

Presentation To

HRTPO Board Meeting

Agenda Item #11



**HRTPO Strategic Campaign
and Vision Plan for
Passenger Rail**



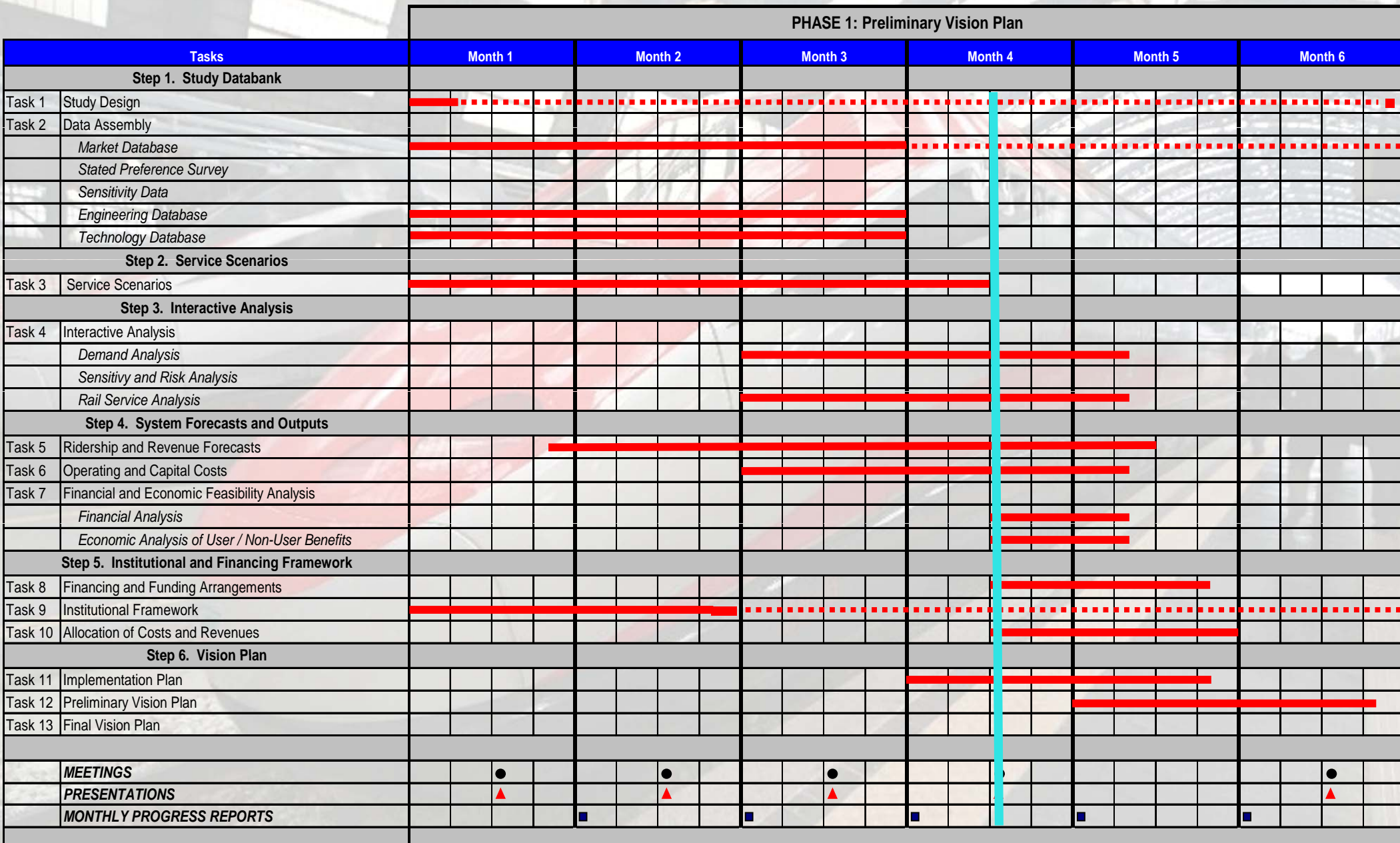
Presentation By

TEMAS

Transportation Economics & Management Systems, Inc.

May 19, 2010

Study Timeline



A high-speed train, primarily red and white, is stopped at a station platform. The platform has a curved, arched roof structure with many windows. Several people are standing on the platform, looking towards the train. The overall scene is brightly lit, suggesting a large, modern transit hub.

Task 1: Project Management

- Continued development of project work plan
- Meeting with DRPT to agree project development steps
- Meeting with NS and CSX to discuss project development steps

Task 2: Data Assembly

- **Database development is being finalized**
- **Market Database**
 - Finalize zone system
 - Finalize update of DEIS O/D data
 - Finalize Socioeconomic profiles for 2010-2040 including employment, income, and population
- **Operating Database**
 - Assessment of appropriate technology for each development step
 - Developing speed profiles for technology options – 79, 90, 110, 150-mph
 - Prepare preliminary timetables
- **Engineering Database**
 - Review of routes to provide an understanding of existing conditions
 - Preparation of unit costs to 2010 base
 - Operating unit costs in preparation

