Regional Models of Cooperation

Enhanced Data Sharing, Systems, and Tools

Efficiency through technology and collaboration

Every Day Counts

U.S. Department of Transportation
Federal Transit Administration

U.S. Department of Transportation
Federal Highway Administration
Purpose & Background

Promote cooperation and coordination across MPO and State boundaries to develop a regional approach to transportation planning

Supported by:
• Planning Emphasis Area (PEA) Fiscal Year 2016
• Every Day Counts (EDC-3)
Why is Enhanced Coordination Needed?

Recognize mutual needs, goals, and objectives of the geographic region as a whole.

Issues Span
Organizational Boundaries

- Freight Planning
- Adjacent TMAs
- Rural Planning
- Intercity Passenger and Rail
- Other Sectors
- Other Sectors
- Other Sectors
- Other Sectors
- Other Sectors

Recognize mutual needs, goals, and objectives of the geographic region as a whole.
Regional Models of Cooperation Webinar Series

1. Regional Models of Cooperation Overview (Jan 27, 2015)
3. Regional Transit Planning (October 16, 2015)
5. Congestion Management (February 11, 2016)
6. Data Sharing Systems and Tools (April 28, 2016)
7. Joint Planning Products (June 9, 2016)
9. Multimodal Planning Cooperation Across Jurisdictions (October 13, 2016)
10. Freight Planning (December 8, 2016)
Today’s Speakers

• **Brian Gardner**
  FHWA Office of Planning

• **Kendall Wendling**
  North Central Texas Council of Governments

• **Terry Corkery**
  Florida Department of Transportation
RMOC: Data Sharing & Tools

Overview

Brian Gardner
FHWA Office of Planning
April 28, 2016
EDC2 Geospatial Tools for Data Sharing

• Discussions with 22 transportation agencies

• Case studies describing agencies’ experiences

• Two follow-on peer exchanges in Denver, CO and Raleigh, NC

States interviewed
(dark shade indicates interviewed State)

https://www.gis.fhwa.dot.gov/documents/GeoSpatialToolsForDataSharingCaseStudies.htm
Geospatial Cooperation Case Studies

• Maricopa Association of Governments (MAG)
• Community Planning Association of Southwest Idaho (COMPASS)
• Ohio-Kentucky-Indiana Regional Council of Governments (OKI) and the City of Cincinnati
• San Diego Geographic Information Source (SanGIS) and the San Diego Association of Governments (SANDAG)
• West Central Florida MPO Chairs Coordinating Committee (CCC) and the Tampa Bay Area Regional Transportation Authority (TBARTA)

Data-Sharing Benefits

- Stronger Communications
- Increased Efficiencies
- Improved Data Quality
- Streamlined Project Screening & Development
- Informed Decision-making
Data-Sharing Benefits

- Stronger Communications
- Increased Efficiencies
- Improved Data Quality
- Streamlined Project Screening & Development
- Informed Decision-making
Data-Sharing Benefits

- Stronger Communications
- Increased Efficiencies
- Improved Data Quality
- Streamlined Project Screening & Development
- Informed Decision-making
Data-Sharing Benefits

- Stronger Communications
- Increased Efficiencies
- Improved Data Quality
- Streamlined Project Screening & Development
- Informed Decision-making
Data-Sharing Benefits

- Stronger Communications
- Increased Efficiencies
- Improved Data Quality
- Streamlined Project Screening & Development
- Informed Decision-making
Data-Sharing Benefits

- Stronger Communications
- Increased Efficiencies
- Improved Data Quality
- Streamlined Project Screening & Development
- Informed Decision-making
Data-Sharing Challenges

- Stronger Communications
- Increased Efficiencies
- Improved Data Quality
- Streamlined Project Screening & Development
- Informed Decision-making
Contact Information and Links

Mark Sarmiento
Community Planner
FHWA, USDOT Headquarters
Washington, D.C.
Mark.Sarmiento@dot.gov
202-366-4828

FHWA GIS in Transportation Program
gis.fhwa.dot.gov

Every Day Counts
www.fhwa.dot.gov/everydaycounts

Geospatial Tools for Data Sharing Case Studies
https://www.gis.fhwa.dot.gov/documents/GeoSpatialToolsForDataSharingCaseStudies.htm

Geospatial Cooperation Case Studies

Eco-Logical
www.environment.fhwa.dot.gov/ecological/eco_index.asp

American Association of State Highway and Transportation Officials
GIS for Transportation Symposium
www.gis-t.org/

Brian Gardner
Team Leader
FHWA, USDOT Headquarters
Washington, D.C.
Brian.Gardner@dot.gov
202-366-4061
Enhanced Data Sharing, Systems, and Tools: Dallas-Fort Worth Area Experience
Regional Perspective

Population
- 2015: 7.0 million
- 2040: 10.7 million
- 4th Largest MSA by Population

