



# Strategic Plan for Transportation for the Nation (TFTN)

## GIS-T Symposium

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# Overview & Agenda

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- Project Governance
- TFTN Strategic Plan status
- Review Plan contents in brief
- Highlights from Case Studies

# Project Governance

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- US-DOT RITA Project Management
  - Advisory input from NSGIC
- Consulting Team: KTS & AppGeo
- Steering Committee
  - Executive Members (7)
  - At-Large Members (36)
- Project Website: <http://www.tftn.org/>

# TFTN Strategic Plan Status

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- TFTN Strategic Plan will be out after Steering Committee (Exec-Com & At-Large) review of Draft
  - Strategic Plan document is written
  - Initial review by USDOT done on first draft
  - Exec-Com release later this week
  - At-Large release to follow (later in April)
  - Public release after that (c. May-June 2011)

# Plan Contents

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- **Current Situation**
- **Vision & Goals**
- **Requirements**
- **Phasing & Milestones**



# Current Situation

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- TFTN remains a priority on the Advocacy Agenda for the National States Geographic Information Council (NSGIC)
- Office of Management and Budget Circular A-16 gave USDOT/BTS the role of Theme Leader for Transportation data
- Current focus on road centerlines – eventually, other modes
- Widespread demand for nationwide road centerlines
  - Considerable duplication of effort
  - Competing sources
- TFTN planning approach relied heavily on stakeholder outreach through interviews, workshops, conference participation, and the Steering Committee

# Stakeholder Outreach

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- **Stakeholder interviews**

- US-DOT
  - FHWA-HPMS
  - Safety
  - Asset Management
  - RITA
  - ITS
- AASHTO
- US Census
- USGS
- FCC
- TRB
- USDA/USFS
- I-95 Corridor Coalition

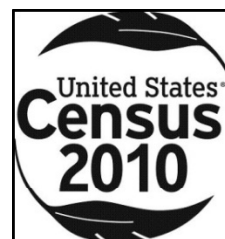
- **2010 Conference workshops/presentations**

- GIS-T
- NSGIC Mid-Year
- NSGIC Annual
- URISA GIS Pro
- ESRI FedUC
- ESRI International User Conference
- NGAC
- NARC
- TRB (Jan, 2011)

# Stakeholder Outreach Interviews



- Safety
- FHWA Highway Performance Management System
- Intelligent Transportation Systems
- Asset Management
- Deputy Director of RITA





# Stakeholder Outreach Presentations & Workshops



2010  
**GIS-T**

Mountains of Opportunity

Transportation Research Board  
89th Annual Meeting  
January 10-14, 2010  
Washington, D.C.

**NSGIC 2010 Midyear Conference**  
*"A Collaborative Heading"*  
March 7-10, 2010  
Loews Annapolis Hotel  
Annapolis, MD



**ESRI International  
User Conference**

Join us July 12-16, 2010 at the  
San Diego Convention Center

Transportation Research Board  
90th Annual Meeting  
January 23-27, 2011 • Washington, D.C.



**GIS-Pro 2010**  
URISA's 48th Annual Conference for GIS Professionals



**NSGIC**



fgdc  
Federal Geographic Data Committee

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**National Geospatial Advisory Committee**

The National Geospatial Advisory Committee (NGAC) is a Federal Advisory Committee sponsored by the Department of the Interior under the Federal Advisory Committee Act. The NGAC reports to the Chair of the Federal Geographic Data Committee (Secretary of the Interior or designee). The scope and objectives of the NGAC are described in the NGAC Charter: "The Committee will provide advice and recommendations related to management of Federal and national geospatial programs, the development of the National Spatial Data Infrastructure, and the implementation of Office of Management and Budget Circular A-16 and Executive Order 12904. The Committee will review and comment upon geospatial policy and management issues and will provide a forum to convey views representative of non-federal stakeholders in the geospatial community."