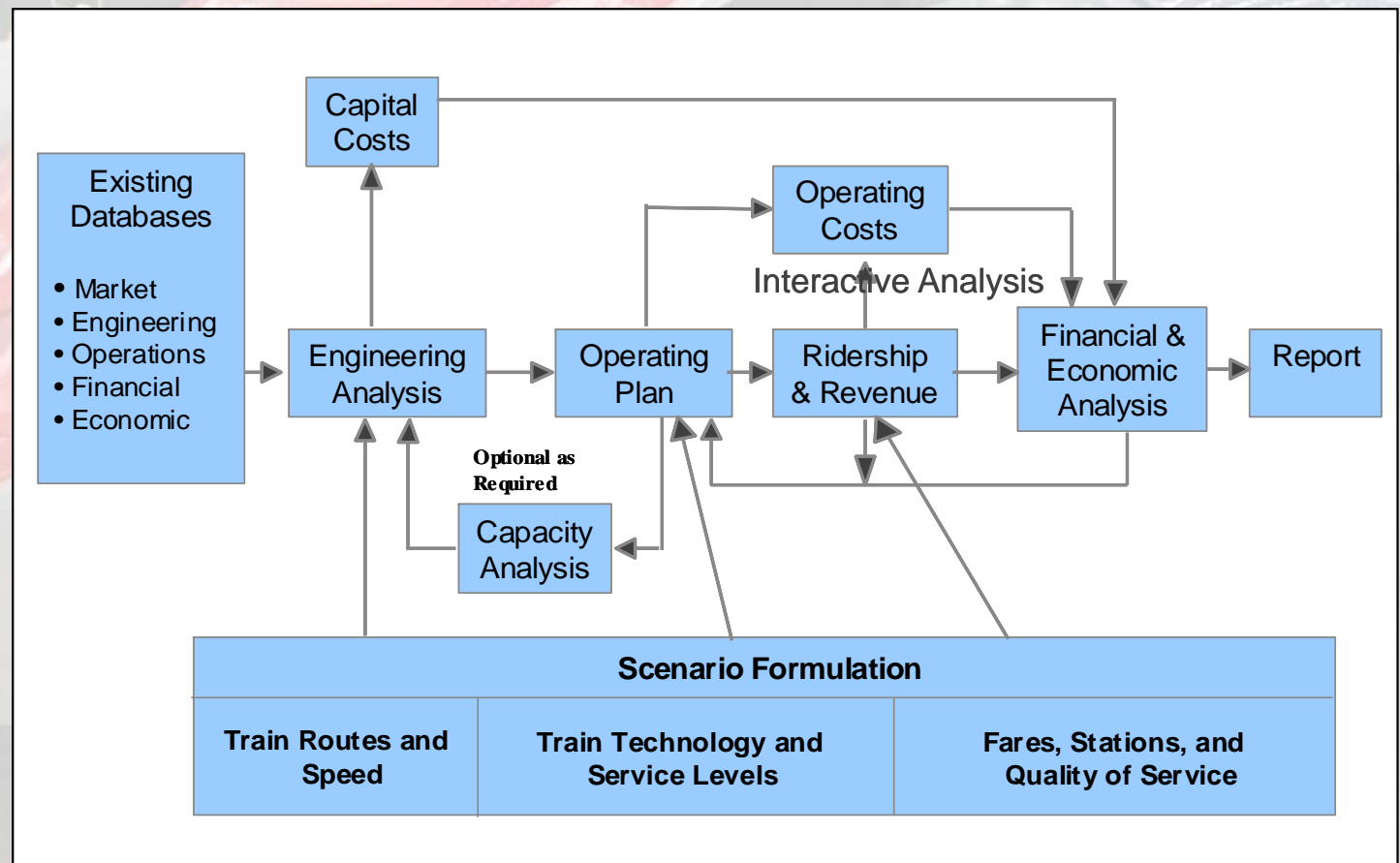
Task 3: Development Steps

- The potential Development Steps have been presented to DRPT, NS and CSX. Await comments from CSX.

Steps	Route	Max Speed	No. of Trains	Infrastructure	Station
Step 1	I-64/CSXT	79 mph	2	Shared Track Schedule Enhancement	Main Street Newport News (existing)
	Route 460/ Norfolk Southern	79 mph	1-3	Shared Track NS	Staples Mill Only Norfolk
Step 2 (DEIS Alt 1)	I-64/CSXT	79 mph	3	Shared Track	Main Street Newport News (existing)
	Route 460/ Norfolk Southern	79 mph	4-6	Shared Track	Main Street
Step 3	I-64/CSXT	90 mph	4-6	Shared Track	Main Street Newport News Downtown/Airport
	Route 460/ Norfolk Southern	110 mph	8-12	Dedicated Track V Line	Main Street Bowers Hill
Step 4	I-64/CSXT	110 mph	6-9	Dedicated Track	Main Street Newport News Downtown/Airport
	Route 460/ Norfolk Southern	150 mph	12-16	Dedicated Electric Track V Line	Main Street Bowers Hill

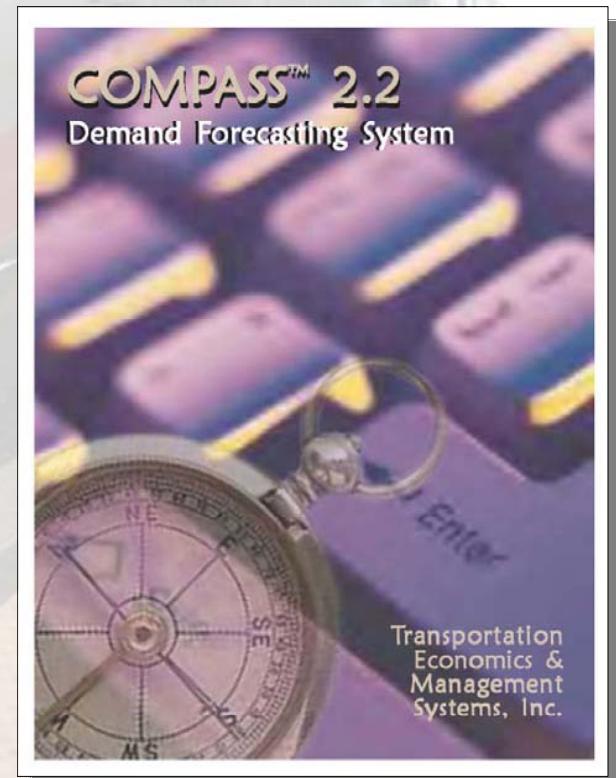
Task 4: Interactive Analysis

- This work in process and will be completed by the end of May.

