Dover City Council Workshop

Citywide Traffic Signal System Development Update

January 14, 2015

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SEBAGO TECHNICS

Agenda

- Introduction – Project Scope & Objectives
- History 2009-2014
- Our Plan for 2015
- Current System Capabilities and Operations

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Introduction

- 2008 Central Avenue Corridor Study
- City owned Central Traffic Signal Software
- Traffic operations on Central Avenue could be improved with coordination - saving time and energy while reducing air emissions
- Translate this concept Citywide
- This initiative began in late 2009

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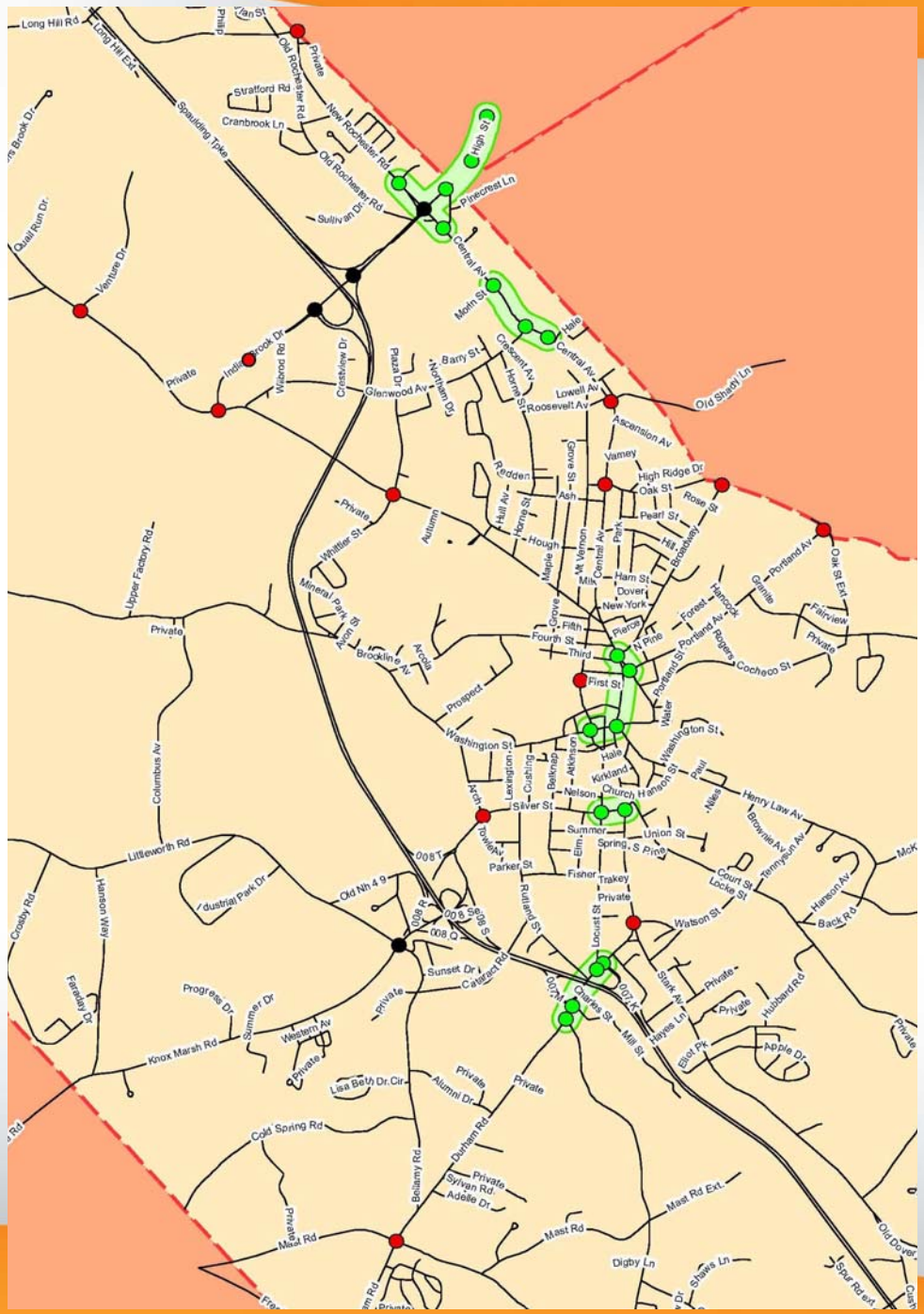

Dover's Signal Inventory

- 34 Signals
- 4 State-Owned
- 5 Coordinated Systems

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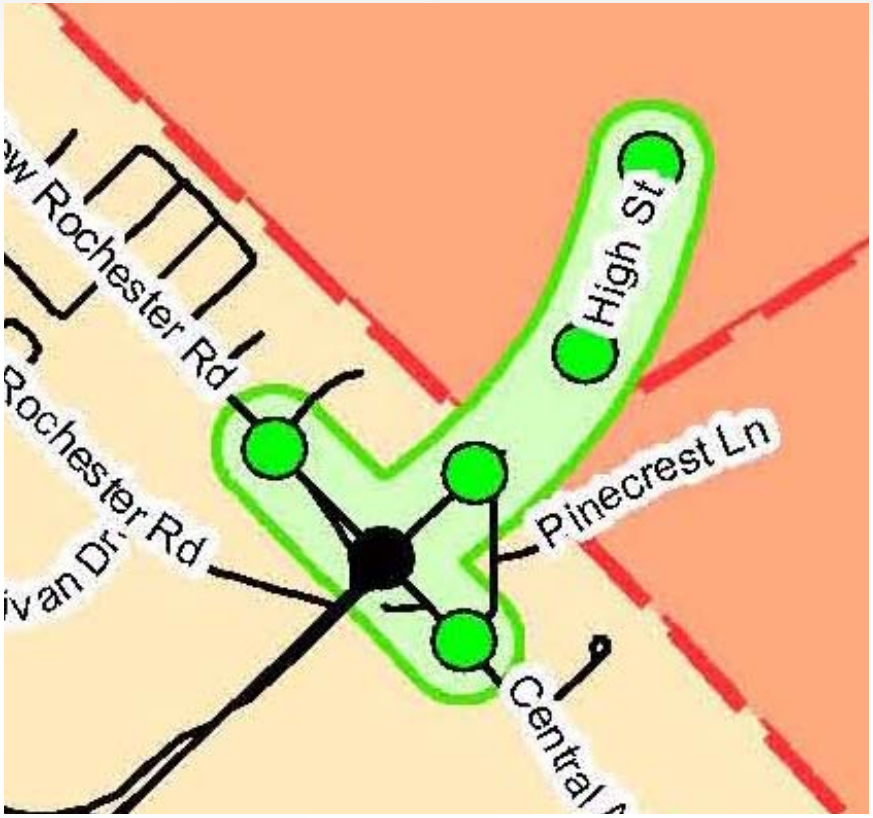
2009-2011

