MONTGOMERY COUNTY RIDE ON CAD/AVL

Part of the County's

Advanced Transportation Management System

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Ride On Operations: An Integral Part of the ATMS

- First Integrated Traffic/Transit Center
- Utilization of Traffic Cameras and Aerial Surveillance
- County Cable Montgomery Broadcasts
- Travelers Advisory Radio
- Bus Operators Reporting Road Conditions

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Ride On's CAD/AVL – Ver. 1.0

- 1996 Ride On CAD/AVL Implementation
  - Mont Co. Partnered with Orbital Sciences
  - State and Federal Grants totaling $3.5 Million
- 2000 Fully Implemented in Both County Operated Garages
  - 200+ Vehicles
- One of the First GPS-based CAD/AVL Systems
  - System Limitations
    - Operating System
    - Communications Design

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Ride On's CAD/AVL – Ver. 1.0

- Command and Control of Transit System
  - Proactive Response to Trip Abnormalities
    - (Lates, Earlies, Off-Routes)
  - Visualization of Gaps and Bunches
- Safety/Security Response
  - Instant Bus Finding Capabilities
  - Silent Alarm Feature
- Real Time Bus Status for our TIC

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Ride On's CAD/AVL – Ver. 1.0

- *Signs of the Times*
  - Real Time Customer Info
  - Six Locations – 18 Signs
  - Pilot for Federal Grant
  - Implemented prior to 1999
  - Spread Spectrum Comm.
- Traffic Signal Priority
  - Integration w/Signal Sys
  - Pilot on MD 355

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Ride On's CAD/AVL – Ver. 2.0

- Redesign/Upgrade/Enhancement 2005-2009
  - 3rd voice channel
  - 2nd data channel
  - More efficient data communication scheme
    - One-minute polling cycle
    - Location on each poll
    - Schedule Adherence on each poll
- On-board Automatic Voice Announcing Next Stop
- Real-time On-board Passenger Count (On Demand)

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Automated Transit Information System

What Do We Want?

Industry Standard Features

Ability to Expand

Ability to Innovate

Maintain Reasonable Costs

Minimize Implementation Risks

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Automated Transit Information System

Costs/Benefits/Risks

Looked at 4 Systems w/4 approaches

- Greenhorn & O'mara
- Strategic Mapping
- NextBus
- ACS – SmartTraveler Plus w/In-house *Signs of Times* + Communications

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Automated Transit Information System

Costs/Benefits/Risks

Name	Pros	In-Between	Cons
G&O	Good Working Relationship w/County - Existing Contract - Good Programming Approach - Pay as you go - Customizable - Modest Price	Contract Needs Amendment	No existing Product - Develop from Scratch
Strategic Mapping	Preliminary Product w/Excellent Features - Developing for Local Jurisdiction - Bridgeable Contract	Contract Needs Amendment - Moderately High Costs	Product Still in Development Phase
NextBus	Rich, Full-featured, Mature Product		High Start-up Costs - High Maintenance Costs - Locked into Their Technology
ACS - SmartTraveler Plus	Uses Existing Orbcad Data - Feature-rich Web-based System - Low Start-up Costs - Low Maintenance Costs	Same Vendor as CAD/AVL System	Product Still in Development Phase
In-house Development w/Existing Contracts	Use Existing Resources/Contracts - Good Working Relationships - Good Past Results - Ability to Innovate		Substantial Development w/Unknown Costs

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ATIS Industry Standard Features

- Web-Based Real Time Map and Text Schedule Status
- Smart Phone/PDA Compatible
- Text or Email Requests for Real Time Info
- PreScheduled Email Bus Arrival Notifications

→ SmartTraveler Plus®

- Interactive Voice Response (IVR) → Exploring Vendors and Options
- Real Time Electronic Signs → Collaborative Effort

