Applications and Impacts Breakout
Group III: Mobility

Steve Mortensen
Federal Transit Administration

Bob Rupert
Federal Highway Administration
Office of Operations

Karl Wunderlich
Noblis

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• One breakout group will identify promising applications to achieve goals related to enhancing individual mobility
• For the purposes of this breakout, transformative mobility impacts have occurred when the transportation system has:
  – a transformative ability for travelers of all types to access the largest possible set of destinations reliably and predictably through the transportation system without increased environmental impact or safety risk
Today’s Exercise  
(Part 1) Measuring Impact

- Feedback materials
  - Application scorecard
  - 3 poker chips (for voting)
- Facilitators preview overall exercise
- Facilitators lead group discussion on measuring transformative impact
  - Three example measures given
  - Participants may suggest others
  - Simple hand-count voting to determine up to three to be further explored
- Flip-chart exercise (group discussion)
  - Measure definition and current baseline (if known)
  - What change represents transformative impact?
Today’s Exercise (Part 2) High Impact Apps

- As we did yesterday, consider up to 10 applications in each impact area
  - One slide per concept, brief clarifying discussion
  - Record High-Medium-Low rating on your scorecard for each of the measures
- 3-2-1 Poker chip voting for the applications most likely to have transformative impact (per your measures)
- Facilitated discussion about the application with the highest vote total
  - Identify key data, communications and research needs for this application
  - How close to transformative will this application get us?
- Repeat facilitated discussion for second highest ranked application (time permitting)
- Reconvene to consider results within each breakout
  - Discuss the implications of your group process
  - Identify a presenter from your group for the breakout report at 11 AM
Exercise Ground Rules

• For today’s exercise, these items can’t be changed
  – Breakout group impact area definitions
  – No adding new application concepts

• Data environment assumptions from yesterday can be relaxed, however
  – Assumptions about what data is available can be tailored in this exercise

• Policy-related issues are NOT in play for discussion
  – If these topics come up, we will park the discussion until this afternoon, when we have special session to deal with these in turn
Impact Measure
Definition Activity
Mobility Impact Measures

- Aggregate travel time reliability
- Average accessibility
- Total person-hours of delay

- Are these the right measures?
- Can we better refine them?
- How many measures are needed (up to 3)?
- For each selected measure:
  - Record definition
  - Establish current baseline (if known)
  - Set transformative target

FACILITATORS: PLEASE RECORD ON FLIP CHARTS
USE SIMPLE HAND-COUNT VOTES WHEN NEEDED
Application Scorecard Activity
Next, we’re going to go through application concepts that address the mobility impact area.

We will present each concept on a single slide.

– You can ask clarifying questions, or offer suggestions about how data might be leveraged.
– But the concept itself cannot be altered, modified or enhanced in discussion.

Record an notes/comments on each application with an assessment on your scorecard for each criteria (High-Medium-Low).

– Let’s fill in our selected measures now on your scorecard.

Consider how you will vote for the applications with the most potential to achieve our transformative targets.

– What applications have the most potential to help us reach our transformative target by 2025?
Application #1: ATIS

• Multi-modal Real-Time Traveler Information

• Problem Addressed:
  – Improve precision and accuracy traveler information with respect to travel times, cost, or availability on alternate routes or modes

• Description
  – Considers real-time and historical travel conditions for the traveler’s trip (pre-specified origin, destination, and time of departure)
  – Suggests potential routes and modes (e.g., HOV, transit, tolled lanes) with travel times, travel time reliability, and costs for each alternative
  – Predicts travel times based on existing and expected traffic patterns, weather conditions, incident locations, and work zone locations and timings
• IntelliDrive-Driven Integrated Corridor Management
• Problem Addressed:
  – Incompatible operational and data collection procedures limit coordination among freeway, signal system, and transit system operators in a corridor
• Description
  – Aggregate, consolidate and exchange data on alternate routes and modes to provide true corridor-wide traveler information services
  – Enable traffic management and transit agencies to coordinate their existing systems to improve corridor performance
  – Support integrated and coordinated response during major incidents and emergencies within corridor boundaries
Application #3: CURB-PKG

• Curbside Parking Availability System

• Problem Addressed:
  – Inform drivers about the availability of curbside parking, reducing congestion, emissions, and driver frustration