- Formulated Traffic Signal Committee
- Developed Initial System Master Plan
- Replaced Controllers at Weeks Crossing and Established Remote Communications with Dial Up Modem



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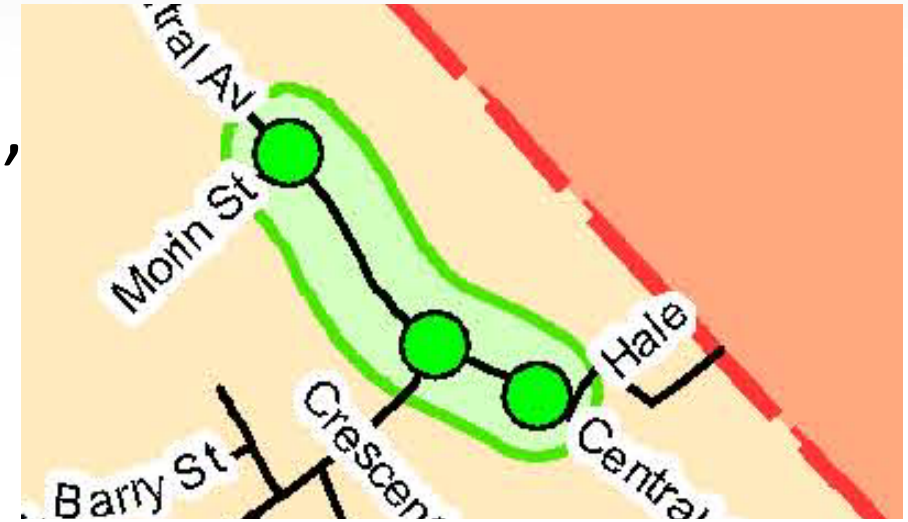
2012-2013

- Upgraded Signals at Hannaford, Glenwood, and Morin
- Selected New Signal Vendor



- Purchased First Video Camera For Back River Road Detection and Volume Counting
- Developed Wireless Communications Master Plan

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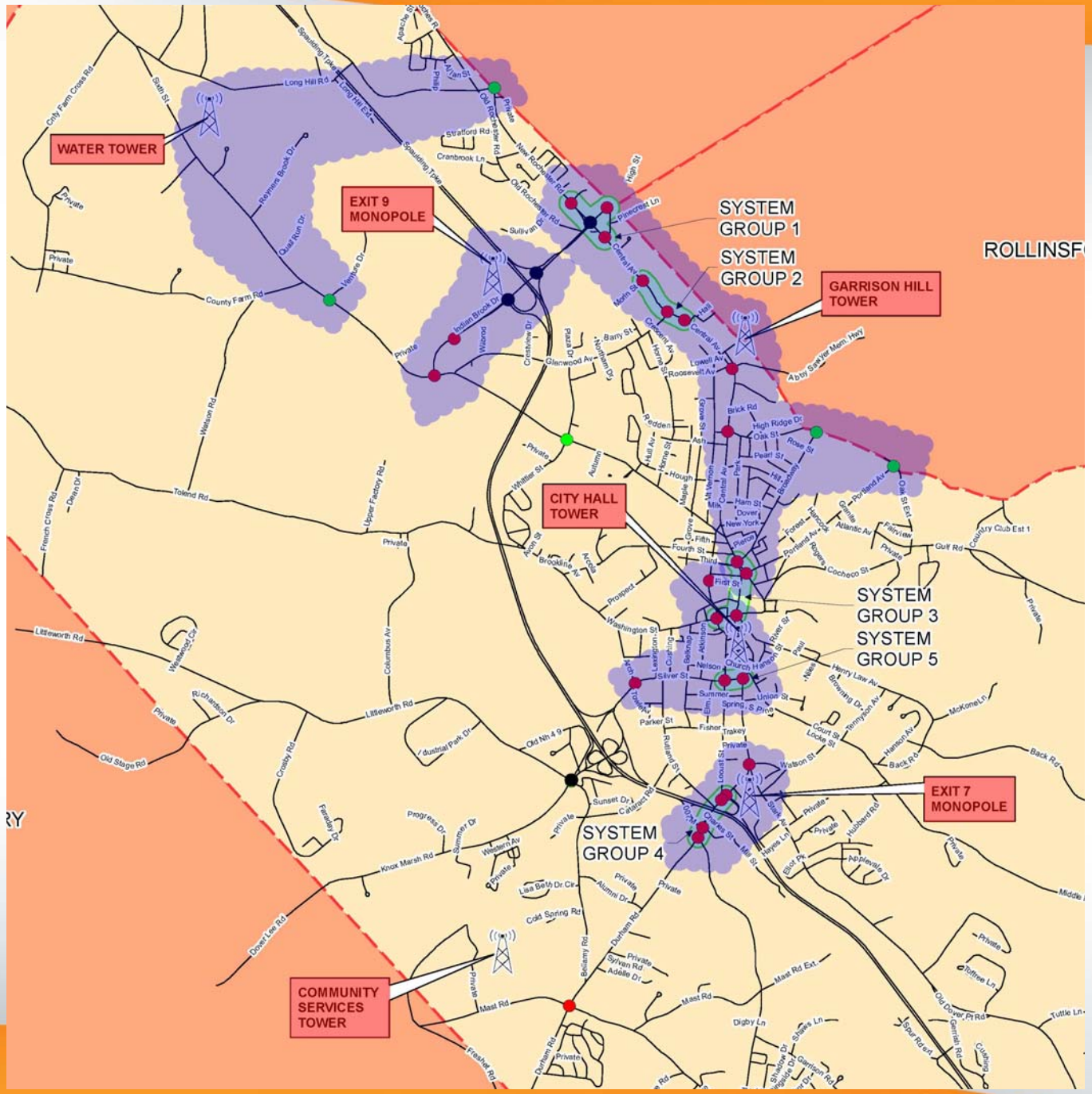