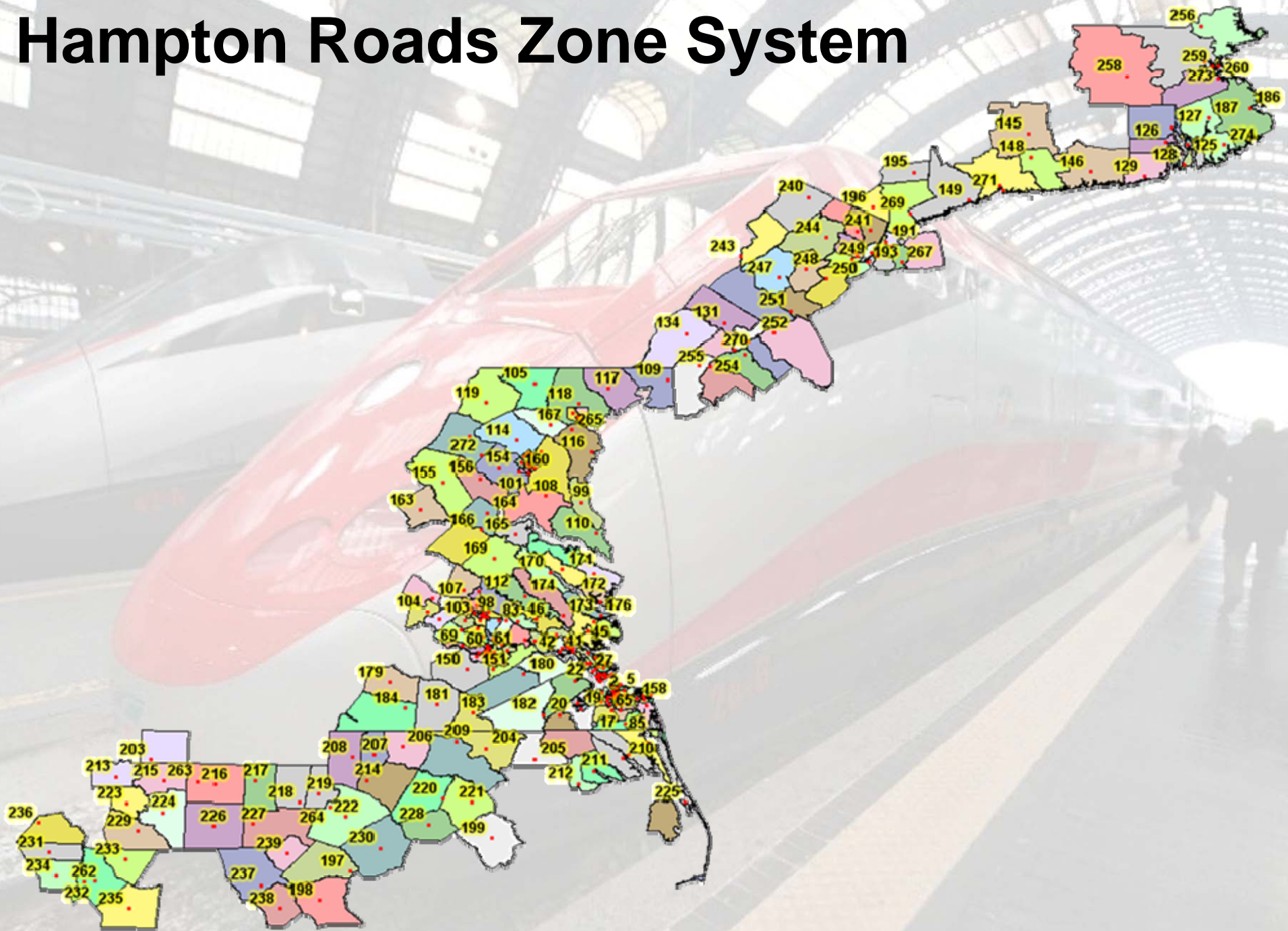


Task 5: Ridership and Revenue

- The Preliminary Demand forecasting model has been calibrated
- Preliminary forecasts have been developed



