

Court Street Improvements Study

Kick-Off Meeting

June 14, 2019



Welcome / Introductions

Meeting Agenda

- Introductions
- Study Objective
- Review Study Scope of Work
- Existing Conditions Summary/Data Collection/Prior Studies
- Public Meeting/Public Outreach Process
- Project Schedule
- Comments/Concerns
- Next Steps



Study Objective

- *To make bicycle, pedestrian and parking improvements along Court Street between the Androscoggin River and Goff Street, and Turner Street between Court Street and Hampshire Street while addressing area traffic congestion management. This project will identify feasible mobility improvement alternatives for bicycle, ADA and pedestrian safety, transit, parking access and circulation, and overall traffic through put of the Court Street corridor, between the Androscoggin River and the Goff Street/Court Street intersection, as well as along Turner Street from Court Street to Hampshire Street.*

Study Area





Scope of Work

TASK 1: EXISTING CONDITIONS

The project team will conduct a detailed inventory and assessment for the study area related to roadway conditions, traffic volumes, bicycle and pedestrian resources, traffic control, parking and land use. This effort will include the following:

- Intersection Turning Movement Counts
- Automatic Traffic Recorder Counts
- Bicycle and pedestrian volumes
- Truck volumes and patterns
- Geometric roadway conditions including width
- Transit
- As-built plans and traffic signal timing plans
- On and Off-Street parking supply and regulation
- Seasonal traffic volume information
- Right-of-way information
- Speed data
- Current design projects
- Crash data for the most recent 3-year period



Scope of Work

TASK 1: EXISTING CONDITIONS (CONTINUED)

We will conduct a field inventory to update any of the data collected and to document information not in the City/MaineDOT/ ATRC database. Examples of this information include:

- Regulatory signage and pavement markings
- Access management conditions
- Sidewalks and crosswalks (including ADA compliance, material, condition, and width)
- Bicycle facilities
- Traffic signal equipment and phasing and timing
- Existing landscape and streetscape conditions.



Scope of Work

TASK 1: EXISTING CONDITIONS (CONTINUED)

- We will summarize existing traffic volumes for use in the traffic modeling analysis. This will include daily volumes, turning movement volumes during peak hours, and seasonal traffic conditions.
- A safety analysis will be conducted. We will summarize information for High Crash Locations and other locations that have high crash frequencies. For these identified locations, we will develop collision diagrams that note existing crash patterns and contributing factors.
- A level of service analysis will be conducted at key intersections according to methods contained in the Highway Capacity Manual. For this project, a Synchro/SimTraffic model will be developed for the study area to estimate vehicle delay and queuing.



Scope of Work

TASK 2: TRAFFIC AND ALL MODE CIRCULATION ANALYSIS

TYLI will develop existing and future traffic volume networks for the study intersections that will include the following:

- ATRC will provide existing intersection turning movement counts. TYLI will conduct AM and PM peak period spot counts to update data.
- A future (2029) 10-year build network will be developed in consultation with the City and ATRC. We anticipate this effort to be a combination of reviewing ATRC's Travel Demand Model forecasts; historical traffic volumes; and estimating potential traffic (using ITE methods) generation from a redevelopment scenario.
- The existing and future volume networks will be provided for the weekday AM and PM peak hours.
- A level of service analysis will be performed for the future year (2029) assuming no changes in roadway capacity and traffic control conditions. This will serve as the base case.



Scope of Work

TASK 3: DETERMINATION OF FEASIBILITY AND RECOMMENDATIONS

The recommendations will provide specifics on lane/geometric configurations, lane storage requirements, lane widths, right-of-way, pavement markings, traffic signals, sidewalks, crosswalks, bicycle facilities, traffic calming, and general traffic circulation. The Draft recommendations will include and be based on the following:

- A SimTraffic Model evaluation
- Bicycle facility infrastructure recommendations may include:
 - ✓ Bicycle lanes
 - ✓ Shared accommodations
 - ✓ Enhanced intersection treatments.
- Pedestrian facility infrastructure recommendations may include:
 - ✓ New or expand sidewalks
 - ✓ New, adjusted or enhanced crosswalks, Pedestrian phasing at signalized intersections
 - ✓ ADA compliance.
 - ✓ Unsignalized crosswalk treatments (e.g. medians, curb extensions, RRFB's, etc.)
 - ✓ Intersection geometry adjustments.
- General streetscape and landscape recommendations will be included.
- Recommendations will include a list according to short, medium, and long-term strategies.
- The project team will develop cost estimates for the concept improvements that will include sufficient detail for municipal budgeting purposes.

