WVDOT Traffic Data Collection, Processing and Analysis Handbook

Presented to

WVDOT/MPO/FHWA
Transportation Planning Conference

Presented by

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Presentation Outline

- Background
- Scope
- Objectives & Deliverables
- Project Schedule
- Project Team
- Available Resources
- Questions
- Wrap-Up and Next Steps

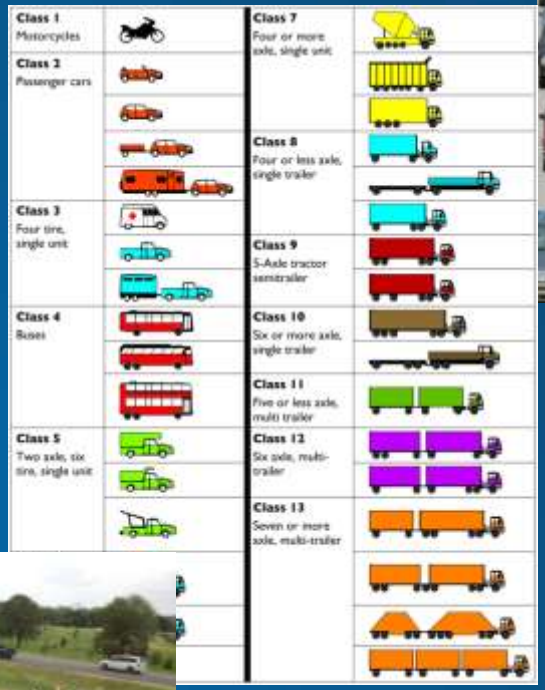
Background

WVDOT Traffic Modeling & Analysis (TM&A) Unit responsible for collection, analysis, and reporting of traffic data

- Volume (AADT, VMT, etc.)
- Vehicle Classification (motorcycles, passenger cars, buses, trucks, etc.)
- Weight (Weigh-in-Motion (WIM))

Background

- Volume
  - Continuous counts (60 locations statewide)
  - 2500 Short Duration counts annually
- Vehicle Classification
  - Motorcycles
  - Passenger Cars
  - Buses
  - Trucks
- Weight
  - Trucks



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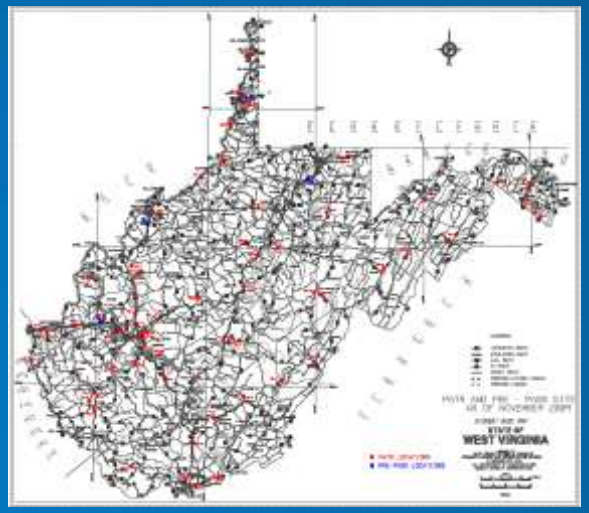
Background

- Traffic Data uses (state):
  - Engineering Design (pavement, geometric)
  - Construction
  - Safety Projects
  - Capacity Analysis
  - Truck route planning



- Traffic flow maps
- Permanent Automatic Traffic Recorder (PATR) maps
- Performance-based Planning
- Project Identification & Prioritization
- Asset Management
- Traffic Forecasting

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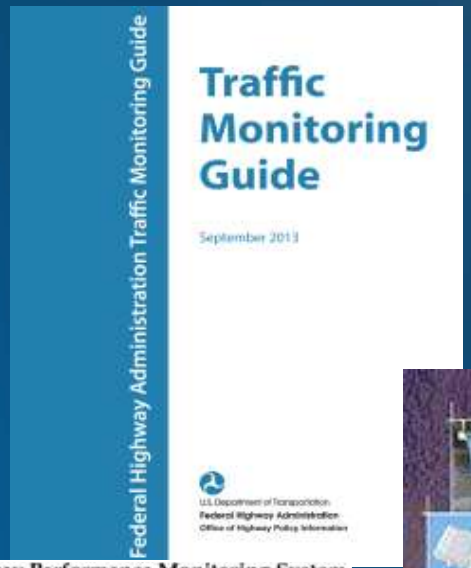
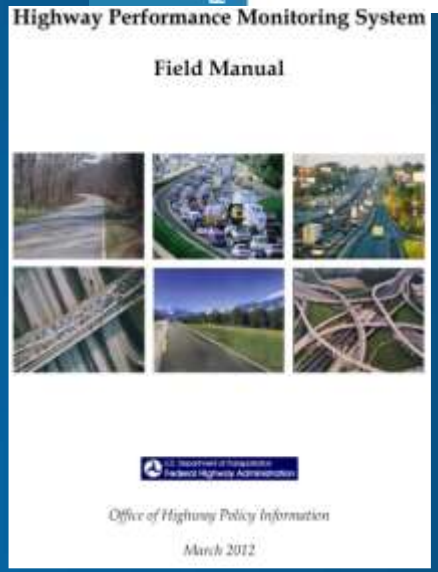
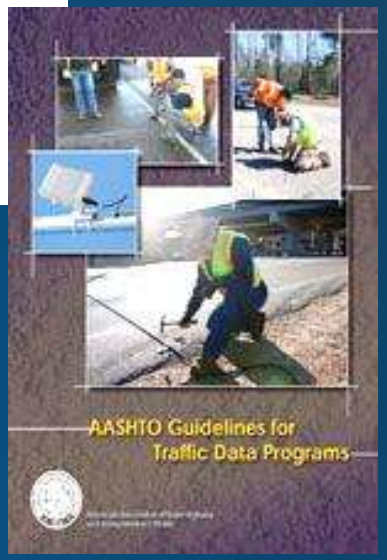
Background

