

## Project 171-421 Project Description

Project 171-421 will evaluate timing plans (Cycle-Split-Offset) and timing plan schedules for selected State owned Computerized Traffic Signal Systems (CTSS) on CRCOG principal and minor arterials. **Project will not include a construction phase.** Please see attached listing and map. Many of the CTSS on the CRCOG Arterials have not been reviewed since the early 2000s. The evaluation and retiming of existing CTSS will reduce stops, reduce overall delay, and improve traffic flow. Estimate includes cost for state forces to perform the evaluation process, consultant fees for performance measures and reporting and traffic data collection.

Based on a recommendation by FHWA, retiming and re-evaluating of CTSS every three (3) to five (5) years is needed to ensure that the CTSS are operating efficiently. See the link below for the document's Section 7.0 Subsection 7.1.2 for more information on the recommended retiming frequency:

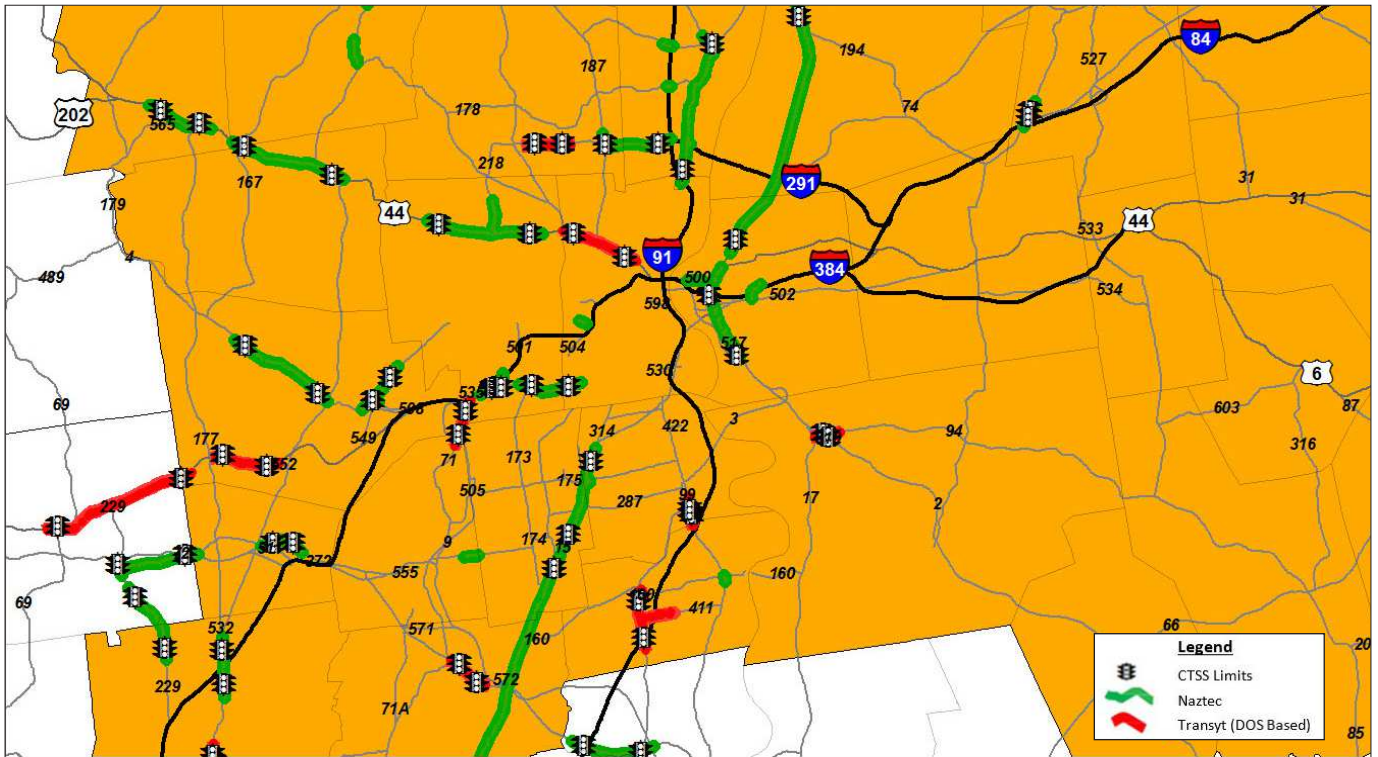
[http://ops.fhwa.dot.gov/publications/fhwahop08024/fhwa\\_hop\\_08\\_024.pdf](http://ops.fhwa.dot.gov/publications/fhwahop08024/fhwa_hop_08_024.pdf)

The "Urban Mobility and 2012 National Traffic Signal Report Card" publicizes the need for and public benefit of traffic signal retiming. According the report, that poor signal timing contributes 5 percent to overall sources of congestion and a much higher percentage to arterial and local roadway congestion.