• Description
  – Monitor curbside parking availability either by using fixed sensors installed in parking meters or the road surface, or by a network of connected vehicles
  – Parking data relayed to a central manager for processing and broadcast
  – Inform travelers in real time the availability of parking spaces, the rate, type, and hours via the internet as well as mobile and in-vehicle devices
Application #4: D-RIDE

• Dynamic Ridesharing

• Problem Addressed:
  – Logistical constraints of traditional carpooling (e.g., long-term commitments, fixed schedules, and communication difficulties) prevent ridesharing from realizing its full potential

• Description
  – Leverage in-vehicle and hand-held devices to allow ride-matching
  – Integrate carpooling functions into vehicle computer and displays, use voice activated ridesharing technology to reduce distraction effects
  – Vehicle-data integration utilized by HOV/HOT enforcement agencies to verify vehicle occupancy
- **Dynamic Routing of Vehicles**
  - **Problem Addressed:**
    - Improve awareness of the best route to destinations, reducing delays. For emergency responders, delays translate into loss of lives.
  - **Description**
    - Provide in-vehicle route guidance to road users, including private vehicle drivers, freight shippers, and emergency responders
    - Specifically address the integration of IntelliDrive data and in-vehicle navigation systems
    - Route guidance based on current and predicted conditions
Application #6: GSP

• General Road User Traffic Signal Priority

• Problem Addressed:
  – Give priority to general road users at urban intersections for a fee, resulting in reduced delays and increased travel time reliability

• Description
  – Subscribers can receive signal priority (like transit signal priority)
  – Application will facilitate vehicle progression along the facility
  – Service subscriptions would be based on specific routes/corridors and/or times of day
  – Generate revenue on traditionally non-revenue generating roadways
Application #7: TSP

- **Transit Signal Priority**
- **Problem Addressed:**
  - Due to a limited ability to make accurate predictions, traditional methods have resulted in poorly performing TSP schemes
- **Description**
  - Enable earlier detection of buses, and more accurate and continuous monitoring of the bus as it traverses the corridor
  - Establish low latency and ongoing communications with Priority Request Servers (PRS) at individual, or multiple, intersections
  - Consider new inputs (e.g. passenger loads) and criteria (e.g. type of service, peak direction, etc.) for generating priority requests
Application #8: EFP

- **Multi-modal Integrated Payment System**
- **Problem Addressed:**
  - Unfamiliarity with fare payment methods and inconvenience are factors that deter some travelers from using transit more often
- **Description**
  - Utilize standards for an open architecture electronic payment system
  - Establish a transportation payment environment that reduces delays at toll plazas and parking payment kiosks, and reduces dwell times at bus stops
  - Promote ease of transfers across modes and increase customer convenience
  - Mine trip chaining patterns to improve service planning and operations
  - Support implementation of congestion-based transit fare pricing
Application #9: **T-CONNECT**

**Connection Protection**

**Problem Addressed:**
- Missed mode transfers can result in cascading impacts and a substantial increase in travel time, limiting transit attractiveness within a corridor

**Description**
- Systematically calculate the probability of successful intermodal connections
- Travelers can initiate requests for connection protection during the trip
- A centralized system manages these multiple requests and current system status to maximize reliable transit trip making within the corridor
- Communicate connection protection and schedule changes to travelers
• **Real-Time Route Specific Weather Information for Motorized and Non-Motorized Modes**

• **Problem Addressed:**
  – improve mobility and safety of users of motorized and non-motorized modes of transportation (e.g., automobiles, transit, freight, bicyclists, and pedestrians) by providing real-time, highly localized weather information

• **Description**
  – Fuse weather-related probe data generated by probe vehicles with weather data from traditional weather information sources
  – Develop highly localized weather and pavement conditions for specific roadways, pathways, and bikeways
Voting
Breakout Exercise (Part 2) Voting

• Now that we’ve worked through all the applications, vote for the three most promising applications
  – BLUE = 3 points (top priority)
  – RED = 2 points (second-highest priority)
  – WHITE = 1 point (third-highest priority)
  – Deposit your chips in the voting bins identified for each application (also turn in your scorecards)
• We’ll take a quick break (5 minutes) to tabulate the results
• One Bin, One Participant, One Chip rule
  – Do NOT dump all of your chips in a single bin
  – We want your individual priority of the top THREE applications
Quick Break
Exercise Results
Exercise Complete