- Traffic Data uses (Federal) and Guidelines:
  - Highway Performance Monitoring System (HPMS) (AADT, annual vehicle miles traveled (VMT))
  - Pavement deterioration models
  - Economic and freight research & planning
  - Traffic Monitoring Guide (TMG)
  - AASHTO Guidelines for Traffic Data programs







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Scope

The Scope of Work to develop the *Traffic Data Collection, Processing and Analysis Handbook* includes 6 basic Tasks:

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Objective

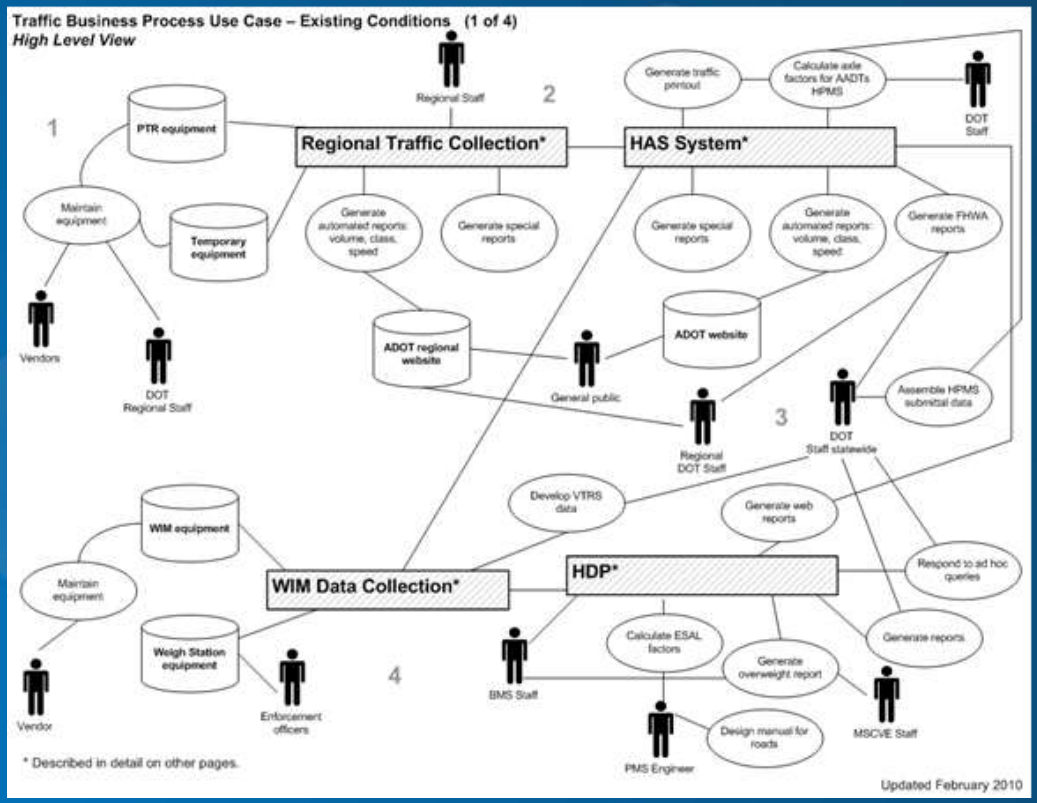
Each project task has its own objective, however, the overall project objective coincides with the objective of Task 6:

"To develop a Traffic Data Collection, Processing and Analysis Handbook to support the traffic data responsibilities of the Traffic Modeling and Analysis Unit"

Task Objectives and Deliverables

Task 1: Existing Traffic Processes

Objective: To review, document and evaluate WVDOT's existing Traffic Monitoring Program (example from Alaska DOT&PF)