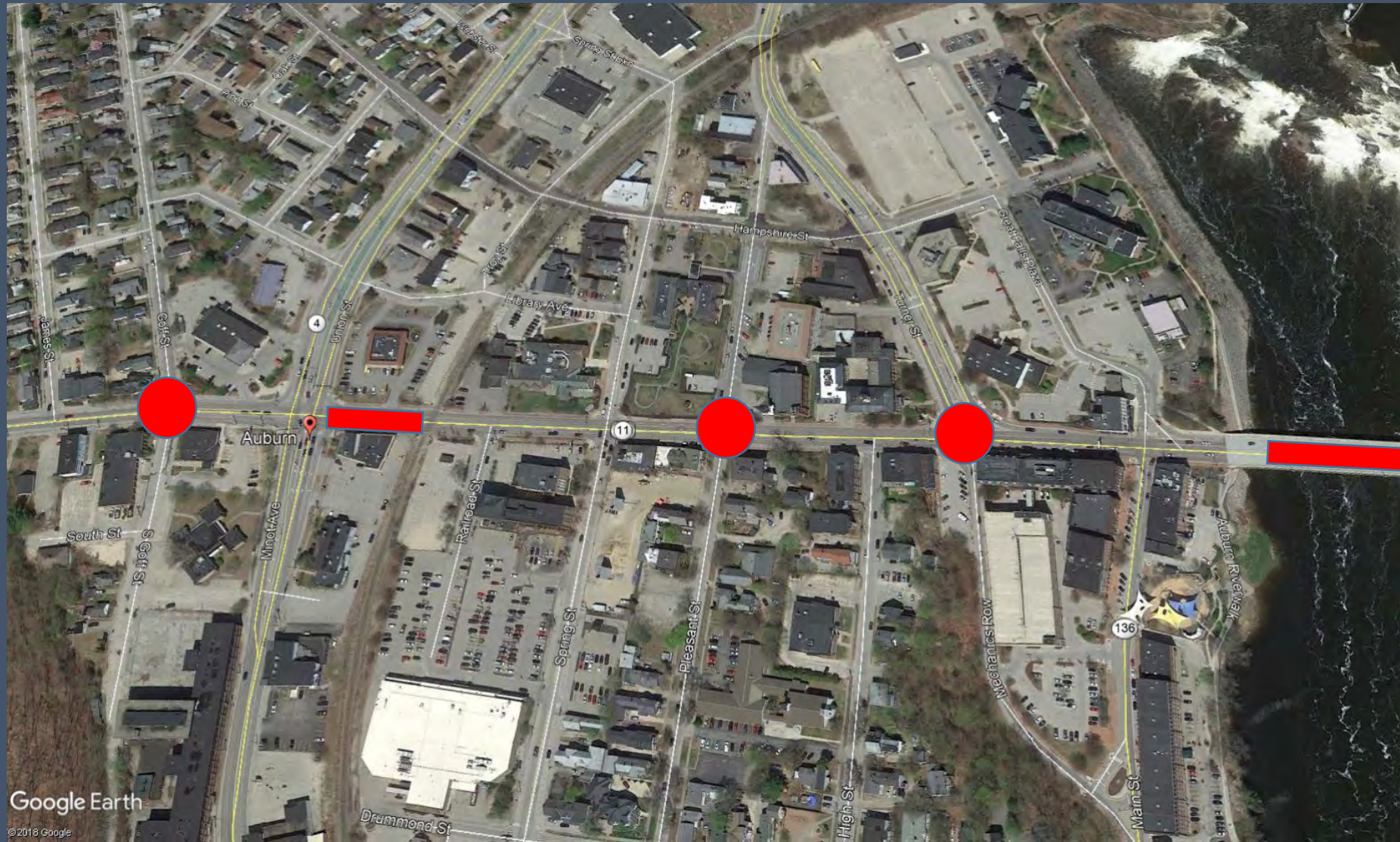


Existing Information

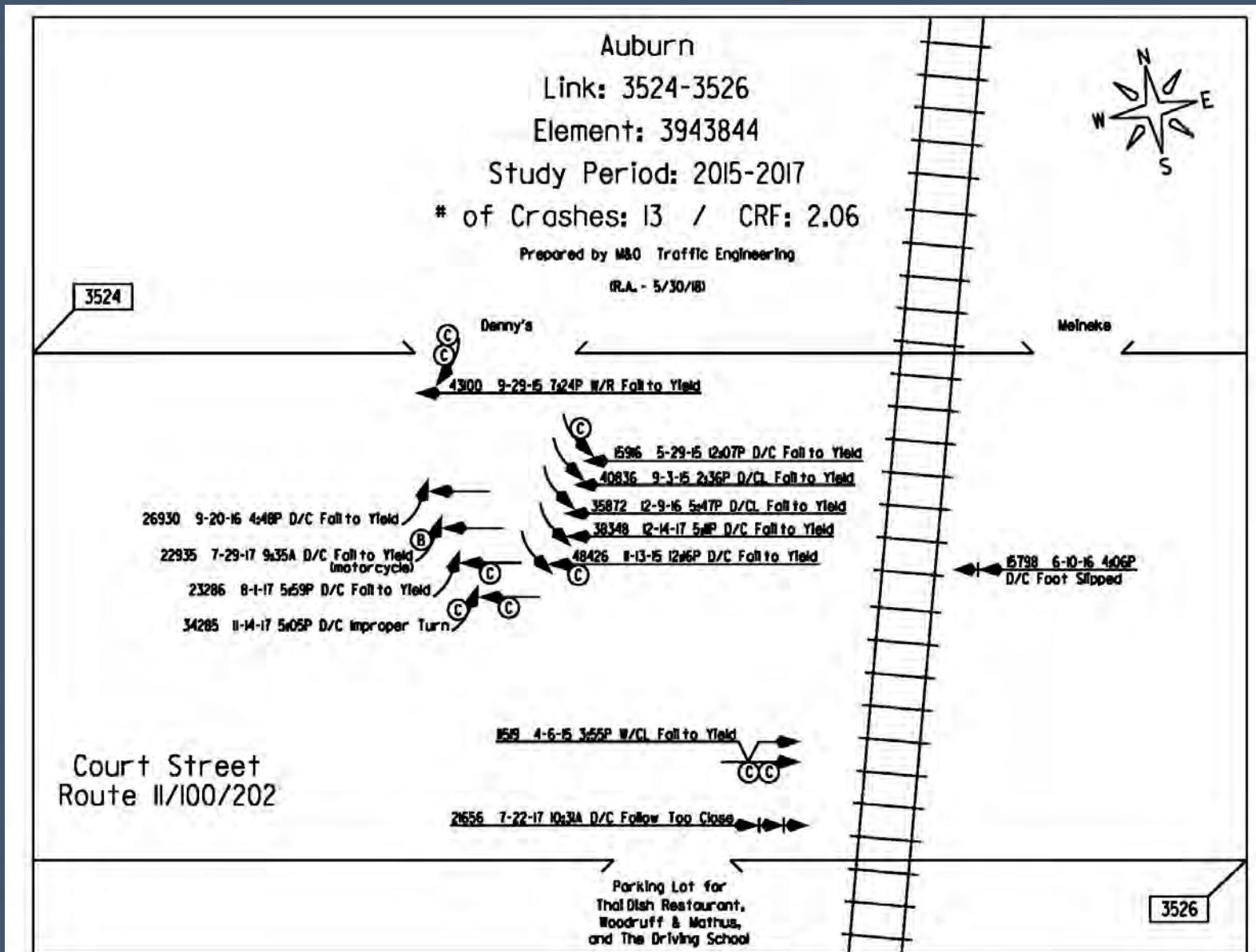
CRASH HISTORY

TRAFFIC VOLUMES

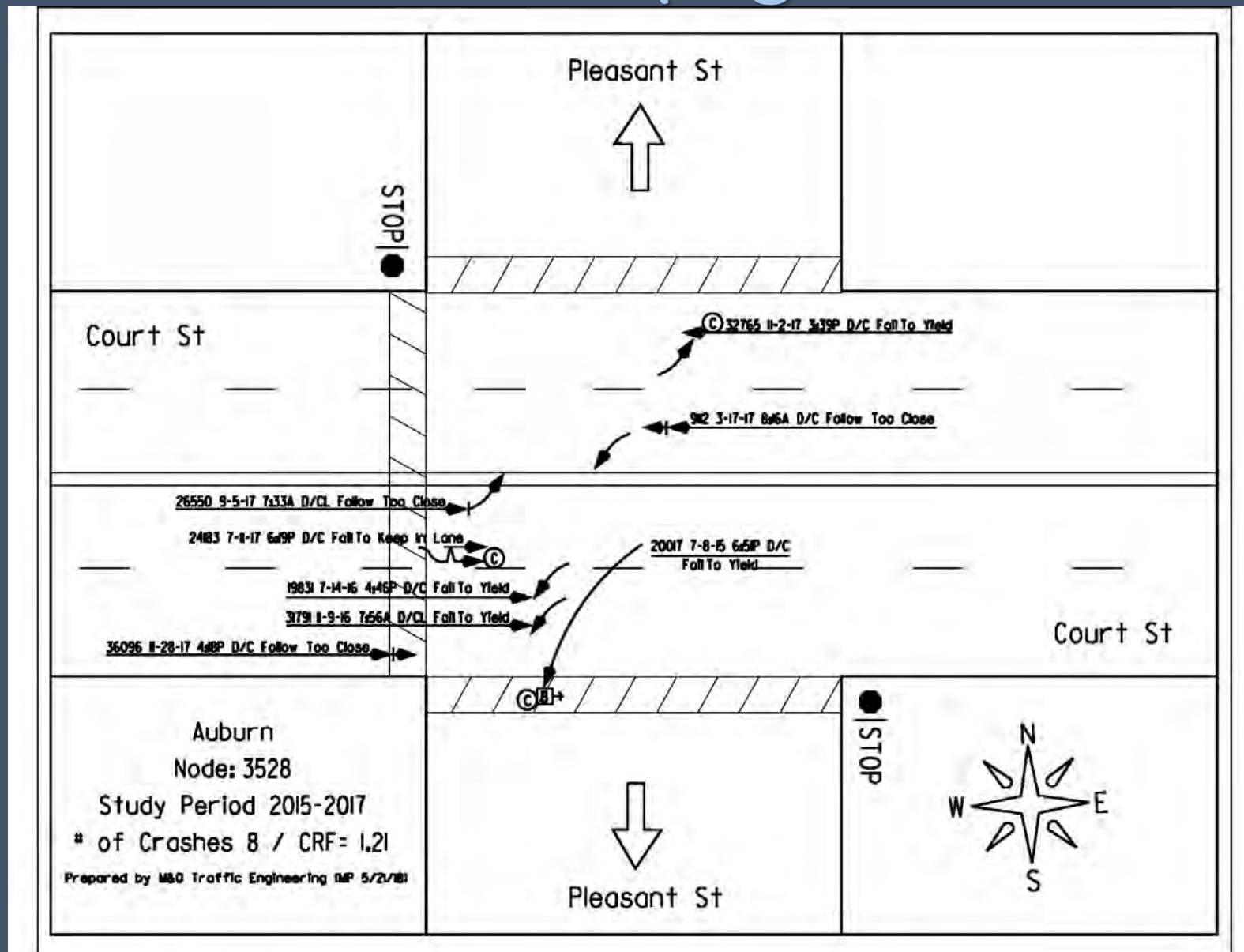
Crash Data (High Crash Locations)