# Existing Nationwide Road Centerlines

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- The following three alternatives were examined in terms of **pros and cons**:
  - US Census TIGER Data
  - Commercial Data Providers
    - NAVTEQ
    - TomTom
  - Volunteered Geographic Information (VGI)
    - OpenStreetMap (OSM)
    - ESRI's Community Base Maps (ECBM)

ALL ARE LESS THAN IDEAL FOR TFTN "AS IS"



# Vision & Goals

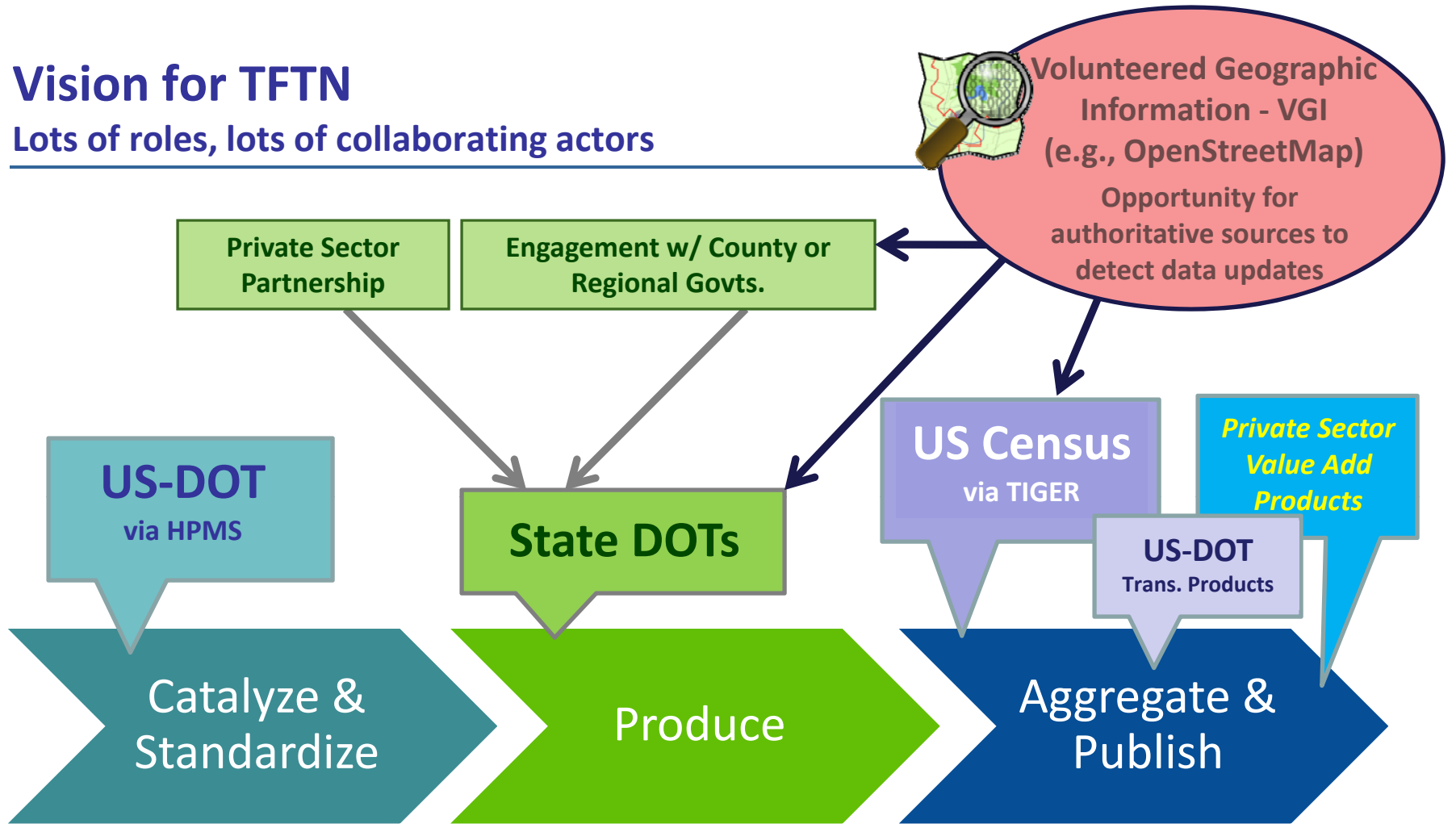
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*Overarching strategic goal:*