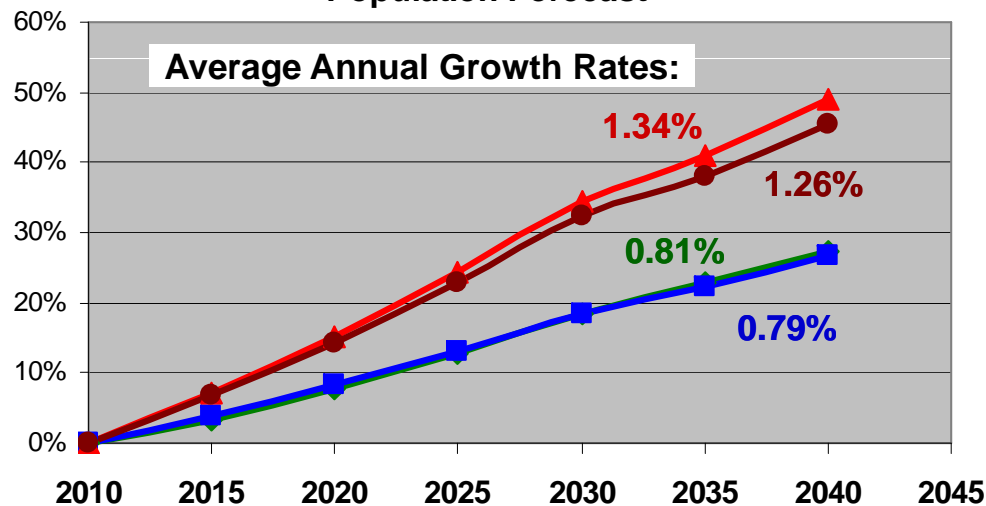
Hampton Roads Zone System



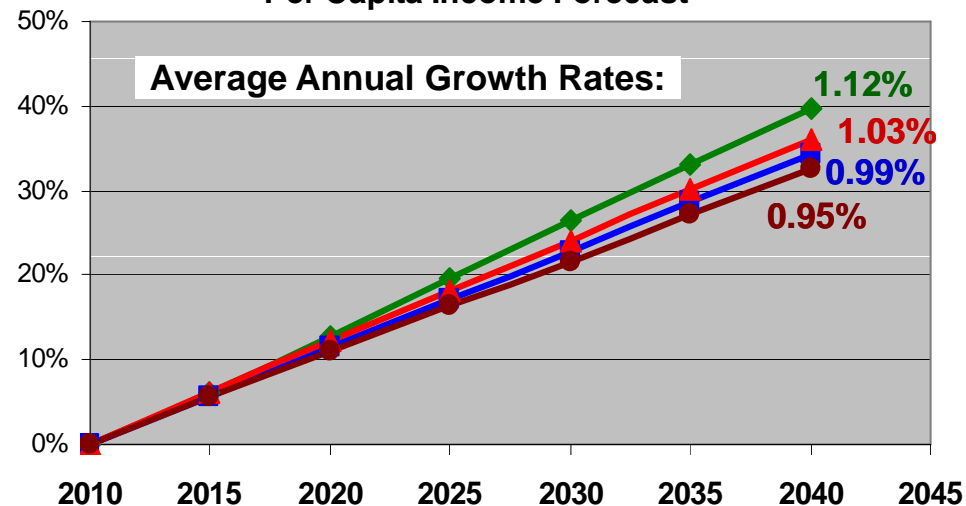
Socioeconomic Projections (cont.)

Forecasts by Region:

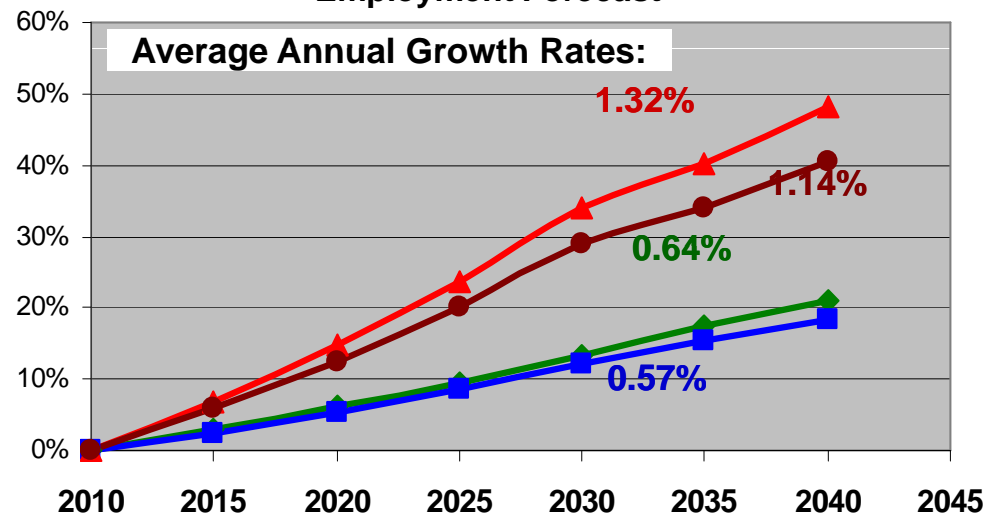
Population Forecast



Per Capita Income Forecast



Employment Forecast



- ◆ I64/CSXT
- Route 460/Norfolk Southern
- ▲ Richmond Area
- Petersburg Area

Network – Rail (Base)



Origin-Destination Data

Auto OD Table	Hampton Roads	Richmond-Petersburg	Other Virginia	North Carolina	Washington DC-Maryland	Northeast Corridor
Hampton Roads						
Richmond-Petersburg						
Other Virginia						
North Carolina						
Washington DC-Maryland						
Northeast Corridor						



