

Broadway Corridor Study

Public Meeting #2

April 16, 2015

Agenda

- **Welcome/Introductions – 2 minutes**
- **Overview of Project to Date – 5 minutes**
- **Alternatives Evaluated – 5 minutes**
- **Draft Recommendations – 20 minutes**
- **Public Comments – 60 minutes**
- **Next Steps – 1 minute**

Steering Committee

<u>Member</u>	<u>Organization</u>
Dana Wardwell	Public Works Director
John Theriault	City Engineer
David Gould	Planning Officer
Mark Hathaway	Bangor Police
Andrew Allen	MaineDOT
Rob Kenerson	BACTS
Dianne Rice	BACTS
Kevin Schroeher	Schroeher's Tax Services
Ron Lydick	McDonalds Restaurant
Tim Doody	Broadway Shopping Center
Robert Kilpeck	Husson University
Tom Warren	Husson University
Per Garder	Bangor Resident
Wendy Chadwick	Bangor Resident-230 Falvey Street
Greg Edwards	Bangor Resident-91 Pearl Street
Kierie Piccininni	Bangor Resident- 40 Market Street
Susan Slick	Bangor Resident-782 Broadway

Broadway Corridor Study

Project Schedule

2014	
September 1	Notice to Proceed
September 1	Begin Data Collection
October 14	Kick-Off Meeting with City/BACTS
November 17	Complete Existing Conditions Technical Memorandum
November 20	Advisory Committee Meeting #1 to Prepare for Public Meeting and Review Findings of Existing Conditions TM
December 11	Public Meeting #1
December 11	City/BACTS Meeting to Review Future Trend Analysis Methods
2015	
January 15	Complete Future Trend Analysis TM
January 22	Advisory Committee Meeting #2 to Review Future Trends Analysis and Review Possible Improvements Strategies
January 26-30	Meet with Businesses and Property Owners
February 19	City Staff/BACTS Meeting To Review Improvement Scenarios for Analysis
March 13	Submission of Draft Transportation Improvement Plan
March 26	Advisory Committee Meeting #3 to Review the Draft Transportation Improvement Plan and Prepare for Public Meeting #2
April 9	Public Meeting #2 to Present the Draft Transportation Improvement Plan
April 16	Advisory Committee Meeting #4 to Review Public Meeting Feedback
April	Present Plan to City Boards
May	Complete Final Transportation Improvement Plan



DRAFT Mission Statement

The objective of this study is to develop a Traffic System Management Plan to ensure that the following will allow Broadway to operate at an acceptable level of multi-modal service through 2030:

- (1) Preserve existing roadway capacity over the long term to facilitate through traffic movements and minimize congestion, while at the same time providing safe vehicular access for all modes of travel to new and existing developments along Broadway; and
- (2) Optimize the multi-modal functional integrity and safety of the corridor, while accommodating the public and private needs for access to adjacent land parcels. In developing the plan, the consultant will utilize accepted engineering standards to address such items as:
 - The frequency and spacing of intersecting streets and private driveways;
 - The location, spacing, timing and coordination (for progressive two-way traffic flow) of existing and future traffic signals; the location and design of turning lanes;
 - Channelization, or other turning movement controls;
 - Identification of current levels of service and development of access management standards (which may include minimum sight distance requirements, corner clearance requirements, separation standards, etc.)

Existing Issues

- **Traffic Congestion and Traffic Signal Spacing**
- **Traffic Safety (Several High Crash Locations)**
- **Bicycle and Pedestrian Facilities and Safety**
- **Access Management (Driveways)**
- **Street Connectivity and Alternative Travel Options**

Alternatives Evaluated

Improvement Strategy

Overall Improvements:

Retime/Coordination Traffic Signals

Upgrade traffic signal equipment

Restripe Broadway for wider curb lane for better bicycle conditions

Corridor-wide ADA Improvements

Add/enhance existing crosswalks

Upgrade existing sidewalks due to width constraints and general condition

Add sidewalks to eliminate gaps in system

Driveway improvements on Broadway (we will be specific)

Revise site plan review standards to include consideration of inter parcel connections, shared parking and minimum of one curb cut fronting Broadway

Streetscape Improvement Opportunities within Broadway Cross-section

Meet City Complete Streets Policy

Intersection Improvements:

Change Broadway EB Lane Assignment at Center Street to one left, one through, one right lane

Provide two left turn lanes onto I95 NB

Install Roundabout at I95/Center Street

Close Alden Street at Broadway

Implementation

Short

Short/Mid

Short

Short/Mid

Short

Short

Short/Mid

Short/Mid/Long

Short/Mid/Long

Short/Mid/Long

Short/Mid/Long

Short

Mid/Long

Long

Mid



Alternatives Evaluated

Improvement Strategy

Intersection Improvements (continued):

Restrict Movements at Alden Street to Right in/out

Combine Alden Street and I95 SB Off-ramp

Reconfigure I95 SB on-ramp for improve alignment

Install Roundabout at I95 SB Ramps

Restrict Movements at Falvey Drive Intersection

Reconfigure McDonald's and Shopping Center Entrances

Reconfigure Husson Avenue intersection

Improve alignment at Hillside Drive/High School/Grandview Avenue

Improve capacity at Grandview Avenue

New Connections:

Provide pedestrian connection (Dairy Queen) to Neighborhood

Provide new connection (ped and/or vehicle) between Husson Avenue and Neighborhood

Provide new connection to Husson via Grandview Avenue or other location

New inter-parcel connections

Provide formalized parallel road in Broadway Shopping Center (multimodal)