- Commence the development of **comprehensive, publicly available, nationwide transportation data sets**.
  - Ultimately, encompass data sets covering multiple modes of transportation.
  - Initially focus on producing a **road centerline** data set that includes all types of roads, both public and private. The initial TFTN data set will include:
    - Consistent, current, high quality road centerline data
    - Coverage for the entire country

# Vision for TFTN

Lots of roles, lots of collaborating actors



- FHWA’s HPMS *annual* reporting
- Opens funding
- Develops standards
- Products support broader US-DOT business needs, such as Safety
- Ability to provide funding support to local entities

- States choose their own methods
- Coordination with state E911 and NG911 efforts
- All roads

- Existing, branded product
- Existing staffing resources for Nationwide data integration
- Expertise in nationwide data assemblage
- Expertise in nationwide data publishing

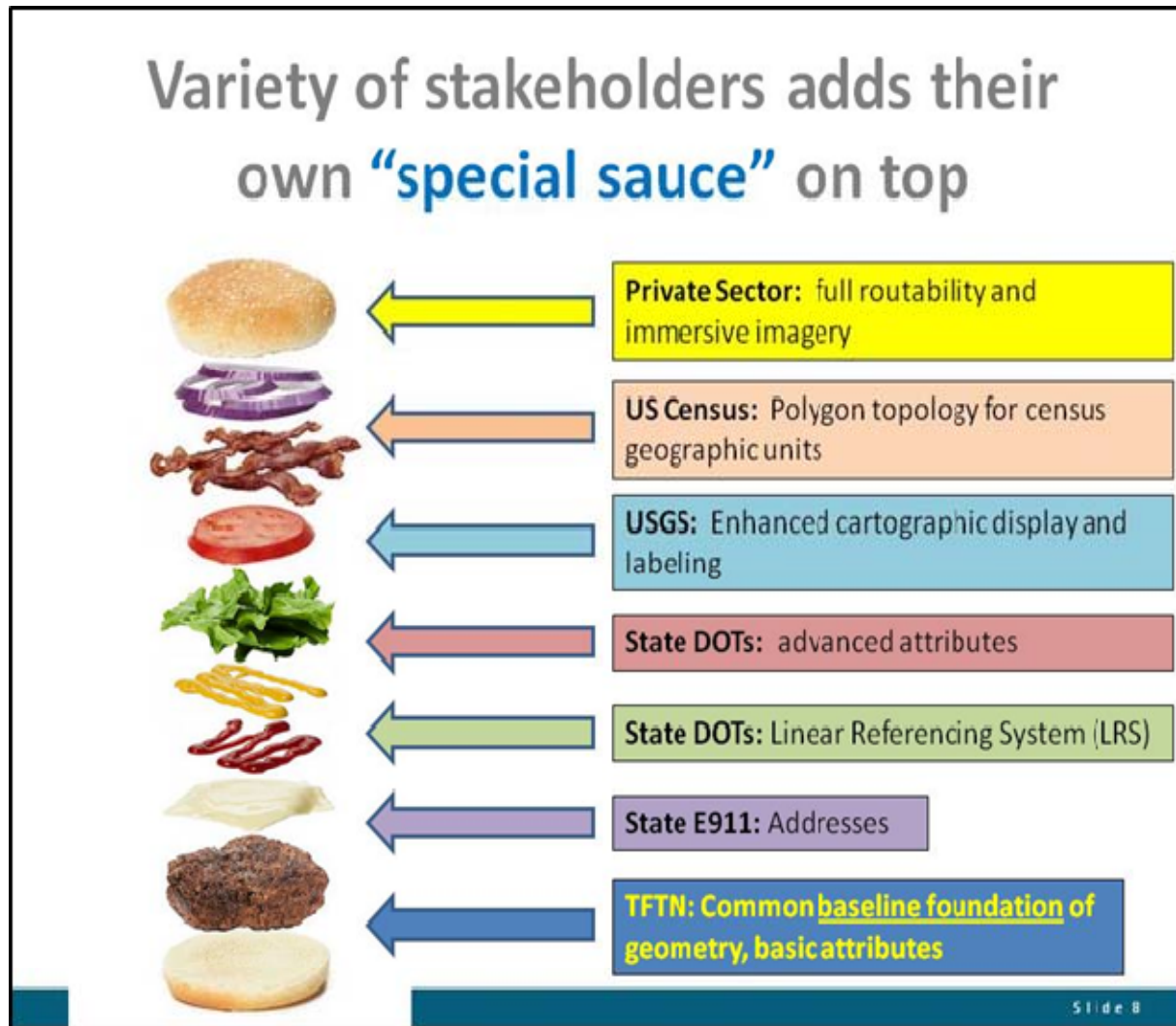


# Requirements

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- Shared baseline geometry and basic attribute content (e.g. road segment ID, road name, functional classification, open/closed status)
- Freely available in the public domain for all uses and citizens (no restrictions on distribution)
- Support for value-added to the baseline (e.g. LRS, addresses, more attributes, cartography, advanced topology to enable robust routing)

# Requirements



# Phasing & Milestones

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- Review of the Draft by Steering Committee during April 2011
  - Executive Members
  - At-Large Members
- Public release of the document in May or June 2011, after factoring-in Steering Committee feedback
- On to the Business Plan
  - Identify cost and funding
  - More detailed design, prototyping & business case
- Begin implementation during 2012

# Overview & Agenda

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- Project Governance
- TFTN Strategic Plan status
- Review Plan contents
- **Highlights from Case Studies**





# Case Study Outline

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1. **OH:** Example of [state activating counties](#)
2. **NY:** Example of [state-private sector partnership](#) for centerlines
3. **MI:** Example of a [state GIS office](#) assisting a state DOT
4. **KY:** Statewide, [multi-purpose centerline](#) used for HPMS, E-911, etc.
5. **VA Counties:** Example of [multiple counties](#) collaborating for centerlines
6. **WA Pooled Funds Study:** Example of a [multi-state, regional data collection and integration effort](#)
7. **I-95 Corridor Study:** Example of [multi-state data integration and update challenges](#)



# Ohio: Collaboration on Street Centerlines

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- The Location Based Response System (LBRS) is a partnership between state and local government to develop:
  - Highly-accurate (+/- 1 m), field-verified street centerlines
