

Fiber Optic Stimulus Project + Rural ITS Tools = Benefits (Opportunities) for the North Georgia Mountains

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The Problem:

Almost 80 percent of rural roads are owned and operated by local entities, making the **dissemination of highway safety information to local officials and the public** critical to improving national rural road safety.

- *FHWA Rural Safety Innovation Program*

Continuing... Rural areas face a number of unique highway safety challenges.

- Crashes at higher speeds
- Victims more likely to be unbelted
- Takes first responders longer to arrive at the scene
- Outdated roadway design and roadside hazards contribute to the severity of rural crashes.





Many agencies in rural areas have not implemented ITS technologies (partly because **they believe they are too expensive**).

Also, the recent poor economy has agencies scrambling for funding.


The need for ITS in these regions of limited resources is significant.



There are **limited telecommunications systems in rural areas.**

Incident management and traveler information dissemination is difficult.

- *U.S. DOT's Advanced Rural Transportation System (ARTS) program*

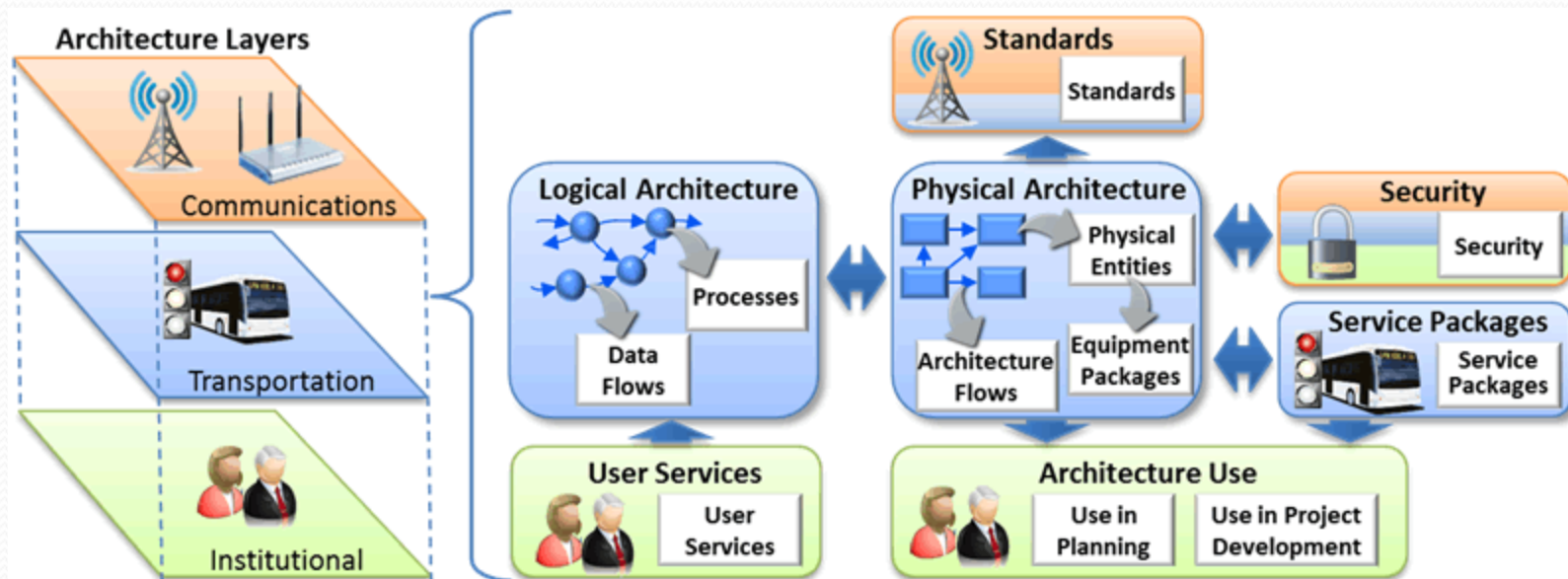


*“As a rural town or county traffic department usually with the help of your state DOT and maybe a consultant, it is your responsibility to seek the most **cost-effective** solution to your safety issues, taking advantage of any **existing tools** at your disposal.”*

So...Where do we start??

One should always start with the National ITS Architecture. It is a comprehensive tool to help you plan any ITS project.

