

Regional ITS Architecture Challenges for Traffic Signal Priority (TSP)

Presented by:

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Multiple Jurisdictions = Multiple Traffic Signal Systems

- Different ages, update investment cycles, systems, operational protocols
 - Creates challenges for implementing TSP
 - Bus systems integration
 - Interoperability
 - Coordination

Business Reasons for TSP

- Why implement TSP?
 - Often initially to support first responders
 - Secondarily to support transit
 - Transit goals:
 - Improve bus schedule adherence
 - Enable bus rapid transit services
 - May reduce cost by improving scheduled runtimes

Types of TSP

- TSP implementations are often either
 - Unconditional (vehicle always given priority)
 - Conditional (vehicle given priority only when behind schedule)
- Greatest value of TSP to transit may be when it is conditional
 - Unconditional may cause bus bunching

Conditional TSP is Complicated to Implement

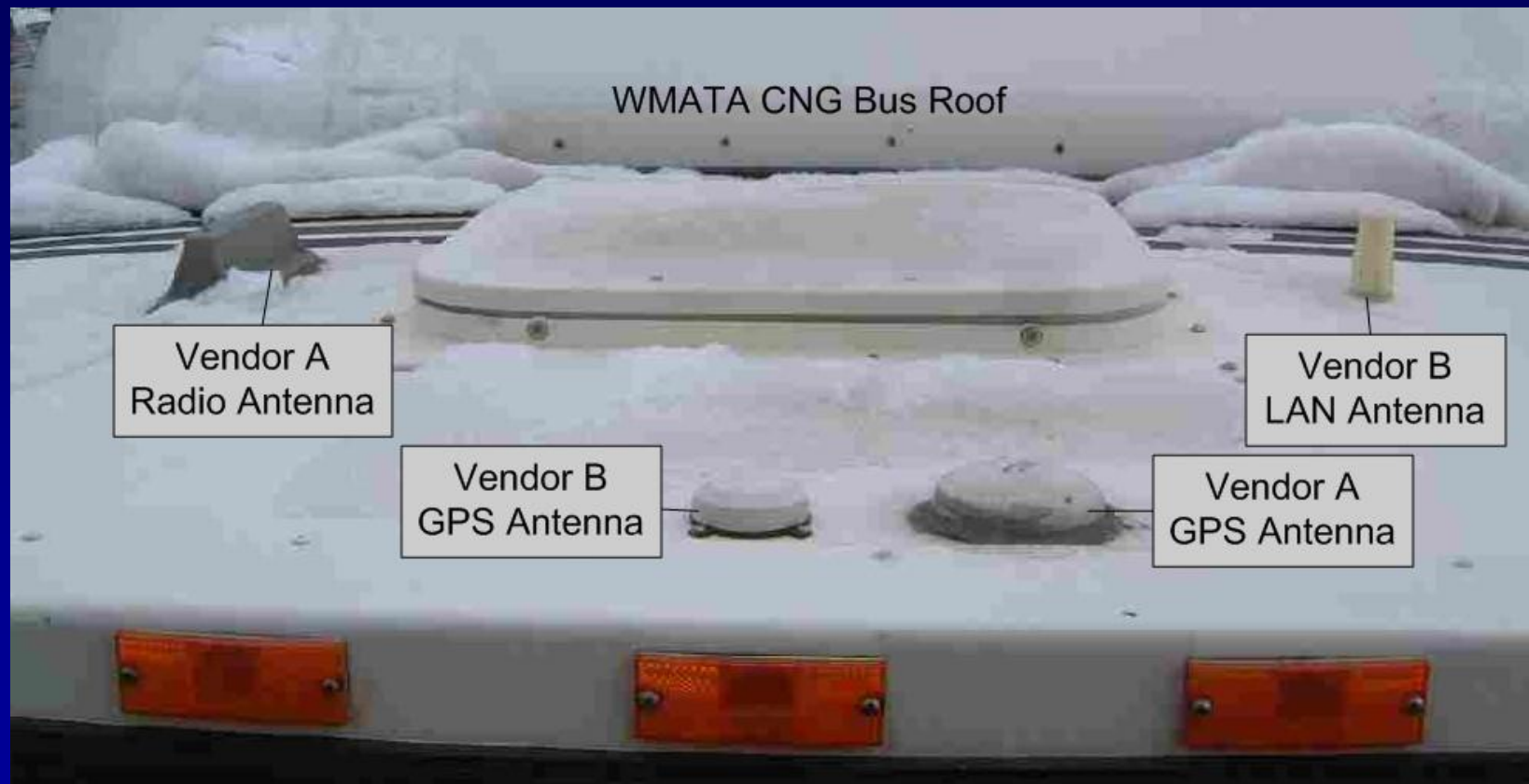
- Requires multiple bus systems integrations
 - Automatic Vehicle Location/GPS
 - Bus schedule
 - Communications systems
 - Vehicle monitoring systems
- Has many options for traffic signal interface
 - Via radio to central system
 - At wayside to signal control cabinets

Transit Perspective on TSP

- Regional transit requires regional TSP solutions
 - WMATA has about 1,500 diverse buses serving many jurisdictions: State, County, City
 - Many buses cross at least 2 jurisdictions on routes
 - Often difficult or impossible to dedicate buses to specific garages
- Doubtful given today's technology that WMATA can support multiple different, incompatible TSP implementations and on-board integrations
 - National Capitol Region (NCR) transit service providers need to be considered also
 - TSP implementation will require assignment of regional bus IDs for security and data collection/analysis
 - Bus arrival info planned to be displayed in different regional systems, as with airplane or train arrivals
 - Success of SmartTag and E-ZPass show it can be done

Bus Systems Integration Challenge

(Two additional LAN antennas on board)



Jurisdictional Planning Should Anticipate NCR Needs and Industry Trends

- Question is not: pros or cons of TSP
 - Question is: If region might ever want to do TSP, what do we need to do now to ensure that we will be able to implement a regional TSP solution in the future?
 - Barriers to overcome: “I don’t want anything to hold up my project,” “Not on my watch.”
- Decisions made now will affect regional capabilities, hindering or preventing regional TSP solutions for the foreseeable future

Conclusion

- NCR has an opportunity to be a model of innovation and successful cooperation and coordination
- Voluntary cooperation, coordination seems in the best interests of the NCR
 - Reflects well on leadership, management
- State ITS Architecture is the place to start
- MWCOCG Regional ITS Architecture is a key enabler

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