OD Data Available

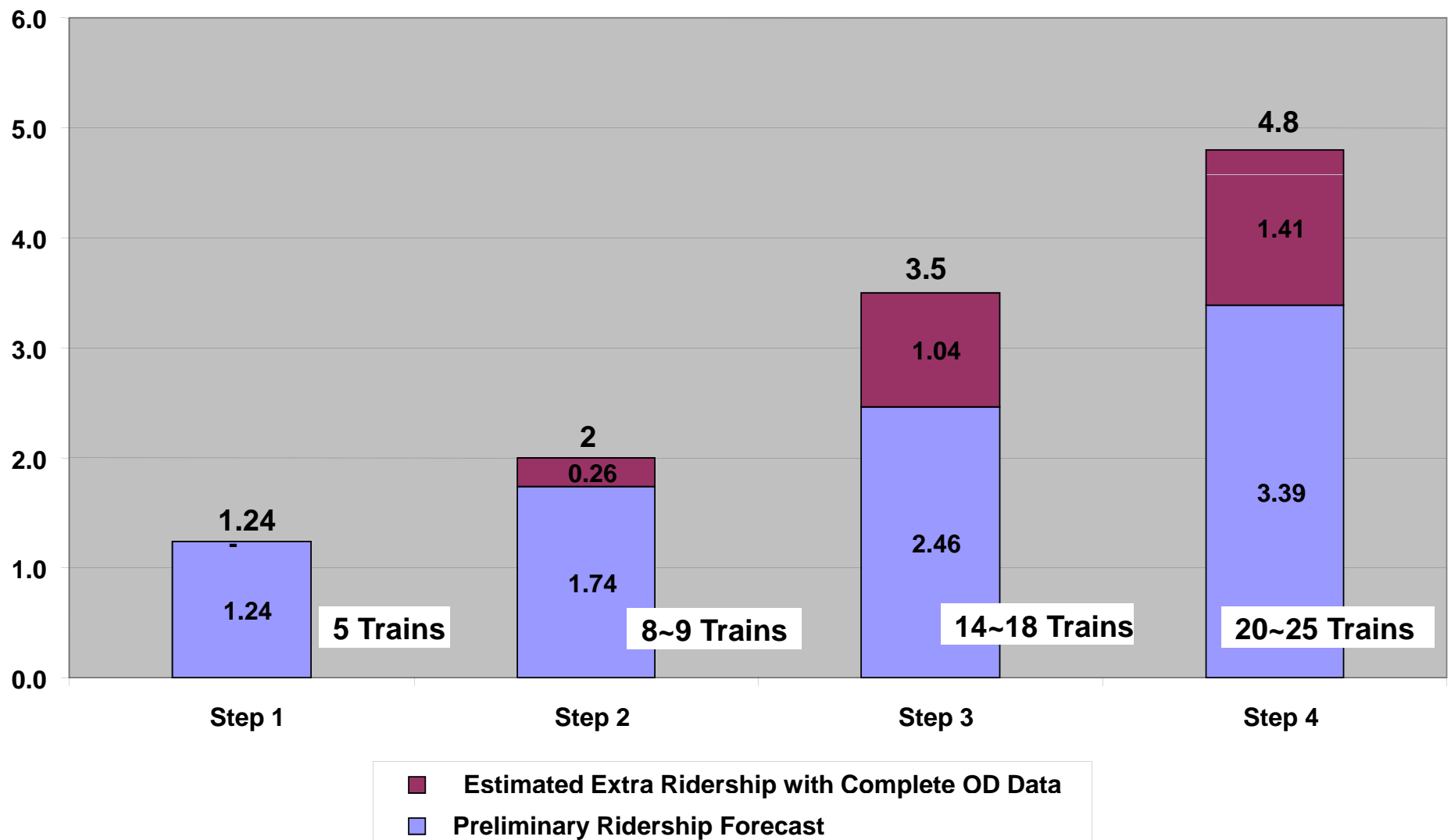


OD Data Unavailable

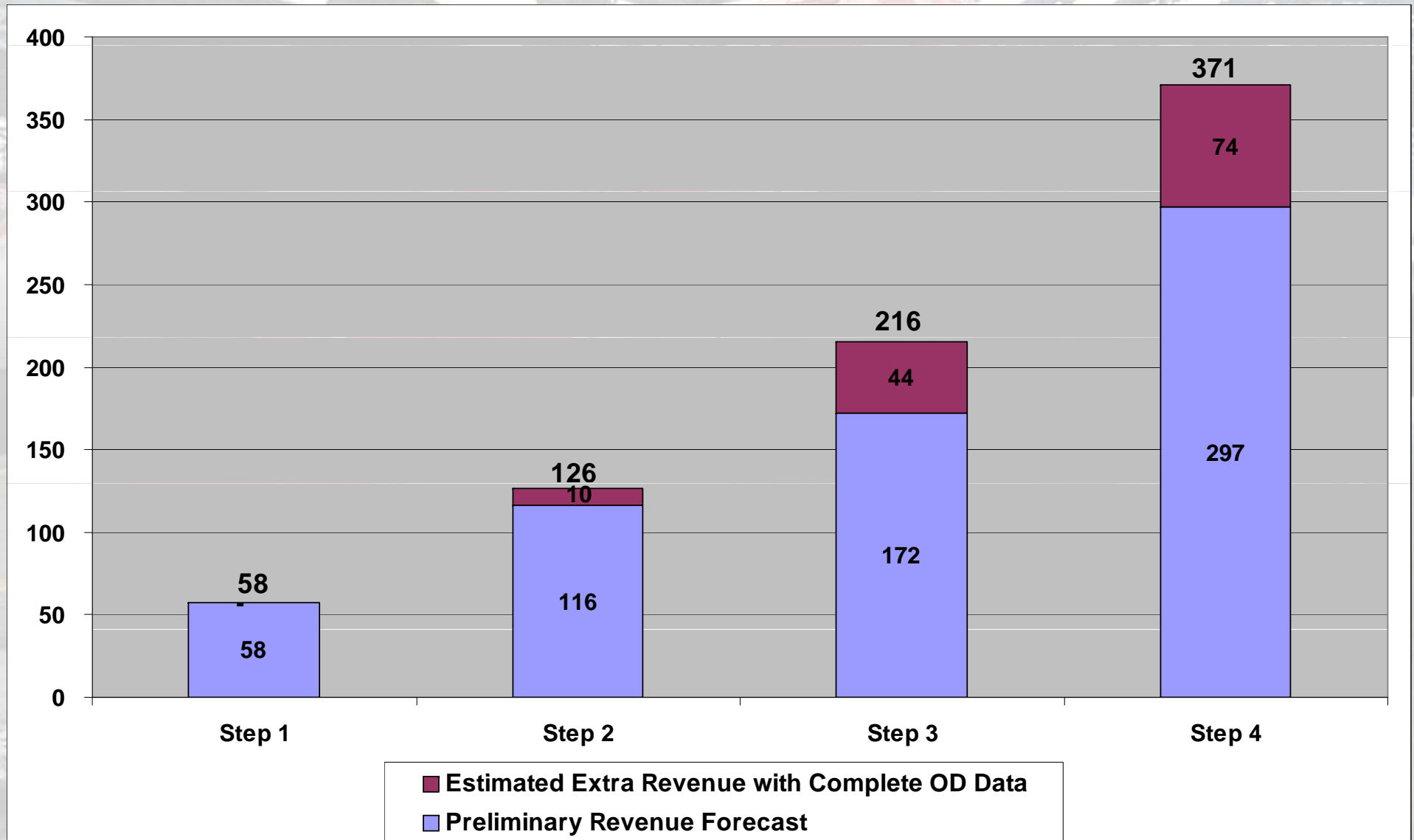


OD Data Irrelevant

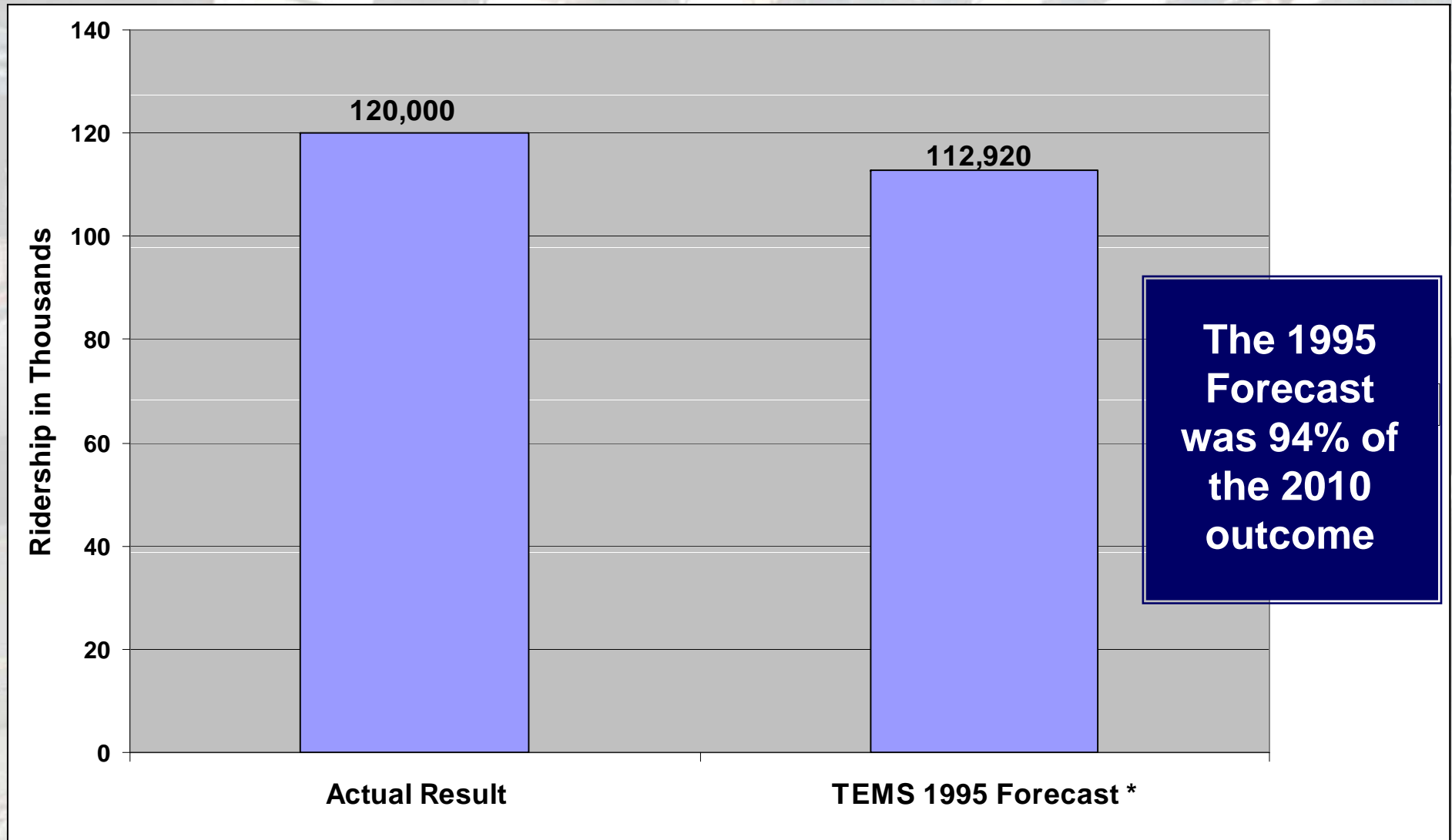
Hampton Roads/Richmond/Washington DC Corridor Preliminary 2025 Ridership Forecast (millions)



Hampton Roads/Richmond/Washington DC Corridor Preliminary 2025 Revenue Forecast (millions)



Model Validation: Comparison of Washington – Lynchburg 1995 Forecast with 2010 Outcome



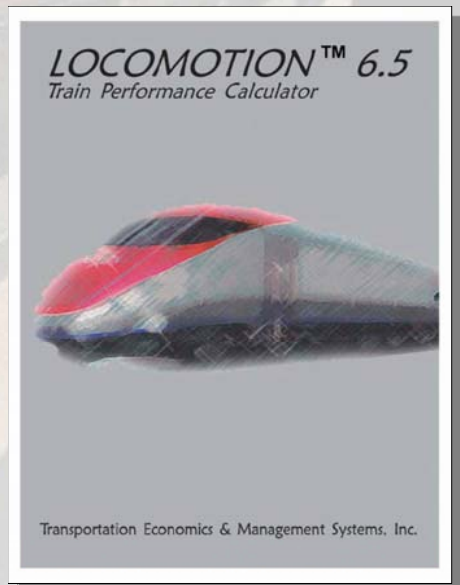
* Bristol Rail Passenger Study: Final Report, May 1995