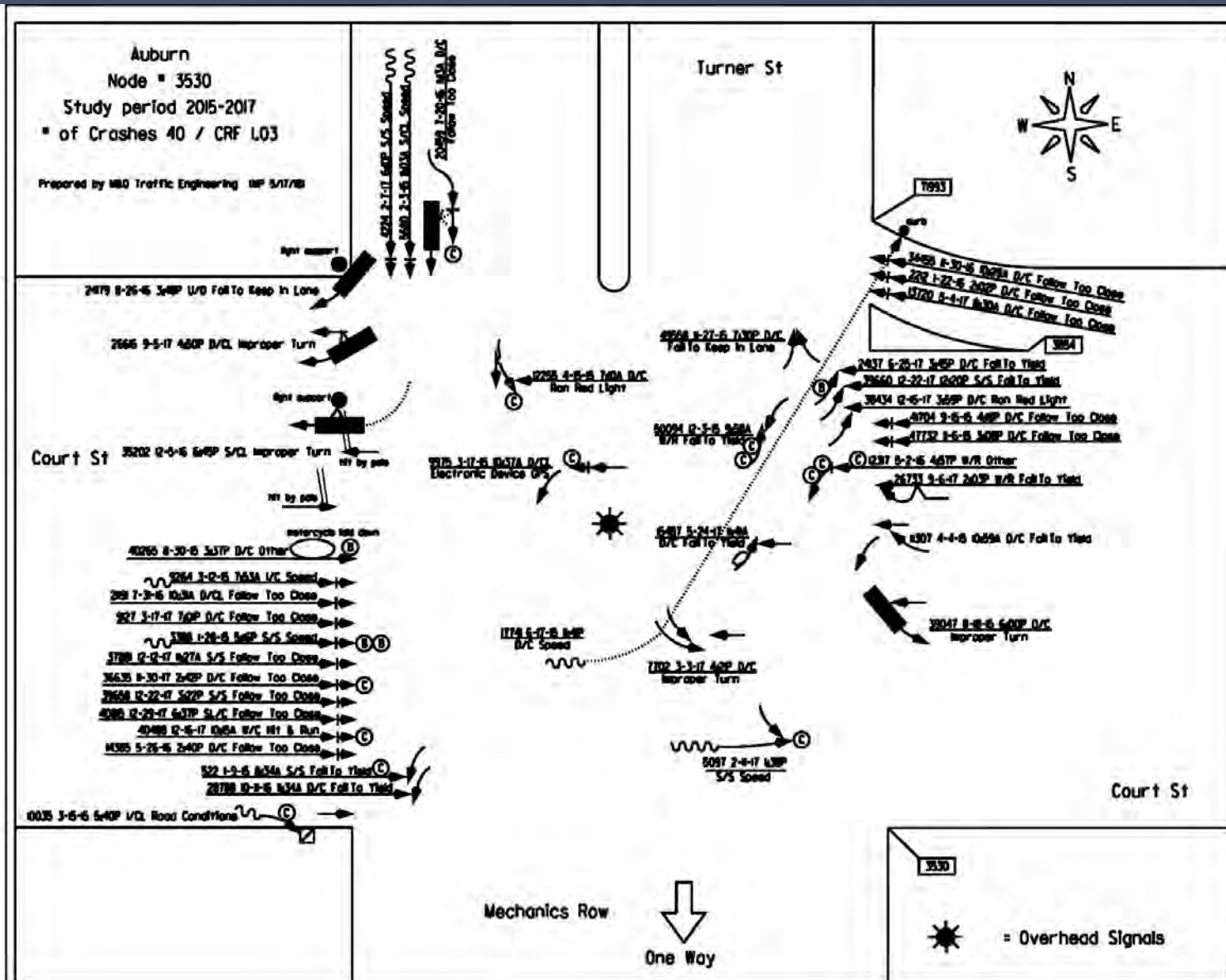
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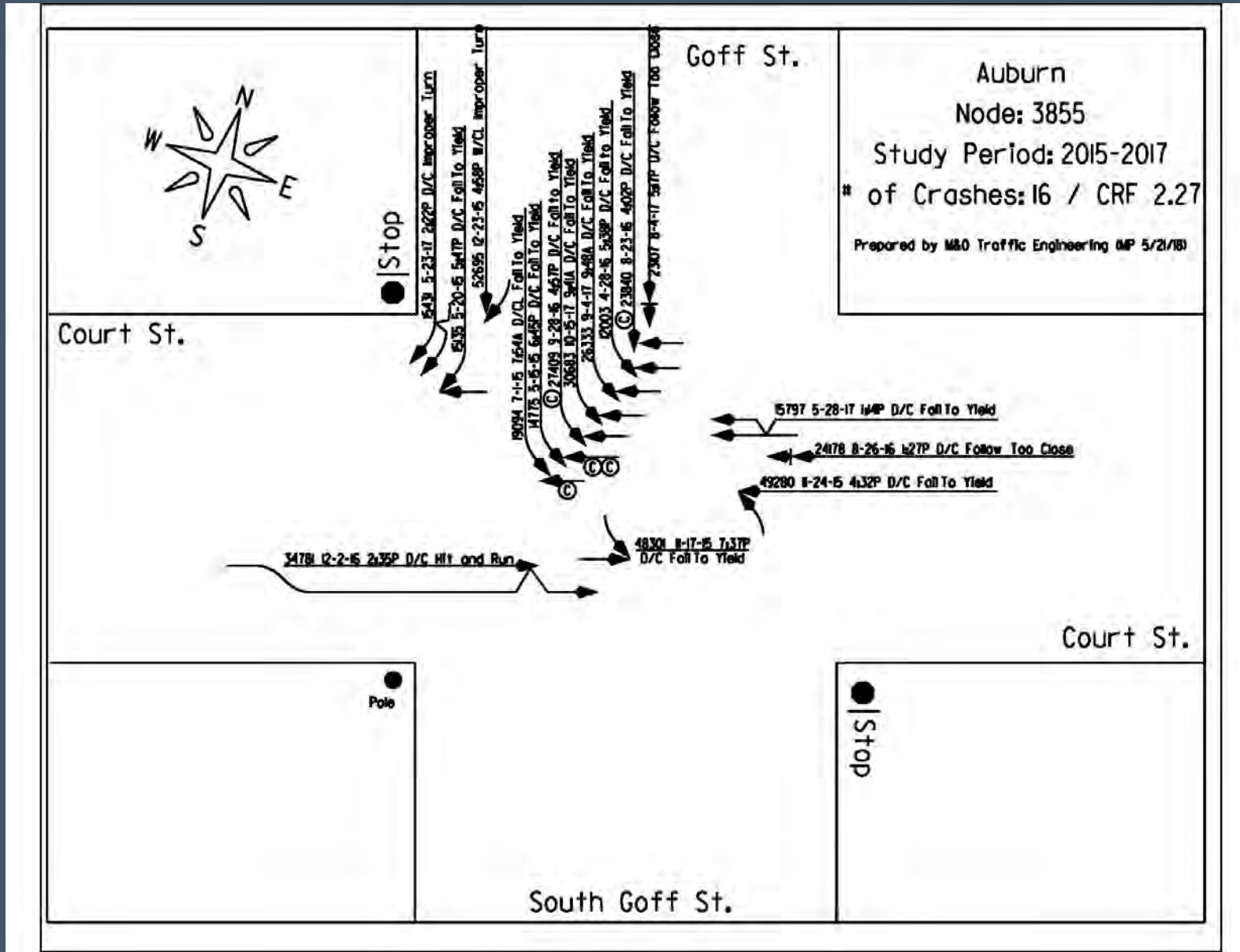
