Use of Dynamic Traffic Assignment in FSUTMS in Support of Transportation Planning in Florida

Project Update

March 7, 2012
Tasks

- Review of literature
- DTA committee and modeling community surveys
- Requirement workshop
- Assessment criteria based on requirements
- Testing based on criteria
- Development of tools and methods to support assignment process
Example Survey Results

Acceptable increase in computation time

<table>
<thead>
<tr>
<th>Model Running Time</th>
<th>Up to 10%</th>
<th>11% - 25%</th>
<th>26% - 50%</th>
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Envision DTA

- Replace static assignment in regional model: 13%
- For traffic operational analysis: 27%
- For subarea or corridor planning studies: 35%
- With activity based models: 21%
- Others: 4%
Example Survey Results

Main technical and institutional constraints

<table>
<thead>
<tr>
<th>Constraint</th>
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<tbody>
<tr>
<td>Lack of data</td>
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<tr>
<td>Lack of experience</td>
<td>30</td>
</tr>
<tr>
<td>Training</td>
<td>20</td>
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<tr>
<td>Computational time</td>
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</tr>
<tr>
<td>Cost of software</td>
<td>20</td>
</tr>
<tr>
<td>Calibration and validation</td>
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<td>Parameter assumption for future year</td>
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<tr>
<td>Complexity of the process</td>
<td>10</td>
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<tr>
<td>Others</td>
<td>5</td>
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</table>
Assessment Criteria

- General hardware and software requirements
- Shortest path and path choice modeling
- Traffic flow modeling (TFM)
- Network geometry
- Network demand
- Transit modeling
- Calibration support
Purpose of Requirements

- Assessment criteria list provides basis for testing/assessments
  - Allow understanding of DTA and differences between tools

- Can be customized for different purposes/regions

- Acceptable thresholds may not be possible but testing will demonstrate typical values
Testing based on Criteria

- Comparison of how Cube Voyager, Cube Avenue, DynusT, and TRANSIMS meet each criterion has been conducted to illustrate how these criteria can be used
ITSDCAP Data Capture and Use

- SunGuide data (TSS, TVT data, incident, DMS, etc.)
- Inrix
- Statistics office data
- Central data warehouse
- Weather data $\rightarrow$ D4 RWIS, road weather agencies
- Managed lane dynamic congestion pricing rates
- Work zones $\rightarrow$ D6
- Crash data/CARS
- 511 data
- FHP data
**Input Data**

- **Input Data Folder**: C:\H_DRIVE\FIU_Hdrive_32B\abddesktop_1\DTA_Project\Programs\InputData
- **Cube Program Folder**: C:\Program Files (x86)\Citilabs

**Output Data**

- **Network with Real World Data**: C:\DTA_Project_Program\Base\DisplayGUI\Output
- **Simulated Network Data**: C:\DTA_Project_Program\Base\DisplayGUI\Output

**Buttons**
- Add Graph
- Show Map
- Browse...
- Open
This part will be customized based on user requirement
Traffic Flow Model:
- Modified Greenshields
- BPR Curve
- Akcelik Formula

Data Set and Visualization:
- Data Set: C:\DTA_Project_Program\Bas

Parameters:
- Free-Flow Speed: 55
- Minimum Speed: 6
- Speed-Intercept: 105
- Jam Density: 200
- Break Point Density: 24
- Power Term: 5.5

Regression Statistics:
- R Square
- Adjusted R Square