- Notice the Communications Architecture layer





Follow the Standard Systems Engineering Processes

- Interview stakeholders
- **Inventory** current ITS deployments
 - Road Weather
 - Other
- CONOPS and ITS Architecture
 - Statewide and/or Regional
- Get tentative list of solution options **
- Make recommendations and/or begin the Strategic Deployment

*** There was a Rural ITS talk at the ITS GA Annual meeting last week with more specific solutions described.*

The Normal Dilemma – Communication Costs

- “I could use wireless, but that can be expensive. – especially for video transmission.”
- I know that I can’t afford to install my own fiber optic network, that would be even more expensive.

How did Kramer and Newman respond with a similar dilemma on an episode of Seinfeld?



Different episode, but Kramer had a love for rural transportation improvements.

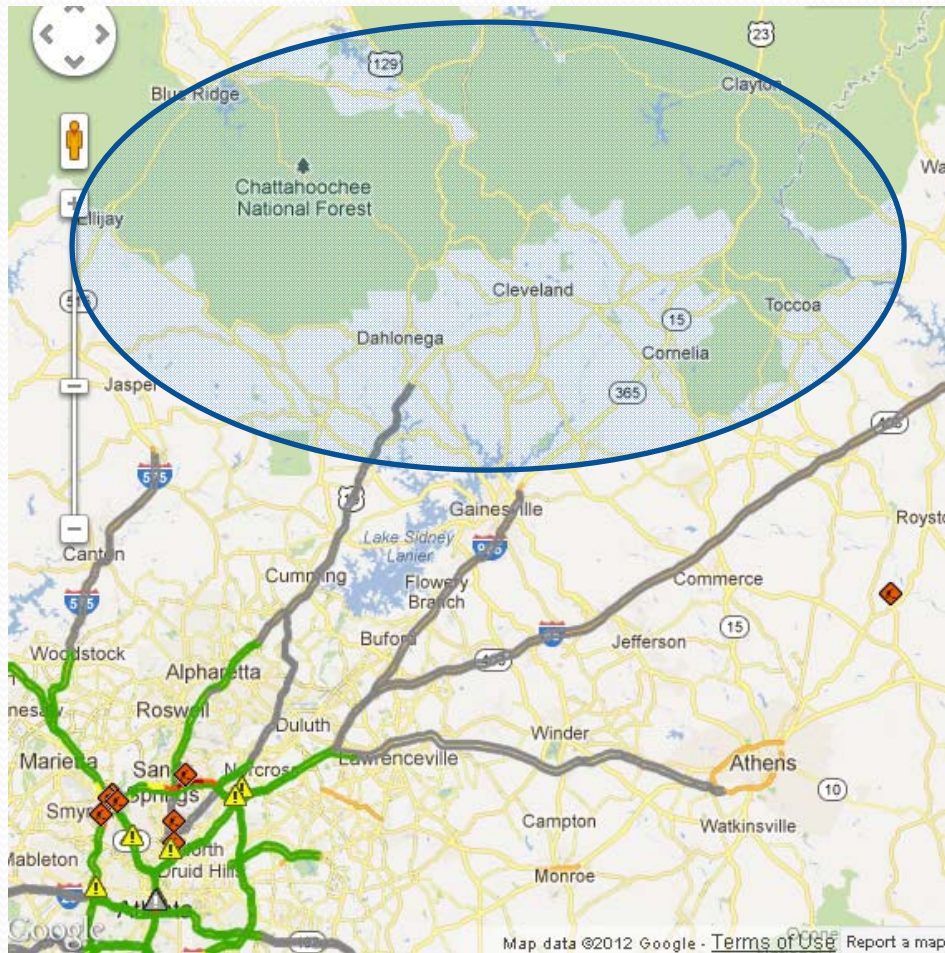
The Michigan Bottle Scam



The only way they could afford to transport bottles to Michigan for the 10 cent deposit was to acquire nearly free transportation.

Similarly, if you didn't have to install your own fiber optic network wouldn't that be a huge benefit?

What About the North Georgia Mountains?



Notice that this screenshot taken from Georgia NaviGator illustrates the lack of ITS devices in the Georgia mountains.