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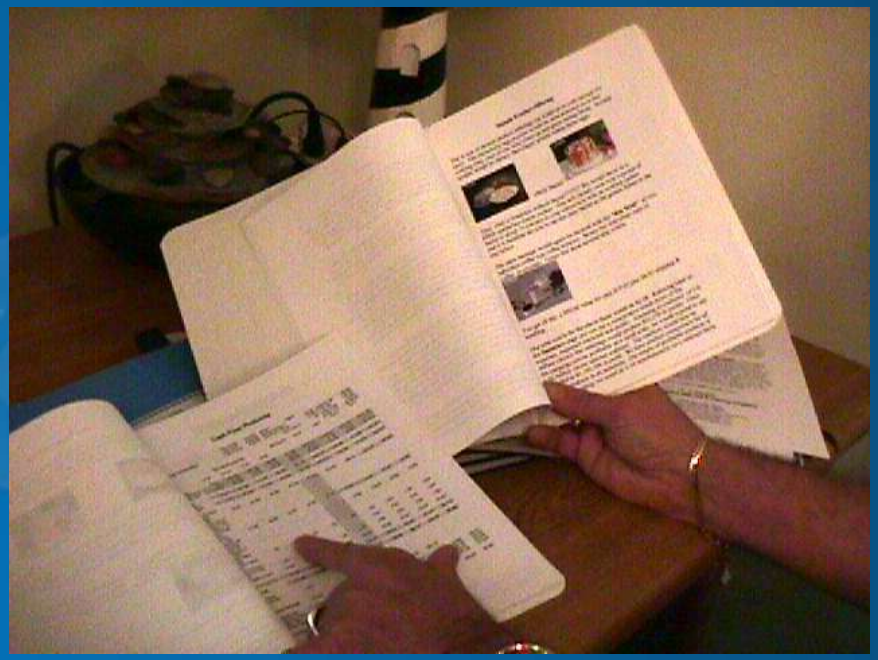
Task Objectives and Deliverables

Task 1: Existing Traffic Processes

Deliverables: Draft and Final Technical Memorandum #1 documenting the existing traffic processes and the evaluation of these processes

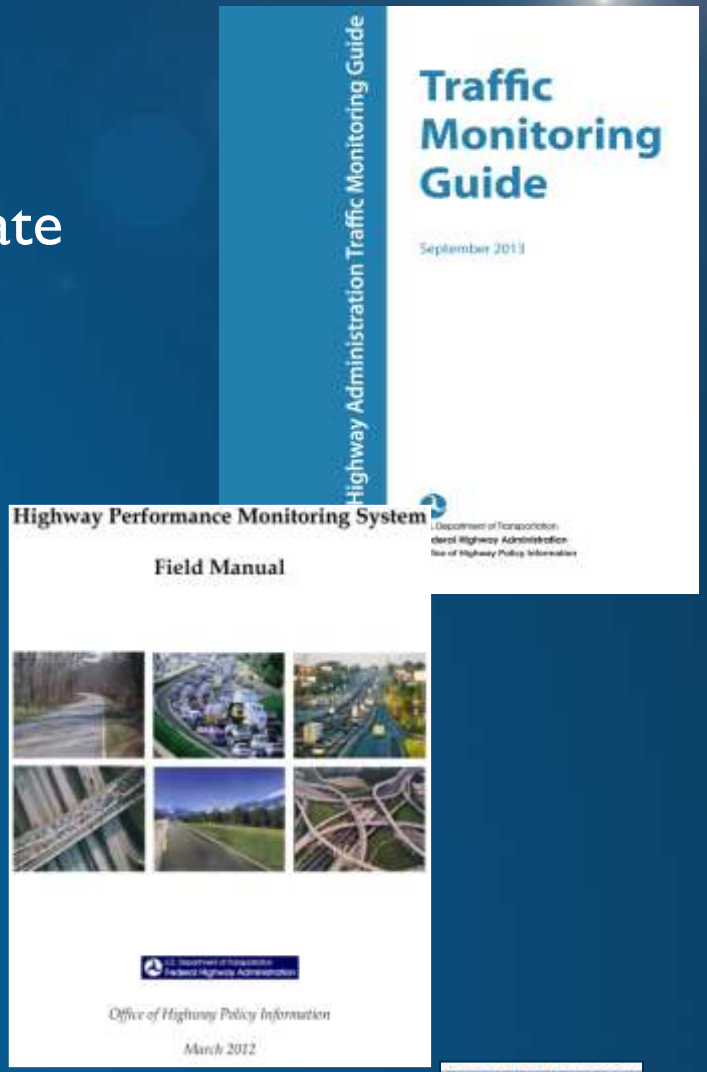


Task Objectives and Deliverables

Task 2: Traffic Data Requirements

Objective: To document the traffic data collection, analysis, and federal and state reporting requirements

Deliverables: Technical Memorandum #2 documenting the federal and state traffic data collection and reporting guidelines and requirements