Comm. Master Plan

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2014

- Implemented Wireless Backbone at City Hall, Garrison Hill, and Community Services
- Established Communications with Upper Central Avenue
- Installed Second Camera on Central Ave. at Mill Street
- Installed Camera at Lower Square
- Began Building Database for Volume Data from Upper Central Avenue

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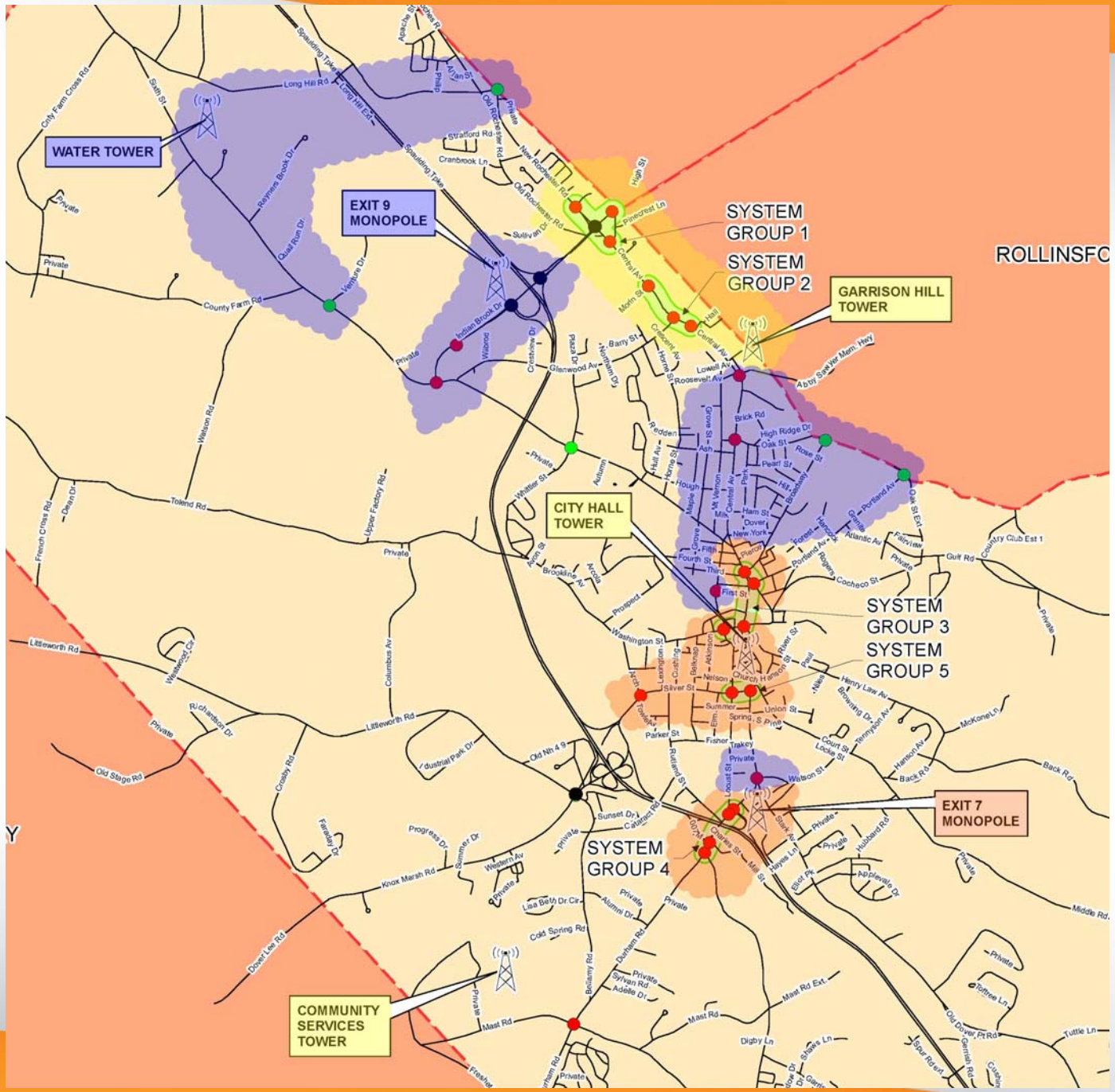

Comm. Status

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Coordination vs. Free Programming

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What are the benefits of signal coordination?

- Improved mobility
- Reduced vehicular crashes
- Reduced fuel consumption / vehicle emissions
- Improved emergency response
- Increased control of travel speeds
- Eliminated or delayed street widening needs

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What are the drawbacks of signal coordination?

- Increased delay on side streets in order to favor mainline
- Emergency vehicle pre-emption (all signals in Dover have this)
- Pedestrian calls

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What is needed to implement and maintain a coordinated system?