Implementation

Mid

Mid

Mid

Long

Mid/Long

Mid

Mid

Long

Mid

Short/Mid

Mid

Long

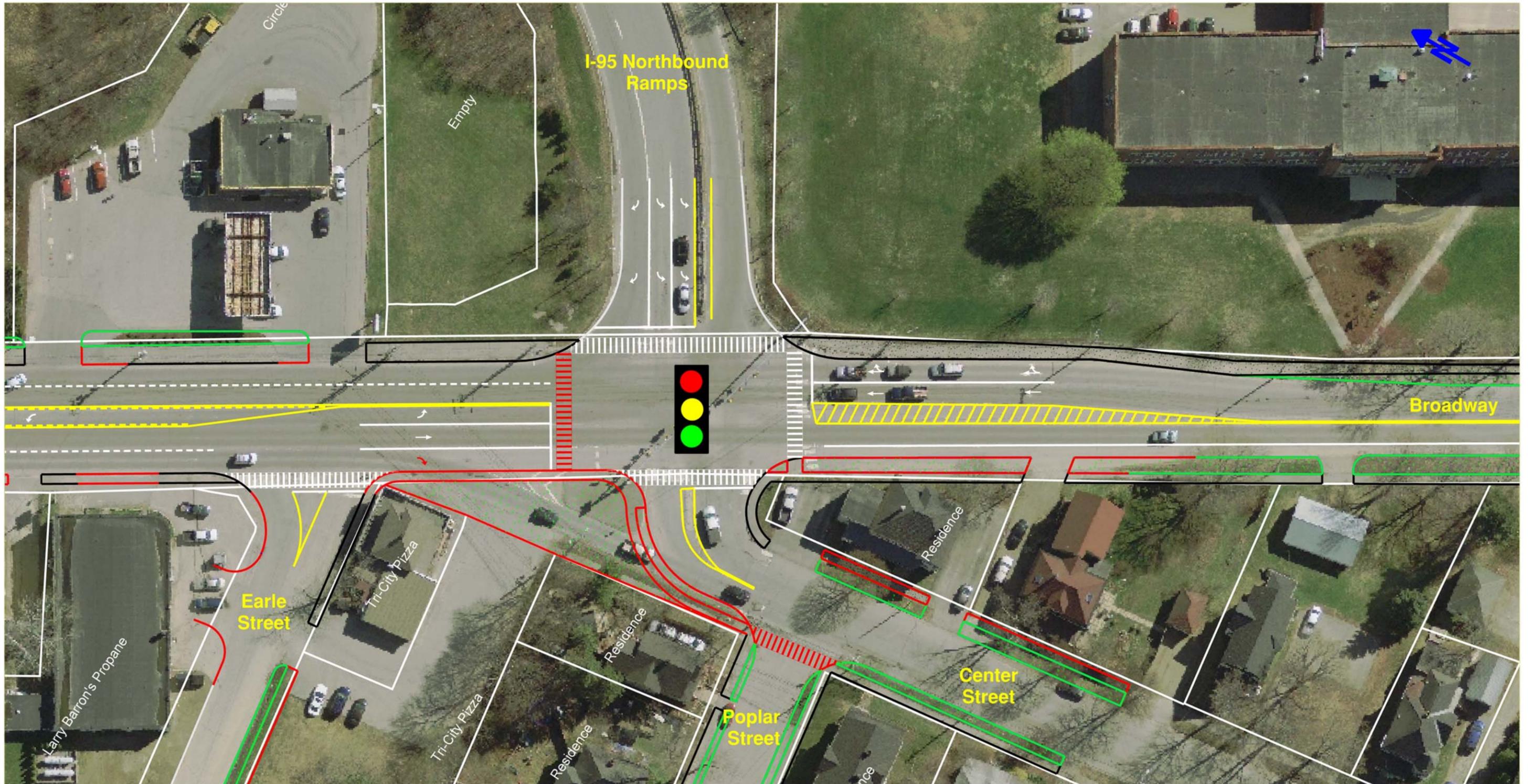
Short/Mid/Long

Long

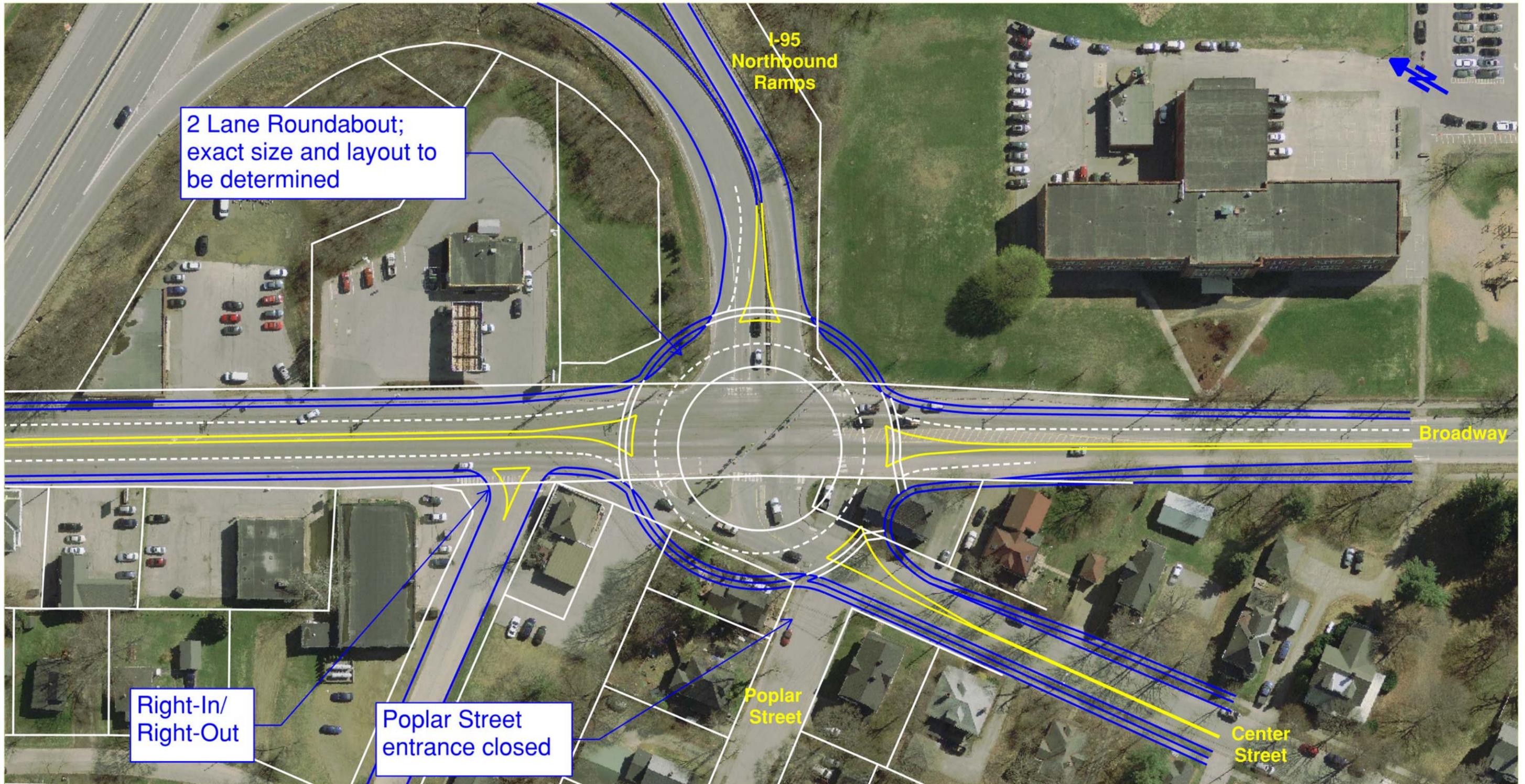


I-95 Northbound/Center Street Intersection Improvements

Intersection Improvement Alternative 1



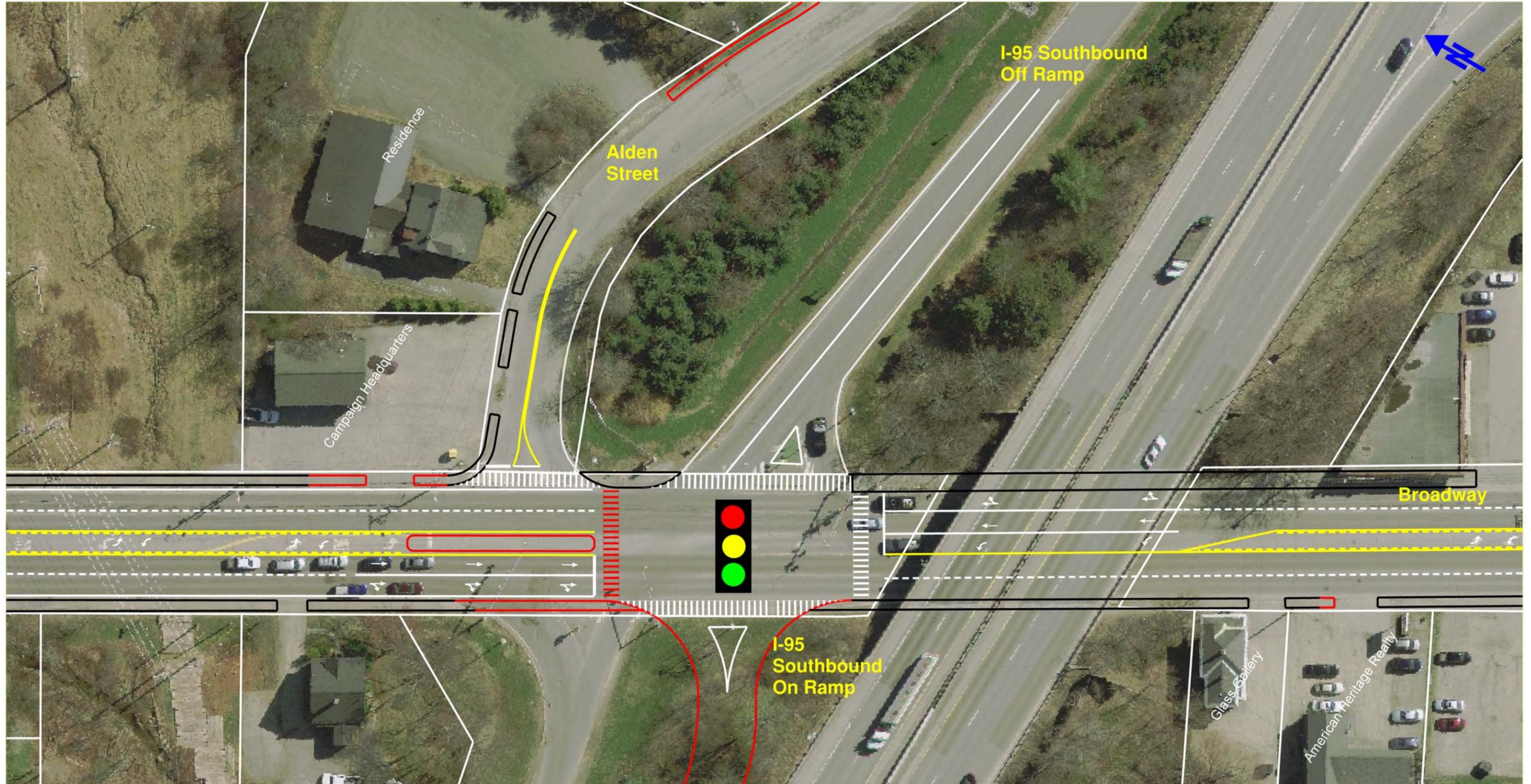
I-95 Northbound/Center Street Intersection Improvements
Intersection Improvement Alternative 2: Roundabout



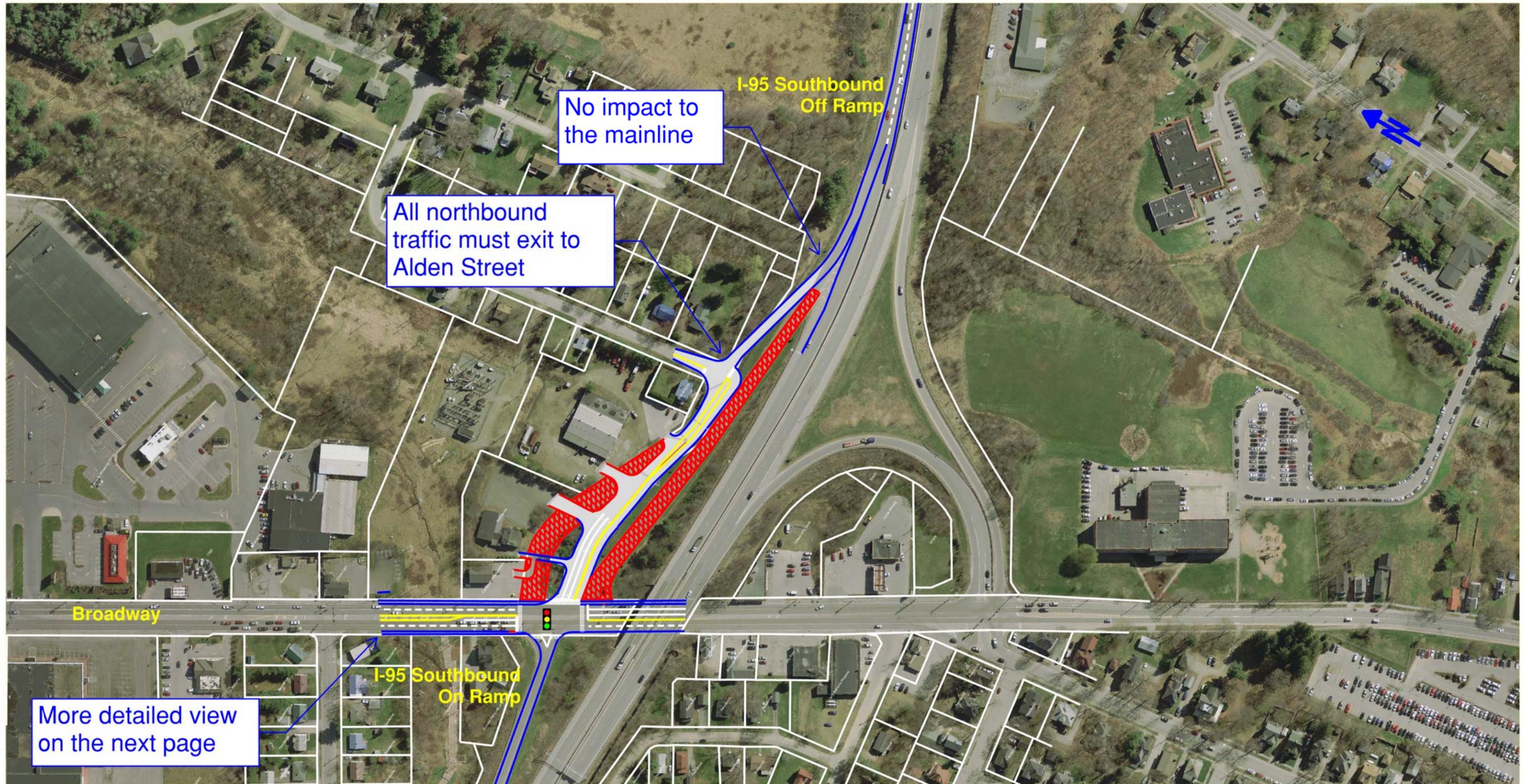
I-95 Northbound/Center Street Pros/Cons:

- Optimized traffic signal phasing and timing improves efficiency in the short-term horizon.**
- Conversion of the Broadway southbound approach to separate left, through, and right turn lanes does indicate improvement in delay.**
- The implementation of dual left turn lanes with separate through and right lanes on southbound Broadway yields less efficient results.**
- Roundabout analysis at this intersection shows that a multi-lane roundabout will provide significant capacity and safety benefits.**

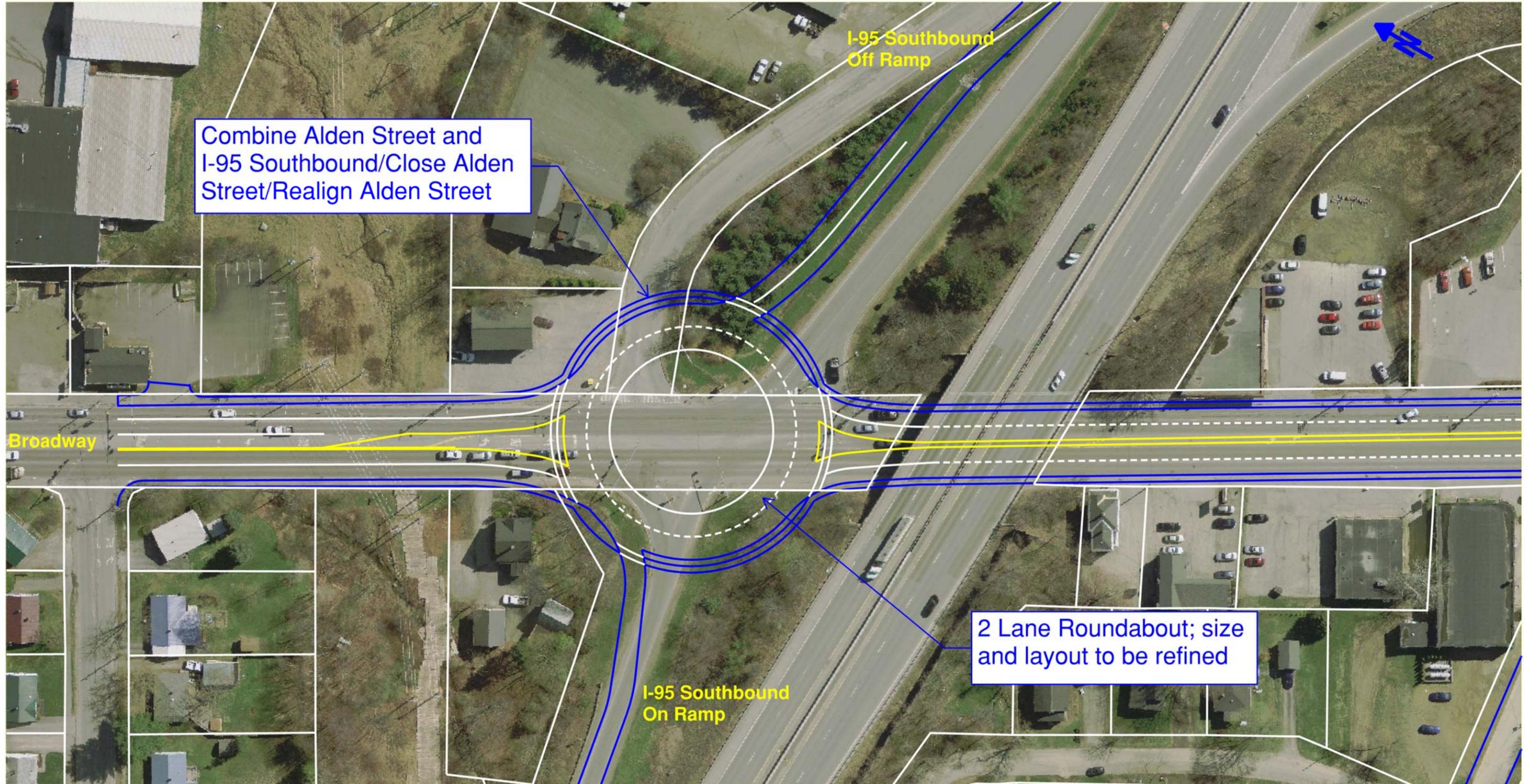
I-95 Southbound Improvements
Intersection Improvement Alternative 1



I-95 Southbound and Alden Street Improvements
Overall View of Possible Combined Alden Street and I-95 Southbound Option



I-95 Southbound Ramps and Alden Street
Intersection Improvement Alternative 2: Roundabout

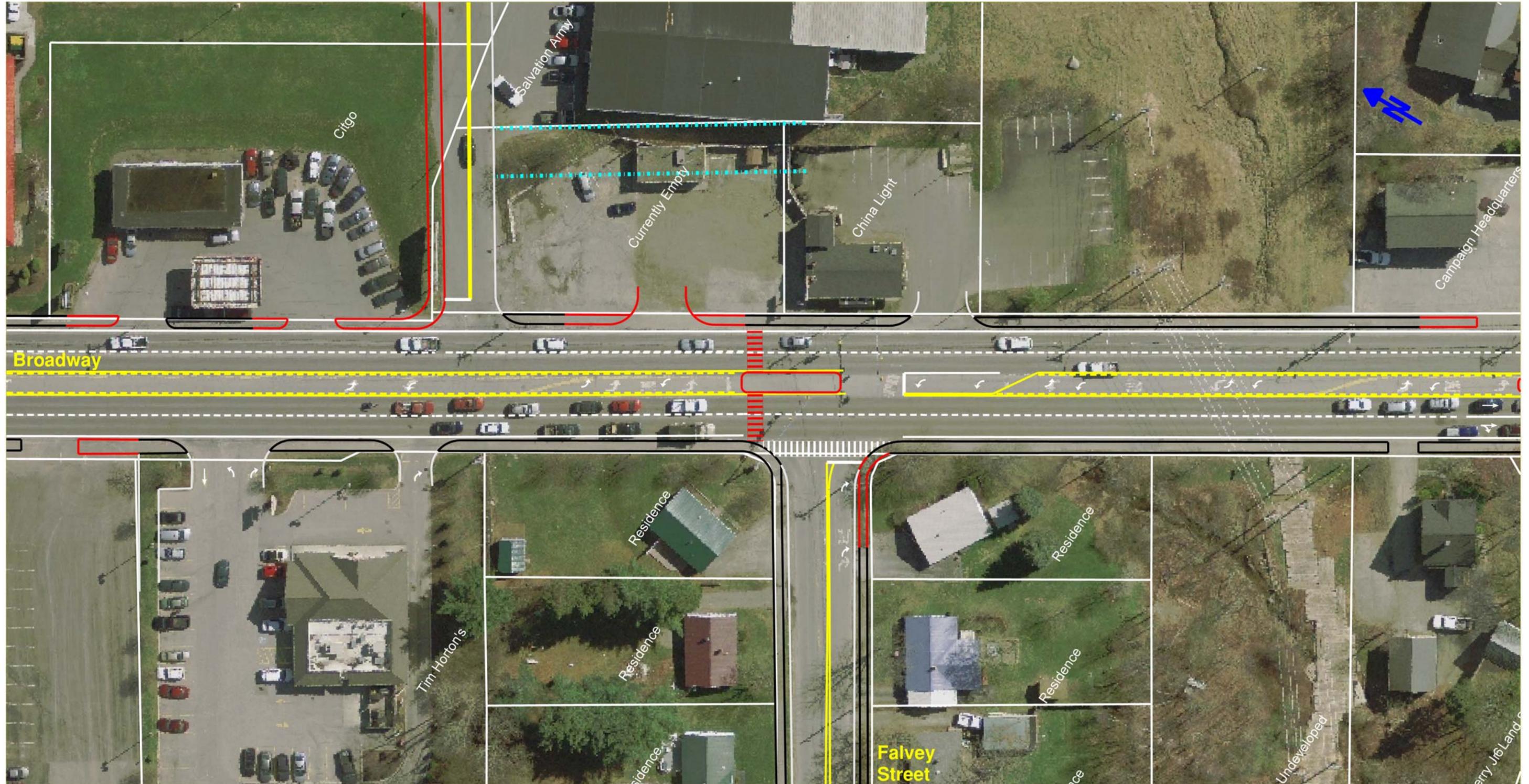


I-95 Southbound/Alden Street Pros/Cons:

- **Traffic signal phasing and timing optimization yields little long term benefit.**
- **Some key issues regarding the options include:**
 - **Changes to the I-95 Ramps need FHWA approval.**
 - **A full closure of Alden Street will impact businesses/residential uses and it is suggested that a connection via the Broadway Shopping Center be considered.**
 - **A right-in/out option also impacts access to properties, although some movements are preserved.**
- **Analysis of implementing a roundabout at this intersection shows that a multi-lane roundabout will provide significant capacity and safety benefits.**