This project is identified in the "November 2015 Statewide Computerized Traffic Signal Systems Needs Assessment" and "March 2015 Capitol Region Intelligent Transportation Systems (ITS) Strategic Plan.

This project will be funded with STP Urban funds.

# CAPITOL REGION



## Capitol Region Council of Governments (CRCOG)

The Capitol Region area has some of the most extensive CTSS coverage in the state. CTSS in Capitol region provides coverage along key thoroughfares, including I-91 and I-84, as well as minor extensions along Rte 5 and Rte 44. CTSS needs identified for this region include: replacement of aging and obsolete CTSS equipment, retiming CTSS, additional CTSS coverage to fill in key gaps, and expansion of CTSS coverage along anticipated alternate routes that motorists will seek to avoid future construction. The leased line communications link to field devices is unreliable and results in data collection issues. When feasible, CTSS should be linked to the existing fiber network used by ATMS devices along the I-91/I-84 corridor. The CTSS improvement projects should consider adoption of non-intrusive methods of detection such as video detection systems and other ITS. Periodic review of CTSS timing and retiming every three (3) to five (5) years is recommended.

*Refer to the Appendices for more information on Existing Conditions, Needs Assessment Priority Listing Recommendations, and Active and Future Projects with CTSS.*

**Project # 171-421**

### HIGHLIGHTS:

- Replace existing obsolete and aging systems, including Rocky Hill Rte 3.
- Increase CTSS coverage along heavily-traveled routes currently lacking coverage, particularly Newington Rte 175, Rte 173 and Rte 176.
- Review Existing Timing Plans and update as needed. Plan for periodic review of CTSS Retiming every three (3) to five (5) years.
- To improve reliability and collection of Measure of Effectiveness (MOEs), connect CTSS to existing fiber network used by ATMS along I-91/I-84 corridor.
- Consider complementing existing CTSS with non-intrusive video detection systems and other ITS.