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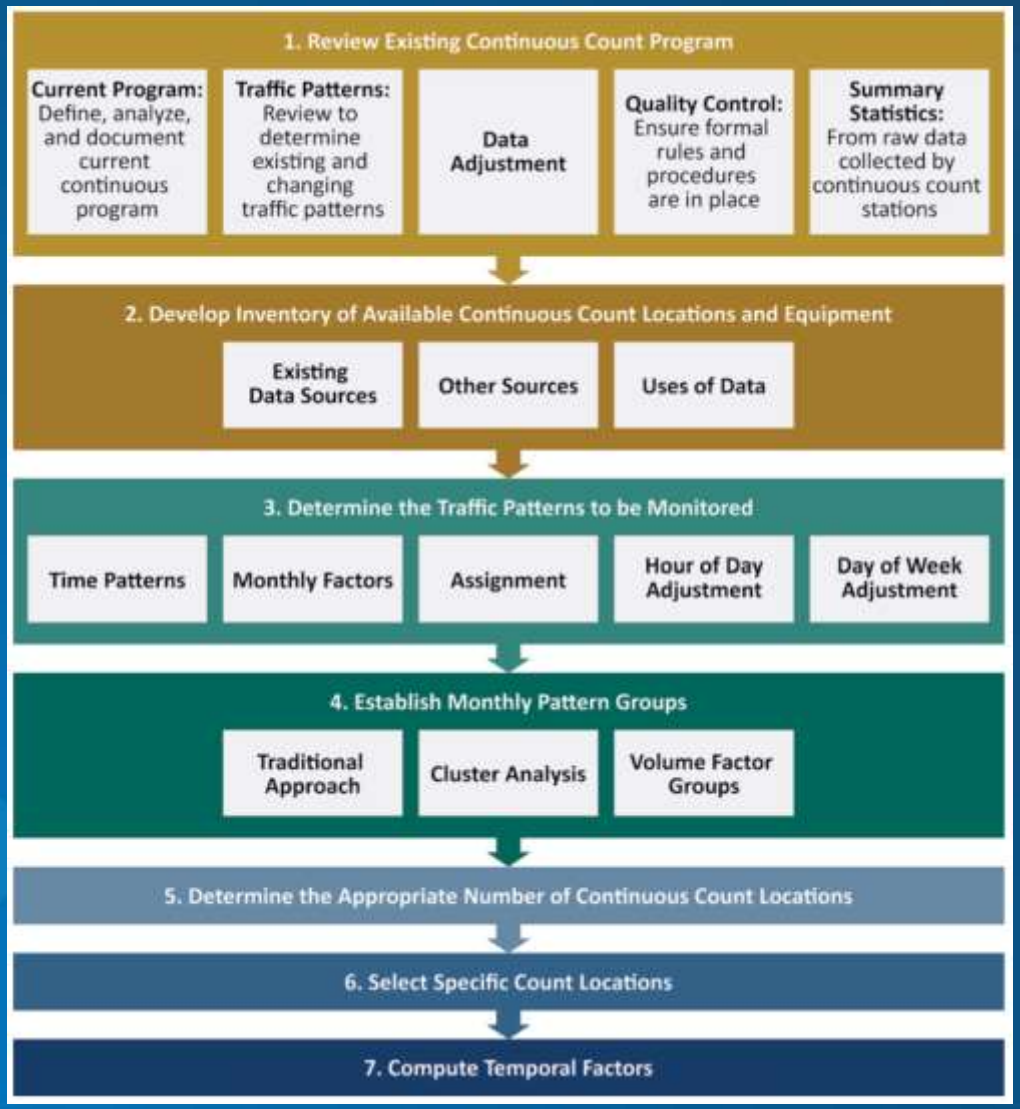
Task Objectives and Deliverables

Task 3: Gaps in Traffic Processes

Objective: To determine and document the gaps in the traffic data collection, processing, analysis, and reporting procedures used at WVDOT that are needed to support the traffic monitoring program

Task Objectives and Deliverables

Task 3: Gaps in Traffic Processes (example from TMG – Continuous Count process)



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Task Objectives and Deliverables

Task 3: Gaps in Traffic Processes (traffic data collection needs)