Falvey Street Intersection Improvements

Intersection Improvement Alternative

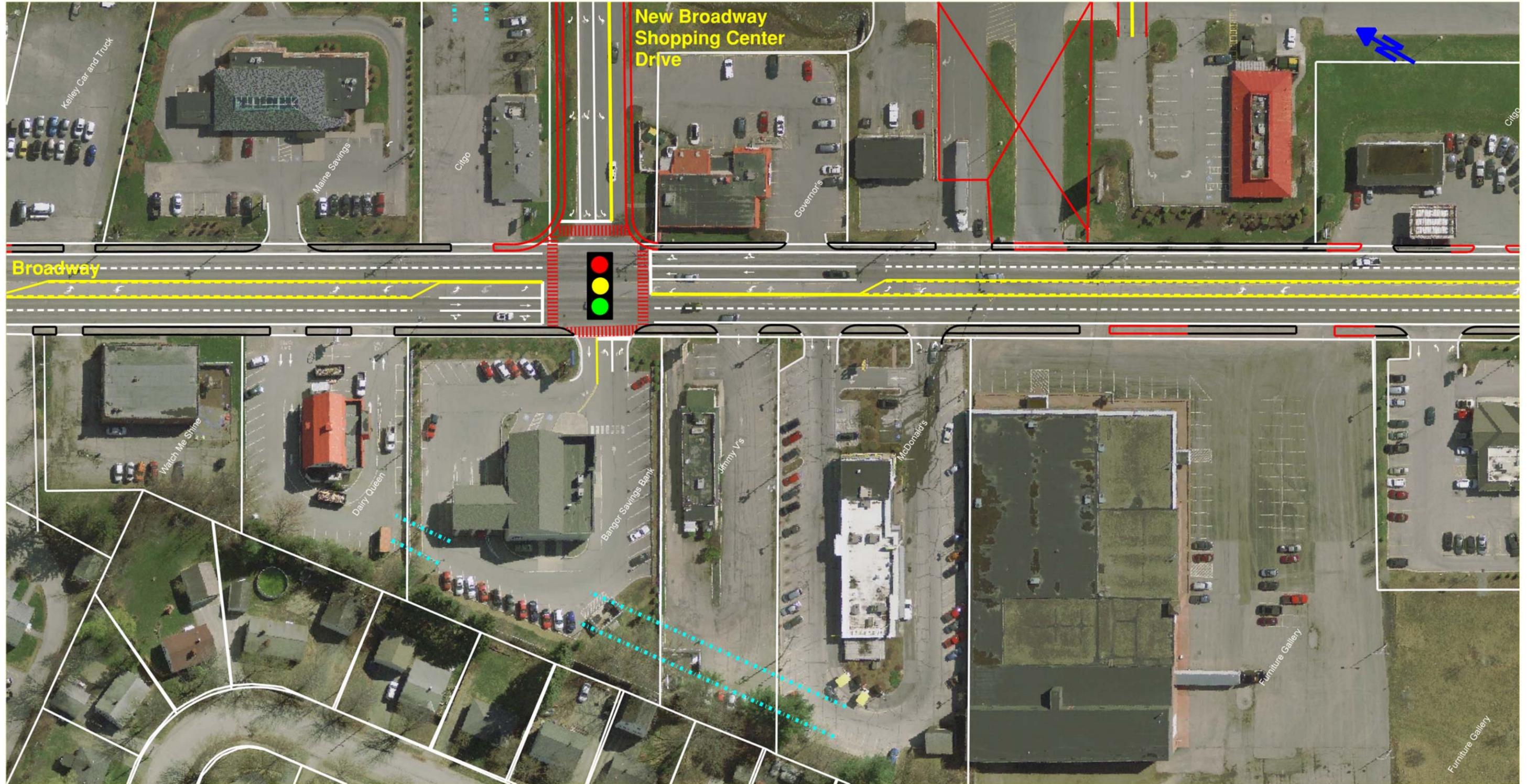


Falvey Street Pros/Cons:

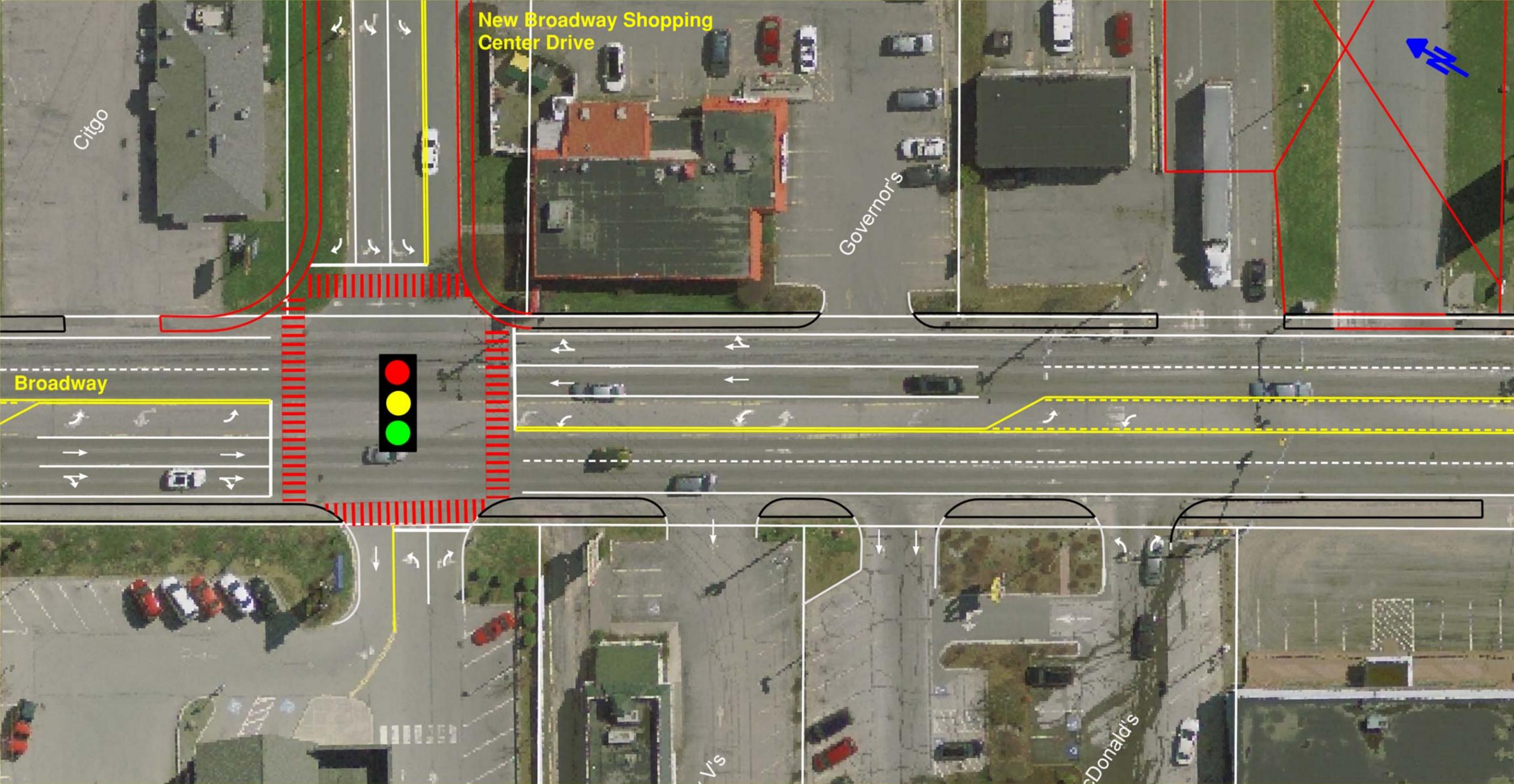
- **Removing traffic signal improves corridor flow.**
- **Vehicles turning left from Falvey Street must find an alternative outlet (most likely from an inter-parcel connection).**
- **Pedestrians no longer have a signalized crossing.**

Improvements for McDonald's - Shopping Center Entrance

Overall View of Possible Intersection Relocation



Improvements for McDonald's - Shopping Center Entrance
Close-up of Relocated Signal



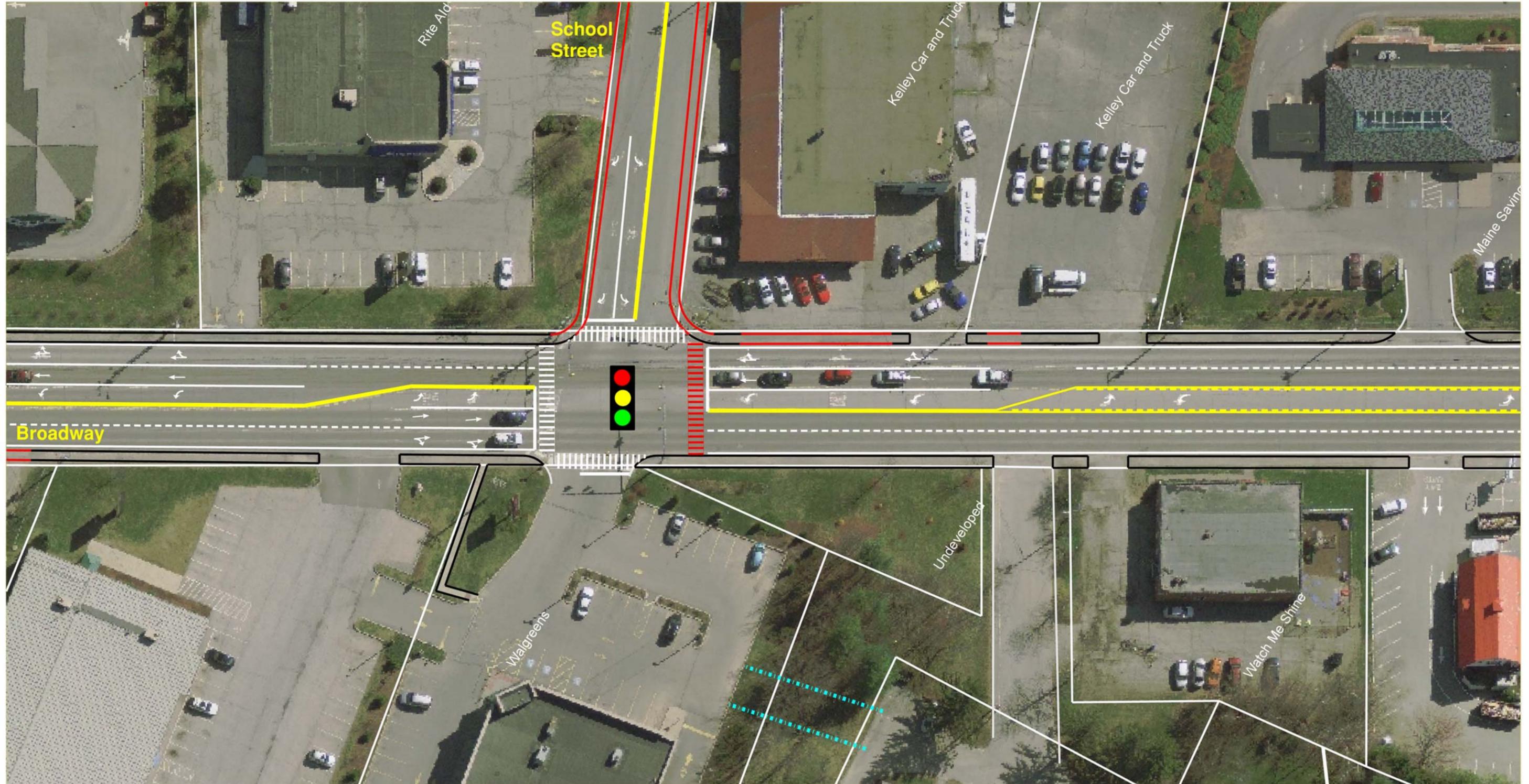
I-95 McDonald's/Broadway Shopping Center