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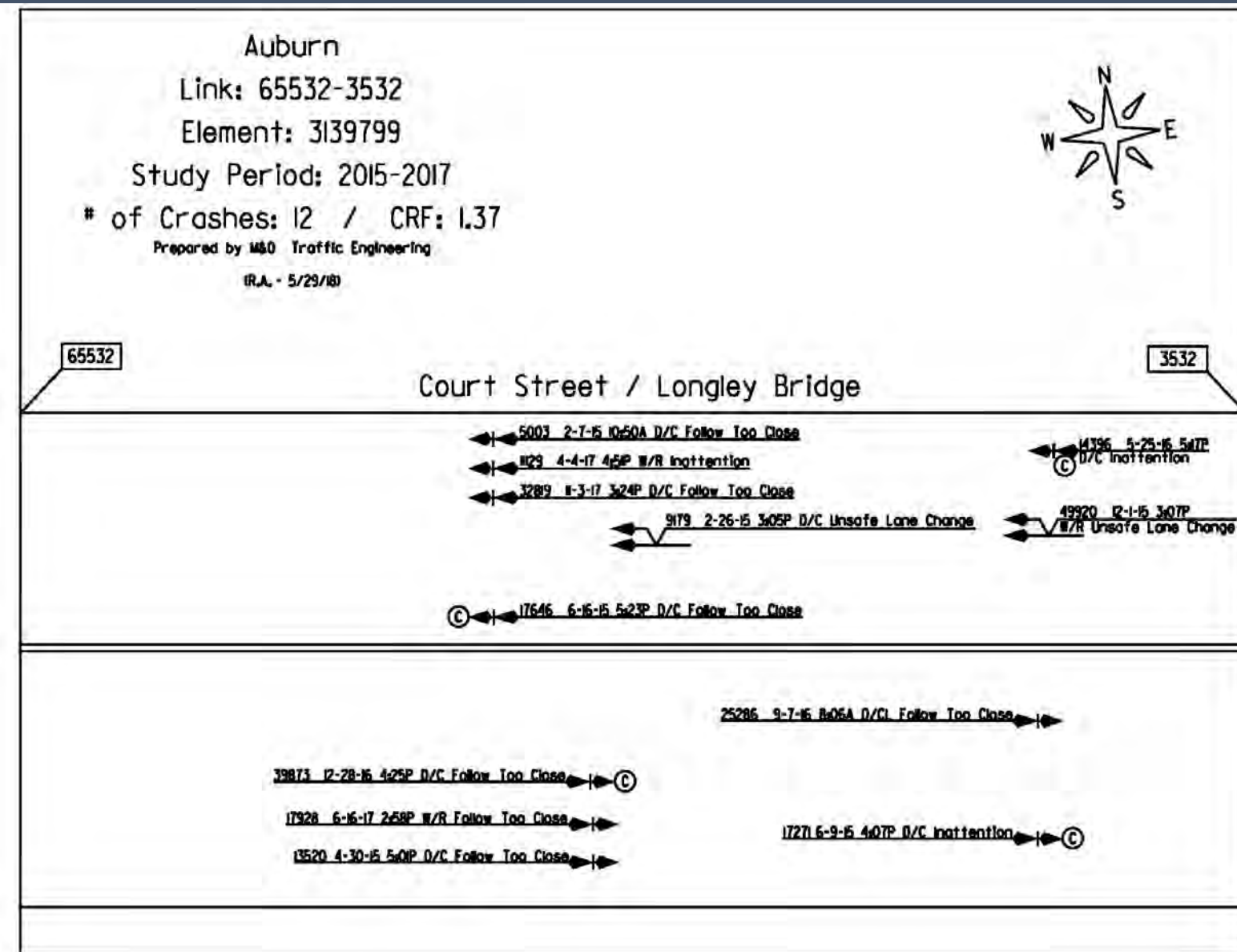
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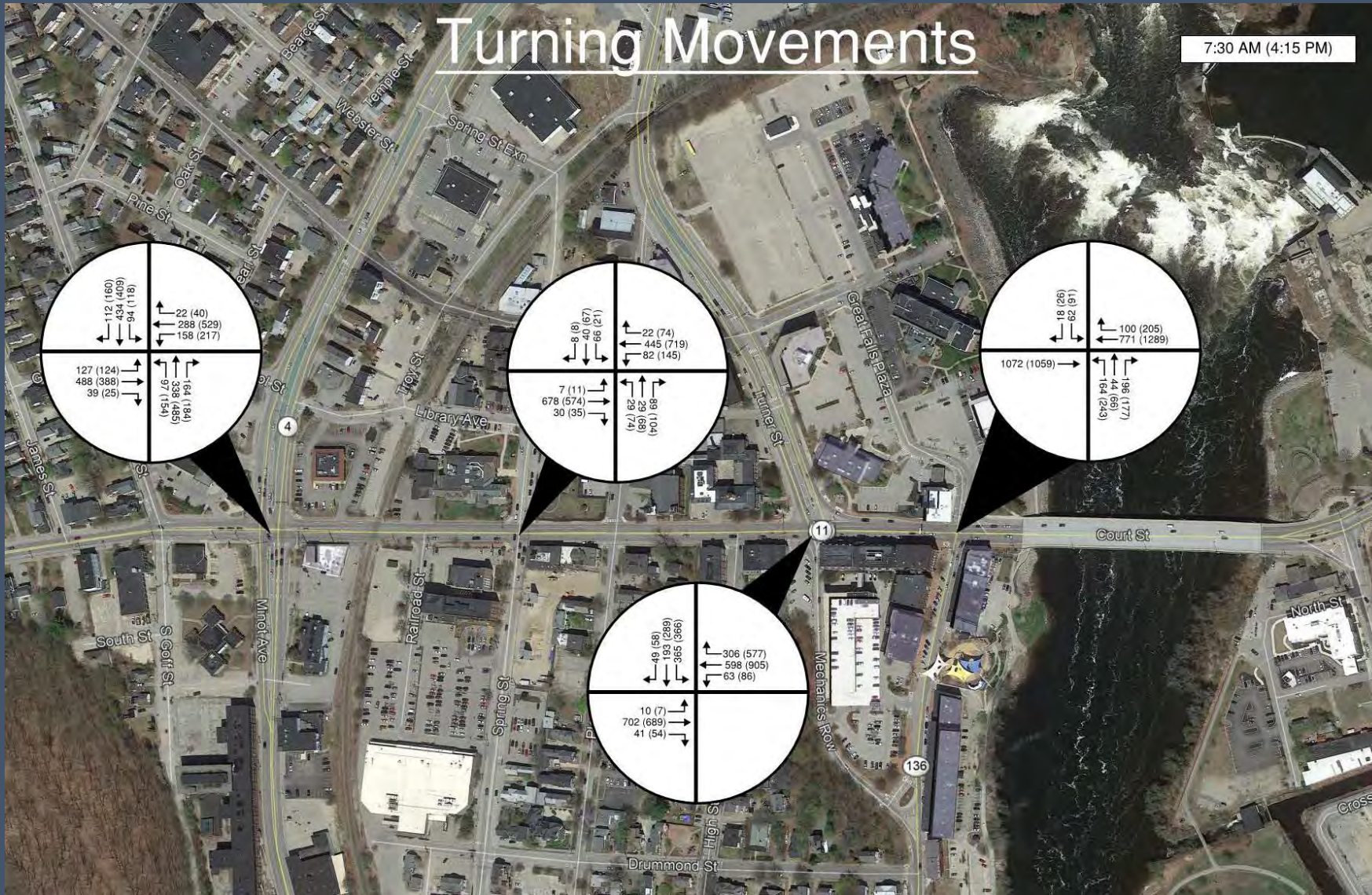