Task 6: Operating Plan and Operating Costs









- 2010 unit costs have been developed

UNIT COST CATEGORIES

- Equipment Maintenance
- Energy & Fuel
- Train & Engine Crews
- OBS Crews
- Operator Profit
- Insurance Liability
- Sales & Marketing
- Station Costs
- Service Administration
- Track & ROW Maintenance
- Feeder Bus



Preliminary Train Times

	Step 1		Step 2		Step 3		Step 4	
	Conventional Amfleet	Conventional Amfleet	Conventional Amfleet	Diesel HST	Conventional Amfleet	Diesel HST	Diesel HST	Electric HST
								
	79-mph	79-mph	79-mph	90-mph	90-mph	110-mph	110-mph	150-mph
Washington to Richmond	2:45 ¹	2:15 ²	2:20 ³	2:05	2:20	1:30	1:30	1:05
Richmond to Norfolk		1:48		1:48 ⁵		1:10		0:55
Richmond to Newport News	1:25		1:25		1:13		0:52	
Total	4:10	4:03	3:45	3:53	3:33	2:40	2:22	2:00⁴

¹ 2:45 current Amtrak time to Main Street, 1:35 to Newport News

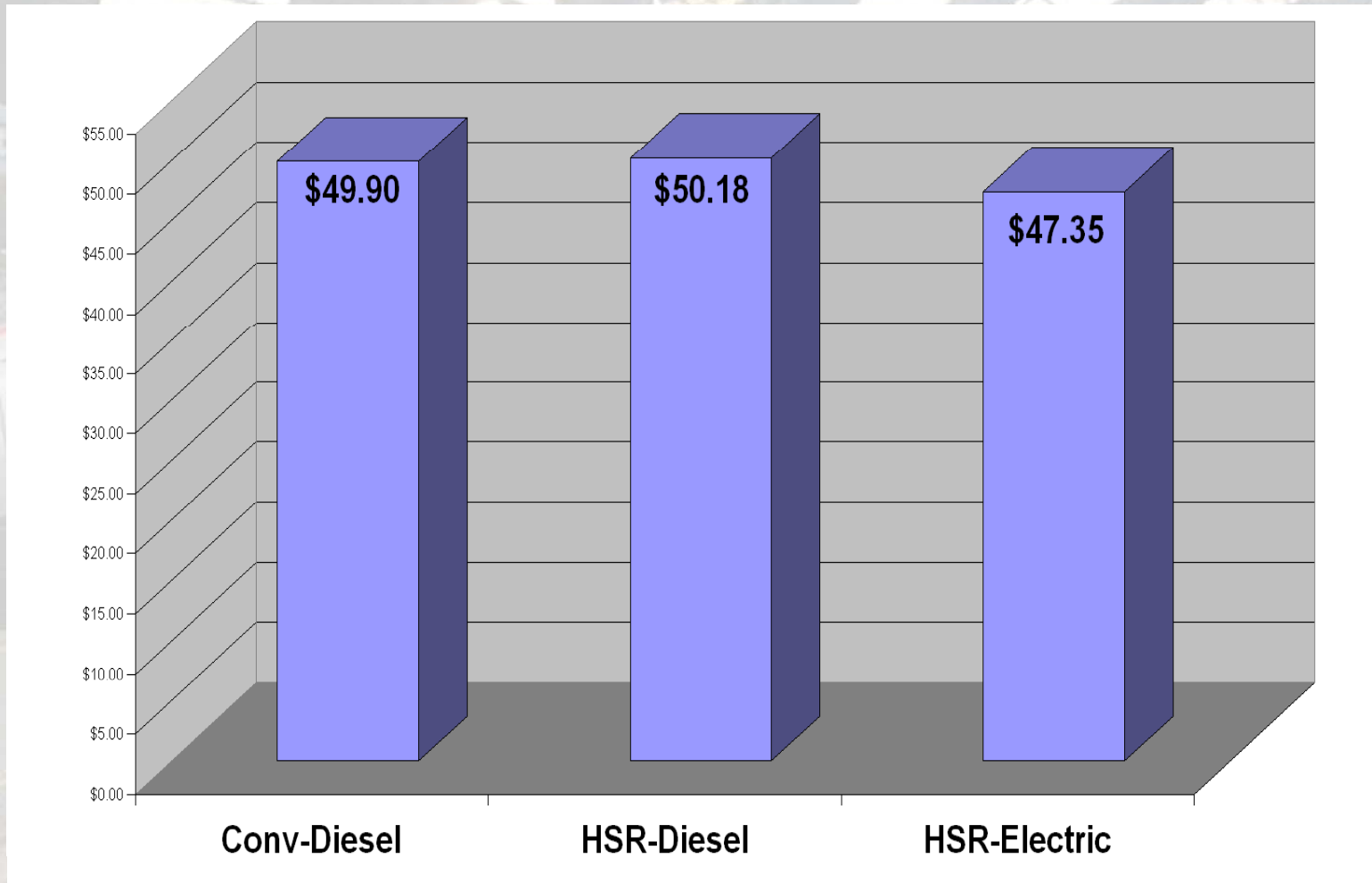
² 2:15 current Amtrak time to Staples Mill Road Station only, does not go to Main Street

³ 2:20 to Main Street, train operates at 90 mph north of Richmond

⁴ 2:00 proposed schedule objective for HSR electric service

⁵ 1:48 at 79-mph Richmond to Norfolk

Preliminary Costs per Train Mile (\$2010)