Pros/Cons:

- **Traffic signal phasing and timing optimization has some benefit, but is not expected to significantly improve mobility conditions.**
- **Both existing and relocated Broadway Shopping Center Entrance intersections would operate at excellent levels of service.**
- **If left-turns from McDonald's are permitted, long delays can be expected. Left-turns could be prohibited or an inter-parcel connection provided to the new traffic signal.**
- **Full closure of the existing Broadway Shopping Center driveway could be used for a new development out-parcel or a unsignalized driveway could also be provided.**
- **Access management improvements and traffic signal upgrades could provide safety benefits.**

School Street Improvements

Pedestrian Improvements

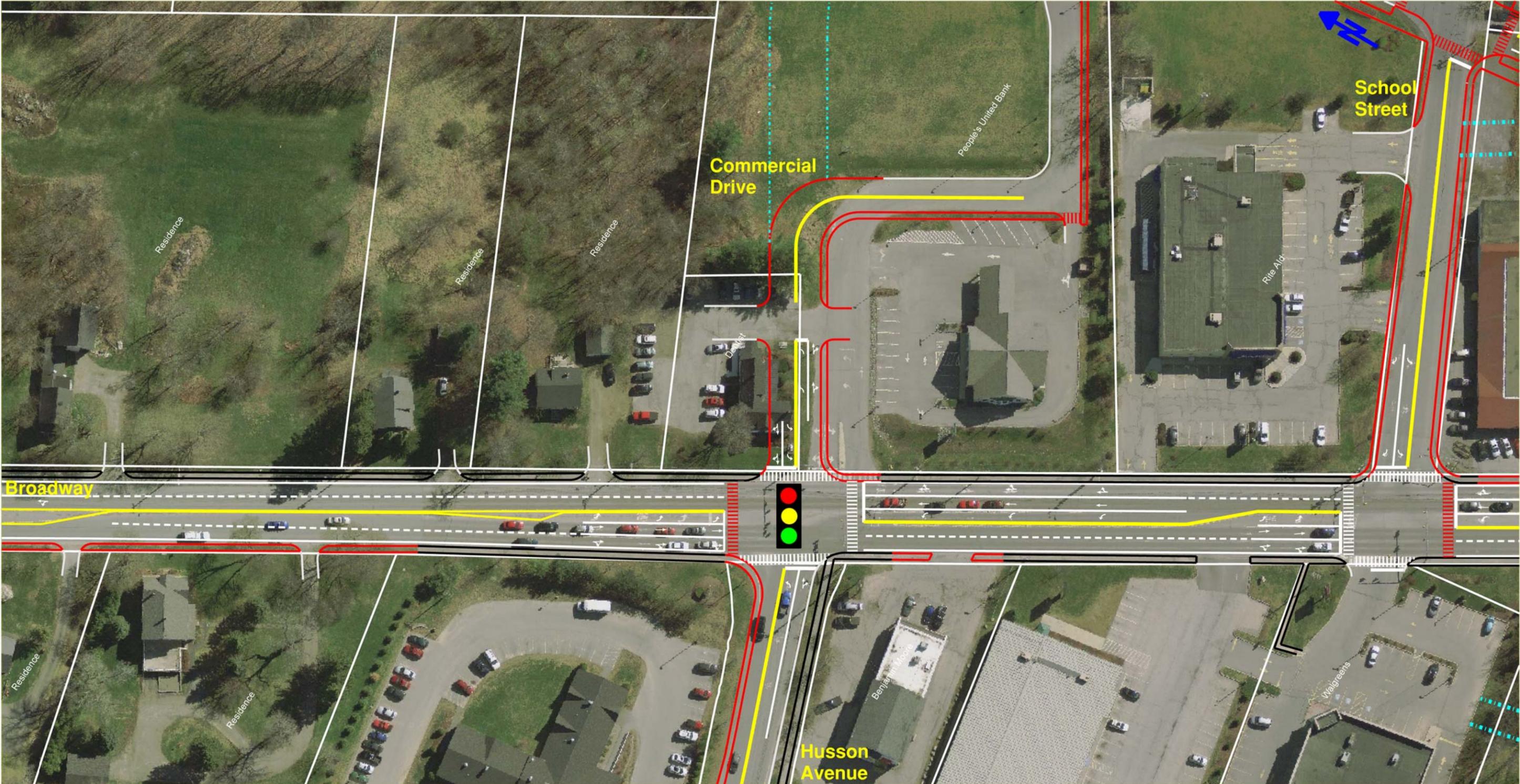


School Street Pros/Cons:

- **Operation expected to be adequate with signal optimization, no capacity improvements are proposed at this location.**
- **Pedestrian improvements include the addition of a sidewalk along School Street and a crosswalk at the south-west Broadway crossing.**