USER NEEDS		SYSTEM NEEDS	
ID	User Need	ID	System Need
Access Traffic System			
TU001	Traffic System Users should have access to the TDS according to their needs.	TU001-S01	The Traffic System needs to authorize access to each internal and external user of the system.
		TU001-S02	The Traffic System needs to authorize access and provide update authority to specific Traffic System modules.
Manage Incoming Traffic Data Files			
TU002	Traffic System Managers need to have a consistent way to transfer traffic data files to the Traffic Data System.	TU002-S01	The Traffic interface needs to provide a single user interface with internet/intranet access.
		TU002-S02	The Traffic interface needs to receive traffic data files in a standard format for permanent traffic recorders, coverage count stations, and weigh-in-motion stations.
		TU002-S03	The Traffic interface needs to flag all incoming traffic data station files as unverified.
TU003	Traffic System Managers need to submit traffic data files at anytime.	TU003-S01	The Traffic interface needs to operate continuously 24X7, receiving traffic data whenever submitted by Regional Traffic staff.
		TU003-S02	The Traffic interface needs to receive and store traffic data until a user can perform actions.
TU004	Traffic System Managers need to receive notification of duplicate data	TU004-S01	The Traffic interface needs to flag duplicate data that has been submitted by the Traffic Managers.
		TU004-S02	The Traffic interface needs to provide notification (station ID, POR) to Traffic Managers that it has received duplicate data.
		TU004-S03	The Traffic interface needs to provide the Traffic Managers with the capability to view duplicate data.
Validate Traffic Data			
TU005	Traffic System Managers need to process traffic data to that meets the TMG 2012 requirements	TU005-S01	The Traffic interface needs to incorporate FHWA's TMAS QA/QC checks, as identified in the TMG 2012 Appendix and the AASHTO Guidelines for Traffic Data Programs.
		TU005-S02	The Traffic interface needs to flag each field that fails the QC/QA check.
		TU005-S03	The Traffic interface needs to retain the results of the QA/QC checks for review by the Traffic Managers.
		TU005-S04	The Traffic interface needs to provide Traffic Managers with access to the QA/QC results.

Task Objectives and Deliverables

Task 3: Gaps in Traffic Processes

Deliverables: Draft and Final Technical Memorandum #3 to document the gaps in the traffic data collection and reporting processes at WVDOT that must be addressed to comply with federal and state guidelines and requirements

Task Objectives and Deliverables

Task 4: Recommendations

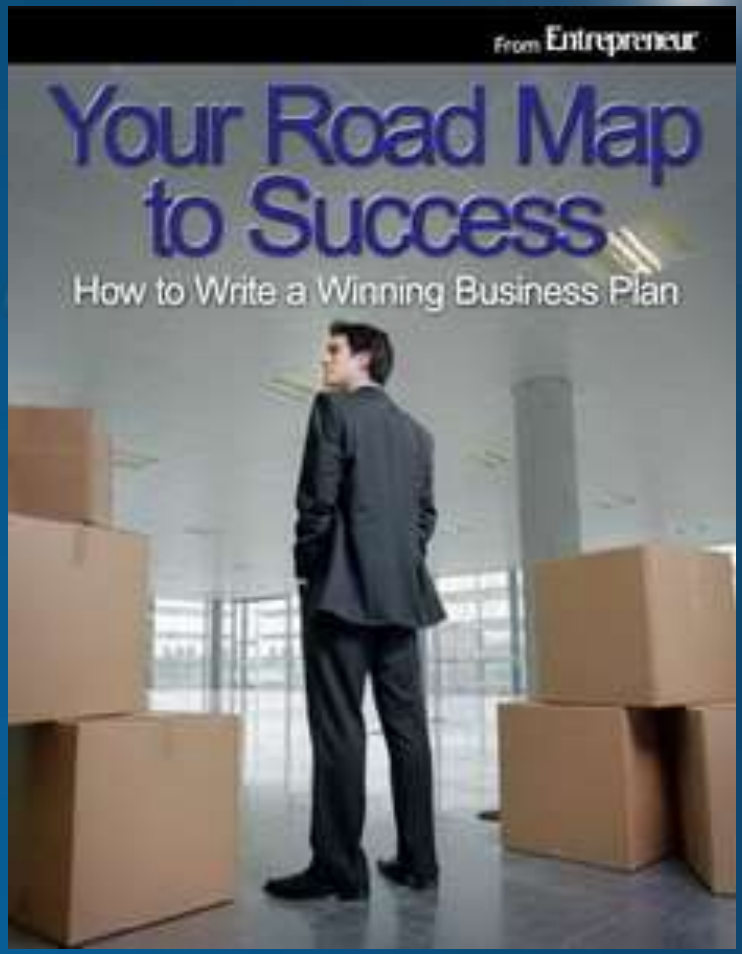
Objective: To compile a comprehensive set of recommendations for addressing needs and gaps in the traffic data collection, processing, analysis, and reporting procedures used at WVDOT

Deliverables: Draft and Final Technical Memorandum #4 to document specific recommendations to support the traffic monitoring program at WVDOT

Task Objectives and Deliverables

Task 5: Traffic Data Business Plan

Objective: To develop a Traffic Data Business Plan for implementing recommendations outlined in Task 4



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Task Objectives and Deliverables

Task 5: Traffic Data Business Plan

- Utilize guidance from NCHRP 8-70 (NCHRP Report 666)

  Target-Setting Methods and Data Management to Support Performance-Based Resource Allocation by Transportation Agencies

- NCHRP 8-70 - best practices from other state DOTs
  - Data Management
  - Data Business Planning
  - Data Governance
  - Performance-Management
  - Target Setting

