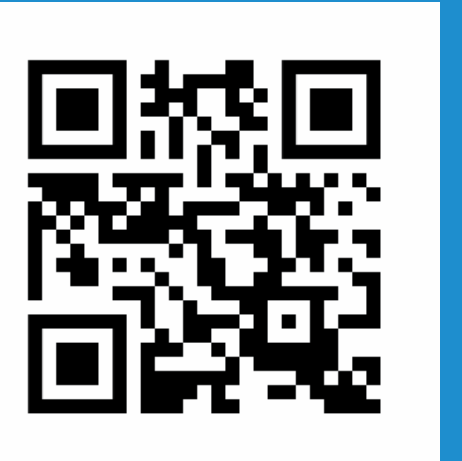
Alternative 2b:

Pine Street one lane, one-way southbound and Rolla Street two lanes, two-way.

Alternative 3:

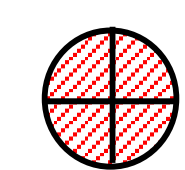
Pine Street and Rolla Street two lane, two-way.



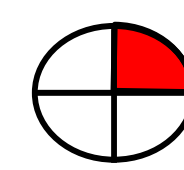


The following matrix evaluates the traffic, safety, economic, and construction of each of the five alternative presented. Place a green dot next to the alternative you like the best. We will then ask the public for their input at the end of August at a public open house.

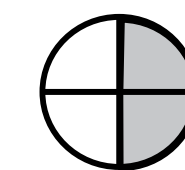
Downtown Rolla Improvements												
Alternatives Screening												
Alternative	Transportation Evaluation											
	Traffic				Safety		Economic			Engineering	Support	
	Existing Traffic Operations	Future Traffic Operations ¹	Existing Vehicle Queues	Future Vehicle Queues	Pedestrian Impact	Vehicular Impact ²	Parking Impact	Delivery Impact	Access to Businesses	Construction Costs	Downtown Stakeholder Input	Public Input
Alternative 1a (Existing) Pine St. 2-Lanes, 1-way NB, Rolla St. 2-Lanes, 1-way SB										\$0		
Alternative 1b Pine St. 2-Lanes, 1-way SB, Rolla St. 2-Lanes, 2-way										\$1,405,000		
Alternative 2a Pine St. 1-Lane, 1-way NB, Rolla St. 1-Lane, 2-way										\$1,255,000		
Alternative 2b Pine St. 1-Lane, 1-way SB, Rolla St. 1-Lane, 2-way										\$1,505,000		
Alternative 3 Pine St. & Rolla St. 1-lane, 2-way										\$1,510,000		



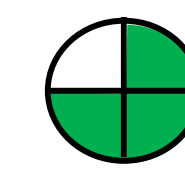
High Impact/No or Low Achievement



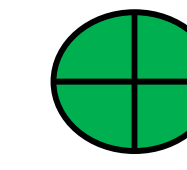
Substantial Impact/Slight Achievement



Moderate Impact/Moderate Achievement



Slight Impact/Substantial Achievement



No or Low Impact/High Achievement

¹Ratings assume no addition improvements or changes in traffic control, however with 11th, 9th, 8th, and 7th Street intersections on Pine converted to AWSC the operations are anticipated to stay the same or improve

²Converting traffic signals to stop control is assumed to increase the crash modification factor for vehicular accidents

Engineering Cost Estimate Assumptions:

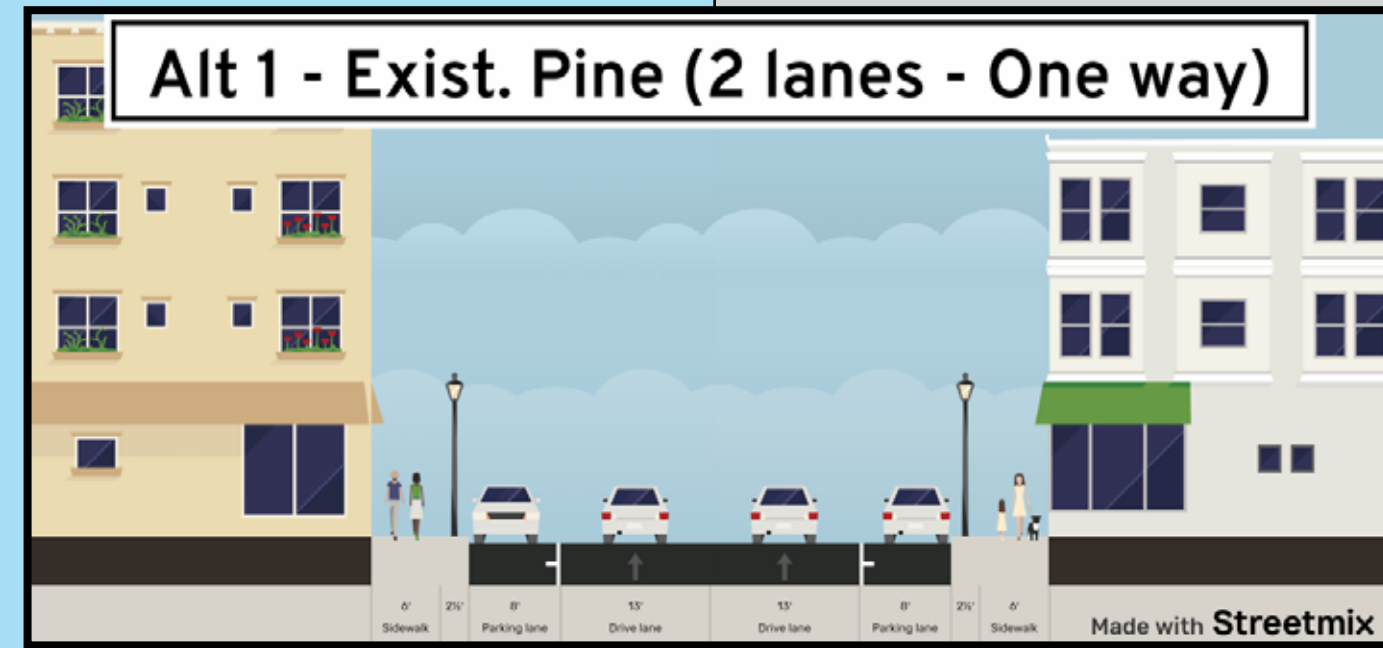
1. Approximately 1,250 linear feet of curb on each side of Pine from 6th Street to 10th Street
2. Assumes no curb-line or sidewalk improvements on Rolla Street
3. Assumes no parking spot pavement marking on Rolla Street



Tell us what you think about each of the five alternatives. What do you like? What do you not like? Do you have a different idea?

Alternative 1a:

Existing circulation - Pine Street two lane, one-way northbound and Rolla Street two lane, one-way southbound.



Alternative 1b:

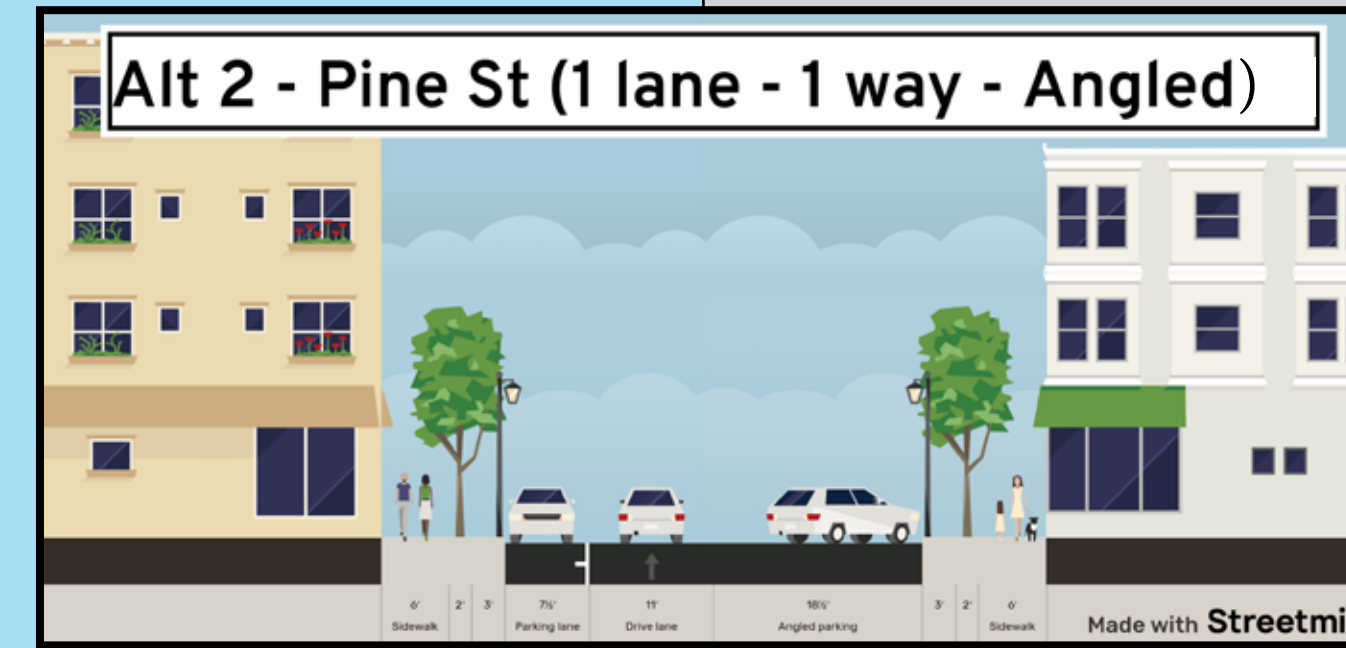
Pine Street two lane, one-way converting to southbound and Rolla Street two lane, two-way.