Husson Avenue Improvements

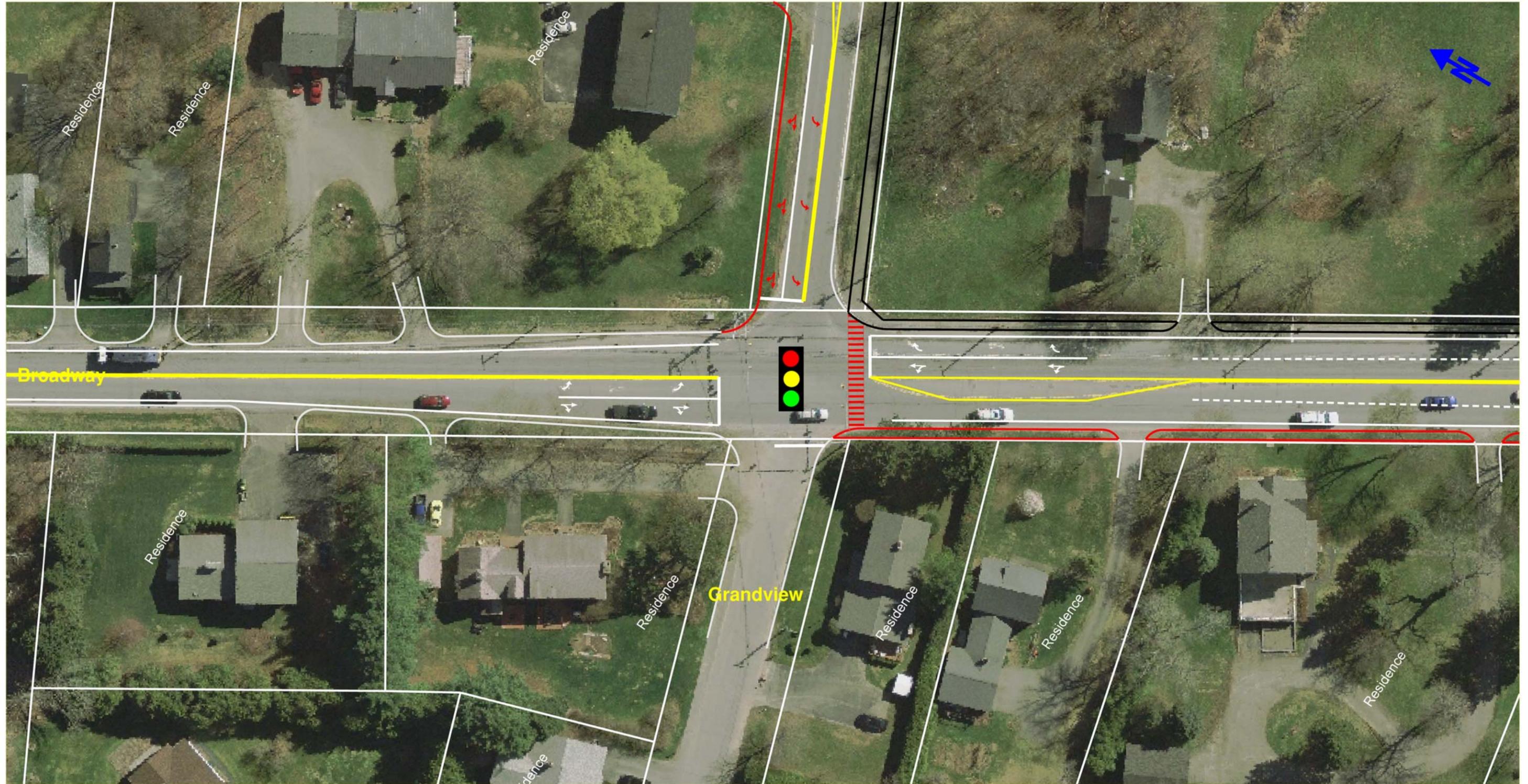
Intersection improvement Alternative



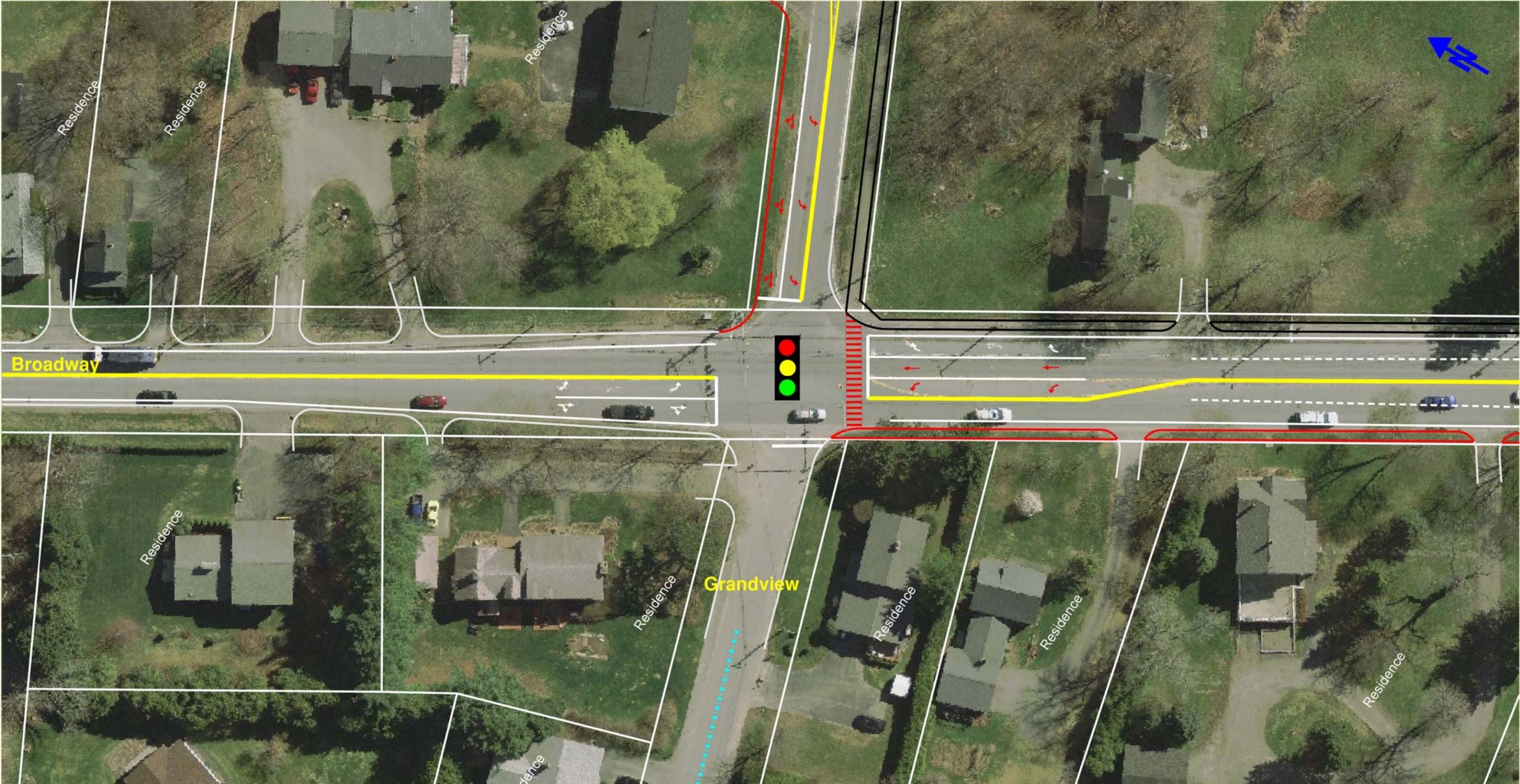
Husson Pros/Cons:

- **Traffic signal phasing and timing optimization has some benefit, but is not expected to improve mobility conditions.**
- **Realigning the Commercial Drive shows significant improvements.**
- **A new Husson University Connection has significant benefits.**

Grandview Avenue Improvements
Intersection Improvement Alternative



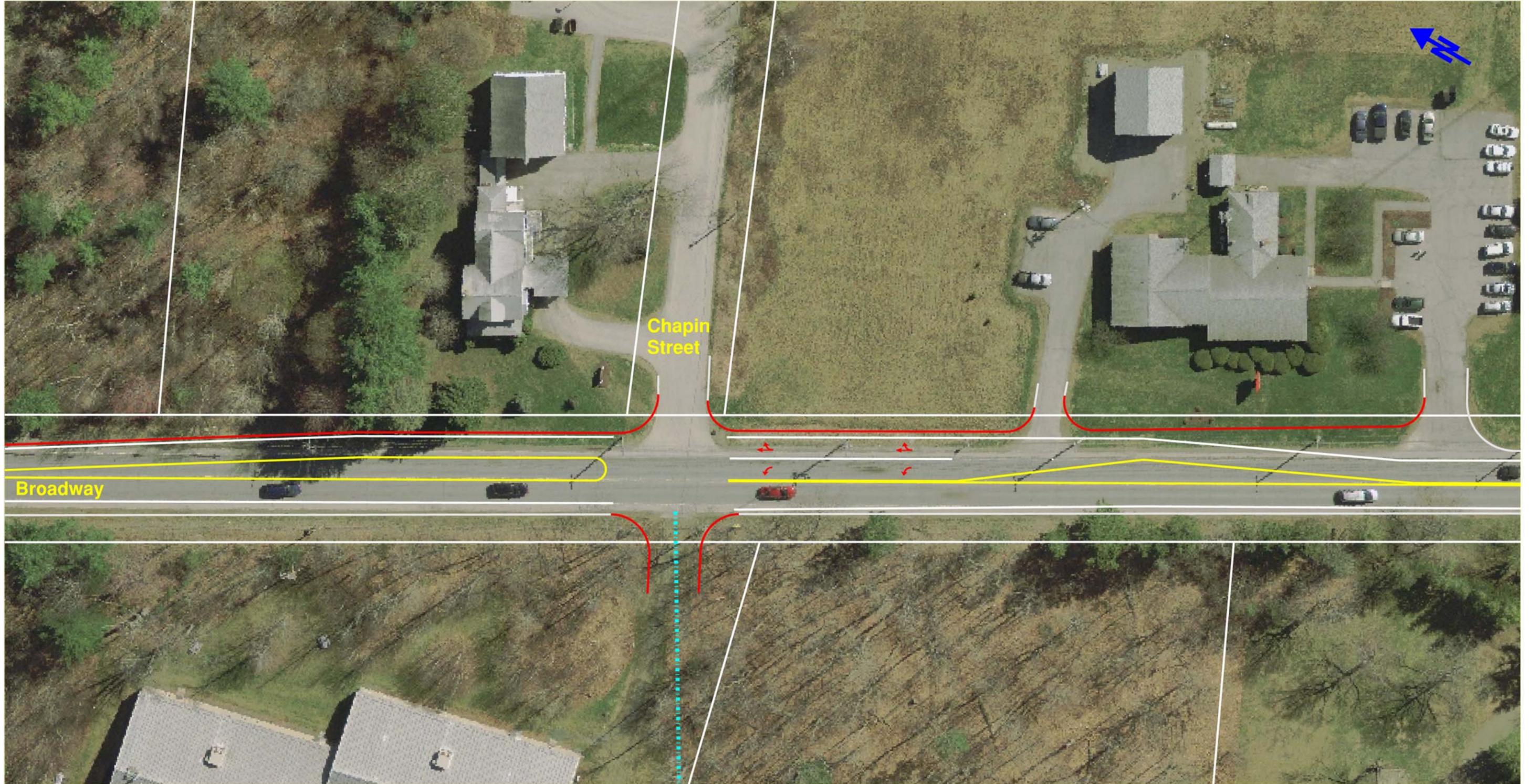
Grandview Avenue Improvements
Intersection Improvement for Husson University Connection



Grandview Avenue Pros/Cons:

- **Traffic signal phasing and timing optimization has some benefit, but is not expected to significantly improve mobility conditions.**
- **There is some improvement with the addition of a left turn bay coming from the high school.**
- **A new Husson University Connection causes an overall reduction in service at the intersection and requires the provision of a left turn bay northbound on Broadway.**
- **Proposed new sidewalk continuing along the westerly side of Broadway and a new crosswalk across Broadway will aid pedestrians.**

Husson Avenue Improvements
Intersection Improvement Alternative for Potential New Husson University Connection



New Husson Avenue Connection at Chapin Street

Pros/Cons:

- **A new Husson University Connection has significant benefits to Husson Avenue Intersection.**
- **A left turn bay is required into Husson University but the intersection does not require a signal.**
- **The intersection will operate at acceptable levels of service.**

New Connections

Overall New Connections

Realign connection along Hillside Avenue between Broadway Shopping Center and Bangor High School

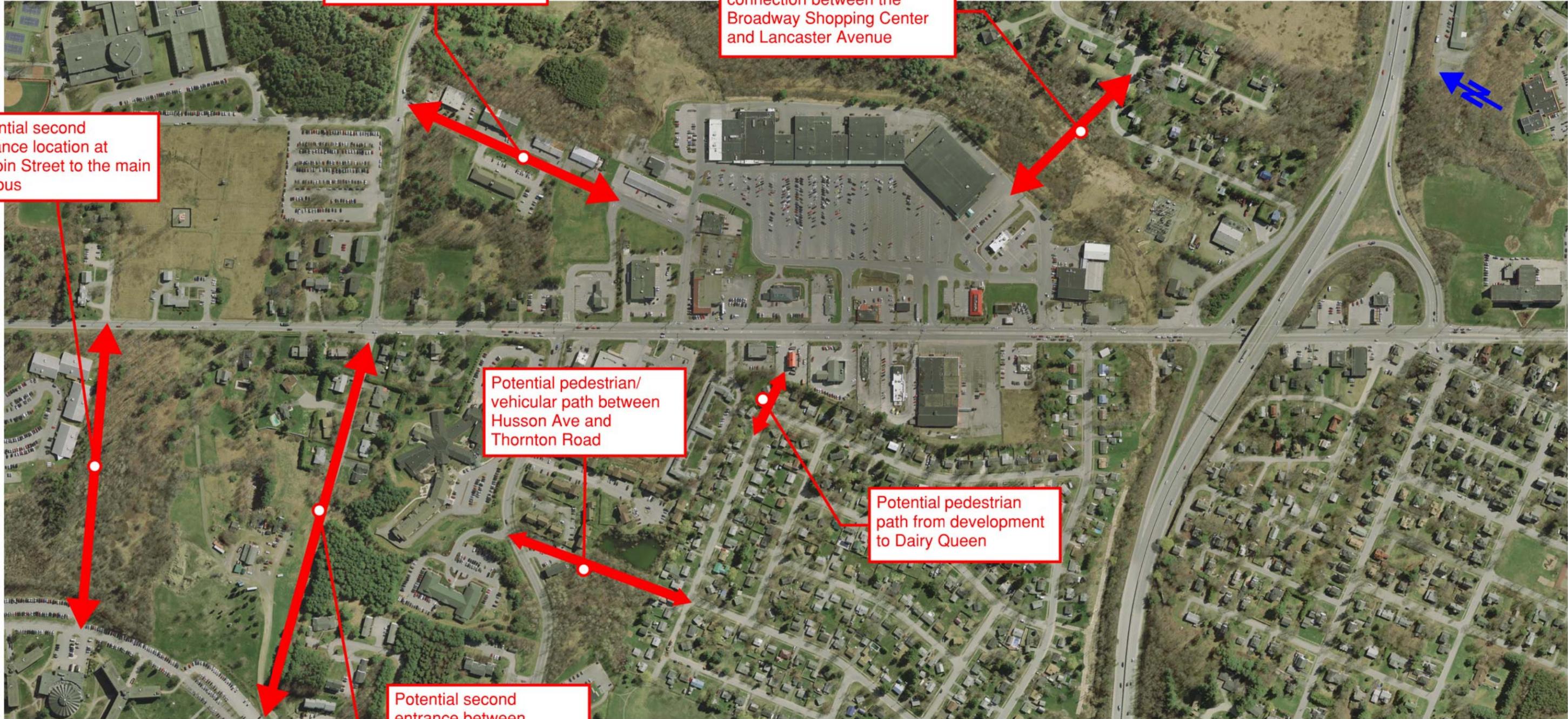
Potential pedestrian/vehicular connection between the Broadway Shopping Center and Lancaster Avenue