- 24/7/365 volume data is critical

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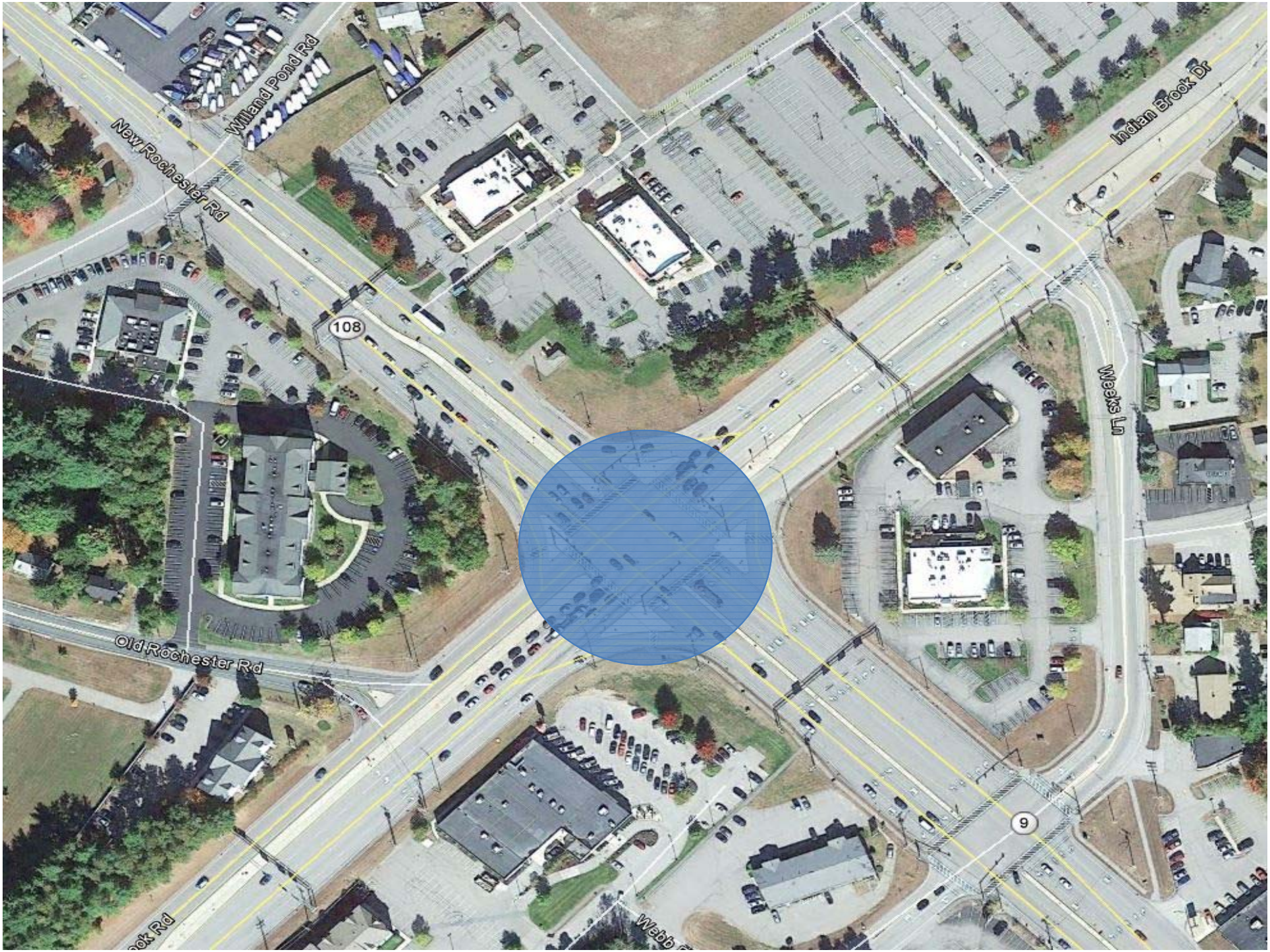
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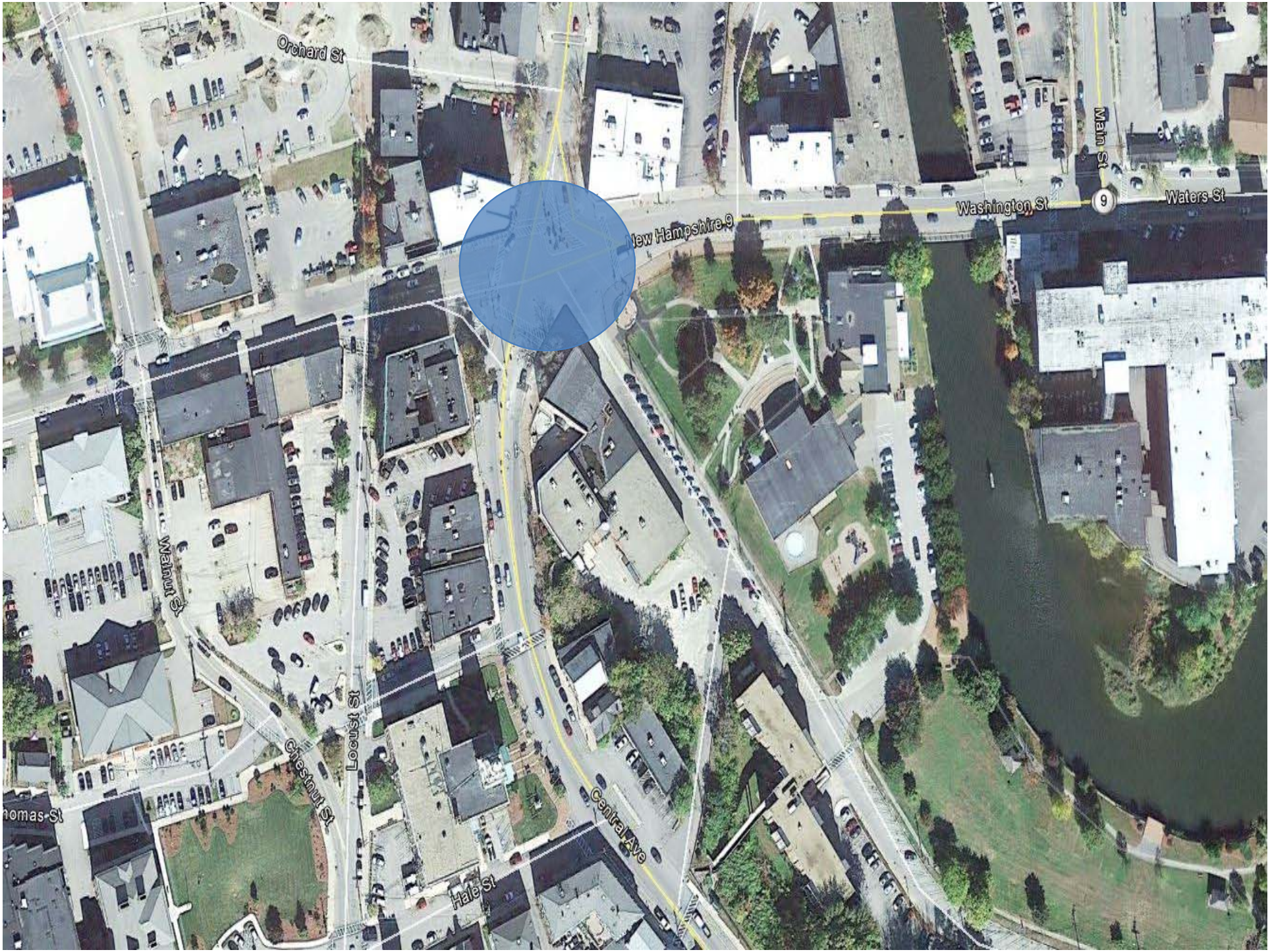
New Rochester Rd
108
Indian Brook Dr
Weeks Ln
Old Rochester Rd
9


North St
9
Glenwood Ave
Merry St


Orchard St
Main St
Washington St
9
Waters St
New Hampshire 9
Walnut St
Locust St
Chestnut St
Central Ave
Hale St
homas St


16
Rutland St
Locust St
Emmet Rd
Spaulding Turnpike
Spaulding Turnpike (Toll road)
Central Ave
Charles St
Mill St
Reservoir
108

Example of Camera Software Monitoring

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What is needed to implement and maintain a coordinated system?

