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Getting There in the Digital Age: How to Craft a 21st Century Surface Transportation Bill

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Why Intelligent Transportation Systems?

- IT is transforming every sector; it’s time for transportation
- The 21st century, digital equivalent of the Interstate Highway System.
## What Are Intelligent Transportation Systems?

<table>
<thead>
<tr>
<th>ITS Category</th>
<th>Specific ITS Applications</th>
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<tr>
<td><strong>Advanced Traveler Information Systems (ATIS)</strong></td>
<td>Real-time Traffic Information Provision</td>
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<td>Route Guidance/Navigation Systems</td>
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<td><strong>Advanced Transportation Management Systems (ATMS)</strong></td>
<td>Traffic Operations Centers (TOCs)</td>
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<td>Adaptive Traffic Signal Control</td>
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<td>Dynamic (or “Variable”) Message Signs</td>
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<td>Ramp Metering</td>
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<td><strong>ITS-Enabled Transportation Pricing Systems</strong></td>
<td>Electronic Toll Collection (ETC)</td>
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<td>Electronic Road Pricing (ERP)</td>
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<td></td>
<td>Fee-Based Express (HOT) Lanes</td>
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<td>Vehicle-Miles Traveled (VMT) Usage Fees</td>
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<td>Variable Parking Fees</td>
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<td><strong>Advanced Public Transportation Systems</strong></td>
<td>Real-time Status Information for Public Transit</td>
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<td>Automatic Vehicle Location (AVL)</td>
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<td>Electronic Fare Payment</td>
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<td><strong>Vehicle-to-Infrastructure (V2I) and Vehicle-to-Vehicle (V2V) Communication</strong></td>
<td>Cooperative Intersection Collision Avoidance Systems (CICAS)</td>
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<td>Intelligent Speed Adaptation (ISA)</td>
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<td><strong>Driver Assistance Technologies</strong></td>
<td>Advanced Accident Avoidance (e.g., lane departure warnings, collision warnings, etc.)</td>
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<td><strong>Vehicle Automation</strong></td>
<td>Autonomous (i.e., driverless) vehicles</td>
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ITS Deliver Five Key Classes of Benefits By:

1. Increasing driver and pedestrian safety;

2. Improving performance of the transportation network;

3. Enhancing personal mobility and convenience;

4. Delivering environmental benefits;

5. Boosting productivity and regional economic growth.
Chips Are Better Than Cement

- The benefit-cost ratio of ITS-enabled systems-operations measures is 9 to 1; far above the addition of highway capacity, which has a benefit-cost ratio of 2.7 to 1.

- Benefits of traffic signal optimization alone outweigh costs 38 to 1.
ITS is Ready, the System is Not

As a share of investment, business invests 60 times more in IT than the U.S. Department of Transportation.
Why So Little ITS Investment?

- Federal programs focus on cement, not chips;
- State DOTs lack IT skills;
- Big flashy “concrete” projects are more politically compelling.
Policy Principles for the Surface Transportation Reauthorization Act

- Shift from “Concrete” to “Chips”;
- Focus on ITS deployment and scaling existing solutions, while ensuring nationwide systems interoperability.
Reauthorization Recommendations

1. Funding ITS Deployment and Incentivizing States

1. A “Cement & Chips” funding approach that directs no less than 5 percent (@$2.5B) of the HTF to ITS-related projects;

2. A “Race to the Digital Top” that funds awards for six regions to launch a comprehensive “smart communities” initiative;

3. Tie share of federal surface transportation funding to states’ documented improvements in transportation performance;

4. Lower share of federal funding for non-toll projects to 60%.
Reauthorization Recommendations

II. Enhance Institutional and Strategic Support

1. Charge DOT with developing an innovation strategy/convening an inter-state dialogue on ITS deployment;

2. Launch two-transportation related NNMIIs:
   - An intelligent vehicles and infrastructure consortium;
   - Innovative materials.
Reauthorization Recommendations

III. Leverage Open Data Solutions for Transportation Innovation

1. Promote greater availability of traffic data in machine-readable form and support creation of more APIs;

2. Identify innovative local solutions (e.g., StreetBump; SFpark) and provide resources to scale them nationally.
Thank You

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