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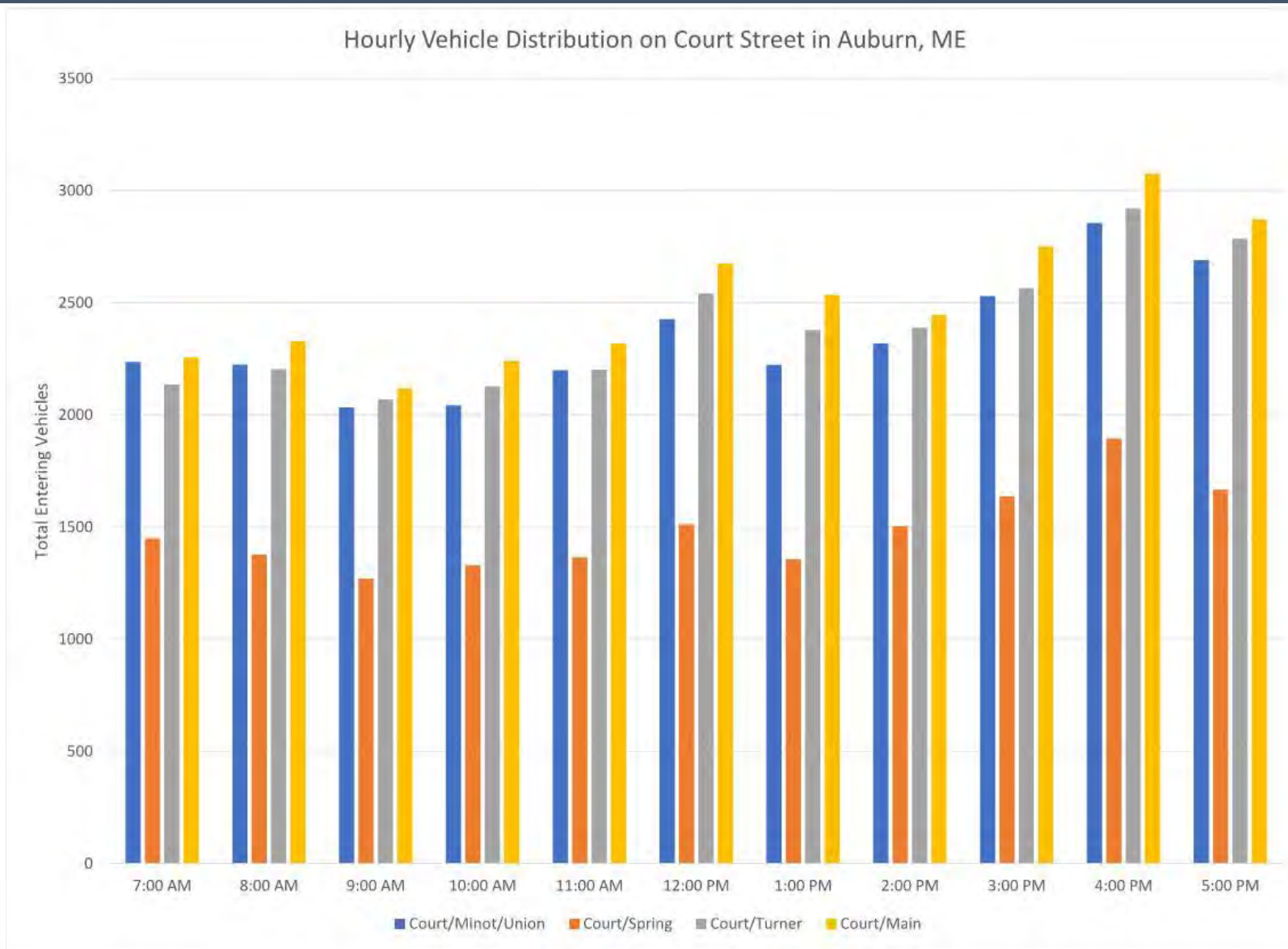
Intersection Turning Movement Volumes



