

FlexBus: An ITS-based Flexible Transit Service for Altamonte Springs

Reshma Chandnani, P.E., Senior Transportation Program Manager

Santosh Mishra, Transportation Planner

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Presentation Outline

- Overview of FlexBus
- FlexBus ITS Components
- Future of FlexBus

Background

- Early study identified need for a flexible transit alternative for suburban areas like Altamonte Springs
- Project being sponsored by LYNX (Central Florida RTA), FDOT and City of Altamonte Springs with FTA ITS grant
- TranSystems (formerly Multisystems) was prime contractor for:
 - Project Development (PD&E)/Preliminary Engineering (2003)
 - Final Design (Fall 2005-Spring 2007)
- Proposed opening year 2009 (along with commuter rail)

What is FlexBus?

- Station to station on-demand operation
- Will use vehicles smaller than LYNX buses
- Stations at many activity centers
- No fixed schedules or fixed routes
- Responds to user requests, either real-time and pre-booked
 - 12 minutes maximum wait time, maximum on-board time
- Dynamically routed and dispatched
- Fare payment prior to boarding
- Transit ITS integral to operations
- New concept in US; some similar European systems

How It Will Work

1. User requests ride and selects destination station
 2. System selects "best fit" vehicle based on
 - User waiting time
 - User on-board time
 - On-board time impact on other passengers
 - Available capacity on vehicle
 3. System gives user an estimated pick up time
 4. System prompts user to accept or decline trip
 5. User accepts trip and makes payment
 6. System provides user with magnetic-stripe Boarding Pass
 7. Vehicle arrives
 8. User boards vehicle with Boarding Pass
 9. Trip confirmed in system
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- Registered users can book trips remotely by phone and website
 - Can select trip by pick up or drop off
 - Can book reservation in advance

Summary of Key Functions Driven by ITS

- Voice and Data Communication
- Trip Booking, Modification and Cancellation
- Scheduling, Dispatching and Operation Monitoring
- Electronic Payment, Revaluing, and Discount
- On-board Functions
- Real Time Information
- On-board Video Surveillance
- Maintenance Software
- Data Management

Voice and Data Communication Needs

- Wireless and wired communication infrastructure
- Communication between:
 - Vehicle and Dispatch
 - Wireless LAN at Garage and Vehicles
 - Dispatch and Garage
 - Dispatch and Station/Remote Kiosks
 - Dynamic Message Signs (DMS) and Computer-Aided Dispatch (CAD)/Automatic Vehicle Location (AVL) System
 - Interactive Voice Response (IVR) Server and Dispatch
 - Web Server and Dispatch

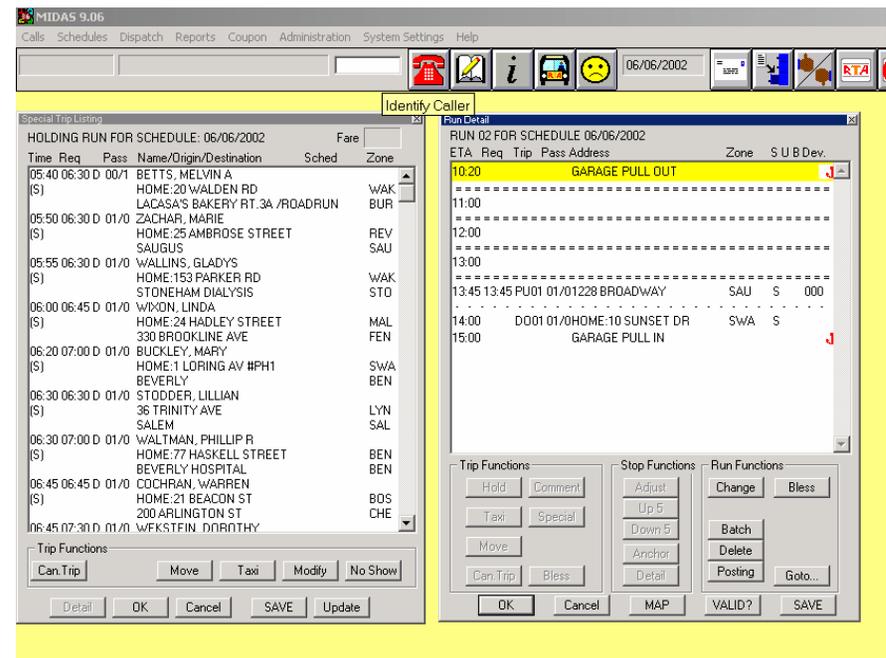
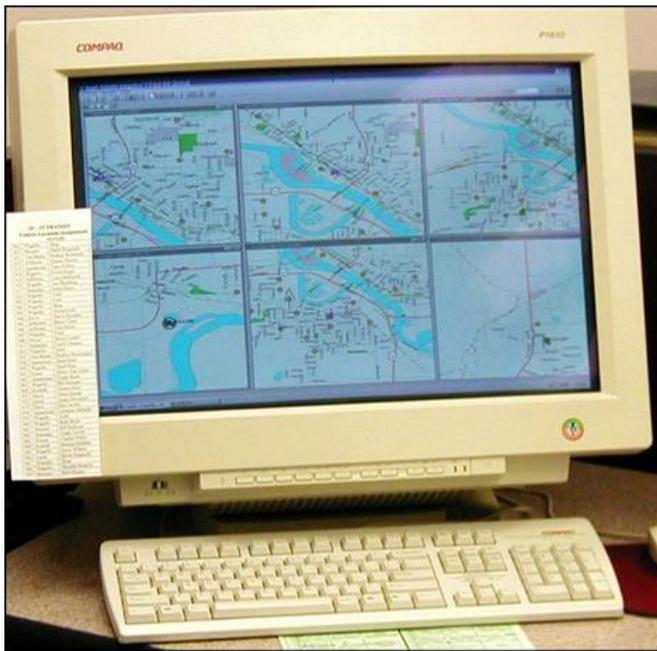
Trip Booking, Modification and Cancellation

- FlexBus scheduling system will support customer interfaces to accomplish these functions
- Automatically-generated manifests based on customer requests
- Any of the following three ITS technologies can be used:
 - IVR
 - FlexBus Website
 - Kiosks



Scheduling, Dispatching and Operation Monitoring

- Automated scheduling and dispatch software for assignment of appropriate vehicle to a particular trip from list of available vehicles based on specific conditions
- Integrated with CAD/AVL software, which will assist the FlexBus Dispatcher in monitoring the operation of FlexBus vehicles



Electronic Payment, Revaluing, and Discount

- Off-board payment prior to trip, using:
 - Cash (only at kiosks)
 - Credit/debit card
 - FlexBus Account ID cards
- One of three mediums for fare payment/adding value:
 - IVR
 - FlexBus Website
 - Kiosks



On-board Functions

- Mobile data terminals (MDTs)
- Automated annunciation system (AAS)
- Validator for fare payment
- Digital video surveillance
- Integration over a Society of Automotive Engineers (SAE) J-1708/1587 or J-1939 Vehicle Area Network (VAN)



Real Time Information

- Trip and vehicle status
- Information calculated/collected through CAD/AVL system
- Information available via:
 - IVR
 - LYNX website
 - Kiosks
 - Station DMS



Key Project Activities Related to ITS

- Finalize work rules, operating manuals, service integration
- Determine requirements for stations, vehicles
- Finalize ITS specifications and prepare vehicle specifications
- Prepare capital and operating costs and business plan
- Prepare start up implementation schedule