- Communications / software to retrieve the data and program timing plans
- Software results in increased efficiency and reduced long term costs.

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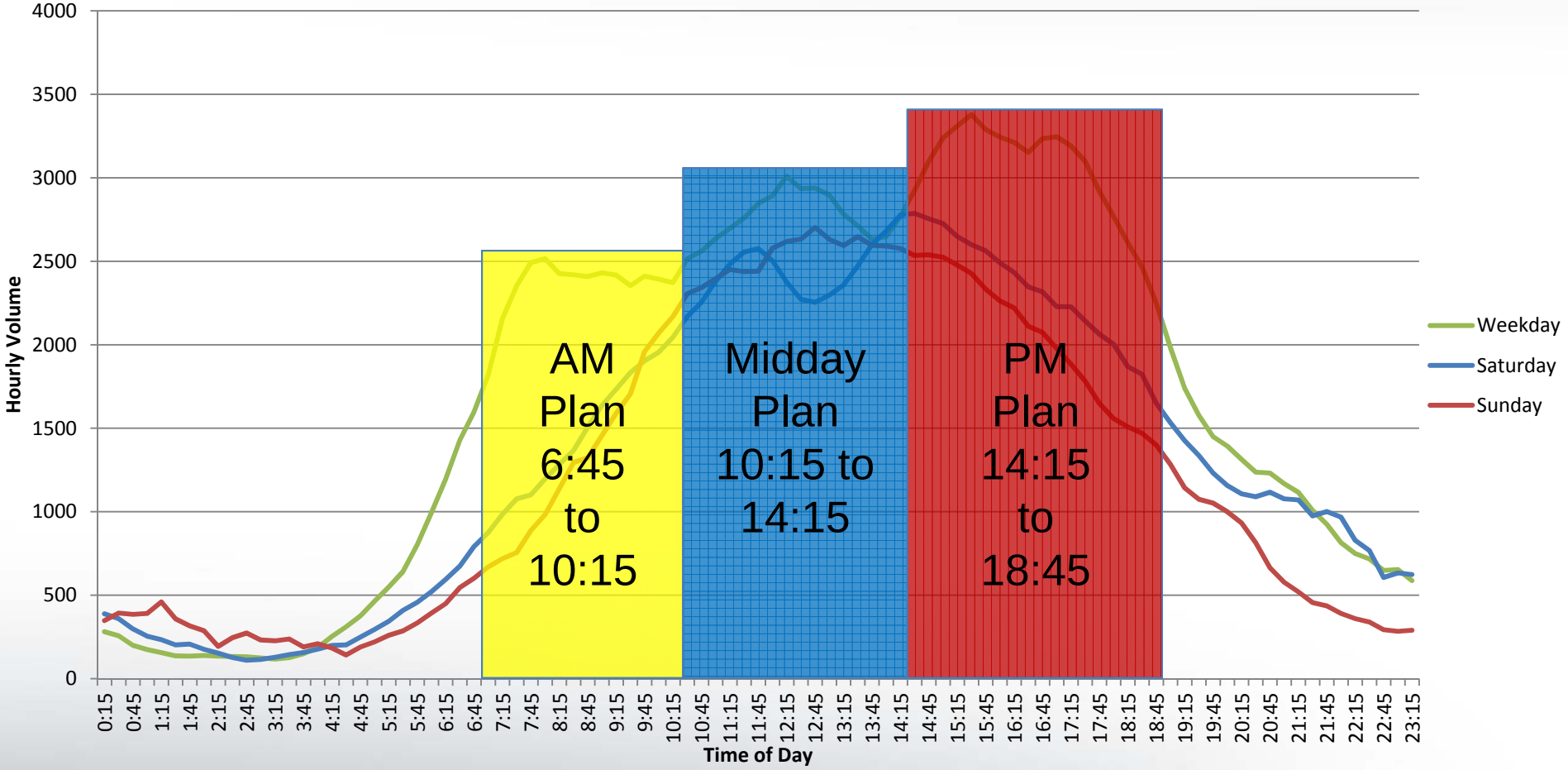
Glenwood Average Daily Total Intersection Volume



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Current Signal Timing Plans Running

- 2 Coordinated Systems are “active”, running 3 separate time of day plans (AM, Midday and PM peak hour plans) as a result of the data collection that was implemented.