Average Annual Daily Traffic Volumes



Traffic Volume Hourly Variation

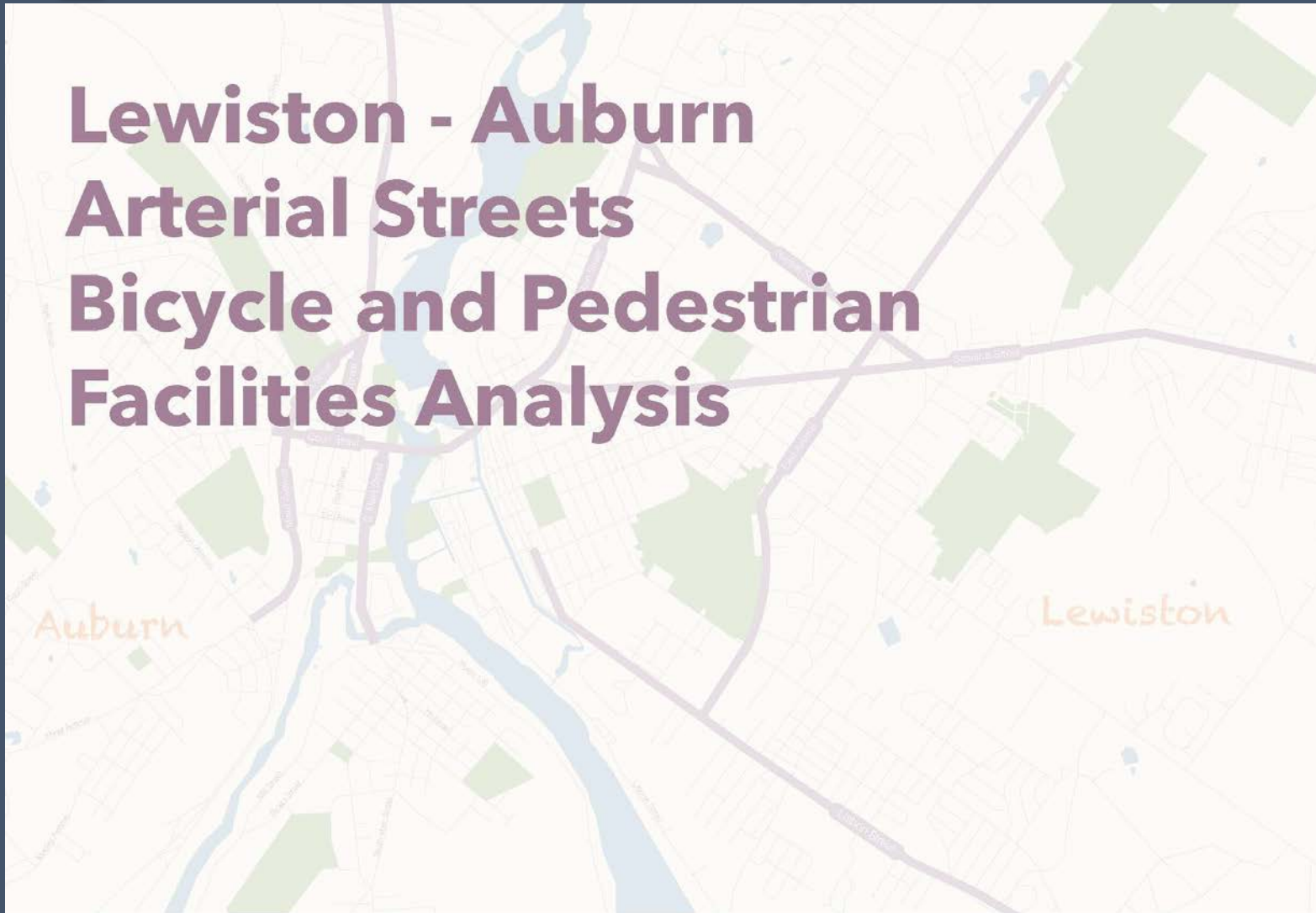


Pedestrian Volumes



Prior Studies

Lewiston - Auburn Arterial Streets Bicycle and Pedestrian Facilities Analysis



Prior Studies

Court Street

Summary

Analysis Limits: Great Falls Plaza to Goff Street

Distance: 0.42 miles

of Travel Lanes: 4 - 5

2012 - 2014 Crash Tally: 89 (211.9 per mile)

2010 - 2014 Bike / Ped Crashes: 15 (33.7 per mile)

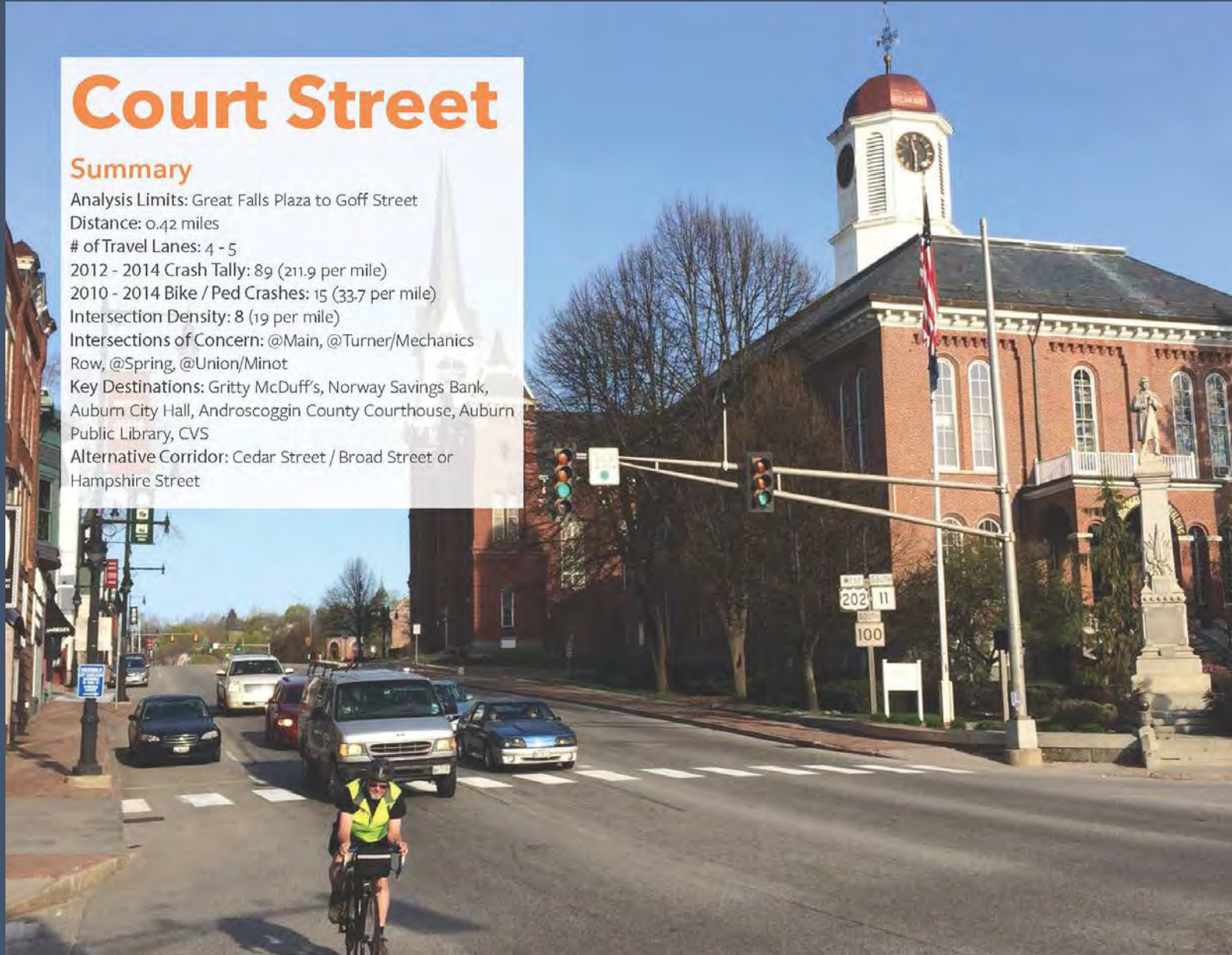
Intersection Density: 8 (19 per mile)

Intersections of Concern: @Main, @Turner/Mechanics

Row, @Spring, @Union/Minot

Key Destinations: Gritty McDuff's, Norway Savings Bank, Auburn City Hall, Androscoggin County Courthouse, Auburn Public Library, CVS

Alternative Corridor: Cedar Street / Broad Street or Hampshire Street



Prior Studies

Court Street Data



Segment	Travel Lanes	AADT	Bike/ Ped Crashes	Urban Form	Land Use	Sidewalks	Bikeways
West of Union Street	1 Eastbound (3 w/turn lanes); 1 Westbound (2 w/turn lane)	2011: 15,410 2014: 16,890	3	Suburban	Commercial/ Residential	Both Sides	No
East of Union Street	2 Eastbound; 2 Westbound (3 w/turn lane)	2011: 17,610 2014: 16,940	5	Urban / Suburban	Commercial / Civic	Both Sides	No
West of Great Falls Plaza	2 Eastbound; 2 Westbound (3 w/turn lane)	2011: 27,990	7	Urban	Commercial / Civic	Both Sides	No

Prior Studies

Existing: Court Street, between Turner Street and High Street



Prior Studies

Analysis

Overview

Court Street in downtown Auburn is a roadway of regional significance moving large volumes of traffic (27,000+ at Main / Court) right through the heart of downtown Auburn. This presents a large number of conflicts between the demands of those making local trips (car, bike, foot) and regional travelers. The built fabric shaping the corridor is historically mixed-use, urban, and walkable. However, the rising vehicular volumes between the bridge and Turner Street have compromised the corridor's ability to cultivate a comfortable walking environment. Further, west of the Turner/Mechanics Row intersection, traffic loads drop by about one third, yet give way a more auto-oriented land use character, especially east and west of the Minot Avenue / Union Street intersection, which may induce additional driving trips that otherwise might be made by on foot or bike by downtown residents, employees, and visitors.

