Hampton Roads Passenger Rail Study Data Collection

Phase 2A

Presentation By

Transportation Economics & Management Systems, Inc.
## Study Timeline

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### MEETINGS

- M8
- M13
- M14
- M15

### PRESENTATIONS

- M4
- M5
- M6
- M7

### MONTHLY PROGRESS REPORTS

- M2
- M3
- M9
- M10
- M11
- M12
- M13
- M14
Database Assembly

- Work will continue on preparing the data for four databases:
  1. Market Database
  2. Engineering Database
  3. Technology Database
  4. Environmental Database
**Market Database**

The market database will consist of four components:

- **Origin / Destination Data** – Traffic movements by mode and purpose (business, commuter, and other)

- **Socioeconomic Data** – Population, Employment and Income by zone.

- **Network Data** – Comprehensive modal networks will be developed for each mode of intercity travel (air, auto, rail and bus).

- **Stated Preference Data** – To obtain local corridor behavioral factors (Values of Time, Frequency, Access/Egress, etc.) to use in evaluating market potential for high-speed rail. The survey will be similar to recent high speed rail surveys completed by TEMS for Rocky Mountain Rail Authority in the Colorado.
COMPASS™ Model Structure

- Four-Mode Transport Network
- Base Year Socio-Economics
- Stated Preference Survey
- Origin-Destination Data
- Trip Matrices
- Demand Model Calibration
- Economic Scenarios
- Rail Strategies
- Travel Demand Model Run
- Forecast Year Trip Matrices
- User Benefit Analysis
- Economic Rent Analysis
- Revenue Analysis
- Financial Analysis
## Sound and Comprehensive Database

**“Using MPO and Stated Preference Data to create a sound behavioral database for passenger rail planning”**

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<tr>
<th>Business</th>
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Zone Map
HRTPO Zone Map (Zoom In)
Socioeconomic Projections

- Population
- Employment
- Income
**Networks**

- Networks will be developed for four modes and three purposes

<table>
<thead>
<tr>
<th>Modes</th>
<th>Purposes</th>
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<tbody>
<tr>
<td>Auto</td>
<td>Business</td>
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<tr>
<td>Bus</td>
<td>Commuter</td>
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<tr>
<td>Air Access</td>
<td>Other</td>
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<td>Rail</td>
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= 12 Networks
# Generalized Cost Components

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<tr>
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<th>Public Modes</th>
<th>Auto</th>
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<tbody>
<tr>
<td><strong>Time</strong></td>
<td>In-vehicle Time</td>
<td>Travel Time</td>
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<td>Access/Egress Time</td>
<td>Congestion Time</td>
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<td>Number of Interchanges</td>
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<td>Connection Wait Times</td>
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<td>Terminal Wait Times</td>
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<td><strong>Costs</strong></td>
<td>Fare</td>
<td>Operating Costs</td>
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<td>Access/Egress Costs</td>
<td>Tolls</td>
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<td></td>
<td>Parking</td>
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<td>(all divided by occupancy)</td>
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<td><strong>Reliability</strong></td>
<td>On Time Performance</td>
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<td><strong>Schedule</strong></td>
<td>Frequency of Service</td>
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<td>Convenience of Times</td>
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Stated Preference Survey Background

- **Goals**
  - Quantify how much travelers value time and frequency.
  - Discriminate behavior by mode and purpose of travel.

- **Approach**
  - Quota Surveys with individual “Sample Frame” Targets by Sub-Group (e.g. Mode, Trip Purpose).

- **Survey Implementation**
  - Pilots Surveys before full deployment of the Survey Team.
  - Direct Interviews
  - Online Interviews
  - Direct Surveys are targets at Passengers at Airport, Rail and Bus stations and Patron at DMV * locations in the corridor.
  - Online Surveys are targeted primarily to Employee trip-making in the corridor.

*Department of Motor Vehicles*
Value of Time (VOT) and Value of Frequency (VOF)

- **VOT** – the amount of money (dollars/hour) an individual is willing to pay to save a specified amount of travel time.

- **VOF** – the amount of money (dollars/hour) an individual is willing to pay to reduce the time between departures when traveling on public transportation.
**Value of Access (VOA)**

- **VOA** – the amount of money (dollars/hour) an individual is willing to pay for the access time to a mode (e.g. the airport, HSR station, railroad station, bus station) to gain easier access to someplace (airport).
Dear Respondent: This survey is part of a transportation study aimed to improve travel conditions in Maryland. Please take a few minutes to answer the following questions. No identifying information is asked and any information you provide will be kept strictly confidential. Thank you.

1. Describe the ORIGIN/DESTINATION of your most recent trip using the Bay Bridge.*
   1a) ORIGIN City/State: __________ Zip code __________
       DESTINATION City/State: __________ Zip code __________
       PRIMARY RESIDENCE City/State: __________ Zip code __________

   *lb) What day did you begin your trip from the ORIGIN location?
       MON TUES WED THURS FRI SAT SUN  (Please circle day)
       What time did you cross the Bay Bridge on your trip from ORIGIN to DESTINATION? (Approx. Hour and AM/PM) __________
       How many minutes of traffic delay did you experience on your trip from ORIGIN to DESTINATION? (Approx.) __________

1c) What day did you make your return trip from the DESTINATION location?
       MON TUES WED THURS FRI SAT SUN  (Please circle day)
       What time did you cross the Bay Bridge on your return trip from the DESTINATION? (Approx. Hour and AM/PM) __________
       How many minutes of traffic delay did you experience on your return trip from the DESTINATION? (Approx.) __________

