INTRODUCTION & OVERVIEW

Advanced Traffic Management Systems (ATMS) continue to play an important role in the provision of transportation services to Connecticut travelers. ATMS are the highway field devices used to help disseminate traffic and road condition information to first responders, the motoring public and other stakeholders.

ATMS includes field devices such as Closed Circuit Television (CCTV) traffic cameras, Variable Message Signs (VMS), Highway Advisory Radio (HAR), and Road Weather Information Stations (RWIS). As existing ATMS infrastructure in Connecticut continues to age, and the need for expanded presence of ATMS continues to grow, the Connecticut Department of Transportation (ConnDOT) is exploring a variety of opportunities for system improvements. This document summarizes identified ATMS needs for various regions throughout Connecticut. For additional information, please refer to the associated ConnDOT Technical Report.

BACKGROUND

Currently, the state of Connecticut utilizes a variety of ATMS devices. ConnDOT installed many of these devices in the period from the early-1990s to the early-2000s, and while many are still functional with continued maintenance, they are approaching the end of their serviceable life. I-95 features a large portion of state’s ATMS devices operated by ConnDOT, including a vast network of CCTV cameras extending across much of the southwest and south-central sections of the state. Additional coverage exists throughout the Hartford region, with CCTV along I-91, I-84, and CT-2. Other areas with notable coverage include Waterbury, Middletown, Danbury, and Norwich. VMS provide guidance to motorists primarily along I-95, with several of these signs in the extreme southwest corner of the state. Additional signs assist motorists near Waterbury, Hartford, and along I-95 in the southeast sections of the state. ConnDOT manages these devices and others through two operations centers – Bridgeport and Newington. Communications to field devices are provided through both a state-owned fiber optic network and leased telecommunications lines.

NEEDS ASSESSMENT OVERVIEW

ConnDOT reviewed ATMS infrastructure and elements statewide in order to develop an overall assessment of needs. This review process included background research on existing and proposed systems as well as a series of needs assessment meetings and workshops with both ConnDOT highway operations staff and ATMS operators at the Newington and Bridgeport Operations Centers. These needs assessment meetings provided operators the opportunity to list their perceived system needs based on their day-to-day operational experience. Operators were encouraged to discuss major system gaps, areas with high traffic volumes, areas prone to crashes, and any other prominent system weakness observed. Based on these reviews, ConnDOT staff reached consensus on highlighting future ATMS deployments.

ConnDOT staff and ATMS operators identified general ATMS needs, as well as specific ATMS needs for the following regions:

- Hartford
- Waterbury
- Danbury
- Southeast Connecticut
- New Haven-Meriden
- Bridgeport
- Southwest Connecticut

Both northwest and northeast Connecticut lack coverage by ATMS devices. However, given the comparatively low traffic volumes and crash rates observed by the ATMS operators at present, stakeholders focused on weather concerns in these regions. ConnDOT staff is currently exploring the implementation of RWIS north of Danbury along US-7, in northwest Connecticut along both I-84 and I-395, and in central-east Connecticut in the vicinity of Windham.
GENERAL ATMS NEEDS

General needs identified by ConnDOT staff and ATMS operators include the following:

- Many devices, especially CCTV cameras and VMSs, are approaching the end of their serviceable lives and require replacements and upgrades. In some cases, this will require installation of new support structures and infrastructure as well.

- There is a need for additional ATMS coverage along heavily-traveled routes currently lacking coverage, particularly outside the I-95 corridor and the Hartford area.

- There exist some system gaps that challenge the ability of operators to provide up-to-date information about congestion and crashes along major routes.

- Expansion of the fiber network and moving devices off leased telecommunications lines may offer improved reliability and reduced ongoing operational costs.