Bicycle and Pedestrian Facilities

While, Court Street does not feature any bicycling infrastructure, it is one of three arterials in this study with 100% sidewalk coverage on both sides of the street. Yet, as described above, the walking experience is generally not very pleasant because large volumes of traffic moving through the corridor and a few key intersections (Turner Street, Minot Avenue / Union Street) create long distances to cross on foot. In particular, the introduction of the right-turn lanes onto Great Falls Plaza and Turner Street create a direct conflict with pedestrians in what are two key downtown intersections.

The short, .42-mile focus of this corridor study includes 8 intersections, or an intersection density of approximately 19 per mile. This is the third highest intersection density of the 9 nine corridors, meaning the street network has the right armature for a compact, mixed-use and lively pedestrian-oriented setting. Of these 8 intersections, there are 9 crosswalks connecting one side of Court Street to the other, or 21.4 per mile, the third highest ratio of the corridors included in this study. The longest gap between marked, controlled or uncontrolled crossings is 531', by far the shortest gap of the nine arterial streets studied.

ADA accessible curb ramps including detection warning pads are present throughout some of the corridor, however several intersections and curb cuts would benefit from their addition.

Crashes

From 2010 - 2014 there were 15 known crashes involving bicyclists (6) and pedestrians (9) along Court Street, a 35 crash per-mile rate, which is the highest rate between the two cities. No fatalities were recorded, although there was one serious crashes resulting in an incapacitating injury and four resulting in an injury of some type. In addition to the 15 known bike/ped crashes, there were 89 car crashes, a per mile rate of 211 per mile, far and away the highest crash rate between the two cities.

Key Recommendations

SHORT TERM

- 1 Continue to retrofit existing curb ramps with detectable warning pads.
- 2 At minimum, improve bicycle safety / visibility by marking sharrow between the Longley Bridge and Minot Street, and re-stripe the Longley Bridge to accommodate bicycle lanes/an expanded sidewalk; develop a detailed study for the viability of a three-lane section, from Turner Street to Minot (see aspirational section at right), as crash rates are astronomically high and downtown context dictates need high need for reduced crash rate. Study the viability of a two-lane modern roundabout at the Minot Avenue / Union Street / Court Street intersection.

LONG TERM

- 3 Prioritize pedestrians in downtown Auburn by closing the dedicated right turn onto Great Falls Plaza and Turner Street and retrofit curb radii to accommodate right-turn movement accordingly.
- 4 If study results are favorable, implement two-lane modern roundabout at the Minot Avenue / Union Street / Court Street intersection.
- 5 Consider further improving Minot Avenue/Union Street with leading pedestrian intervals / visible countdown clocks that can be read from the other side of the intersection.

Prior Studies

Proposed: Court Street, between Turner Street and High Street



Prior Studies

Court Street @ Main Street (Auburn)

AADT: 27,990 (2011)

Car Crashes: 10 (Main Street leg)

Critical Rate Factor: 3.86

Pedestrian Crashes: 3

Bicycle Crashes: 1

Overview

The intersection of Court Street and Main Street is one of the most well-traveled intersections in the twin cities. It also acts as the gateway to downtown Auburn, with steady foot traffic and high volumes of motorists heading to and through downtown. The design and operation of the intersection is pedestrian-tolerant, but primarily emphasizes the thru-movement of people driving. Balancing this intersection for all users, including bicyclists, is of high importance given the gateway location and will require making changes that may provide small delay at peak hour, but will also provide a safer and more inviting downtown.

Walking

Over a 12-hour period in 2013 there were 374 pedestrians counted walking through the intersection. While high-visibility crosswalks, a pedestrian signal, and a refuge island provide a basic infrastructure for walking, the intersection's configuration, scale, and traffic volume make the walk more challenging than it has to be. The right turn lane from the Longley Bridge onto Great Falls Plaza conveniently moves motorists out of the thru-flow, but also makes it difficult for pedestrians to cross; walkers are provided with pedestrian signal, but only between the south side of the intersection and the refuge island. Those wanting to cross onto or off the island to the north side of the intersection must judge the speed of oncoming traffic or simply wait for traffic to be clear.

Bicycling

19 bicyclists were counted at this intersection over a 12-hour period. One would assume many were cycling from Main Street and crossing the intersection to Great Falls Plaza, or turning right and heading over the bridge to Lewiston. Regardless, the lack of facilities and high-volume of motor vehicle traffic make cycling particularly uncomfortable at this location.



Key Recommendations

SHORT-TERM

- 1 Re-stripe and expand the width of the crosswalks as needed.
- 2 Add "shark's teeth" yield line markings and W11-2 pedestrian crossing signs in advance of the dedicated right-turn lane onto Great Falls Plaza.
- 3 Add additional detectable warning pads to missing locations.
- 4 Add sharrows along Court Street, mark bikeway crossing through the intersection to guide lateral placement.
- 5 Place a bicycle box/advance stop line at the Main Street leg of the intersection.
- 6 Repurpose buffered area on west side of Main Street with epoxy gravel/planters, and other pedestrian amenities.
- 7 Ban right turn on red at Court Street and Main Street intersection.
- 8 Add a leading pedestrian interval to reduce right-turn conflicts; reduce the signal cycle length to reduce pedestrian delay.

LONG-TERM

- 9 Close the right-turn lane onto Great Falls Plaza, redesign to include more sidewalk/public space and facilitate right vehicular turns.
- 10 Consider removing one travel lane from the Main Street leg of the intersection and replace with additional bicycle or pedestrian space.
- 11 Remove one northbound travel lane along Great Falls Plaza; reconfigure the intersection to include a pedestrian refuge island.

Prior Studies

Key Short-Term Recommendations

- 1 Wider, high-visibility crosswalks
- 2 Shark's teeth W11-2 pedestrian signs
- 3 Detectable warning pads
- 4 High-visibility shared-use lane markings (sharrows)
- 5 Bicycle box / advanced stop line
- 6 Epoxy gravel curb extension
- 7 Commercial loading zone



Prior Studies

Court Street @ Turner Street / Mechanics Row

AADT: 27,990 (2011)

Car Crashes: 41

Critical Rate Factor: 1.12

Pedestrian Crashes: 2

Bicycle Crashes: 2

Overview

The intersection of Court Street and Turner Street / Mechanics Row is one of the most well-traveled intersections in Lewiston-Auburn, featuring steady foot traffic and high volumes of motorists heading to and through downtown Auburn. The design and operation of the intersection is pedestrian-tolerant, but primarily emphasizes the thru-movement of people driving. Further balancing the intersection for all users, including bicyclists, will require making some small changes that could provide some further delay at peak hour, but provide a safer and more inviting downtown over the entire day.

Walking

Over a 12-hour period in 2013 there were 354 pedestrians counted walking through the intersection. The intersection's configuration, scale, and traffic volume, can make walking through the intersection challenging, and at times feel unsafe. For example, the right turn lane onto Turner Street makes it difficult for pedestrians to cross the street. Even with the walk signal, motorists feel pressure to turn right-on-red, which is allowed, so that they don't back up traffic further. In addition, crossing from north to south on foot requires the pedestrian to wait through two separate signal phases, meaning people must wait on the refuge island for an extended amount of time, with motorists moving by them in all directions, or cross against the signal. That said, recently added pedestrian refuge islands and high-visibility crosswalks have improved the experience.

