Transport Mobility in Inter-Urban Motorways: New Challenges For Traffic Operations

António Azeredo
Agenda

1. Traffic Congestion Impacts
2. Sources of Inter-urban Motorways Congestion
3. Improving traffic operations
4. Conclusions
Traffic Congestion Impacts

**Mobility costs:** Each US motorist stuck in traffic wastes on average 47 hours and 30 gallons of fuel every year – at a cost of $800 per person annually *(Source USDOT 2007)*

**Quality of life:** Reduced air quality, less time with family and friends.

**Productivity:** Delays to trucks and unreliability of delivery times increase costs for businesses and reduce economic competitiveness.

Traffic Congestion is a major concern in modern society
## A5 Main Figures

<table>
<thead>
<tr>
<th>Geometry (km)</th>
<th>25</th>
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</thead>
<tbody>
<tr>
<td>Nodes</td>
<td>14</td>
</tr>
<tr>
<td>Ramp connections</td>
<td>64</td>
</tr>
<tr>
<td><strong>Toll plazas</strong></td>
<td>6</td>
</tr>
<tr>
<td>Annual Average daily traffic (AADT)</td>
<td>67,200</td>
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<tr>
<td>AADT near Lisbon</td>
<td>135,400</td>
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<tr>
<td>Electronic Toll Collection (ETC) rate</td>
<td>71%</td>
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<tr>
<td>Light vehicles rate</td>
<td>93%</td>
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<tr>
<td><strong>Occurrences average/day</strong></td>
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<tr>
<td>Incidents</td>
<td>28</td>
</tr>
<tr>
<td>Accidents</td>
<td>4</td>
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<tr>
<td>Obstructions/ Lane closures</td>
<td>6</td>
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</tbody>
</table>
Sources of Inter-urban Motorways Congestion

- Traffic Incidents: 10%
- Road works: 5%
- Weather: 1%
- Other non-recurring: 3%

Recurring congestion: 81%

Daily commuting-based traffic congestion

Source: Brisa A5 Motorway 2008
### Traffic Congestion Resolution Approaches

| Building new infrastructures | Often constrained by a lack of space in dense urban cores  
|                            | - High investment cost  
| Modifying existing infrastructures | - Adding lanes, reallocating road space, modifying intersections, etc.  
| Improving inter-modularity with public transport | - Promoting public transport, with quality of service that approximates cars  
| Implementing mobility management through pricing | - Also includes ride-sharing, promoting bicycling and pedestrian travel, etc.  
| Optimizing traffic operations | - Proactive traffic operations management.  

Improving traffic operations

I - Anticipatory travel times delivering

- Applied for commuting and recurrent congestion
- Mitigates driver’s expectation level, reducing stressful driving
- Promotes alternative drivers behaviors by changing departure times
- Promotes alternative route choices

In the 13 largest US cities, drivers now spend the equivalent of almost 8 work days each year stuck in traffic (Source USDOT 2007)
Improving traffic operations

II – Pre-trip/in-route, driver choice options

- Enables a more efficient distribution of trips over time and space.
- Aims to reduce peak demands.
- Drivers' responses depend on available information and can range from a minor route change, to changing destinations and/or re-scheduling activities.

Inefficient route choice is the first cause of 10-15% of urban congestion according to specific studies and surveys.
Improving traffic operations

III – Active traffic management

• Aims to reach an efficient and effective use of the existing road infrastructure network.

• Real-time traffic performance monitoring.

• Adapting control schemes and information services to influence traffic demand and driver behavior.

The question is not how to eradicate congestion but rather, how to avoid excessive congestion.
Conclusions

- Road traffic congestion poses a huge challenge for all and growing urban areas.

- Road transport infrastructure operators and policies aims of reducing the burden that excessive congestion imposes upon travelers and urban dwellers throughout the inter-urban road networks through the application of combined strategies.

- Improving traffic operations management has much potential to reduce and mitigate congestion impacts on a cost-effective basis.

- Congestion is not a fact of life.
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antonio.azeredo@brisa.pt