- At this time, the current HAR system coverage is considered adequate for current needs.
HARTFORD AREA

Capitol Region Council of Governments (CRCOG), Central Connecticut Regional Planning Authority (CCRPA, Midstate Regional Planning Authority (MRPA)

Coverage of ATMS devices in the Hartford area is some of the most extensive in the state. CCTV cameras and VMS provide ATMS coverage along key thoroughfares, including I-91 and I-84, as well as minor extensions along CT-2 and CT-9. ATMS needs identified for this region include: filling in some key gaps in CCTV camera coverage, replacement of aging VMS infrastructure, and expansion of ATMS device coverage to areas with increasing traffic volume and increasing crash volumes as observed by ATMS operators.

Proposed future ATMS deployments for the region include:

A-1: Hartford Area VMS Replacement Several VMS in the region have reached the end of their service life and will no longer supported by the manufacturer and therefore need to be replaced.

A-2: I-91/I-691 Southern Extension ATMS operators identified the I-91/I-691 interchange as having increasing traffic volumes and high number of crashes. Extending coverage south down I-91 and along I-691, including extension of the fiber optic network, is proposed.

A-3: CT-2 Extension/CT-3 Coverage Adding coverage on CT-3 to cover the Putnam Bridge and extending coverage south on CT-2 is proposed.

A-4: I-291 Coverage Given increasing traffic, ATMS operators proposed adding coverage on I-291, especially near the interchanges with I-84 and I-91.

A-5: I-91 Northern Extension Extending CCTV coverage and fiber optic cable from the Dexter Coffin Bridge to the Massachusetts state line is proposed.

A-6: CT-9 Coverage (West of I-91) Adding CCTV coverage and fiber optic cable on CT-9 between I-84 and I-91.

A-7: CT-9 Coverage (East of I-91) Adding CCTV coverage and fiber optic cable on CT-9 between I-91 and approximately Exit 11 east of Middletown.

A-8: CT-20 Coverage Given the time-conscious nature of travelers on this roadway to Bradley Airport, coverage is proposed, primarily for traveler information purposes.

A-9: Various VMS Implementation (Statewide) Additional VMS locations across the State, including on I-84 near Union, I-39S near Thompson, CT-15 on Merrit Parkway, and I-84 near Southbury.

A-10: Hartford Area CCTV Various Additional CCTV coverage to fill in gaps in coverage on I-84 in central Hartford between Exits 47 and 48 and on CT-15 in east Hartford near Exit 90.

Refer to the associated ConnDOT Technical Report for more information on these proposed future ATMS deployments.
Closed Circuit Television (CCTV)
Variable Message Sign (VMS)
Highway Advisory Radio (HAR)
Roadway Weather Information Station (RWIS)
Proposed Project Area/Device
Proposed Upgrade to Existing Device
Project Area in Design
Project Area Under Construction
Connecticut Department of Transportation

Coverage of ATMS devices in Waterbury is focused along the I-84 and CT-8 interchange. Two ConnDOT projects are currently underway to extend CCTV coverage along I-84 to connect the cameras in Waterbury with the cameras in the Hartford area. ConnDOT Project 151-307 (I-84 IMS Waterbury/Southington) is installing nine (9) CCTV and four (4) VMS and is slated to be completed in May 2013. ConnDOT Project 151-273 (Reconstruction I-84 Waterbury) is currently in the design stage and currently calls for install three additional (3) CCTV and one (1) VMS. Waterbury stakeholders should also refer to proposed deployments in the Hartford, Danbury, and Bridgeport regions, some of which may include overlap with the Waterbury region.

Proposed future ATMS deployments for the region include:

B-1: I-84 Westward Expansion  It is proposed to extend installation of CCTV and VMS from the current fiber terminus near Exit 17 to the Housatonic River, near Exit 13.

Refer to the associated ConnDOT Technical Report for more information on these proposed future ATMS deployments.
The extent of ATMS coverage in the Danbury-Housatonic Valley region is fairly limited and focused on the I-84 corridor. Many of these devices are approaching the end of their service life and have been targeted for replacement and upgrade. Danbury stakeholders should also refer to proposed deployment in the Waterbury region, which may be coordinated with this work.

Proposed future ATMS deployments for the region include:

C-1: I-84 Upgrades (Danbury) It is proposed that existing VMS and CCTV equipment along the I-84 corridor in the Danbury region be upgraded and made permanent. Additional coverage near the State line may also be considered.

