

Innovative Approaches to Real-Time System Management Information

Tennessee Division Office

Skyscape over Autumn Colors on the Cherokee Skyway

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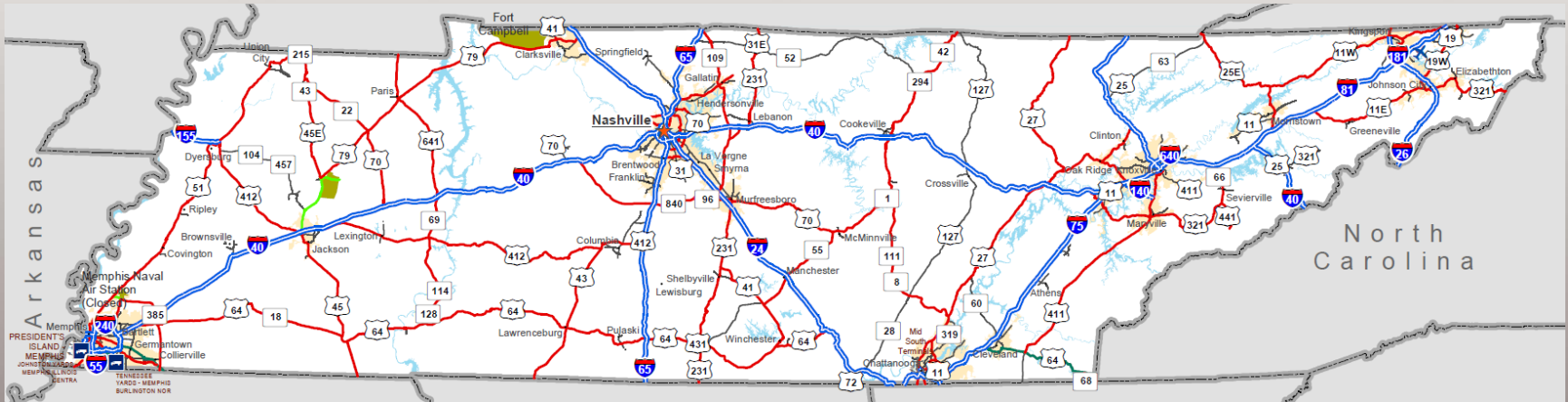
May 21, 2014



Background

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- 14 Interstate routes at ~1,100 miles
- 4 TDOT Regions, 4 TMCs
- 11 MPOs, including 4 TMAs (>200,000)
- 2 U.S. Census MSAs > 1 mil population: Memphis and Nashville



Background

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- Newly structured Traffic Operations Division at TDOT
 - Traffic Management, ITS, and Traffic Engineering offices
- FHWA Resource Center offered hands-on assistance
- “Pre-kickoff” held in February
- “Kickoff” held in April



Dissemination in TN

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- “SmartWay” brand
 - Web-based map and mobile app
 - Statewide 511 and HAR
 - Twitter and RSS feeds
 - Dynamic Message Signs

<http://www.tdot.state.tn.us/tdotsmartway/>



How do we get data?

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- SmartWay “events”
 - Lat/long coded
 - Incidents
 - Construction
- SmartWay map overlays:
 - Road condition (color-coded)
 - Cameras (view)
 - Message signs
 - Segment speed (color-coded, web only)
 - Instantaneous RDS speed (mobile app)



Where we get the data

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- Statewide Advanced Traffic Management System (ATMS)
 - TSIS → SWIFT
 - Multiple user types to input “events” – maintenance staff, Region engineers, TMC operators and Highway Patrol– must be verified first
- Tracking and verification: cameras, law enforcement and HELP trucks
- Radar detection system
 - Instantaneous speeds on ATMS and RSS



Where we get the data

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- Tracking and verification: cameras, law enforcement and HELP trucks
- Weekly lane closure reports and news releases
- From public: *THP
- From internal personnel: “Protect the Queue”



Where we get accuracy

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- 90% device reliability rate: built into our ITS maintenance contracts
- All verified incidents are reported, unverified incidents are not
- Is event information current?
 - Age of data was an issue
 - Error checks and reports are built into new ATMS
- Travel times/speeds
 - Most difficult; runs would be costly
 - Commercial data potential area of evaluation



Focus areas from the review

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- Routes of Significance
 - Develop draft list soon
- Identify coverage gaps for speed detection and travel time calculation
- Partnering with local agencies – ATMS and/or CAD information flows
 - Encourage signing “Open Roads” MOU



Regional and Statewide ITS Architecture

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- RTSMIP rules = basic user needs
 - Can our systems meet these needs?
 - Do we need to specify interface control?
 - Do external users have access?
- Use RTSMIP for prioritizing a deployment plan
 - Instrumentation gaps in our highway network
 - Cameras
 - Speed/travel time detection
 - DMS