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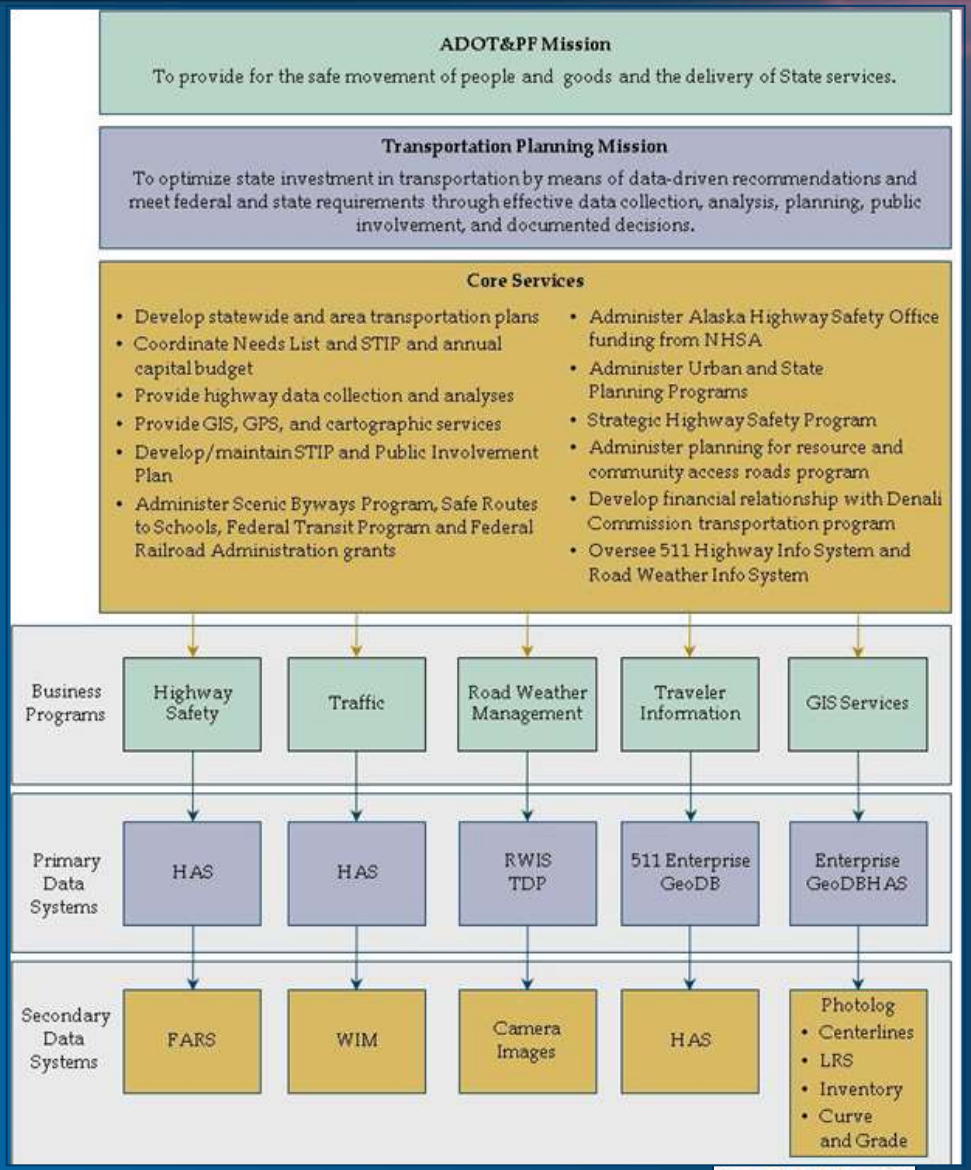
Task Objectives and Deliverables

Task 5: Traffic Data Business Plan

Develop Data Business Plan Framework (Example from Alaska DOT&PF)