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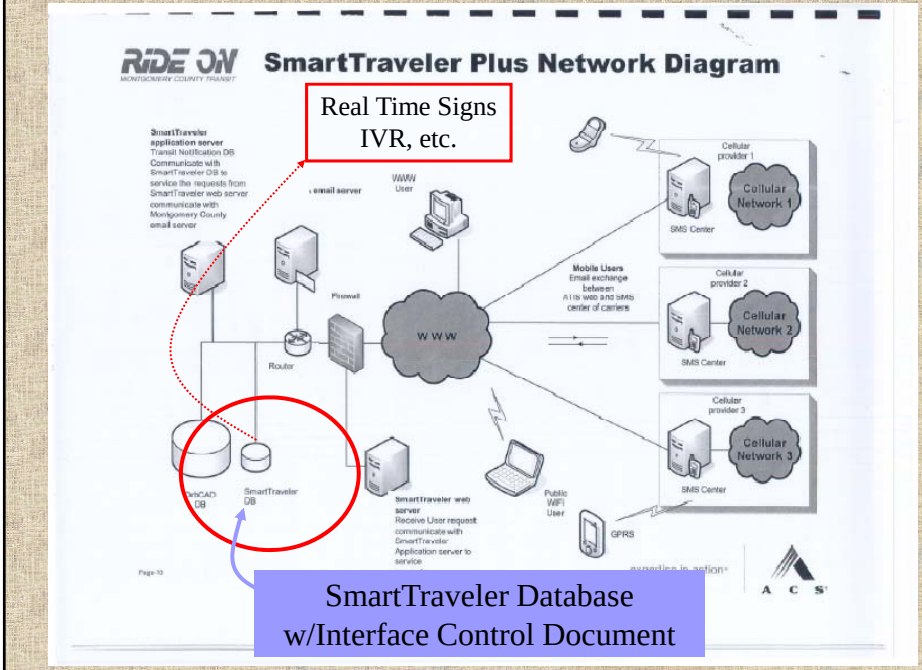
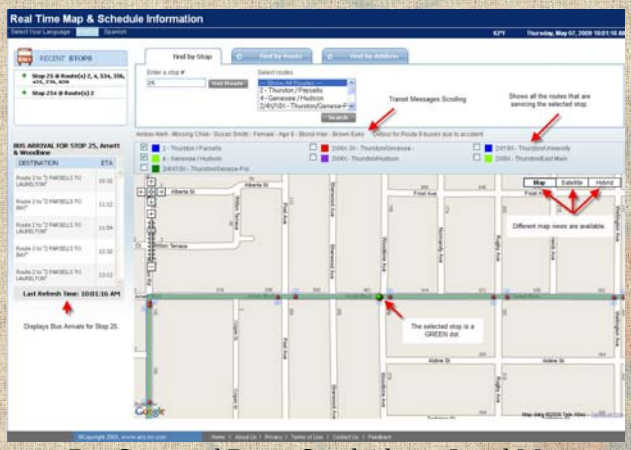


SmartTraveler Plus®
Real Time Map and Schedule Information



Bus Stops and Buses Overlaid on a Local Map
Find Bus by Stop Number, Bus Route or Address

Mouse-over a moving vehicle on the map.

The real-time data is then displayed for that particular vehicle.

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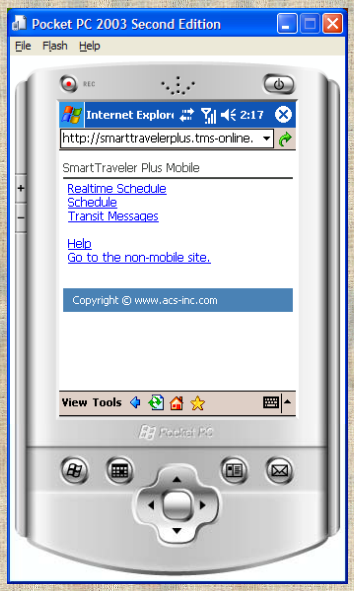
Example of
Smart Phone
Web Application
For Real Time
Information Request

Simple Text Msg
or Email
Available for
Non Web-Enabled
Phones



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Signs of the Times Electronic Message Signs

- Access Data from SmartTraveler Database
- In-house Developed Data Generator
- Contractor Developed "Middleware"
- LED and/or LCD Displays
  - Text & Graphics – Web Based
- In-house Owned and Developed Communications
  - County Fiber Optic Network
  - RF/Wi-Fi Tx Access Points

Silver Spring Transit Center – 1st Project

- NEXTbus (Next Bus Inc.) Look-a-like Signs
- Ethernet County Network Communications

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Future Directions

Regional Integration : Real Time Transit Information

Ride On First Regional Transit Entity to Integrate into University of MD CATT Lab.

Sending Real Time Location Data once per minute

Open Data Source

Encourage Third Party Applications
TriMet in Portland, Oregon is a good example
http://trimet.org/apps/index.htm
And so is CTA in Chicago, Illinois
http://www.transitchicago.com/apps/

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