Potential second entrance location at Chapin Street to the main campus

Potential pedestrian/vehicular path between Husson Ave and Thornton Road

Potential pedestrian path from development to Dairy Queen

Potential second entrance between Grandview Ave and Husson University

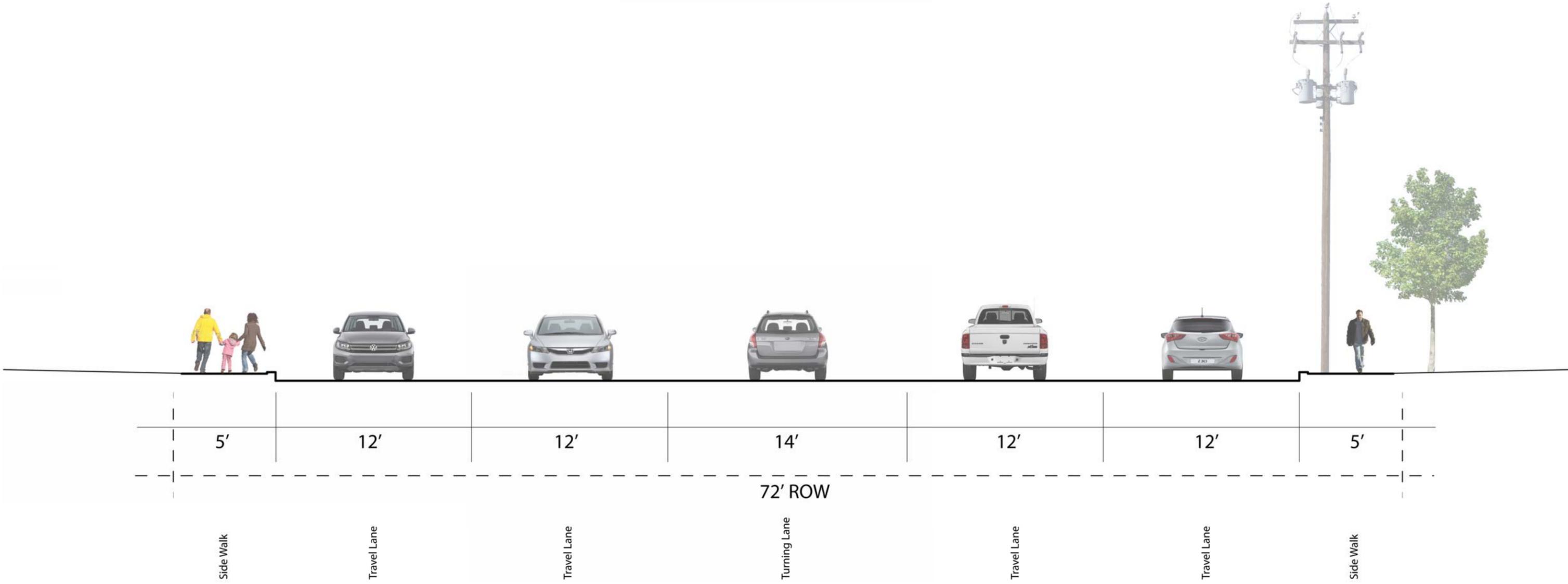


New Connections
Bangor Shopping Center



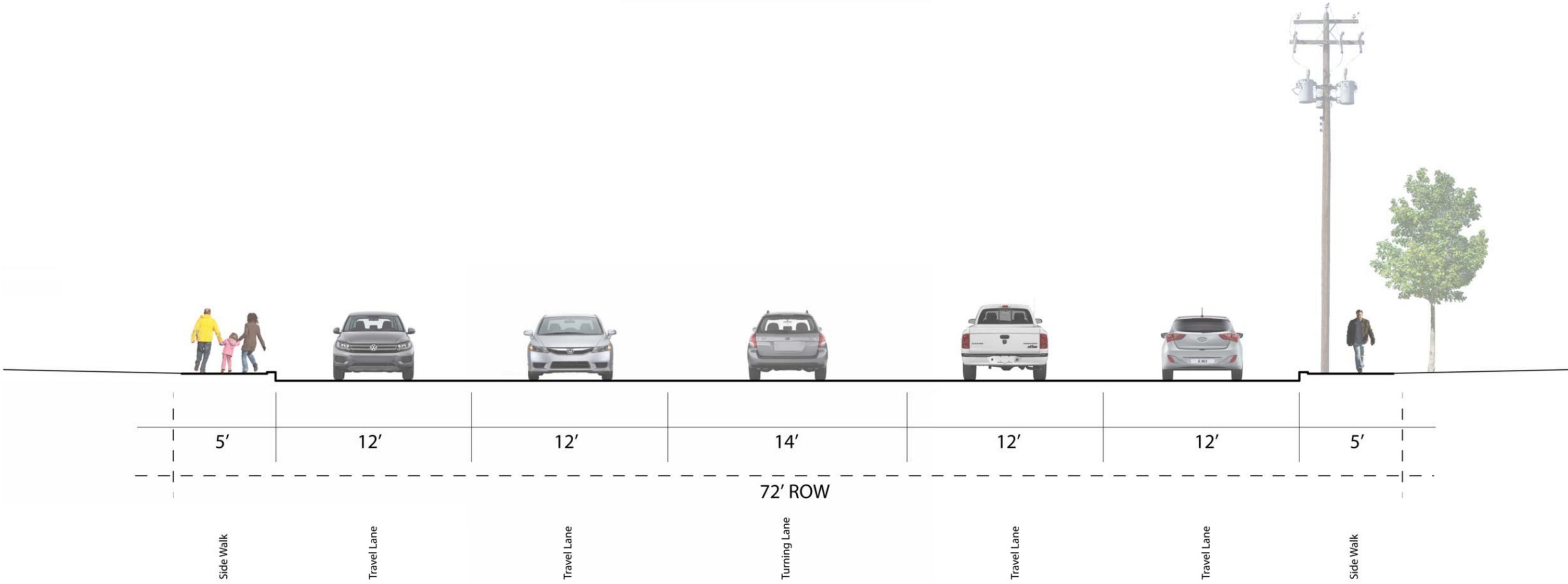
Broadway Cross-Sections

Existing Conditions



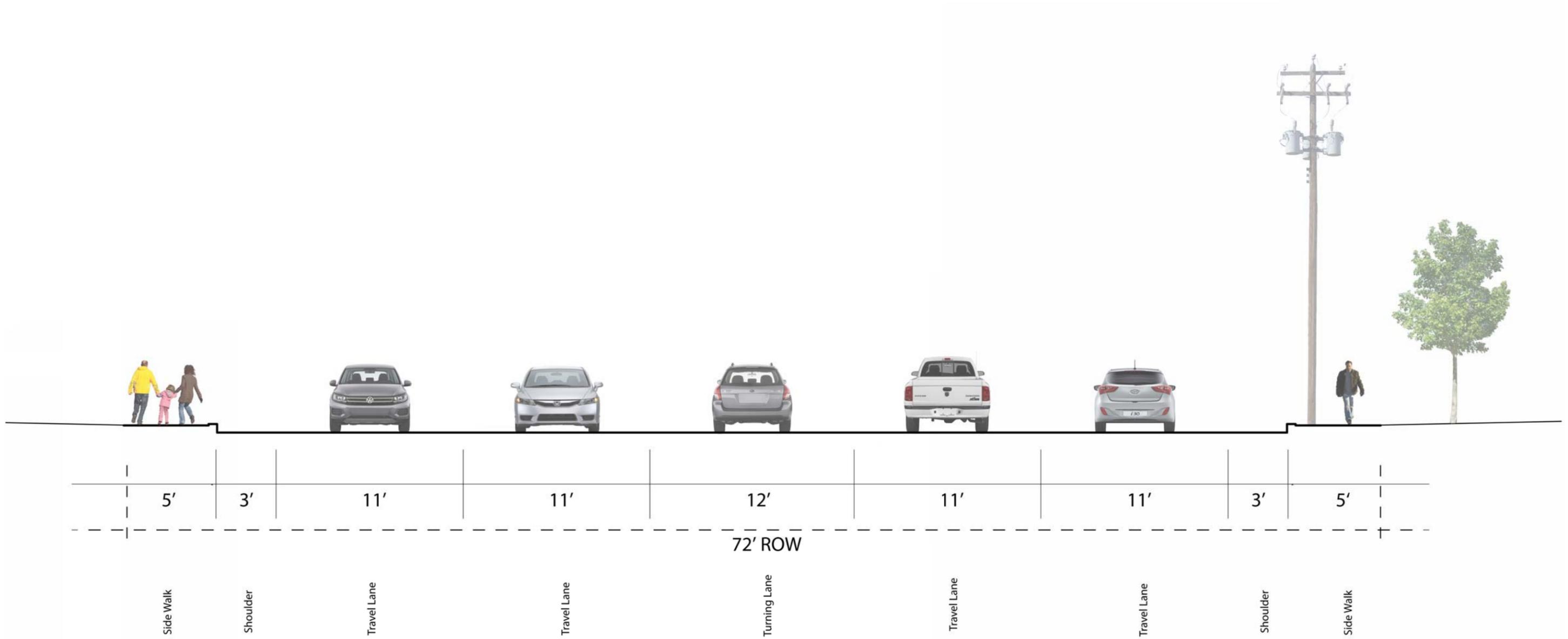
Broadway Cross-Sections

Existing Conditions



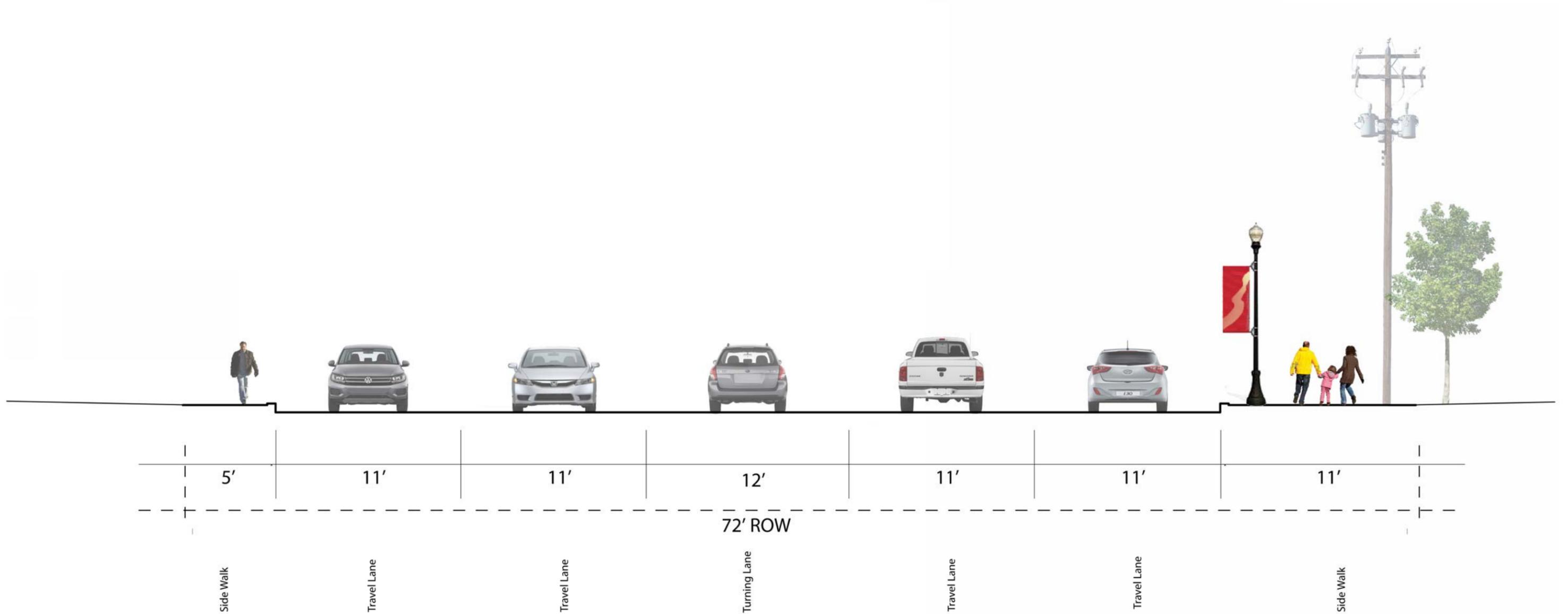