  - Address point locations for the entire state
- The state has developed a set of standards and provides financial incentive to counties through a Memorandum of Agreement (MOA) to provide funds
- This effort has resulted in the successful culmination of many organizations working together to provide accurate centerline data throughout the state for use by:
  - Emergency response organizations
  - State geospatial programs



## New York: Multi-purpose Centerline Outlook and Involvement from the State GIS Office

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- In the late 1990s, New York State launched a statewide baseline mapping program utilizing GIS to upgrade how the New York DOT/DMV maintained their road data
  - Conform to the new state standard
  - Focus on Federal regulations from such program as the FHWA Highway Performance Monitoring System (HPMS).
- With a single street centerline layer, other agencies will be able to consume this data
  - Support multiple applications
  - Support county and local government
- A web portal where counties can upload/download data was created. The data is verified, incorporated in to the working set and then disseminated back to State and other entities such as NAVTEQ.



## Michigan: State GIS office Assists the Michigan DOT

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- The Michigan State GIS office is currently undergoing an effort called the Transportation Data Stewardship Enhancement Plan
- The program utilizes five full time staff members who work constantly to maintain the data
- Because of the strict nature and use of the State data model, it has been reported that the State's submission to HPMS has had no errors over the past several years
- The Michigan State GIS office has assembled a robust and accurate road centerline that covers a majority of the State

**MORE FROM MICHIGAN LATER IN PROGRAM!**



## **Kentucky: Linkage of the Transportation Centerline to HPMS, other route-dependent datasets and E-911**

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- In the late 1990's the Kentucky State Public Centerline project was originally conceived as the brainchild of Greg Witt from the Kentucky Department of Transportation (KDOT), to:
  - Derive better statistical information and analytical products from all of the centerline data for the State
  - Move the State's geospatial data infrastructure into a geographic information system (GIS) powered by LRS
- Tremendous effort was put forth for funding to contract with Area Development Districts (ADDs) from around the State for data:
  - Foundation data layer that could be used by other agencies within the state, the Federal Highway Administration (FHWA), and the general public
  - These data also represent data sources that would not otherwise be available statewide without a high level of collaboration between all stakeholders within the State
- The resulting efforts have made for seamless submission to HPMS and help to enhance its performance and accuracy