Bicycling

Bicycling counts are low through this intersection, which may be attributed to the lack of facilities, the high-volume of motor vehicle traffic, and perception of unsafe conditions. In particular, making a left-turn onto Turner Street while traveling eastbound on Court Street is particularly intimidating, and two-stage turns are not feasible due to one-way southbound traffic at Mechanics Row.



Key Recommendations

SHORT-TERM

- 1 Repaint (as needed) and increase the width of the crosswalk.
- 2 Increase the distance between the painted stop bars and the crosswalks.
- 3 Add additional detectable warning pads to missing locations.
- 4 Ban right turn on red at select downtown intersections, including Court Street and Turner Street.
- 5 Coordinate pedestrian signals so that people may cross the full width of Court Street; add leading pedestrian intervals to reduce right-turn conflicts.

LONG-TERM

- 6 Tighten curb radii to shorten crossing distance and slow motorists.
- 7 Re-assign the right-turn lane onto Turner Street, redesign to include more sidewalk/public space and facilitate right vehicular turns.
- 8 Re-assign one northbound travel lane on Turner Street, between Court Street and Hampshire Street.
- 9 Re-assign one westbound lane on Court Street lane, west of Turner Street to allow for an uphill bike lane; add eastbound sharrow marking downhill; to facilitate left turns while bicycling, consider a bicycle box at head of the eastbound Court Street/Turner Street intersection.

Prior Studies

Key Short-Term Recommendations

- ① Wider, high-visibility crosswalks
- ② Increased distance between stop line and crosswalk
- ③ Detectable warning pads



Prior Studies

Court Street @ Minot Avenue / Union Street

North / South AADT: 16,040 - 17,160 (2014)

East / West AADT: 17,610 - 16,890 (2014)

Car Crashes: 8

Critical Rate Factor: 1.80

Pedestrian Crashes: 4

Bicycle Crashes: 1

Overview

The intersection of Court Street and Minot Avenue / Union Street is the third and final high crash intersection along Court Street. It is also the convergence of various state routes, which move people throughout the region. The intersection serves as the western gateway to downtown Auburn and is surrounded by auto-oriented commercial uses. Balancing the mobility and accessibility needs of all users is of high importance and will require making changes in the design and operation to provide a safer and more inviting experience for all users.

Walking

There are no pedestrian counts recorded for the intersection. High-visibility crosswalks are present, but pedestrian signal heads are hard to visibly locate, and wait times are long. In addition, there are no detectable warning pads at curb ramps, and sweeping curb radii make crossings distance and pedestrian exposure time longer than necessary. Finally, the lack of on-street parking and/or landscaped esplanade's on the northwest and southeast sidewalk approaches make the experience less comfortable than walking along the southwest and northeast corners.

Bicycling

There are no bicyclist counts recorded for the intersection. Regardless, the lack of facilities and high-volume of motor vehicle traffic make cycling particularly uncomfortable at this intersection. Proposed bikeways along Union Street and Court Street will have to be resolved at this intersection, so treatments like a bicycle box, bicycle signals, intersection markings, through bike lane, and detection should be considered in the toolbox of possible solutions.



Key Recommendations

SHORT-TERM

- 1 Repaint (as needed) and expand the width of the crosswalks.
- 2 Retrofit all curb ramps with detectable warning pads.
- 3 Increase space between stop bar and crosswalks.
- 4 Based on signal time analysis, reduce the signal cycle length to 60 seconds to reduce pedestrian delay; coordinate other corridor signals for more benefit.
- 5 Add a leading pedestrian interval to reduce right-turn-on-red conflicts; improve the visibility of pedestrian signal heads and add countdown clocks.
- 6 Ensure intersection cameras detect bicyclists.

LONG-TERM

- 7 Re-assign dedicated right-turn lanes along Minot Avenue as bikeway and/or pedestrian space (pocket bike lanes, wider sidewalks), and Union Street to reduce pedestrian crossing time.
- 8 Implement bikeway treatments to and through the intersection.
- 9 Reduce width of thru travel lanes from 12' to 11' and re-assign space to expand the width and length of pedestrian refuge median islands.

Prior Studies

Key Short-Term Recommendations

- 1 Wider, high-visibility crosswalks
- 2 Detectable warning pads
- 3 Increase distance between stop line and crosswalk





Prior Studies

TND

TND ENGINEERING
TRAFFIC, TND, TRANSPORTATION AND CONSULTING

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July 10, 2015

Via Email Only: ecousens@auburnmaine.gov

Re: Court Street, Auburn Road Diet

Dear Eric:

Introduction

The City of Auburn, Maine is considering a "road diet" that would reduce the existing cross section of Court Street from four lanes to three, with on-street parking also being added to the south side of Court Street, between Spring and Main Streets.

This concept was analyzed utilizing Trafficware's Synchro and SimTraffic programs (v.9).

Using the base Synchro models provided locally for the AM and PM peak periods, the following assumptions are in the resulting model:

- Court Street is reduced to one lane Eastbound (one lane westbound was tested, but with existing traffic volumes, that option does not perform well);
- On-street parking was added to the South side of Court Street with four parking maneuvers per hour;
- Turner Street southbound was reduced to a single left turn lane;
- AM and PM peaks were tested with existing volumes and signal timings;
- The PM peak was analyzed with signal timing optimizations; and,
- The AM and PM peak were analyzed with existing timings, but 50% less southbound left turning traffic from Turner to Court.

"Level of Service" (LOS) is expressed in letter-grade format from "A" to "F" as vehicle delay increases, as expressed in the following table.

Prior Studies





Public Outreach / Meetings

Meeting	Purpose
Advisory Committee Kick-Off Meeting	Today
Advisory Committee Meeting 2	Review Existing Conditions TM and Prepare for Public Meeting
Public Meeting 1	Present Existing Conditions and Obtain Feedback
Advisory Committee Meeting 3	Review Draft Recommendations and Prepare for Public Meeting
Public Meeting 2	Present Draft Recommendations
Advisory Committee Meeting 4	Review Revised Draft Recommendations per Public Comments
Public Meeting 3	Present Final Draft Recommendations
Advisory Committee Meeting 5	Review Public Comments for Development of Final Recommendations
Advisory Committee Meeting 6	Review Draft Final Report



Schedule

SCHEDULE MILESTONES	PROPOSAL DATES	CURRENT DATES
Notice to Proceed	May 1, 2019	May 2, 2019
Assemble Existing Data	May 17, 2019	June 21, 2019
Advisory Committee Kick-Off Meeting	May 23, 2019	June 14, 2019
Completion of Task 1	June 14, 2019	June 30, 2019
Advisory Committee Meeting 2	June 27, 2019	July 12, 2019
Public Meeting 1	July 11, 2019	July 25, 2019
Completion of Task 2	August 16, 2019	September 6, 2019
Advisory Committee Meeting 3	August 29, 2019	September 13, 2019
Public Meeting 2	September 12, 2019	September 26, 2019
Completion of Task 3	October 4, 2019	October 18, 2019
Advisory Committee Meeting 4	October 17, 2019	October 25, 2019
Public Meeting 3	October 30, 2019	November 7, 2019
Advisory Committee Meeting 5	November 7, 2019	November 15, 2019
Completion of Task 4 (Draft Report)	November 22, 2019	November 30, 2019
Advisory Committee Meeting 6	December 5, 2019	December 13, 2019
Submit Final Report	December 20, 2019	December 31, 2019