Area
- 12 counties
- 9,441 square miles
- 2nd Largest Metropolitan Planning Area

Transportation
- Over 5,000 lane miles of highway
- Longest light-rail system in country
- $118.9 billion identified in Mobility 2040 plan

2015: 7.0 million
2040: 10.7 million
4th Largest MSA by Population
12 counties
9,441 square miles
2nd Largest Metropolitan Planning Area
Over 5,000 lane miles of highway
Longest light-rail system in country
$118.9 billion identified in Mobility 2040 plan
Eco-Logical at NCTCOG

- Regional Ecosystem Framework (REF) Update
- Loop 9 Corridor Feasibility Study Application
- REF Interactive Viewer

Wetland and Stream Mitigation Assessment

- Technical Advisory Committee
- Conservation Stakeholder Group
Regional Ecosystem Framework (REF)

NCTCOG REF is composed of 10 ecological layers

Categories

**GREEN INFRASTRUCTURE**
- Wildlife habitat
- Natural areas
- Agricultural land

**WATER CONSIDERATIONS***
- Impaired water segments
- Flood zones
- Surface water quantity
- Wetlands

**ECOSYSTEM VALUE**
- Rarity
- Diversity
- Ecosystem sustainability
REF Composite Map Structure

Green Infrastructure Layers

Water Considerations Layers

Ecosystem Value Layers
The Regional Ecosystem Framework: Composite score represents the combined score of all 10 REF layers. A higher score indicates that resources of relatively high concern may be present and that additional review, documentation, and consultation with the applicable agency may be needed. The REF layers include: Green Infrastructure (Wildlife Habitat, Natural Areas, Agricultural Land); Water Quality and Flooding (Impaired Water Segments, Flood Zones, Surface Water Quantity, and Wetlands); and Ecosystem Value (Rarity, Diversity, and Ecosystem Sustainability). Data sources include the Texas GRID and EPA Region 6 Regional Ecosystem Assessment Protocol data. This information has been developed for the Dallas-Fort Worth MPA for use in long-range planning. These scores are meant to be used as a preliminary screening tool for potential impact identification. For more information on the calculations for this layer, please visit www.nctcog.org/REF.
Sharing REF Data

Data Categories
- Historic
- Land Use/Land Cover
- Outdoor Recreation and Conservation Areas
- Water Features
- NCTCOG REF

Data Sources
- Environmental Protection Agency
- Federal Emergency Management Agency
- National Park Service
- Natural Resources Conservation Service
- US Army Corps of Engineers
- US Fish & Wildlife Service
- US Geological Survey
- Texas Commission on Environmental Quality
- Texas DOT
- Texas Historical Commission
- Texas Parks and Wildlife Department
- National Conservation Easement Database
- The Nature Conservancy
REF Website Demo

REF Interactive Viewer
Interactive Mapping Site Logistics

ESRI ArcGIS Online Mapping Platform
Cost approximately $10,000
  • Budgeted 300 hours in staff time
  • Purchased ESRI data credits

Key Takeaways
  • Data organization is critical
  • Methodology to create spatial layers should be documented
  • Be transparent when incorporating feedback from stakeholders
Partnership Emphasis

Transportation Resource Agency Consultation and Environmental Streamlining (TRACES)
Builds consensus on environmental and transportation connections in transportation planning process

Planning and Environmental Linkages (PEL) Working Group
Works with TxDOT environmental coordinators to streamline project delivery

Technical Advisory Committee
Provides input on selecting wetland data sources and factors to use to identify potential mitigation sites

Conservation Stakeholder Group
Discusses challenges and opportunities shared by conservation groups, resource agencies, and NCTCOG
## REF Application

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Scoring Question</th>
<th>Mobility 2040 Transit Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td>Within 1.0 miles of the 100 year flood plain?</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Within 1.0 miles of an Impaired Water Segment?</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Within 1.0 miles of an NLCD wetland?</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Surface Water Percent</td>
<td>1</td>
</tr>
<tr>
<td><strong>Ecology</strong></td>
<td>Within 1.0 miles of a federal/state park or wildlife area?</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Within a Priority Conservation Area as designated by The Nature Conservancy?</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Within 1.0 miles of an area with an REF Diversity score of 5?</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Within 1.0 miles of an area with an REF Rarity score of 5?</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Within 1.0 miles of an area with an REF Ecosystem Sustainability score of 5?</td>
<td>N</td>
</tr>
<tr>
<td><strong>Land Cover</strong></td>
<td>% Wildlife Habitat</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>% Agriculture</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>% Wetlands</td>
<td>1</td>
</tr>
</tbody>
</table>

**Indicators**

- **Gold**: Indicates medium-high and high scores (4 and 5) resulting from the EPA GISST analysis tool.
- **Blue**: Indicates low, medium-low, and medium scores (1, 2, and 3) resulting from the EPA GISST analysis tool.