2. What was the purpose of your trip?
   [ ] Business (travel for work)
   [ ] Commuter (travel to/from work)
   [ ] Recreation/Vacation
   [ ] Visit friends or relatives
   [ ] Shopping
   [ ] Attend school/college
   [ ] Attend social event
   [ ] Other __________

3. What type of vehicle were you driving?
   [ ] Auto
   [ ] Motorcycle
   [ ] SUV
   [ ] Recreational Vehicle
   [ ] Pick-up Truck
   [ ] Single Unit Truck
   [ ] Multi-Unit Truck
   [ ] Bus

4. Please specify the number of people in the vehicle for this trip, including you. __________

5. How many times do you make this trip in a month? __________

6. The combined annual income of everyone in your household is:
   [ ] Less than $34,999
   [ ] $35,000 - $59,999
   [ ] $60,000 - $99,999
   [ ] $100,000 or more
Stated Preference Survey (Example)

How much do you value your time when traveling?

The following questions about a hypothetical trip (between, for example, Calgary and Edmonton) will help us understand your travel choices. Option A on the left-hand side presents one method to reach the destination for a given cost and time, while Option B presents trade-offs in cost and time. As shown in the example, please indicate for each pair of choices the degree to which you prefer Alternative A or Alternative B.

Cost is the cost of a one-way trip, including gasoline, parking and any other fee you may incur. Time is the total travel time to get to your trip destination, including getting to your vehicle, etc.

Thank you! Your participation in this survey is greatly appreciated.
## Permissions for Direct Interviews

<table>
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<tr>
<th>INTERVIEW TYPE</th>
<th>MODE</th>
<th>LOCATIONS</th>
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<tbody>
<tr>
<td>Direct Air</td>
<td>Airport</td>
<td>Norfolk, VA</td>
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<tr>
<td>Direct Auto</td>
<td>DMV’s</td>
<td>Norfolk, Richmond, Newport News, Hampton, Portsmouth, Virginia Beach, Chesapeake, Williamsburg, and West Henrico</td>
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<tr>
<td>Direct Rail</td>
<td>Amtrak</td>
<td>Richmond - Staples Mill Road, Richmond, - Main Street, Newport News, Fredericksburg, Williamsburg, and Washington, DC</td>
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<td>VRE</td>
<td>Washington, DC (Back Up)</td>
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<td>Direct Bus</td>
<td>Greyhound</td>
<td>Norfolk, Hampton, Richmond, Virginia Beach, Williamsburg, Fredericksburg, Washington, DC and Washington Union S (e), DC</td>
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<td>Megabus</td>
<td>Richmond, VA - Staples Mill Road Hampton, VA and Washington, DC (Back Up)</td>
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## Permissions for Online Interviews

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<th>INTERVIEW TYPE</th>
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<th>LOCATIONS</th>
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<td>Hampton Roads Chamber of Commerce</td>
<td>Norfolk, Newport News, Virginia Beach, Chesapeake, Hampton, Suffolk, Portsmouth</td>
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<td>Norfolk Naval Base</td>
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# Survey Implementation Plan

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<th>Tasks</th>
<th>Week 1</th>
<th>Week 2</th>
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Engineering Database

- Establish Concept Engineering and Cost Data for the corridor.
- Specific survey of right-of-way widths on existing railroads to determine the potential for developing Greenfield corridors.
- Develop route database in TRACKMAN™ program
- The TRACKMAN™ Track Management System will provide a milepost-by-milepost record of the
  - rail gradients,
  - track geometry and characteristics of the track (double track, crossings, etc.) and
  - right-of-way.
- Field review of routes
- Develop engineering cost data
TRACKMAN™ develop detailed information on each route

**Key inputs:** Speeds, curves, grades, rail and highway crossings, and other potential speed restrictions such as moveable bridges.

All the data is being captured in a consistent computerized format, to facilitate train performance and future line capacity evaluation.
Technology Database

- Survey of Rail Manufacturers

- **Cost and Performance Data** – review of existing technology options with respect to establishing 2010 operating and maintenance costs and technology performance characteristics.

- **LOCOMOTION™** is used to estimate Train Speeds.

- **Train Speeds – 110 MPH & 125 MPH +**
  
  **TALGO – 110 MPH**
  
  **ACELA 125 MPH +**
LOCOMOTION™ will estimate Train Speeds and Timetables

LOCOMOTION™ generates optimized timetables for given track infrastructure, signaling systems, and train technologies. It provides milepost-by-milepost graphic output of train performance based on track characteristics and shows the effect on timetables for improving the track, using a different technology, or changing stopping patterns. Because it takes account of other passenger and freight traffic using a right-of-way, LOCOMOTION™ can develop stringline diagrams and identify the optimum train path for a new service.
Environmental Database

- **Environmental Data:** Use Tier I EIS and direct route survey to evaluate the information required for the Environmental Review and Assessment needed for the Service Development Plan and Vision Plan.

  **Mapping will include:**
  - Location of historical sites
  - Existing land use
  - Identification of wetlands
  - Location of parks/battlefields
  - Environmental Superfund sites
  - Identification of topology, geological, soils and impacts
  - Identification of biological resources
  - Railroad impacts and air quality
  - Noise/Vibration
  - Energy
  - Transport system interactions and impacts
  - Utility and related services interactions and impacts
Thank You