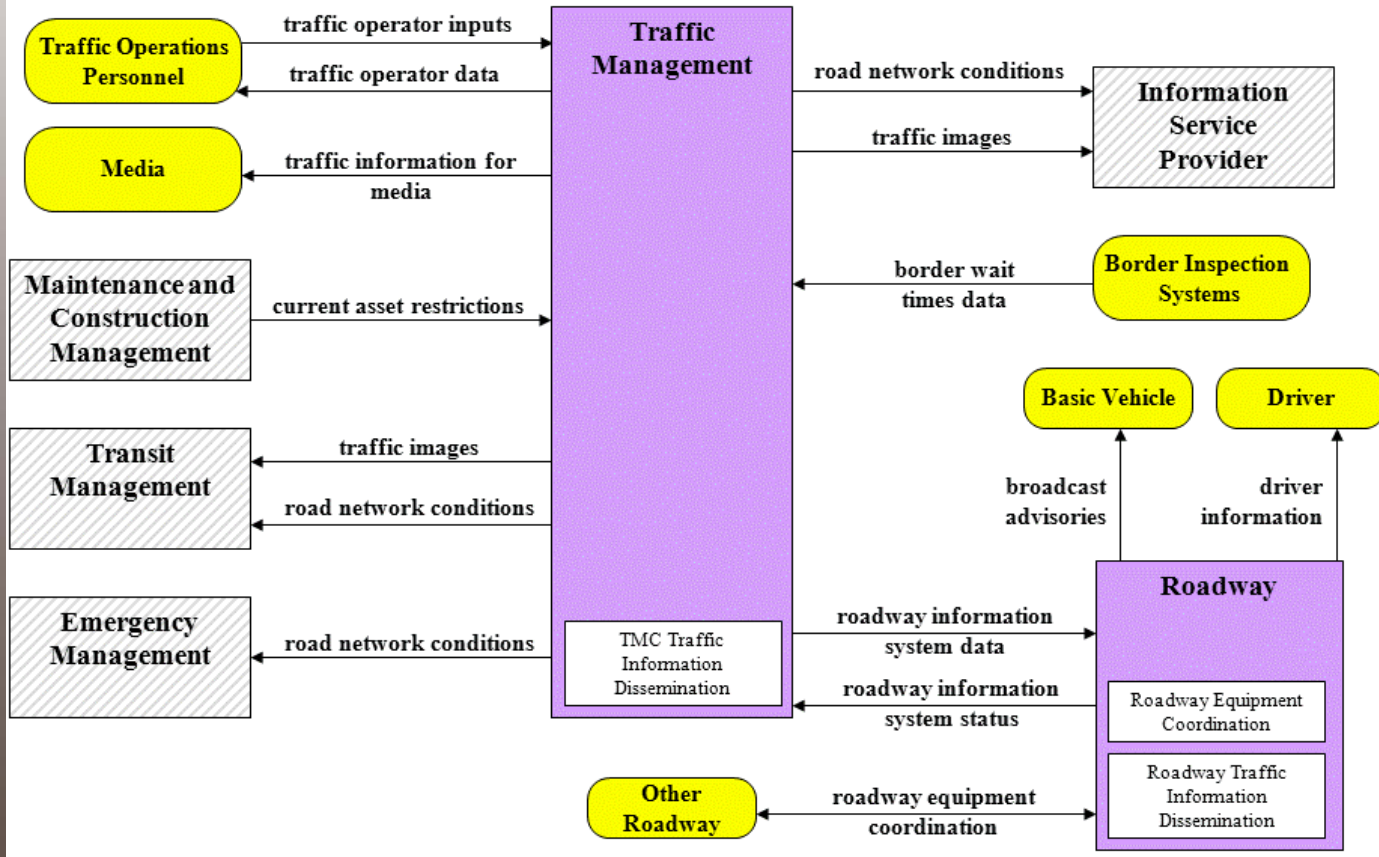


Regional and Statewide ITS Architecture

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ATMS06 – Traffic Information Dissemination

