Purpose

• To help focus the Florida efforts of DTA so that we, as a State, can implement and refine the state of the practice
Topics

• Main Points of DTA

• Types of DTA Applications

• Florida’s Experiences

• Open Discussion

Meso-level approach

MACRO

- Static/Instantaneous Paths
- Region Wide
- Zonal Trips
- Analytical Equilibrium
- Demand Driven
- Planning/Forecasting

O/D

DTA

MESO

- Dynamic/Time Varying Paths
- Subarea / Corridor
- Vehicle Platoons

MICRO

- Static Paths
- Corridor/Intersection
- Individual Vehicles
- Simulation One-Shot
- Supply Driven
- Operational

- Simulation Equilibrium
- Supply Driven
- Planning/Operational
Sub-area example

- Starred items are the key elements that differentiate DTA from STA
  - Time-dependent travel times
  - Calculation of time-dependent fastest paths
  - Ability to assign travelers at specific times within the peak period
  - Time-dependent DUE stopping criterion

DUE - Dynamic User Equilibrium

- Update time-dependent travel times using a simulation
- Find time-dependent fastest paths and resulting traveler choices
- Dynamically assign travelers and vehicles associated with these choices
- DUE Stopping Criterion
  - If for all used paths, the time-dependent travel times are equal, then stop
  - If flow stops changing then stop
Output of DTA

Outcome of DTA

- DTA is a technique that allows the analyst to:
  - model long-term traveler adaptation to experienced (learned) congestion dynamics, AND
  - accurately model within-day congestion dynamics
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Recent DTA Deployments

- I-10 improvement modeling in El-Paso, Texas (2009-2011)
- US 36 value pricing scenario analysis (2009-2011)
- DTA model of the City of Bellevue, Washington (2012)
- San Francisco dynamic traffic assignment project “DTA Anyway” (2012)
- SHRP 2 C10A and C10B projects (2013)
- DTA model of the City of Portland, Oregon (2013)
- I-70 conceptual access justification request, Kansas City, Missouri (2013)
- Traffic analysis of construction phasing options in Boise, Idaho (2013)
Recent DTA Deployments

Types of DTA Application

- Bottleneck removal and additional capacity studies
- Active Transportation and Demand Management (ATDM)
- Integrated Corridor Management (ICM)
  - Incident management and diversions
  - Special events
  - Work zone impacts
- Pricing, managed lanes, reversible lanes and tolling projects
  - Improved public transportation
  - Real-time applications
  - Demand management strategies
  - Other ITS and Operational strategies
Integrated Corridor Management

Bottleneck identification

- US-36 Managed Lanes
- DTA showed:
  - CDOT was able to save >$200M using DTA
  - Bottleneck identified on I-25
Managed Lanes

- Where DTA can add value...
  - Value-of-Time
  - Value-of-Reliability

But it’s not the only answer!

Feedback loop to better represent utility function
Main Points of DTA

Types of DTA Applications

Florida’s Experiences

Open Discussion

Florida’s Experiences

DTA Trainings

Managed Lanes Blue Ribbon Panel

Florida DTA Research
**Topics**

- Main Points of DTA
- Types of DTA Applications
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**Discussion**

- What are we trying to do:
  - Build success stories
  - Position ourselves for future opportunities

- What we need:
  - Your input
  - Your battle-stories
  - Your recommendations
Resources

- SHRP2 L04
- SHRP2 C04
- SHRP2 C10
- DTA Guidebook
  - http://www.ops.fhwa.dot.gov/publications/fhwahop13015/index.htm#toc
- ICM Analysis, Modeling, and Simulation (AMS) Guide