<http://www.11alive.com/video/default.aspx?bctid=1336489016001>

Fiber Optic Network – the Game Changer



Georgia Governor Nathan Deal (center), keynote speaker, called NGN a potential game changer for the North Georgia region of the state.





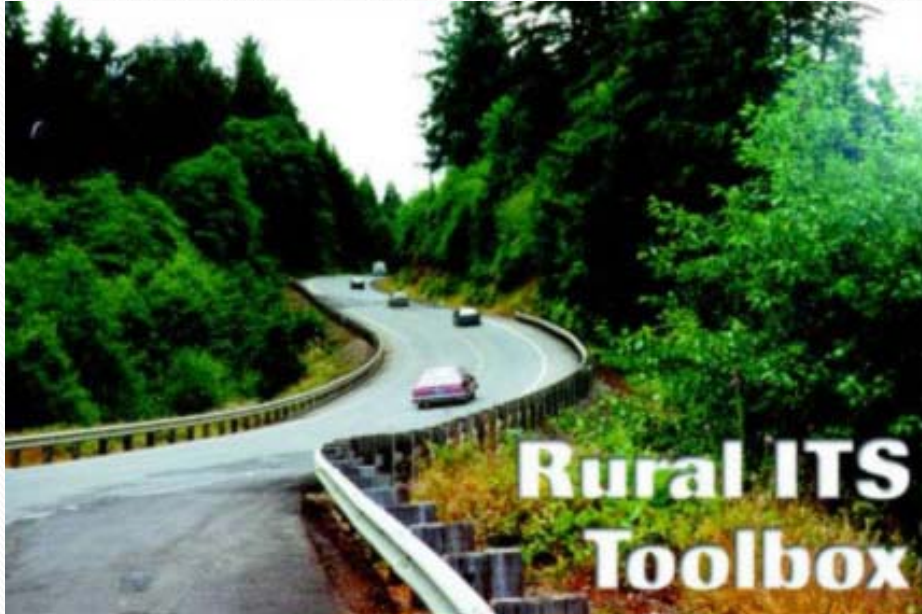
How Could This Help? (1 of 2)

- Connect District, Division or Area DOT offices to the GDOT Network. Improve communication to maintenance vehicles
- Connect Local and County Traffic Departments to the GDOT Network
- Provide more reliable communications options in rural and/or mountainous terrain.



How Could This Help? (2 of 2)

- Improve communication between emergency responder vehicles and CAD Systems who could in turn interface to the transportation management system.
- Provide higher bandwidth to transmit video.
- Extend network to more remote areas via communications from fiber backbone



Based on the Inclusion of Fiber... Suggested ITS Tools for the North Georgia Mountains

- Improve in-vehicle Emergency Mayday Services (OnStar, etc..)
- Travel and Tourism Info – (511 enhancements, portable DMS, HAR)
- Rural Transit and Mobility
- Road Weather – ice, fog (RWIS)
- Variable speed limits
- Work/Maintenance Zones (portable DMS)
- CCTV monitoring (permanent and portable)
- Public safety agency coordination tools – comm to first responders
- Traffic signal control/ monitoring.

More Opportunities in Georgia? How About Using the Region for a Rural ITS Connected Vehicle Test Bed





Connected Vehicle ITS Basics

- In-vehicle dashboard (On Board Equipment – OBE) to manage apps, and receive messages and alerts
- In-vehicle 5.9 Mhz radio to communicate with roadside units (RSU) (along fiber route)
- GPS for location (AVL for fleets)
- Vehicle probe data collection - Speed, Braking (ABS), Suspension, Temperature, etc...
- Vehicle manufacturers are focusing on Vehicle to Vehicle (V2V) applications.



Rural specific CV applications

- Enhance operation of suggested Rural ITS Tools
- Lane departure /curve speed warning
- Remote intersection safety (MN)
- Animal warning system
- RWIS icy pavement/fog probe detection
- Mayday support – use OBE apps
- Dispatch and send messages to DOT fleet vehicles – winter, construction, maintenance



Conclusion:

- The North Georgia Mountain region has more ITS opportunities with a fiber optic installation
- Any city/county or state DOT or consultant should look for opportunities they can capitalize on that they do not have to implement themselves

QUESTIONS?