Alternative 2a:

Pine Street one lane, one-way northbound and Rolla Street two lanes, two-way.

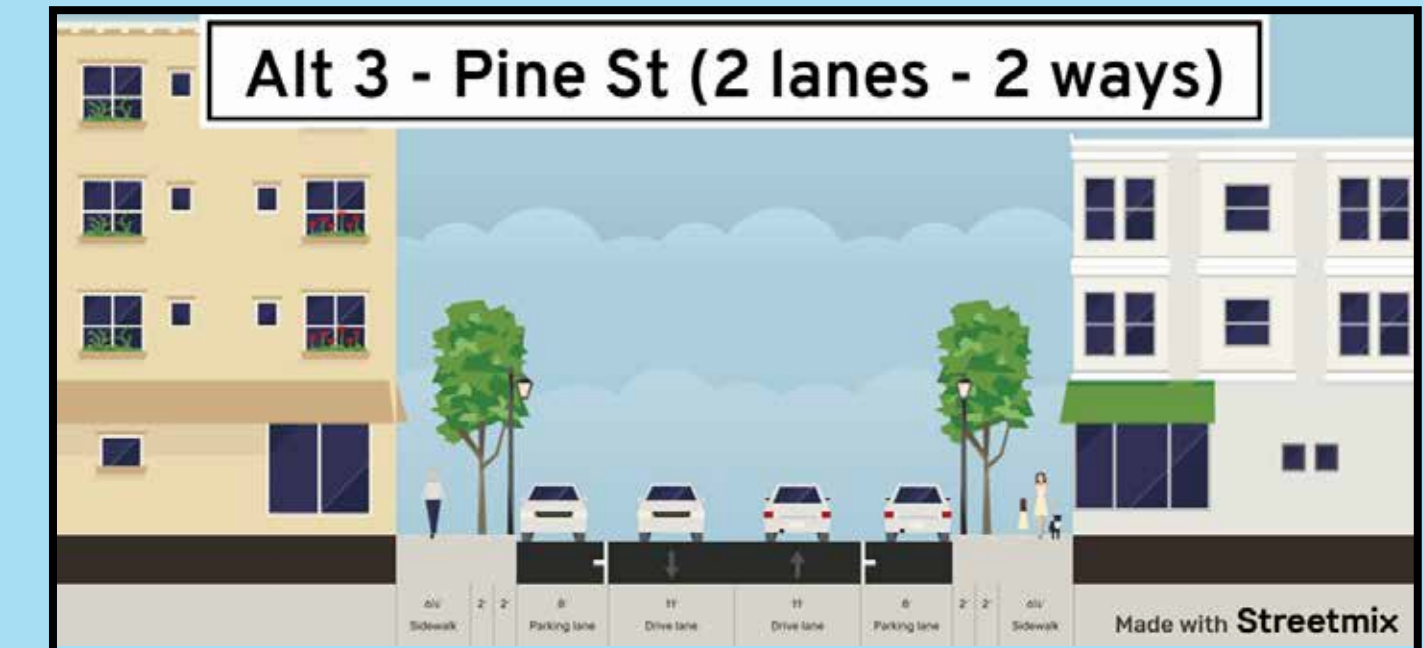
Alternative 2b:

Pine Street one lane, one-way southbound and Rolla Street two lanes, two-way.