Broadway Cross-Sections

Option 1: Proposed Cross-Section with Shoulders



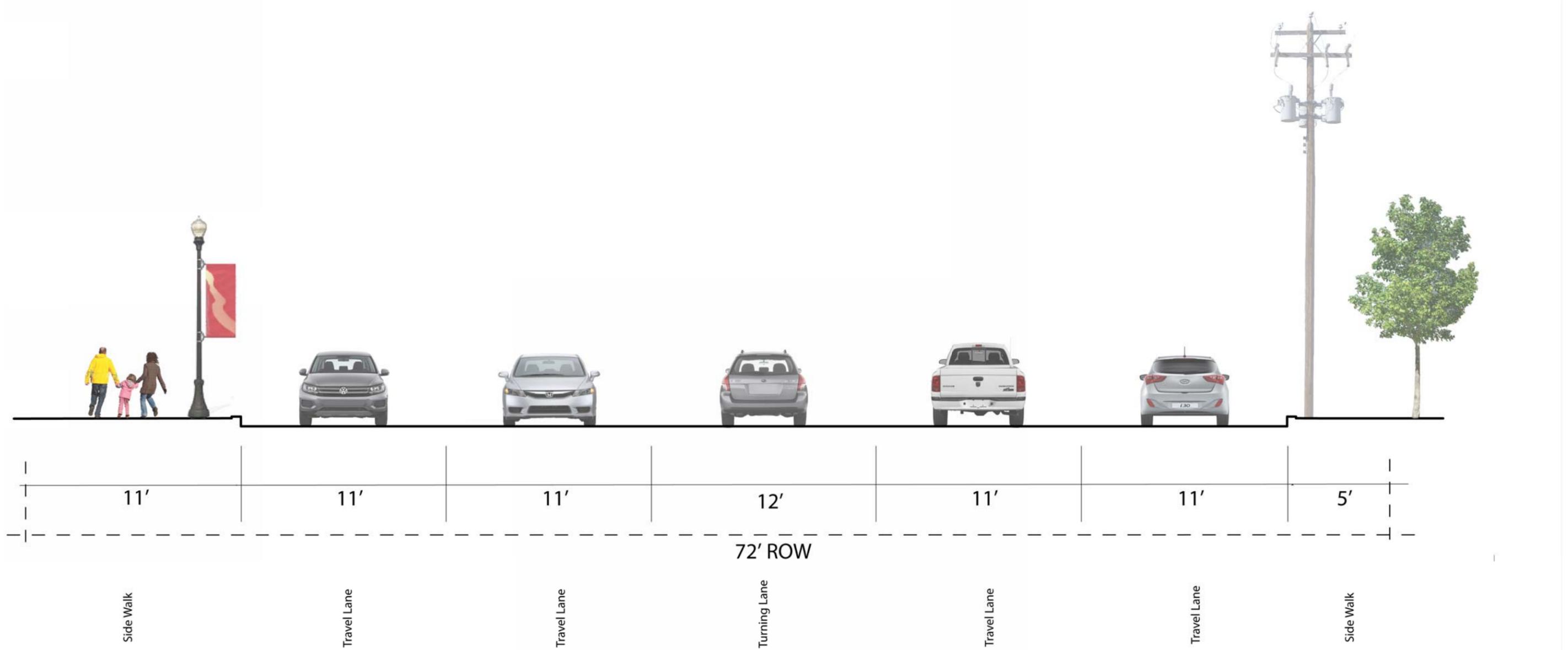
Broadway Cross-Sections

Option 2: Proposed Cross-Section with Easterly Wide Sidewalk



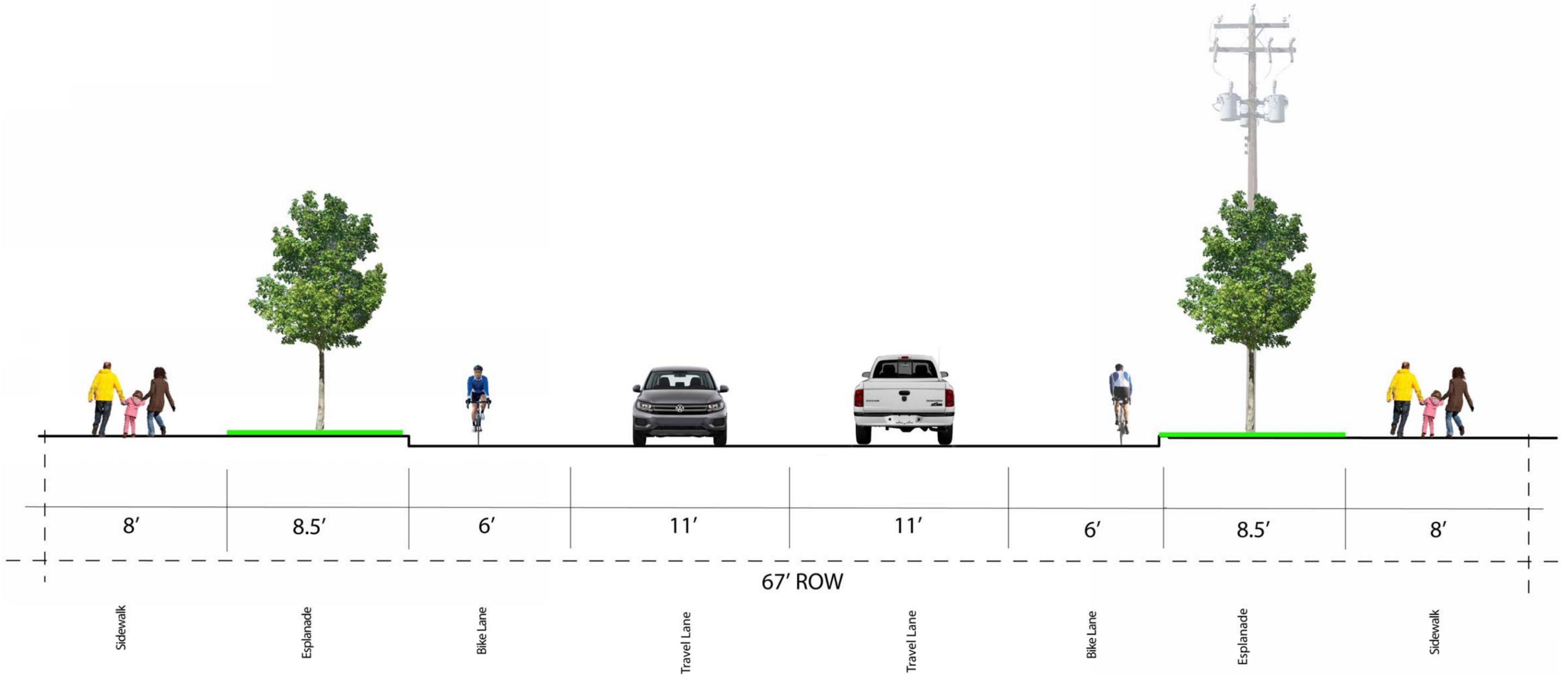
Broadway Cross-Sections

Proposed Cross-Section with Westerly Sidewalk



Hillside Drive Cross-Section

Potential Future Multi-Use Roadway Cross-Section



Questions

Next Steps

1. SC Meeting #4 (Final Review) – April 2015
2. Present Draft Recommendations to City Boards – May 2015
3. Final Transportation Improvement Plan – May 2015