Refer to the associated ConnDOT Technical Report for more information on these proposed future ATMS deployments.
Coverage of ATMS devices in Southeast Connecticut varies by location. There is relatively dense ATMS coverage along sections of I-95 and some additional coverage on I-395. CT-9 also features several existing VMS. Communications to field devices in this region is accomplished primarily via leased telecommunications lines.

Proposed future ATMS deployments for the region include:

D-1: I-95 Upgrades (Southeast CT)
It is proposed that the ConnDOT fiber optic network be extended along I-95, eliminating the need for leased telephone lines to these devices. Additional CCTV is proposed along I-95 to address various coverage gaps, most notably between Exits 71 and 74. Additional VMS is also proposed at key locations.

Refer to the associated ConnDOT Technical Report for more information on these proposed future ATMS deployments.
Coverage of ATMS devices in the New Haven – Meriden region is densely focused along I-95 and the I-95/I-91 interchange. As part of ConnDOT Projects 92-646 and 92-647, currently approved and under consideration, several CCTV cameras and VMS in the region have been targeted for replacement and upgrade. Additional ATMS coverage in the region, expanding coverage northward along CT-15 and I-91 toward Hartford, is proposed. New Haven-Meriden stakeholders should also refer to proposed deployments in the Hartford region, some of which may overlap geographically with work in this region.

Proposed future ATMS deployments for the region include:

E-1: I-91 Northern Extension – Additional ATMS coverage on I-91 extending northward to provide blanketed coverage along I-91 is proposed. This work may be coordinated with proposed deployment A-2.

E-2: VMS Replacement  As part of ConnDOT Project 92-646, several VMS in the region have been targeted for replacement and upgrade.

E-3: CCTV Replacement  As part of ConnDOT Project 92-647, several CCTV in the region have been targeted for replacement and upgrade.

E-4: CT-15 Coverage  It is proposed that ATMS coverage be expanded to include CT-15 in the region north of the Sikorsky Bridge.

Refer to the associated ConnDOT Technical Report for more information on these proposed future ATMS deployments.
Bridgeport-area ATMS devices are limited almost exclusively to the I-95 corridor, with select additional devices along CT-8. As part of ConnDOT Projects 15-344 and 15-345, currently approved and under consideration, several CCTV cameras and VMS in the region have been targeted for replacement and upgrade. Additional ATMS coverage in the region, expanding coverage northward along CT-8 northward, is proposed. Bridgeport stakeholders should also refer to the proposed deployment in the Waterbury region, which may overlap geographically with this proposed work.

Proposed future ATMS deployments for the region include:

**F-1: VMS Replacement**  As part of ConnDOT Project 15-344, several VMS in the region have been targeted for replacement and upgrade.

**F-2: CCTV Replacement**  As part of ConnDOT Project 15-345, several CCTV in the region have been targeted for replacement and upgrade.

**F-3: CT-8 Coverage**  It is proposed that ATMS coverage be extended along CT-8 northward toward Waterbury.

Refer to the associated ConnDOT Technical Report for more information on these proposed future ATMS deployments.
Nearly all of the ATMS devices in Southwest Connecticut are densely focused on the I-95 corridor. A few additional VMS can also be found along CT-15 (Merritt Parkway). Additional ATMS coverage on CT-15 is recognized as difficult given the terrain, foliage, and historic nature of the roadway. Most of the CCTV cameras and VMS in the region have been targeted for replacement and upgrade. As part of this upgrade process, additional CCTV and VMS coverage to fill in gaps, may also be proposed. ConnDOT estimates three possible projects for replacing and upgrading this equipment.

Proposed future ATMS deployments for the region include:

G-1: VMS Replacement for I-95 and Route 7 is proposed for the Region.

G-2: CCTV Replacement for I-95 and Route 7 is proposed for the eastern portion of the Region.

G-3: CCTV Replacement for I-95 is proposed for the western portion of the Region.