## APPENDIX A-2: CTSS FILE HISTORY BY PLANNING REGION

CAPITOL REGION			
Town / System Number / Rte / Master	Excel Cover Sheets Last Modified	TSDWIN Last Modified	# of Intersections
Avon / Simsbury Naztec System 33 Rte 44 (385M)	3/8/2010	9/24/2003	14
Berlin Transyt System 26 Rte 372 (3523M)	11/24/2010	4/8/1998	6
Bloomfield Transyt System 10 Rte 218 (2531M)	2/23/2010	9/11/2003	6
Canton Naztec System 19 Rte 44 (315M)	1/18/2012	5/23/1996	8
East Hartford Naztec System 22 Rte 5 South End (118M)	8/28/2014	10/20/2003	12
East Hartford Naztec System 26 Rte 5 Burnside (012M)	7/26/2012	9/11/2003	5
East Hartford Naztec System 32 Rte 518 Pratt System (933M)	10/4/2012	9/30/2003	3
East Hartford Naztec System 47 Rte 44 Blacksmith Section (605M)	7/9/2008	N/A	3
East Hartford / South Windsor Naztec System 28 Rte 5 (132M)	5/4/2004	9/11/2003	15
East Windsor Naztec System 39 Rte 140 (559M)	1/22/2009	N/A	3
East Windsor Naztec System 50 Rte 5 (500M)	12/8/2014	N/A	11
Enfield Naztec System 49 Rte 5 Post Office Area (475M)	9/7/2012	N/A	6
Enfield Naztec System 51 Rte 5 North Section (515M)	7/7/2008	N/A	10
Farmington Naztec System 30 Rte 4 South Road Section (355M)	8/8/2012	N/A	7
Farmington Naztec System 45 Rte 4 (530M)	9/21/2012	N/A	7
Farmington Transyt System 13 Rte 6 (3109M)	12/30/2002	11/1/1995	6
Farmington / West Hartford Transyt System 54 Rte 71 (4737M)	1/30/2015	11/18/1997	10
Glastonbury Transyt System 8 Rte 94 (2025M)	3/9/2004	9/11/2003	5
Hartford Naztec System 70 Bus-Way (190M)	7/7/2015	7/7/2015	3
Hartford Transyt System 45 Rte 44 (4006M)	8/3/2012	6/19/1996	15
New Britain Naztec System 18 Rte 174 (043M)	5/4/2012	7/24/2002	4
Newington / Berlin / Meriden Naztec System 15 Rte 15 Sth Turnpike (798M)	11/5/2014	11/4/2014	21
Newington / Wethersfield Naztec System 16 Rte 15 Nth Turnpike (831M)	9/9/2008	5/5/2005	8
Plainville Naztec System 9 Rte 372 (286M)	11/28/2011	11/13/2001	5
Rocky Hill Naztec System 64 Rte 99 (732M)	1/14/2015	N/A	2
Rocky Hill Transyt System 1 Rte 3 (1801M)	4/22/2014	11/5/2003	12
Rocky Hill / Wethersfield Transyt System 24 Rte 99 (2137M)	11/26/2001	9/29/1998	6
Simsbury Naztec System 55 Rte 10 & 202 South End (566M)	6/24/2008	N/A	4
Simsbury Naztec System 56 Rte 10 & 202 North End (575M)	6/23/2008	N/A	8
Southington Naztec System 31 Rte 10 (170M)	9/25/2014	5/23/2003	12
Southington Transyt System 39 Rte 10 (3939M)	11/28/2007	10/7/1998	9
Vernon Naztec System 61 Rte 83 (645M)	9/27/2010	7/1/2015	7
West Hartford Naztec System 37 Rte 71, 173, 84 (450M)	6/3/2015	N/A	8
West Hartford Naztec System 38 Rte 529, 173 (485M)	8/15/2014	N/A	9
West Hartford Naztec System 46 Rte 44 (542M)	6/25/2008	N/A	12
Wethersfield Transyt System 25 Rte 99 (2109M)	6/10/2013	6/4/1997	8
Windsor Naztec System 24 Rte 159 (090M)	10/24/2011	9/24/1998	16
Windsor Naztec System 41 Rte 178 V61 (910M)	7/8/2008	N/A	2
Windsor Naztec System 54 Rte 305 (621M)	7/9/2008	N/A	5
Windsor Naztec System 57 Rte 75 (655M)	2/23/2012	N/A	6
Windsor / Bloomfield Naztec System 23 Rte 218 (115M)	8/16/2012	10/8/2002	10
Windsor Locks Transyt System 48 Rte 75 (3803M)	7/30/2002	2/11/1998	9

<b>Total Number of Transyt Systems</b>	11
<b>Total Number of Naztec Systems</b>	31
<b>Total Number of Systems</b>	42
<b>Total Number of Intersections</b>	338

## **HIGHWAY OPERATIONS CTSS TIMING PLAN EVALUATION PROCESS**

### **PRE-EVALUATION**

- 1-A. Engineer will collect data and conduct a field review for computerized traffic signal system (CTSS).
- 1-B. Engineer will update system timing plans and time-space diagrams to match system database.
- 1-C. Engineer will compare and warrant timing change if necessary.
  - a) If system does not warrant timing change, Engineer will report timing changes are not necessary but may provide recommendations for intersection improvements to Traffic Engineering.
  - b) If system warrants timing change, Engineer will collect additional data (including volumes, speeds, before studies, etc.)
    - i) Engineer will develop new timing plans and time-space diagrams.
    - ii) Engineer will report timing changes to Supervising Engineer.
    - iii) Upon approval, Engineer will provide timing changes to Traffic Signal Lab Technician for implementation.
    - iv) Engineer will field review and fine-tune system and provide timing changes to Traffic Signal Lab Technician as necessary.

### **POST EVALUATION**

- 2-A. Engineer will conduct final field review and after studies for system.
- 2-B. Engineer will provide data in a presentable format to Consultant to prepare final report.
- 2-C. Consultant will prepare a final report that will include changes and benefits of the retiming of the CTSS.
  - a. Changes and benefits to be included, but not limited to, are:
    - i. Travel Time
    - ii. Number of Stops
    - iii. Speeds
    - iv. Delay
    - v. Emissions
    - vi. Fuel Consumption
- 2-D. Engineer will suggest intersection improvements to Traffic Engineering as necessary.
- 2-E. Consultant will submit final report to Engineer for review.
- 2-F. Consultant will schedule a meeting to discuss final report.
- 2-G. Engineer will submit finalized report that summarizes changes and benefits of the retiming of the CTSS to FHWA.