Alternative 3:

Pine Street and Rolla Street two lane, two-way.



[Click here to take survey & provide input](#)

S & T Campus
Grounds

CITY PROJECT CURRENTLY UNDER DESIGN

Rolla Public
Library

Rolla
Police

S & T Miner
Alumni
Association

Rolla City
Hall

- Alternative 1
- Alt 1a (Exist Conditions) (Not Shown):
Pine St: 2-lane, 1-way NB
Rolla St: 2-lane, 1-way SB
 - Alt 1b (Shown):
Pine St: 2-lane, 1-way SB
Rolla St: 2-lane, 2-way

PINE ST & ROLLA ST Alt. 1b

[PRELIMINARY EXHIBIT FOR
DISCUSSION PURPOSES ONLY]

SCALE = 40:1

JULY 29, 2021

6TH STREET

FORMER MEYER'S HARDWARE STORE

Site Plan

Rolla, Missouri
03.17.21

- Rolla Letters (w/o exclamation point)
- Ornamental Trees (typ.)
- Shrubs and Parentals (typ.)
- Fountain
- Ornamental Fencing (typ.)
- Colored Concrete Pavement (typ.)
- Tribute Screen (typ.)
- Existing RR Signal/Switch Box
- Evergreen Trees (typ.)

SCALE: 1" = 10'

North

Downtown Plaza
Concept Design Ideas
Ford Planning & Design

[Click here to take survey & provide input](#)

S & T Campus Grounds

- Other Options for Alt 2:
- Parallel Parking instead of Angled
 - Wider sidewalks for pedestrians, shops, dining
 - On-street dedicated bike lanes
 - Parklets

CITY PROJECT CURRENTLY UNDER DESIGN

Potential Loading Zone

Potential Loading Zone

Rolla Public Library

Rolla Police

S & T Miner Alumni Association

Rolla City Hall

Site Plan

Rolla Letters (w/ exclamation point)
 Ornamental Trees (typ.)
 Shrubs and Perennials (typ.)
 Fountain
 Ornamental Fencing (typ.)
 Colored Concrete Pavement (typ.)
 Tribble Screen (typ.)
 Existing RR Signal/Switch Box
 Evergreen Trees (typ.)

SCALE: 1" = 10'

North

Downtown Plaza
 Concept Design Ideas
 Rolla, Missouri
 03.17.21
 Tora Planning & Design

- Alternative 2
- Alt 2a (Shown):
Pine St: 1-lane, 1-way NB
Rolla St: 2-lane, 2-way
 - Alt 2b (Not Shown):
Pine St: 1-lane, 1-way SB
Rolla St: 2-lane, 2-way

PINE ST & ROLLA ST
Alt. 2a
 [PRELIMINARY EXHIBIT FOR DISCUSSION PURPOSES ONLY]
 SCALE = 40:1
 JULY 29, 2021

[Click here to take survey & provide input](#)

S & T Campus
Grounds

CITY PROJECT CURRENTLY UNDER DESIGN

Potential
Loading Zone

Potential
Loading Zone

Rolla Public
Library

Rolla
Police

S & T Miner
Alumni
Association

Rolla City
Hall

6TH STREET

- Rolla Letters (w/ exclamation point)
- Ornamental Trees (typ.)
- Shrubs and Perennials (typ.)
- Fountain
- Ornamental Fencing (typ.)
- Colored Concrete Pavement (typ.)
- Tribute Screen (typ.)
- Existing RR Signal/Switch Box
- Evergreen Trees (typ.)

SCALE: 1" = 10'

North

Site Plan

Downtown Plaza
Concept Design Ideas
Tara Planning & Design

Rolla, Missouri
03.17.21

PINE ST & ROLLA ST
Alt. 3

[PRELIMINARY EXHIBIT FOR
DISCUSSION PURPOSES ONLY]

SCALE = 40:1

JULY 29, 2021