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Glenwood System

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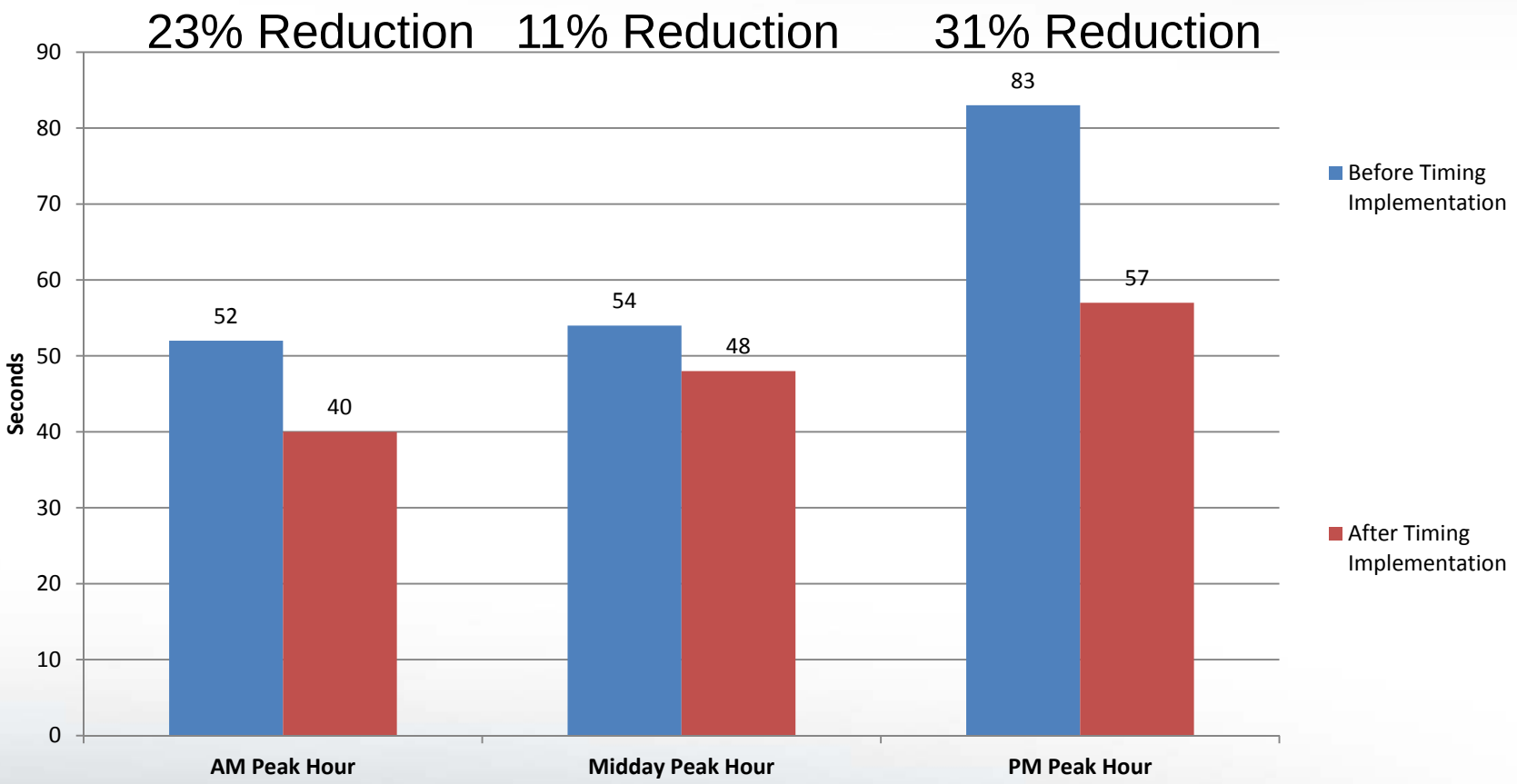
Glenwood System: Total Travel Time



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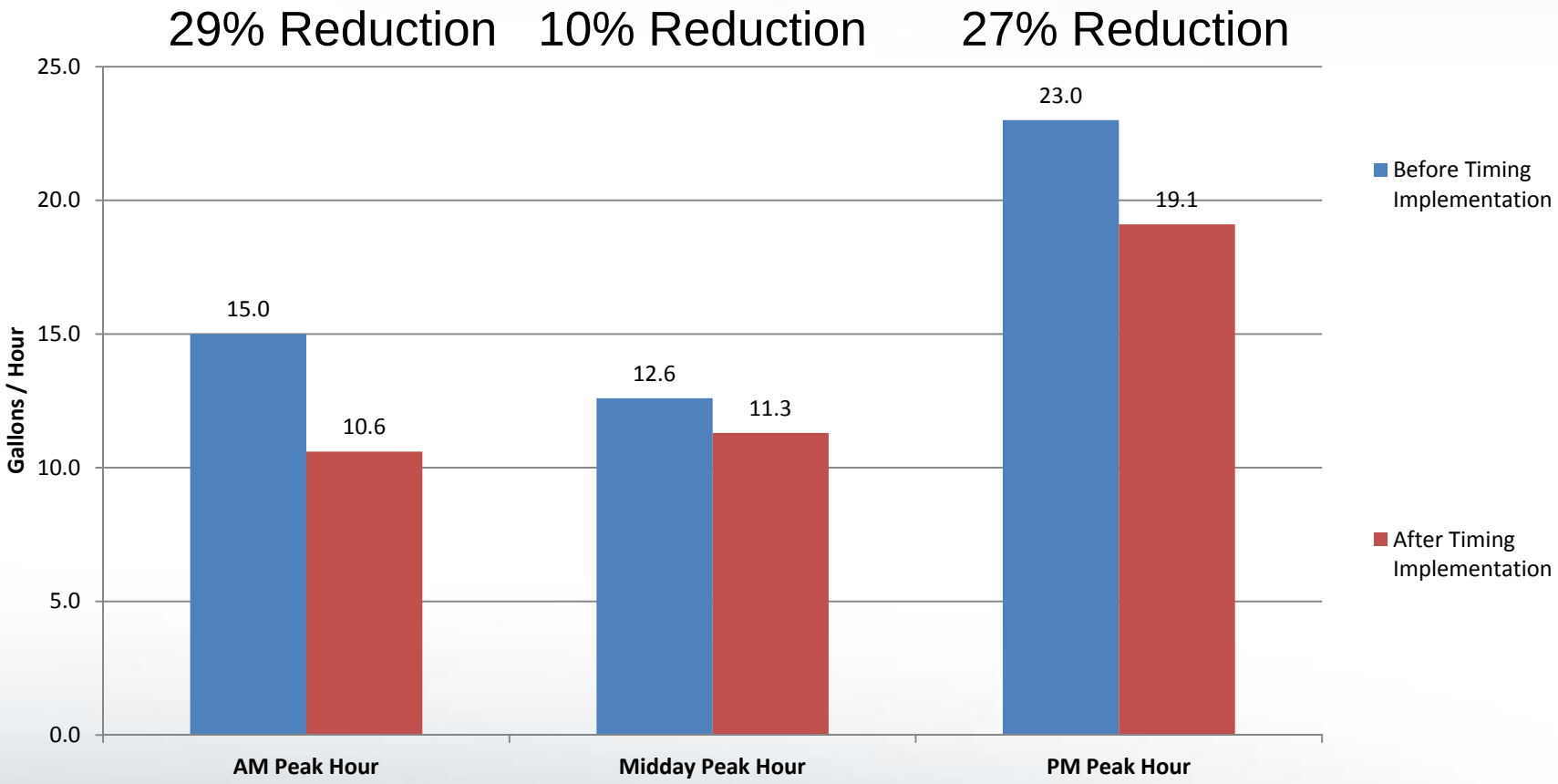
Glenwood System: Total Fuel Consumption



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Glenwood System: Money Saved in Fuel Consumption

- Assuming gasoline is $2.25/gallon this equates to a savings of approximately ***$10,500 / year*** by the traveling public as a result of coordination on this corridor.
- There are additional savings outside of these peak hours that have not been quantified.

