MetroPlan Orlando

Intelligent Transportation System (ITS) Master Plan
ITS Master Plan

• ITS Vision, Goals and Objectives
• Existing Conditions
• Needs/Strategies
• Concept of Operations
• Prioritized Project List
Project Team

• Gannett Fleming, Inc.
  – Kimley Horn & Associates, Inc.
  – Cambridge Systematics, Inc.
  – Ghyabi & Associates, Inc.

• Steering Committee
  – Joedel Zaballero, Osceola County
  – Benton Bonney, City of Orlando
  – Charlie Wetzel, Seminole County
  – Doug Jamison, LYNX
  – Hazem El-Assar, Orange County
  – Jeremy Dilmore, FDOT D5
Maximize the performance of our transportation system by continually improving safety, efficiency, and reliability for all systems users through the application of technology.
Goals/Objectives

• Performance, efficiency and reliability
• Information, communication and technology
• Safety and security
• Environment and quality of life
Tool for Operations Benefit/Cost (TOPS-BC)

**Inputs**
- Roadway Characteristics
  - Segment length
  - Number of lanes
  - Speed limit
- Traffic Characteristics
  - Volume data
  - Peak period duration
  - Free-flow speed
- Economic Parameters
  - Value of time
  - Cost of crashes by type
  - Price of fuel
- Improvement Types and Characteristics
  - Extent of deployment
  - Anticipated response from drivers

**Analysis**

**Outputs**
- Delay Savings
- Fuel Consumption Savings
- Crash-Related Cost Savings
- Transit-Related Delay Savings

All Benefits are Monetized
# ITS Strategies for TOPS-BC

## Improvement Category | Project Types Included
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Signalization Improvements | • Signal Retiming Studies (arterials)
| • Coordinated Signal Control Systems (arterials)

Incident Management Strategies | • Closed Circuit TV (CCTV)
| • Emergency Vehicle Pre-emption (arterials)
| • Road Rangers Service Patrol (freeways)

Travel Time System | • On-road Traveler Information System (using DMSs)
| • 511 Traveler Information System

Transit Strategies | • Transit Signal Priority
| • Automatic Vehicle Location Service
Business Case – Aggregate Benefit-Cost

Annualized Benefits

- Delay Savings: $21,751,306
- Fuel Consumption Savings: $11,304,050
- Crash-Related Cost Savings: $33,007,268
- Transit-Related Delay Savings: $4,239,291

Total: $70,301,914

5.1 to 1 Benefit/Cost Ratio

Annualized Costs

- Transit-Oriented Strategies: $2,531,136
- Traveler Information Systems: $1,302,989
- Signalization Improvements: $7,104,021
- Incident Management: $2,814,628

Total: $13,752,773
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<thead>
<tr>
<th>County</th>
<th>Benefits</th>
<th>Cost</th>
<th>B/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>$34.3 million</td>
<td>$8.4 million</td>
<td>4.06</td>
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<tr>
<td>Osceola</td>
<td>$9.8 million</td>
<td>$1.6 million</td>
<td>6.13</td>
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<tr>
<td>Seminole</td>
<td>$26.3 million</td>
<td>$3.7 million</td>
<td>7.07</td>
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Needs/Strategies

- Upgrades
- Coverage
- Connectivity

- Sensors
- Information sharing
- Transit; SunRail
Needs/Strategies (2)

• Travel and Traffic Management
• Parking Management
• Public Transit Management
• Emergency Management
• Information Management
• Maintenance and Construction
• Other
Concept of Operations

- Enhancements
- Changes
- Assumptions and Constraints
- State-of-the-practice
  - Virtual traffic signal control
  - Traffic monitoring
  - Roadway surveillance
  - Incident management and traveler information
  - Multiple subsystems
FY 2016/17-2020/21 TIP

Federal Funding Categories
Highway Safety Program (HSP)- $802,000
STP over 200,000 Pop. (SU) - $16 million

State Funding Categories
District Dedicated Revenue (DDR, DDRF)- $5.4 million
In-House Product Support (DIH)- $3.3 million
Statewide ITS (DITS)- $1.1 million

Local Funding Categories
Local Funds for Federal/State Projects (LF, LFD, LFF, LFP, LFR, LFRF)- $48,000
<table>
<thead>
<tr>
<th>Source/County</th>
<th>Orange</th>
<th>Osceola</th>
<th>Seminole</th>
<th>Region (FDOT)</th>
<th>Total</th>
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<tbody>
<tr>
<td>STP</td>
<td>$6,862,000</td>
<td>$550,000</td>
<td>$4,933,000</td>
<td>$3,750,000</td>
<td>$16,095,000</td>
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<tr>
<td>DDR</td>
<td>$5,196,000</td>
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<td>$137,000</td>
<td>$107,000</td>
<td>$5,440,000</td>
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<tr>
<td>DIH</td>
<td>$58,000</td>
<td>$4,000</td>
<td>$81,000</td>
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<tr>
<td>DITS</td>
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<td>$744,000</td>
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<td>$1,144,000</td>
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<td>LF</td>
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<td>$48,000</td>
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<tr>
<td>Totals/</td>
<td><strong>$12,564,000</strong> (47%)</td>
<td><strong>$554,000</strong> (2%)</td>
<td><strong>$6,697,000</strong> (25%)</td>
<td><strong>$7,108,000</strong> (26%)</td>
<td><strong>$26,923,000</strong></td>
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<tr>
<td>(% of total)</td>
<td></td>
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</table>
• Prioritized Project List (PPL) - Unranked
• New Projects
• Criteria
Project Ranking Criteria

• ITS Plan Goals and Objectives
• Regional Connectivity
• ITS Strategies
• Stakeholder Survey Results
• Safety
• Transit
• Existing Volume to Capacity
• Planned Priority
## Cost Estimates for ITS Master Plan

<table>
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<tr>
<th>Period</th>
<th>Amount</th>
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<tbody>
<tr>
<td>0 – 5 Years</td>
<td>$41,117,200</td>
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<td>6 – 10 Years</td>
<td>$7,300,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$48,417,200</strong></td>
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Emerging Technologies

• Surveillance Drones
• Mobility as a Service (MaaS) or Mobility on Demand (Mod)
• Pedestrian/Bicycle ITS
• Open data
• Equity
Thank You

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