## Virginia: Northern Virginia Regional Routable Centerline

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- Five Public Safety Answering Points (PSAPs) in the Northern Virginia area, the Virginia Information Technology Agency (VITA), and the Virginia Department of Transportation (VDOT) working in collaboration, to:
  - Develop a routable road centerline data set and standard usable by **Computer-Aided Dispatch** (CAD) systems.
  - Enhance VGIN Road Centerlines (RCL) for supporting routing, geocoding, and persistent updates to local 911 map systems. It will
  - Support each individual CAD system for data outside their own jurisdiction (while not forcing them to change the data model currently used in CAD)
- The VGIN RCL project is considered a huge local success because of the communication and handshaking that occurs between the state GIS and the state DOT
  - Will eventually have a seamless flow from participating cities and counties up to the state and then back again to complete the round trip
  - Additional work on the project includes the development of maintenance tools and the integration of regional data into CAD systems



## **Washington Pooled Funds: Example of a Multi-State, Regional Effort to Collect and Integrate Transportation Data**

- The Washington State Transportation Framework project (WA-Trans) is to build a framework transportation data layer in collaboration with all levels of government, including:
  - 8 Federal Agencies, 7 States, 14 Washington State agencies, 23 counties, 10 cities, 9 tribal governments, and 20 other private and public entities
- WA-Trans has been working in cooperation with six other state DOTs to develop computer-based tools that facilitate transportation data sharing and integration financed with federal funds, specifically Transportation Pooled Funds (TPF)
- Executed at the state level with data collected from a local level, integrated at a state level, and shared to all project participants

1 of 2



## Washington Pooled Funds: Example of a Multi-State, Regional Effort to Collect and Integrate Transportation Data

- Executed at the state level with data collected from a local level, integrated at a state level, and shared to all project participants
- This collaborative collection of data plays a vital role in a Statewide Transportation Framework
- Addressing should be part of a national program to fully engage local government
- It is critical to have adequate funding for not only infrastructure, tools, staffing and data, but also for outreach and communication efforts



## I-95 Corridor: Example of Multi-State Data Integration

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- In support of the I-95 Corridor Coalition, Cambridge Systematics is coordinating the development of a corridor-wide information system
  - Consolidates existing state roadway network databases into a single multi-state roadway network to guide regional transportation planning and emergency management efforts
  - Comprises of the ‘best publicly-available’ road centerline databases from each of the 16 states and the District of Columbia, who are members of the I-95 Corridor Coalition.
- The individual state roadway databases are ‘stitched together’ at the state borders to form a topologically integrated network
  - Many variations in data contents and consistency for road datasets were encountered from state-to-state
  - Generally, useful and reasonably accurate road features were available to produce a public domain road network for the Corridor
  - Doing this once is the “easy part” (easy being a relative term); the “hard part” is doing this on a regular, repeatable basis to keep the road network updated



## I-95 Corridor: Example of Multi-State Data Integration

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- Conclusion: It might be easier to use a stripped down commercial roadway centerline network as a framework, thereby:
  - Relieving integration requirements
  - Improving the consistency and convenience of updates
- The issue would be ensuring public domain accessibility, with no license restrictions to inhibit use



# In Summary

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- We've made it this far, and have a **Strategic Plan in review**; a more detailed Business Plan is next
- **Input from Stakeholders** has been useful and essential
- Initially, we're **focused on road centerlines**; eventually, other modes
- We concluded that **existing nationwide road centerlines are not adequate for TFTN** requirements in their current "as is" condition or form
- The main recommendation is to **build on FHWA's HPMS program**, and take a new approach consistent with USDOT's responsibility as the lead federal agency for the **Transportation Theme of NSDI**
- Case studies indicate there are a **number of working models at the grassroots level**



# Up Next

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- Michigan Success Story
  - Rob Surber, State of Michigan



- Maryland Success Story
  - Kenny Miller, State of Maryland



# Additional Questions?

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<http://www.tftn.org>