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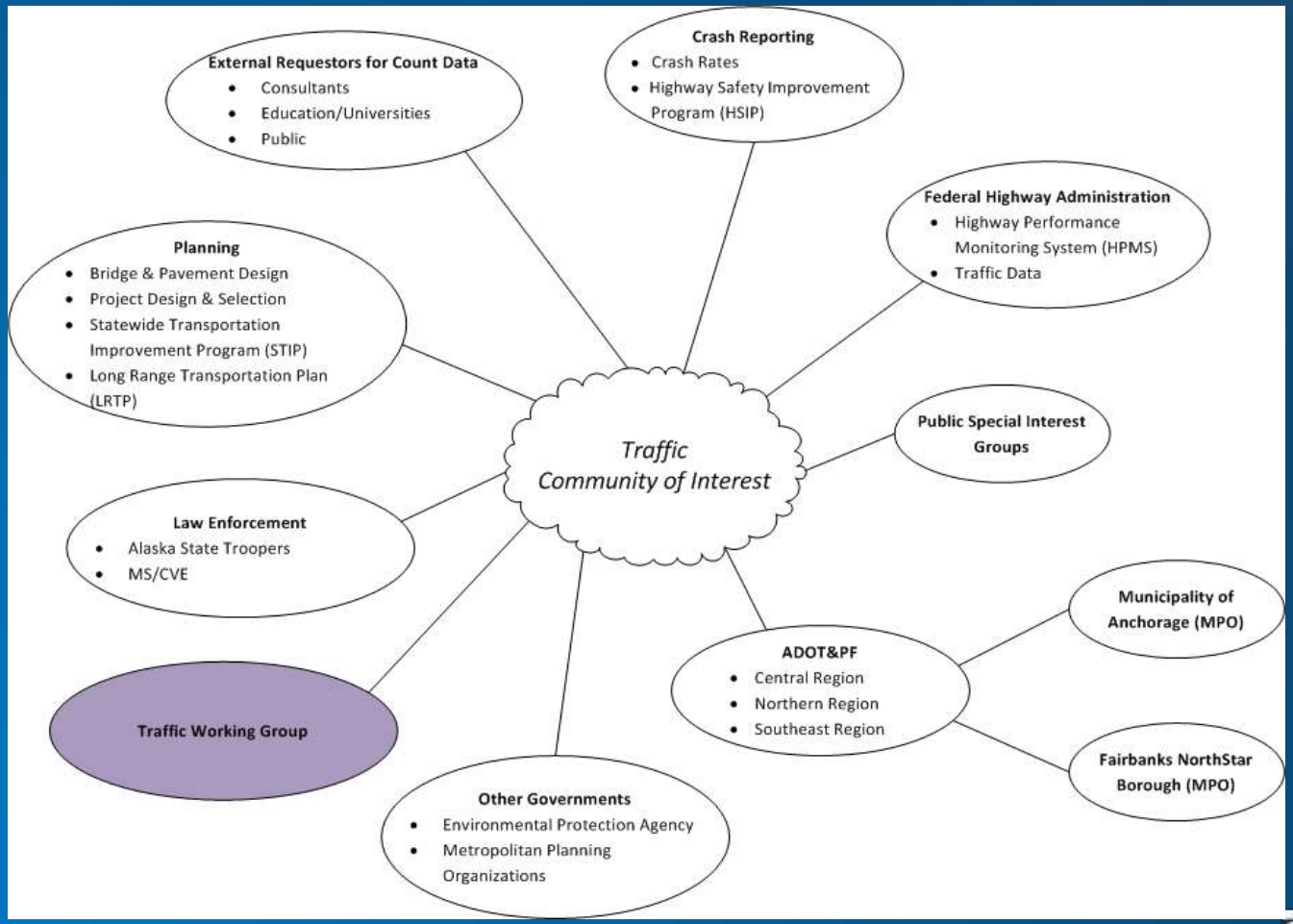
Task Objectives and Deliverables

Task 5: Traffic Data Business Plan - Define Traffic Data Communities of Interest (COIs) (Example from Alaska DOT&PF)



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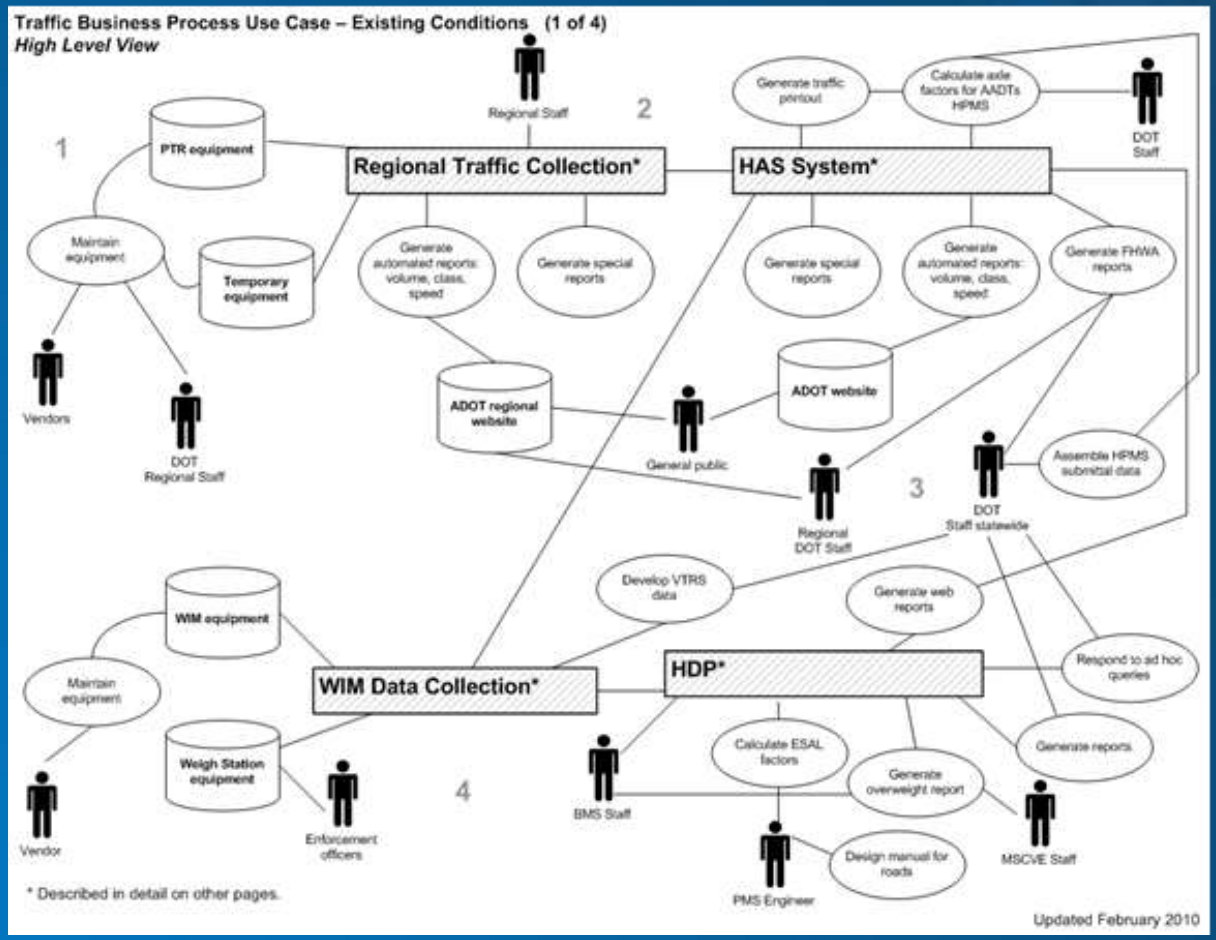
Task Objectives and Deliverables

