Painting the National ITS Architecture Green

Jeff Brummond
Principal Systems Architect
Iteris, Inc
jab@iteris.com
703-925-3813
### Check CO2 Emissions for Journey

**Informed Travel allows for Consideration of Environmental Impacts!**

#### CO2 emissions for your journey of 499.5 miles

<table>
<thead>
<tr>
<th>Mode</th>
<th>CO2 Emissions (kg)</th>
<th>Occupant(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your journey</td>
<td>48.4 kg</td>
<td></td>
</tr>
<tr>
<td>Small Car</td>
<td>102.5 kg</td>
<td>1</td>
</tr>
<tr>
<td>Large Car</td>
<td>206.9 kg</td>
<td>1</td>
</tr>
<tr>
<td>Coach/Bus</td>
<td>71.6 kg</td>
<td>4</td>
</tr>
<tr>
<td>Plane</td>
<td>127.0 kg</td>
<td>4</td>
</tr>
</tbody>
</table>

Your journey would create 158.5 kg of CO2 less per traveller than travelling by large car.

#### CO2 emissions for your journey of 499.5 miles

<table>
<thead>
<tr>
<th>Mode</th>
<th>CO2 Emissions (kg)</th>
<th>Occupant(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Car</td>
<td>25.6 kg</td>
<td>4</td>
</tr>
<tr>
<td>Large Car</td>
<td>51.7 kg</td>
<td>4</td>
</tr>
<tr>
<td>Coach/Bus</td>
<td>71.6 kg</td>
<td>4</td>
</tr>
<tr>
<td>Plane</td>
<td>127.0 kg</td>
<td>4</td>
</tr>
</tbody>
</table>

Your journey would create 3.3 kg of CO2 less per traveller than travelling by large car.
Architecture-specific Services

- Transit Fixed Route Operations
- Multi Modal Coordination
- Surface Street Control
- Transit Signal Priority
- Transit Passenger Counting
- Transit Traveler Information

Transit Example

This example is showing how the architecture can be applied to application areas like transit.
Suite of technologies and applications that use wireless communications to provide connectivity:

- Between vehicles (of all types)
- Between vehicles and roadway infrastructure
- Between vehicles and wireless communication devices
- Between wireless communication devices and roadway infrastructure
NEW VERSION 5.0!
Now includes Planning tab
The challenge we have with environmentally friendly approaches using ITS is not identifying them, it’s planning and implementing them.

Architecture provides us with a tool
- Planning ITS
- Considering Green ITS solutions as alternatives

Architecture provides services to deliver green transportation solutions

Regional ITS Architectures should address **Green ITS solutions**

Transportation Planning should include ITS Architecture as part of the transportation planning process

ITS Solutions should be weighed against traditional improvements

Transportation Planning has much to contribute to implementing Green Transportation solutions
AERIS (Applications for the Environment: Real-Time Information Synthesis)

Real-time, environmental data from all sources will be integrated and available for use in multimodal transportation management and performance improvement and will contribute to better environmental practices.

The core of this program is the idea of facilitating green transportation choices.

It is the intent of AERIS to:

- Support research into the generation, capture, standardization, and use of real-time data present in the transportation system to enable environmentally-beneficial choices by system users and system operators.
  
  Establish **definitive results on the potential of ITS to positively affect the environment.**
  
  To enable the public sector to **manage transportation to optimize environmental goals.**

- **Leverage existing research and stakeholder activities** to create a unique body of knowledge and experience that demonstrates the most effective uses of ITS to reduce the negative impacts of transportation on the environment.
  
  Research the feasibility of integrating numerous, existing environmental data sources with IntelliDriveSM technologies and leverage the capability of ubiquitous connectivity to provide real-time, environmentally-relevant actionable information.

- **Form the foundation for addressing future, long-range efforts** to conserve energy, address air and water quality issues, mitigate other environmental impacts of the transportation system, and support likely environmental goals in the new transportation authorization.

- **Identify potential future regulatory needs** for applying information technologies to environmental sustainability.