Tennessee’s Intercity, Interstate Transportation Corridors

Time for Renewal

TACIR, February, 2013 : Nashville, Tennessee

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What is the state-level, strategic importance of the rural interstates?

- 2,812 lane miles (1.4% of statewide lane-miles) that carry 12.3% of statewide vehicle-miles of travel (VMT)

- Links Tennessee’s businesses and industries together into an interconnected statewide economy

- Intercity travel is vital to trade and tourism which are 27% of State GDP (2009)

- Tennessee is eighth among the states for the number of paid employees and payroll at truck transportation establishments (76% of all rural and urban statewide truck trips are on Interstate Highways)
The Threat to Tennessee’s Internal Mobility

- 2005 TDOT Long-Range Transportation Plan
  - Total Rural and Small Urban Interstate Highways--550 miles of 687 miles congested in 2030
  - I-40/I-81 Memphis to Bristol--292 miles of 327 rural miles congested in 2030 (level of service D, E or F)
  - I-75 Chattanooga to Kentucky--105 of 105 rural miles congested in 2030 (level of service D, E or F)
The Mobility Threat According to TDOT’s 2 Cross-State Corridor Studies

- I-40/I-81 Memphis to Bristol—217 miles of 327 rural miles congested in 2030 (level of service D,E or F) 75 Mile Reduction

- I-75 Chattanooga to Kentucky—61.5 miles of 105 rural miles congested by 2030 (level of service D,E or F) 43.5 Mile Reduction

- 278 problem miles of rural interstate versus 397 rural problem miles (2005 forecast)
Costs of Improvements to Avert the Problem

- No Complete Cost Estimate is Available
  - Only 2 of major cross-state Interstate corridor studies are complete (I-40/I-81 and I-75)
  - Completed studies do not provide proposed solutions for all sections congested by 2030
  - 156 rural and small urban miles congested by 2030 have no improvements proposed

- The partial-partial list of priority projects costs $6,300,000,000 between now and 2030
Systemic Reasons for the Upcoming Problem with our Rural Interstates

- No significant additions to rural interstate lane-miles

![Graph showing Rural Interstate System Capacity and System Average Daily Lane Volume (vehicles per day)]

- Chart for system capacity (lane-miles) and system average daily lane volume (vehicles/day/lane)

- Highlighted year: 2003
Tennessee’s Higher Priority on Rural Principal Arterials
1990-2010 Added 3000 Lane-Miles
Population Concentrating Near Interstate Ramps

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<tr>
<td>0-0.5 mi.</td>
<td>237</td>
<td>233,966</td>
<td>987</td>
<td>255,619</td>
<td>1,079</td>
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<tr>
<td>0.5-2 mi.</td>
<td>2,276</td>
<td>1,135,078</td>
<td>499</td>
<td>1,381,949</td>
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<tr>
<td>2-6 mi.</td>
<td>7,902</td>
<td>1,508,634</td>
<td>191</td>
<td>2,105,169</td>
<td>266</td>
<td>40%</td>
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<tr>
<td>6-10 mi.</td>
<td>6,592</td>
<td>657,128</td>
<td>100</td>
<td>924,892</td>
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<td>outside</td>
<td>25,136</td>
<td>1,342,379</td>
<td>53</td>
<td>1,678,476</td>
<td>67</td>
<td>25%</td>
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Great Recession Provides More Time

Figure 2. Moving 12-Month Total on All Roads

- 1986
- 2008
The Costs of the Problem and a Little More Time Warrant a Look from a Different Perspective

Traditional Approach: \textit{All Travel Demands are Equal}
- Forecast future travel demands and try to provide adequate capacity for all demands

New Perspective: \textit{All “Travel Demand Markets” are not Equal}
- Invest to encourage in-state mobility demands
- Divert some demands to rail to conserve capacity
- Delay satisfying external, “pass-through” demands and seek investments from external sources
Tennessee is a Focal Point of National Truck Freight Movements
In-state Heavy Truck Movements: A Critical In-state Mobility Market

- I-40 Rural West Tennessee (based on a 2010 Decatur County 12,616 total heavy truck count)
  --5,500 heavy trucks per day estimated in-state

- I-40 Rural Cumberland Plateau Area (based on a 2009 Roane County 10,817 total heavy truck count)
  --5,300 heavy trucks per day estimated in-state

**based on 2003 travel model predictions of in-state truck movement percentage on selected I-40 section**
6 Tennessee Travel Demand Markets

- (A) Trips Passing Through Tn. (external-external)
  - (A-1) Multi-unit and single-unit heavy trucks
  - (A-2) Passenger cars and light trucks
- (B) Trips With One End in Tn. (Import/Export)
  - (B-1) Multi-unit and single-unit heavy trucks
  - (B-2) Passenger cars and light trucks
- (C) Trips Entirely Within Tn. (internal-internal)
  - (C-1) Multi-unit and single-unit heavy trucks
  - (C-2) Passenger cars and light trucks
In-State Heavy Truck Movements of Tennessee’s Interconnected Businesses and Industries (2030)

Heavy Trucks Daily Forecast 2030

Internal to Internal

10,000+/- day

Source: TACIR Staff Analysis of TDOT Statewide Travel Demand Model
Import/Export Truck Movements of Tennessee Business and Industry 2030

HeavyTrucks Daily Forecast 2030

Internal to External

10,000+/ day

Source: TACIR Staff Analysis of TDOT Statewide Travel Demand Model
Pass-Through Truck Freight Flows (2030)

HeavyTrucks Daily Forecast 2030

20,000+/day

Source: TACIR Staff Analysis of TDOT Statewide Travel Demand Model
Recommendations: A Strategic Planning Focus on Rural and Small Urban Interstates

- Finish I-24 and I-65 Cross-State Studies
- Re-evaluate the previous I-40/81 corridor study due to the strategic importance to the in-state economy
- Prioritize projects and modal alternatives outside of MPO areas using criteria appropriate to intercity travel demands
- Bring all priority projects from all major rural interstate corridors into a Cash-flow Analysis (fiscally constrained plan)
Other Features of the Strategic Planning Focus

- Update the Statewide Travel Demand Model and re-calibrate total travel demands as well as component “travel demand markets”

- Tailor the development strategy for each corridor to respond to “travel demand markets”

- Develop the planning focus in concert with new MAP-21 requirements for system performance goal setting and asset management planning