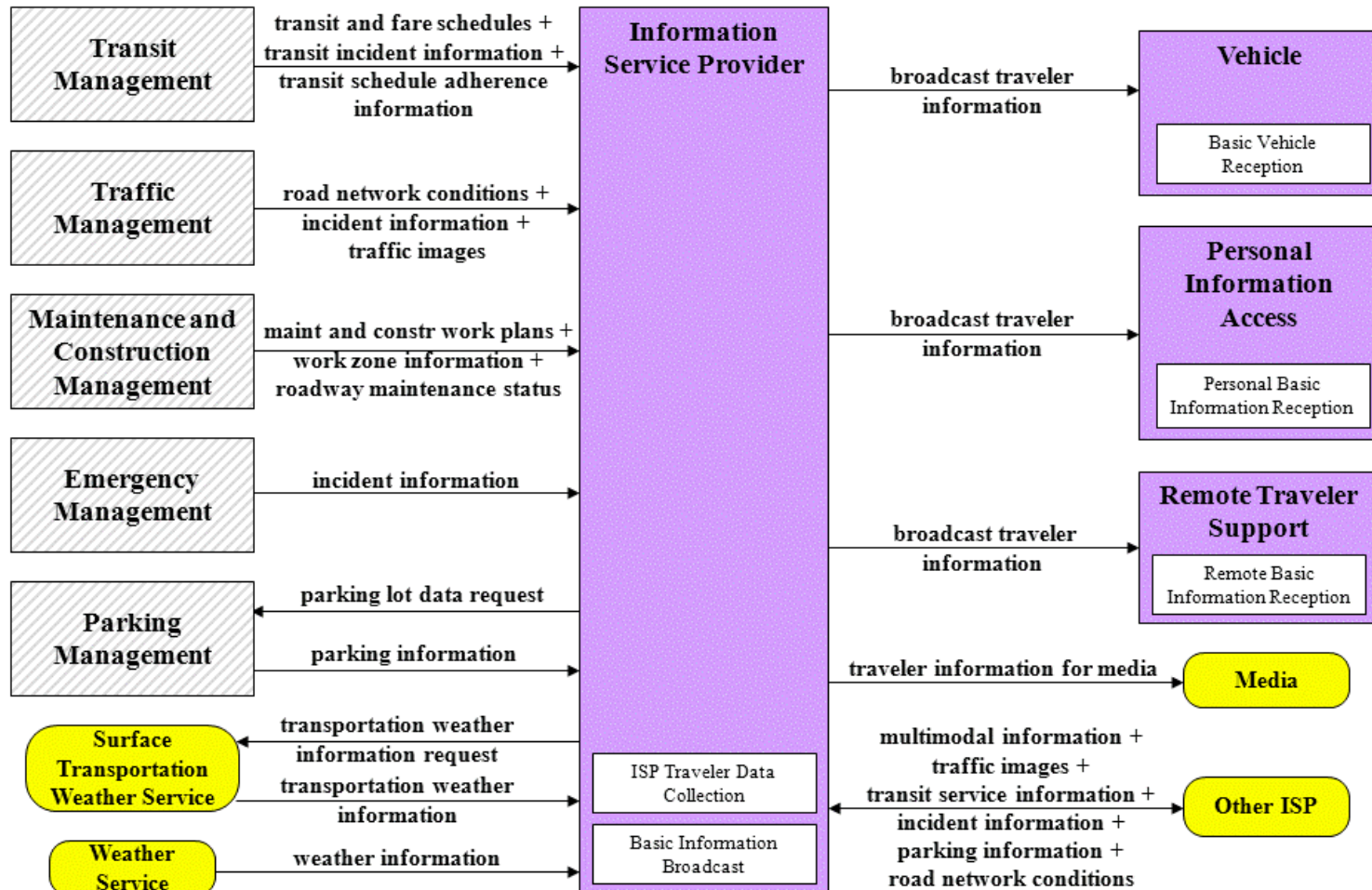


Regional and Statewide ITS Architecture

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ATIS01 – Broadcast Traveler Information



Regional and Statewide ITS Architecture

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- Key standards:
 - NTCIP C2C: NTCIP Center-to-Center Standards Group
 - NTCIP C2F: NTCIP Center-to-Field Standards Group
 - ATIS General Use: Advanced Traveler Information Systems (ATIS) General Use Standards Group
 - ITE TMDD: Traffic Management Data Dictionary (TMDD) and Message Sets for External Traffic Management Center Communications



Thoughts on funding

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- RTSMIP rules can be the first step in making the case for operations. Recognize it in LRTPs and TIPs.
- Very few improvements would not be eligible under NHPP.
- Most RTSMIP improvements can result in reduced congestion – MPOs, state DOTs and FHWA Division should discuss applicability with the congestion management process and CMAQ.



Thoughts on funding

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- Incident detection, verification, and information dissemination is a safety concern. Discuss applicability of HSIP.
 - Where can we improve response times?
 - How can we reduce secondary crashes?
 - Does this fit into our SHSP?
- Align with other projects.
 - Can we add speed/volume detectors, DMS, or CCTV to an upcoming roadway reconstruction?
- Traffic, road closure, and incident information can be very useful tools for performance management and business planning.
 - How do our improvements make a difference?
 - What performance measures could we do with more data?



Thank you very much!

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UNITED STATES
DEPARTMENT OF TRANSPORTATION

Poll Question #5

What additional help can FHWA provide to assist states in complying with the 1201 regulation?

(open response)