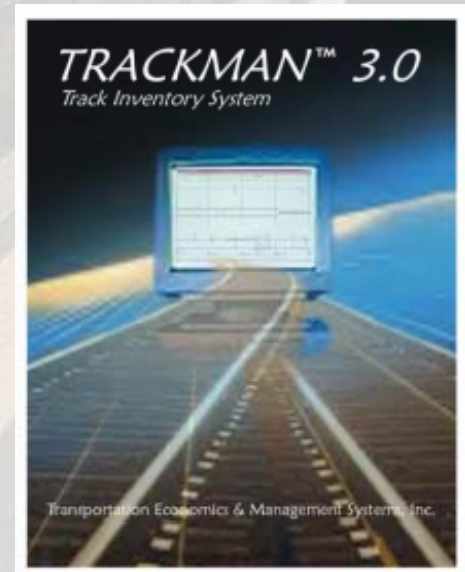
Results reflect Higher Costs for Dedicated Track, Electrification Maintenance and a dedicated Management structure in the HSR scenarios; offset by economies of scale efficiencies

Task 7: Capital Costs

- 2010 capital unit costs have been developed

CAPITAL COST CATEGORIES

- Land and right-of-way
- Sub-grade, structures and guideway
- Track
- Rolling stock
- Signals and communications
- Electrification
- Demolition
- Stations
- Maintenance and facilities
- Highway and railroad crossings
- Farm and animal crossings
- Pedestrian crossings
- Fencing



Corridor Protection

- **79-90 mph Operation**

Enhanced Protection



Warning Signs



2 Quadrant Gates

- **110-mph Operation**

Sealed Corridor



4 Quadrant Warning



Long Arm Gates

- **150-mph Operation**

Grade Separated



Grade Separated Crossing

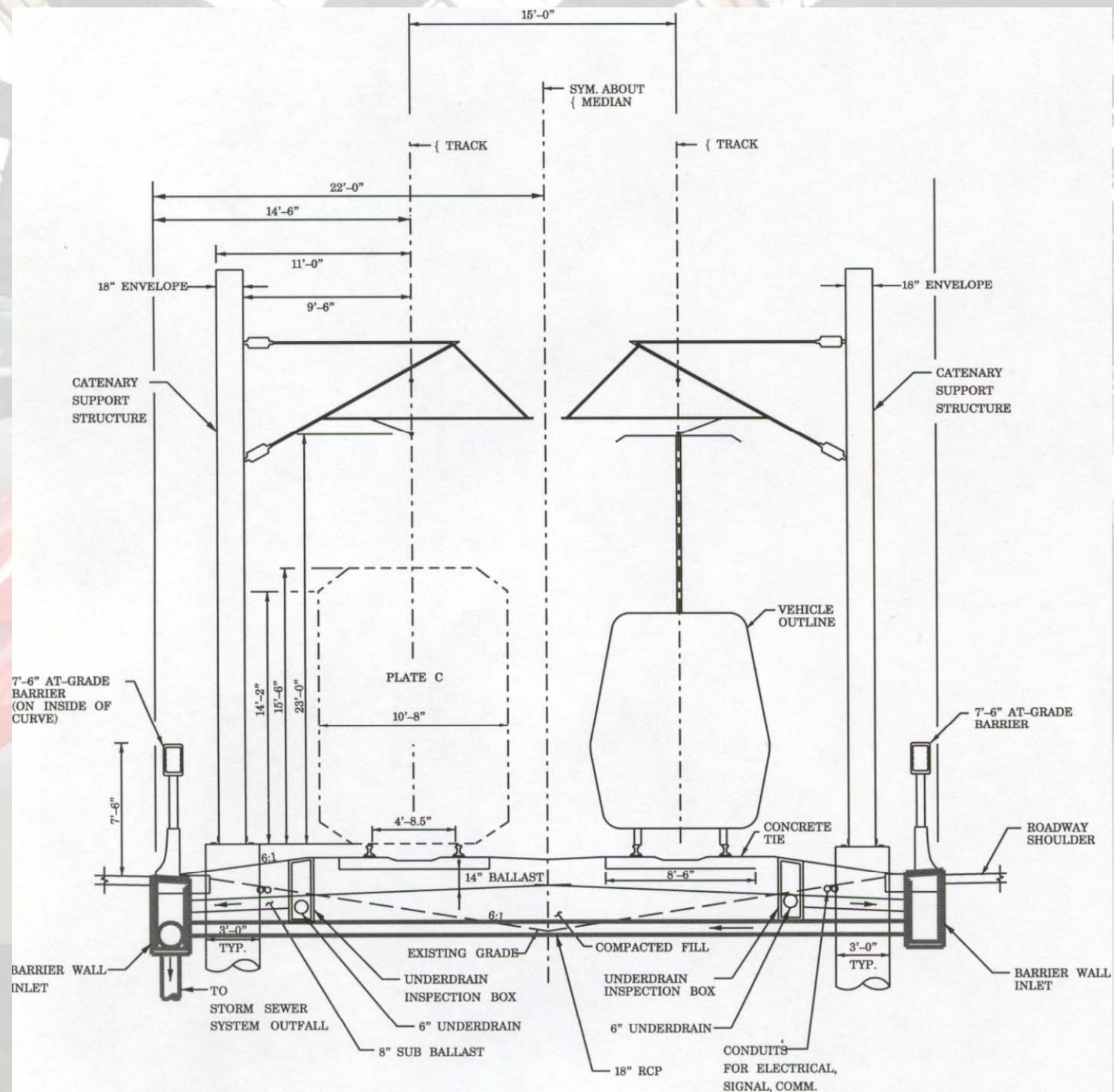


Closed Crossing

**Signals,
Communication
& Dispatch**
\$1.5 M/mi

Source: *Tampa to Miami Feasibility Study*, Florida High Speed Rail Authority, March, 2003

March, 2003



Task 8 to 12: Feasibility and Implementation

- Work has not yet begun on this task awaiting results of the Interactive Analysis



A photograph of a red and white high-speed train, likely a Shinkansen, stopped at a station platform. The train is sleek and aerodynamic, with a prominent red nose and white body. The platform is visible on the right, with several people standing. The station has a large, arched glass and steel roof. The text "Thank You" is overlaid in the center of the image.

Thank You