ADVANCES IN THE TRAFFIC MANAGEMENT SYSTEM OF GREATER ROCHESTER AND MONROE COUNTY

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Traffic Signals Overview

- 777 Traffic Signals/Flashers
- 501 Interconnected Traffic Signals on Transcore Advanced Traffic Management System (ATMS)
- 93 Pan-Tilt-Zoom (PTZ) Cameras
- 9 Fixed Cameras
- 70 Video Vehicle Detection Cameras (currently under construction)
Regional Traffic Operations Center (RTOC)

• Opened in 2002

• Ongoing Rehabilitation Project in 2017

• Joint Venture
  • Monroe County DOT – Owner
  • New York State DOT
  • New York State Police
  • Monroe County Airport Authority
RTOC Purpose and Objectives

• Provide Total Coverage of Road Network
  • Expressway System (NYSDOT)
    • Monitor traffic flow, weather, and incidents on expressways
    • Focus mainly on communications with motorists and H.E.L.P. trucks
  • Arterial System (MCDOT)
    • Monitor traffic flow, signal performance, and incidents on arterials
    • Focus mainly on traffic control via signal timing changes
    • Set signal timings in real-time to match traffic conditions
RTOC Purpose and Objectives

• Multi-Agency Coordination
  • Centralized Dispatch Point
    • Communication and Cross Coverage
  • Joint Incident Management
    • Operating Agencies (MCDOT and NYSDOT)
    • Law Enforcement (NYSP)
    • H.E.L.P. Trucks

• Traveler Information
  • Dynamic Message Signs
  • Radio and Internet (511.org)
Traffic Signal System - 1985
Traffic Signal System - 1995
Traffic Signal System - 2005
Traffic Signal System - 2017

Note: Orange Locations Represent Wireless Radio Connectivity
Monroe County Traffic Signal System
Monroe County Synchro Model
Closed Circuit Television (CCTV)

• **MCDOT Cameras**
  - Mainly on arterials
  - 102 Cameras at 93 Locations
  - 93 PTZ Cameras, 9 Fixed Cameras
  - 70 Video Detection Cameras (under construction)

• **NYSDOT Cameras**
  - Mainly on expressways (104, 390, 490, 590)
  - 62 Cameras (49 Expressway, 10 Arterial, 3 O’Rorke)
  - Also monitored by RGRTA, fire/police agencies, EOC, 911, and the public!
MCDOT CCTV Locations (102)
Use of Fixed Cameras with Existing PTZ

Existing PTZ Camera — Same Vehicle — New Fixed Camera
Monitoring Traffic Flow Using CCTV
Monitoring Incidents Using CCTV
Reviewing Recordings of CCTV Cameras
NYSDOT Expressway Cameras

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Recent Developments

• System Expansion Using Wireless Radios

• Implementation of Traffic Responsive Signal Timing

• Video Vehicle Detection Camera Installation
Wireless Radio Communications

- Alternative to Using Fiber Optic Cable in Conduit
- Communicate Traffic Signal Data and Camera Images Wirelessly to System
- Expands System Capabilities to Outlying Areas
Wireless ITS Project (2016-2017)

• Installed 34 Wireless Radios to Wirelessly Connect 17 Traffic Signals to System
  • 12 “Single Station”
  • 11 “Dual Station”

• Installed 17 New PTZ Cameras (1 Wireless Connected to System)
Traffic Responsive

- Timing Plan Selected Based on System Sensor Data

- Most Useful in Areas with Unpredictable Traffic Patterns
  - Shopping Centers
  - Stadiums
  - Seasonal Peaks (Parks, Beaches, etc.)

- Currently Used in 2 Sections
  - Charlotte Beach
  - Marketplace Mall
Traffic Responsive Signal Timing
ITS Upgrade Project (Ongoing)

• Installed New Uninterruptible Power Supply (UPS) System at RTOC
• Installed 2 New Overhead Projectors at RTOC
• Installing 70 Video Detection Cameras at 37 Locations (Also Detect Bicycles)
• Installed 9 New Fixed Cameras
• Installed 5 New PTZ Cameras
• Replacing 14 Existing PTZ Cameras
Bicycle Detection Cameras

Bicycle Detection As Designed

Some Cyclists Use the Crosswalk
Other Recent Projects

• **Countdown Pedestrian Signal Installation**
  • Installed over 2,200 devices in 370 locations
  • All County owned signals now have countdown timers

• **Audible Tactile Pedestrian Device Installation**
  • Installing APSD at 210 crosswalks in 120 locations
  • Devices include voice recordings
Looking Ahead

• Flashing Yellow Arrows
• Further Wireless Expansion
• Additional Traffic Responsive Signal Timing
• Installation of Audible Tactile Pedestrian Buttons
• Installation of Video Vehicle Detection Cameras
• Installation of Signal Head Back Plates

• Maintenance of Existing Equipment!
Learning Assessment Questions

1. How many interconnected traffic signals are on the Monroe County ATMS as of September 2017?

   A. 410
   B. 450
   C. 501
   D. 550
Learning Assessment Questions

2. Where is Traffic Responsive Signal Timing most useful?
   A. Near Stadiums
   B. Near Shopping Centers
   C. Near Parks and Beaches
   D. All of the Above
Learning Assessment Questions

3. What frequency wireless radios are being used to connect Monroe County traffic signals and cameras?

A. 900 MHz  
B. 2.4 GHz  
C. 3.3 GHz  
D. 5 GHz
Learning Assessment Questions

4. What method of vehicle detection has recently been installed in Monroe County to better detect bicycles?

A. Radar Detection
B. Video Detection Cameras
C. Inductance Loops
D. Microwave Detection
Learning Assessment Questions

5. What percentage of Monroe County owned traffic signals have countdown pedestrian timers?

A. 100%
B. 90%
C. 75%
D. 50%
Thank You! Any Questions?

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