*Dallas Streetcar: Cedar Springs to Zang Blvd.*
Benefits

Created one-stop shop for region-specific environmental data

Built partnerships with non-traditional agencies

Started conversation about using common spatial data for both planning and NEPA

Interactive nature of Website leads to more feedback and knowledge of data updates
Lessons Learned

Resource & Regulatory Agencies
- Offer to compile or digitize data
- Rely on their expertise
- Speak a common language

TxDOT
- Show how ecological data can enhance their existing feasibility study process
- Create template showing how REF data could be used in corridor study (next step)

Consultants
- Promote use of REF Website to streamline their work
Contact Information

Project Info: www.nctcog.org/ref

Kendall Wendling, AICP, Senior Transportation Planner
817.704.2544, kwendling@nctcog.org

Kate Zielke, Transportation Planner
817.608.2395, kzielke@nctcog.org
Agenda

- Florida Model Task Force
  - Organization of the MTF
  - MTF Activities
- FSUTMS
  - Platform
  - Training
- Research
- Data Sharing
Florida Models

• 27 Metropolitan Planning Org.
• 10 Local and Regional Models
• Florida Turnpike Model
• Florida Statewide Model
• Florida Freight Model

Urban Areas: 2016
Travel Demand Model Uses

- MPO Plans
- Corridor Plans
- PD&E Studies
- Final Design Plans
- Interchange Justification Reports
- Comprehensive Plans
- Development Traffic Impact Analyses
- Toll Feasibility Studies
Who supports all these models?

- FDOT Central Office – model standards and outreach
- FDOT District Offices – model development, validation
- MPOs – LRTPs, socioeconomic data, validation
- Consultants – lead or support technical analysis
- Universities - research
Florida Model Task Force

- Model Task Force Membership
  - 8 FDOT Districts
  - 27 MPOs
  - Public Transit Agencies
  - Model Users’ Groups
  - FHWA
  - Consultants (non-voting)
Mission:
To advance model development and applications to serve the transportation planning needs of the Department and local governments.

Operation:
The Model Task Force will operate in a responsive, consistent, and credible manner to establish standardized and uniform modeling practices.
Model Task Force

- Full Model Task Force
  - Panel discussions on relevant topics
  - Research presentations

- Committees
  - Data
  - Transit
  - GIS
  - Model Advancement
  - Freight
MTF Research

- Activity-Based Modeling
- Freight Model Improvement
- Multi-Resolution Analysis of Advanced Traffic Management Systems
- Toll Facilities Model
- Traffic Count Guidelines
- Forecasting Household Characteristics for Input to Travel Demand Models
- FSUTMS Model Structure Enhancement
- Modeling High Occupancy Toll Lanes
- Analysis Tools for Freeway Freight Planning
- Value of Time and Value of Reliability for Managed Lanes
- Freight Analysis Framework (FAF) for Multimodal Freight Analysis
- Transit Model Framework & Transit Workbook
- Florida Model Information eXchange System
- Generation and Distribution Framework Updates
- FSUTMS ArcGIS Integration
- Prototype Land Use Model
- Dynamic Traffic Assignment (DTA)
Meeting of the Florida Modeling Community
Gives a voice to model users
A steering group setting the direction of Florida’s continually evolving standard model structure
Essential to maintaining a standard model
Florida Standard Urban Transportation Model Structure

Consistent and uniform modeling platform

- Establishes modeling framework
  - Procedures
  - Techniques

Cube Voyager – main modeling engine

- Cube Avenue (Mesoscopic Model)
Standard Development of:

- User interface
- Directory Structure
- File Naming Convention
- Input/Output files and Database Field Names
- Default Model Parameters/Coefficients
- Network Coding Standards
- Model Structure and Applications
- Output Reports
Welcome to FSUTMSONline

This web portal is maintained by the Systems Planning Office of the Florida Department of Transportation. It is designed to serve as a central location for the exchange and sharing of data, information and ideas among the transportation modelers in Florida. We hope you will find it useful and visit often.

Read More | Posted by Terry Corker
MTF Directions

- Continue to support the Florida Modeling Community
  - Research
  - Discussion
  - Information
- Model Improvements
  - Advances in modeling techniques
  - Translate research into applications
- Semi-annual Meetings
Further Information

- FSUTMSOnline.net

terrence.corkery@dot.state.fl.us
Florida Department of Transportation
Transportation Statistics Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399
(850) 414 - 4903
Questions?

• Please enter your questions into the Q&A Pod on your screen
  • The moderator will direct your question to the appropriate presenter.
  • Slides from today’s presentation are available in the download pod

• For more information on the Regional Models of Cooperation initiative, please visit:
  http://www.fhwa.dot.gov/planning/regional_models/
Thank You!

- For more information on the Regional Models of Cooperation initiative, please visit: http://www.fhwa.dot.gov/planning/regional_models/

- Contact:
  Jody McCullough,  
  FHWA Office of Planning  
  jody.mccullough@dot.gov  
  (202) 366-5001