The City of Johnson City ITS

Today and Moving Forward

Mark Washing PE GS&P
The City of Johnson City seeks to provide timely, reliable and informative multi-modal transportation services through the use of ITS technologies, thereby enhancing motorist safety and improving the quality of life and economic viability of the City.
Summary of ITS Project

- ITS Master Plan
- Signalized Intersection Analysis/Traffic Signal Retiming
- Transportation Management Center Options
- Adaptive Signal Control Study
- Systems Engineering Analysis (SEA)
- ITS Design
- Construction & Implementation
ITS Project

- Expanded fiber-optic communications backbone and distribution network (17 miles)
  - State of Franklin Road, University Parkway, S. Roan Street, N. Roan Street, W. Market Street
- Reliable traffic signal connections to TMC (72 out of the 91 signalized intersections have been connected to the fiber network)
- Actra Tactics System Software
ITS Coverage Area
Signal Connections (Present and Future)
Arterial Management Systems

- Traffic Surveillance w/ CCTV
- Advanced Signal Control and Monitoring
- Monitor Traffic Speeds & Volumes
- Emergency Support
CCTV camera surveillance (41)
- Good Coverage over some Major Arterials and State Routes
- 25 Dome Cameras
- 16 Tube Cameras
Cameras
(Dome and Tube)
Summary of ITS Project

- Upgraded Traffic Management Center (TMC)
  - Video wall
  - Traffic management software
  - Connections to Street Division, public safety and 911, EMA centers
- Capable of displaying on Johnson City’s Website & Cable TV Station (Camera Images)
TMC (Before)
Johnson City TMC
HD Video Wall

- 3x2 configuration
- Ultra-thin Bezel Mitsubishi 1080p LED 55” Professional Grade Monitors
- Activu Controller
Traffic Management Center

- Central point of operation and information dissemination
- Monitor/respond to traffic conditions
- Support for public safety and emergency operations
Design Issues
Construction

- Original Plan to Phase Construction to Eliminate Controller Downtime
- TMC 1\textsuperscript{st}, then downtown area, etc
- Some Delays encountered:
  - Downtown Sidewalk/Beautification Project
  - Utility (Water/Sewer) projects
Stansell Electric winning bid (NTP May 23 2013)
- $3,626,899.95

Final Estimate (January 2015)
- $3,435,888.59
- ~6% under bid

Most savings realized from City Forces installing various conduit runs during road projects in downtown area & RR Crossing Upgrades
ITS Is Allowing the City To....

- Better manage traffic and traffic signals on arterial streets through:
  - Reliable communications with traffic controllers
  - Adding monitoring capabilities to additional traffic equipment
  - Visual analysis of traffic patterns
  - Monitoring timing changes for effectiveness
ITS Is Allowing the City To....

- Monitor work zones and work areas
Better manage traffic and traffic signals on arterial streets with adaptive control
Detect and manage roadway incidents
Assist emergency and public safety activities with visual prior to arrival
Detect and respond to adverse weather conditions
Provide travel information to users
Future ITS Will Allow the City To…. 

- Data Dissemination through new website (H.264 streams)
- Coordinate with TDOT on a regional transportation system operational approach (TSM&O initiatives)
- Collect/Archive transportation planning information
- Become ready for V2I initiatives with redundant, expandable & stable fiber optic network