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Weeks Crossing System

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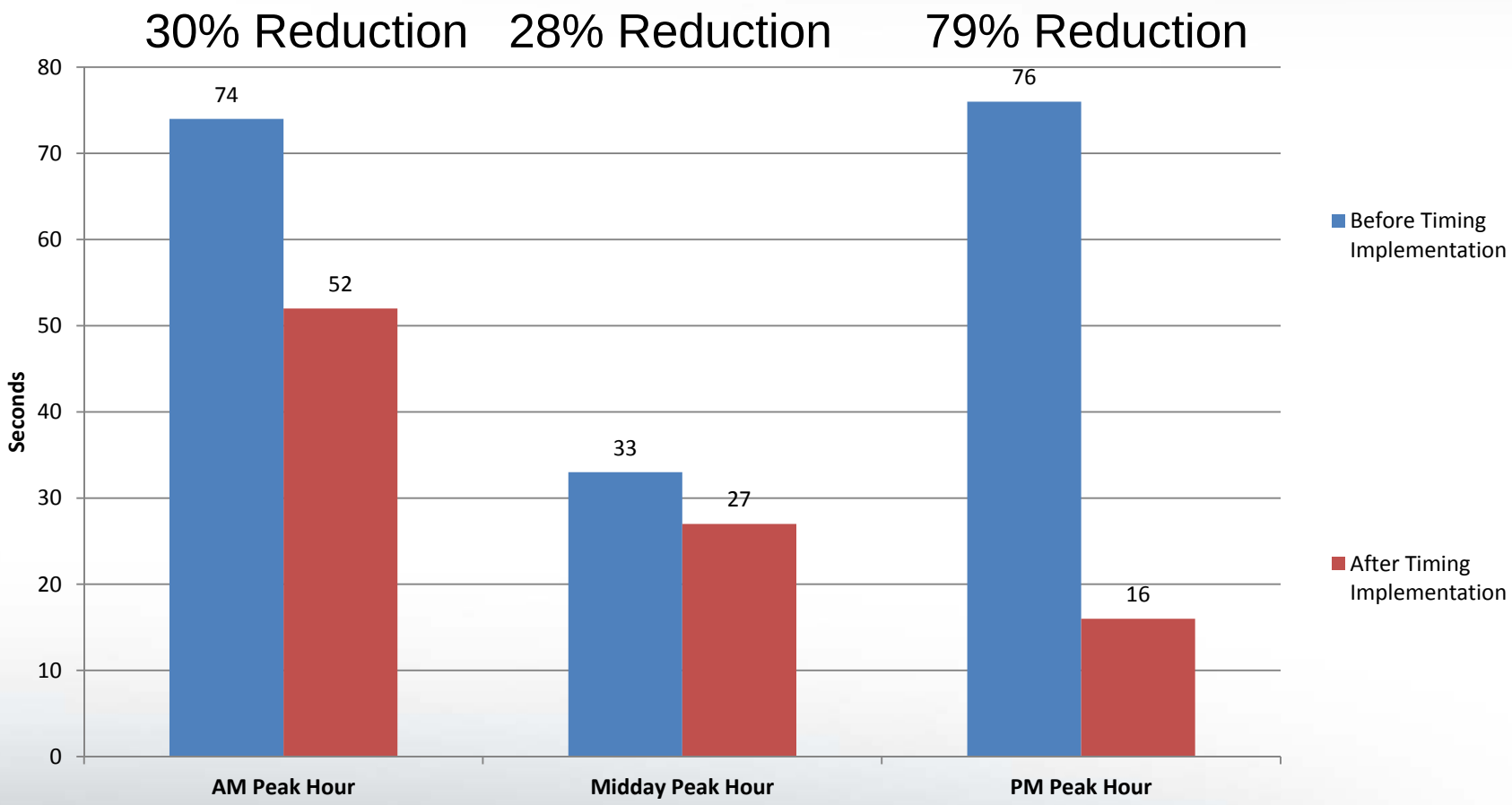
Weeks Crossing System: Total Travel Time



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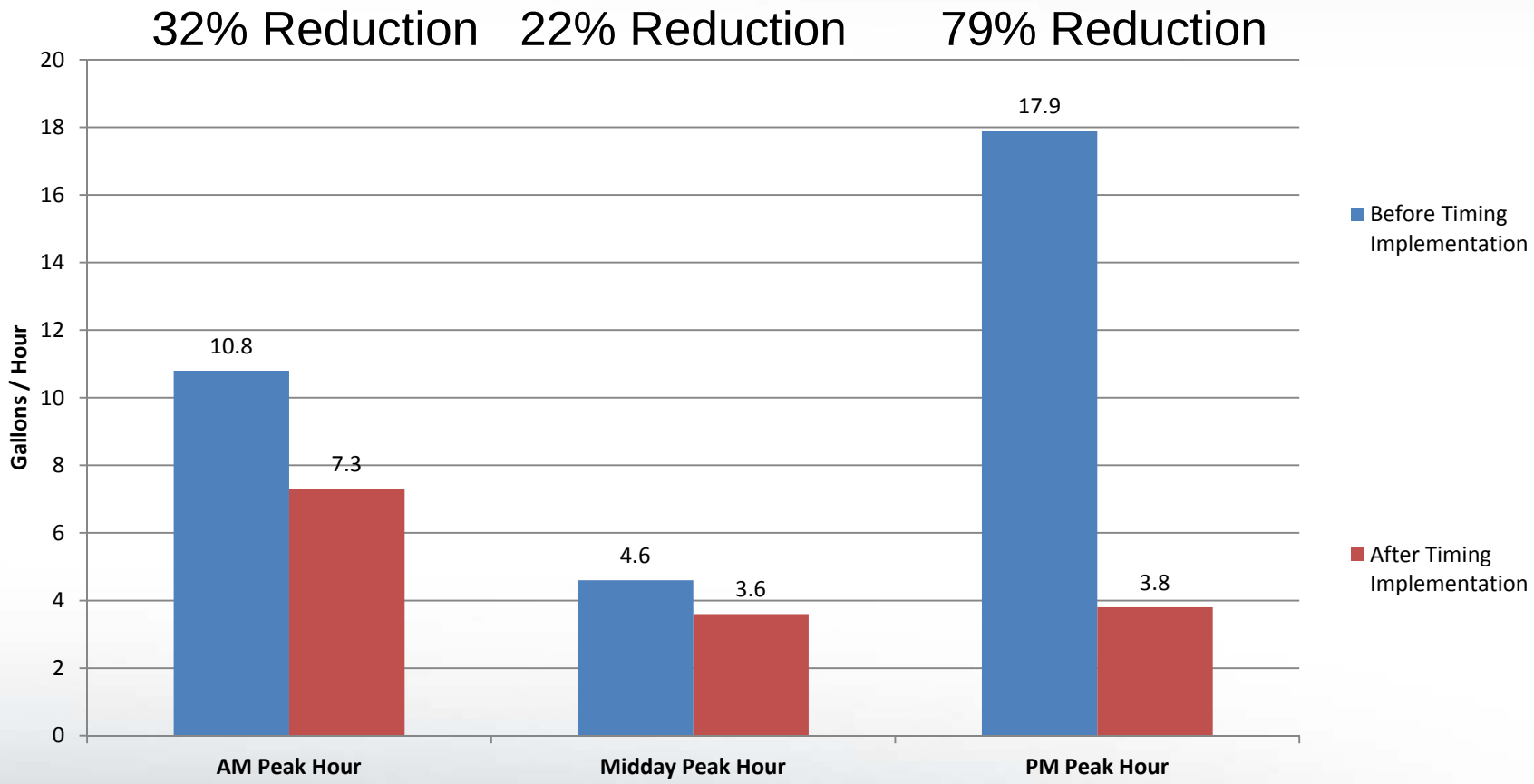
Weeks Crossing System: Total Fuel Consumption



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Weeks Crossing System: Money Saved in Fuel Consumption

- Assuming gasoline is $2.25/gallon this equates to a savings of approximately ***$20,500 / year*** by the traveling public as a result of coordination on this corridor.
- There are additional savings outside of these peak hours that have not been quantified.

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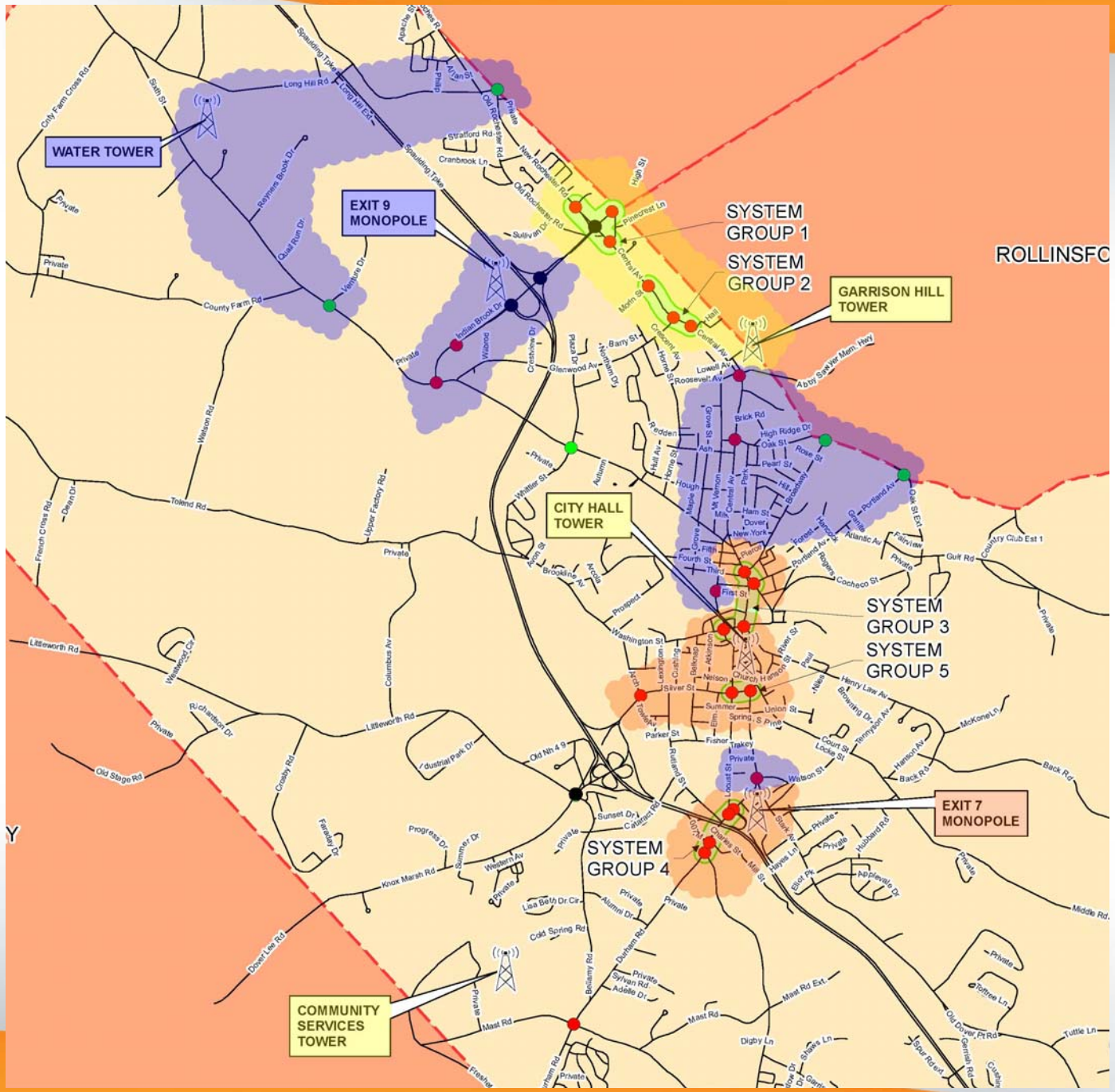

2015 Comm. Plan

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2015

- Activate Comm. Upper Square Signals
- Activate Comm. Lower Square Signals
- Activate Comm. Silver Street Signals
- Activate Comm. To Back River Road Signals
- Add Flashing Yellow Arrow at Back River Road, Finish Retiming Deployment
- Train City Staff on New Software

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2015

- Continue Monitoring and Maintaining Central System Traffic Volume Data
- Work with City's GIS Staff to create a centralized database that can be used to tie maintenance records and complaints to signalized intersections.

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Thank You for Your Time

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