Task 5: Traffic Data Business Plan – Incorporate data flow diagrams and business process narratives



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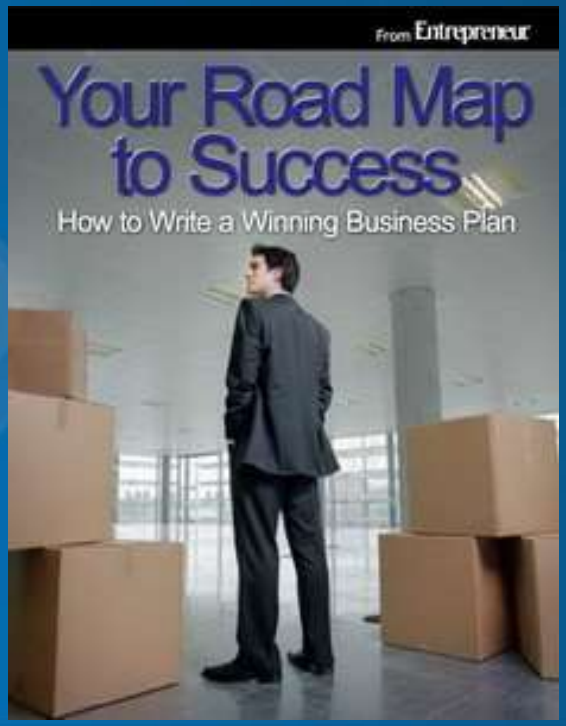
Task Objectives and Deliverables

Task 5: Traffic Data Business Plan

Develop Action Plan to implement recommendations from Task 4

Deliverables: Draft and Final Traffic Data Business Plan



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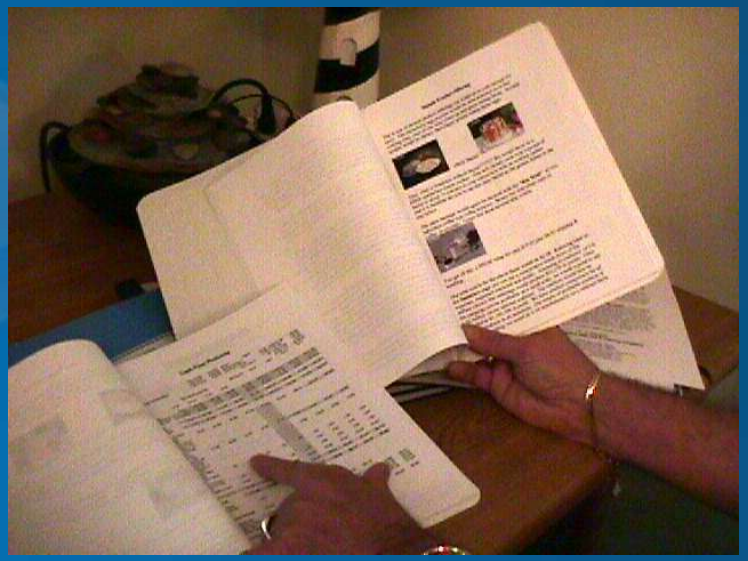
Task Objectives and Deliverables

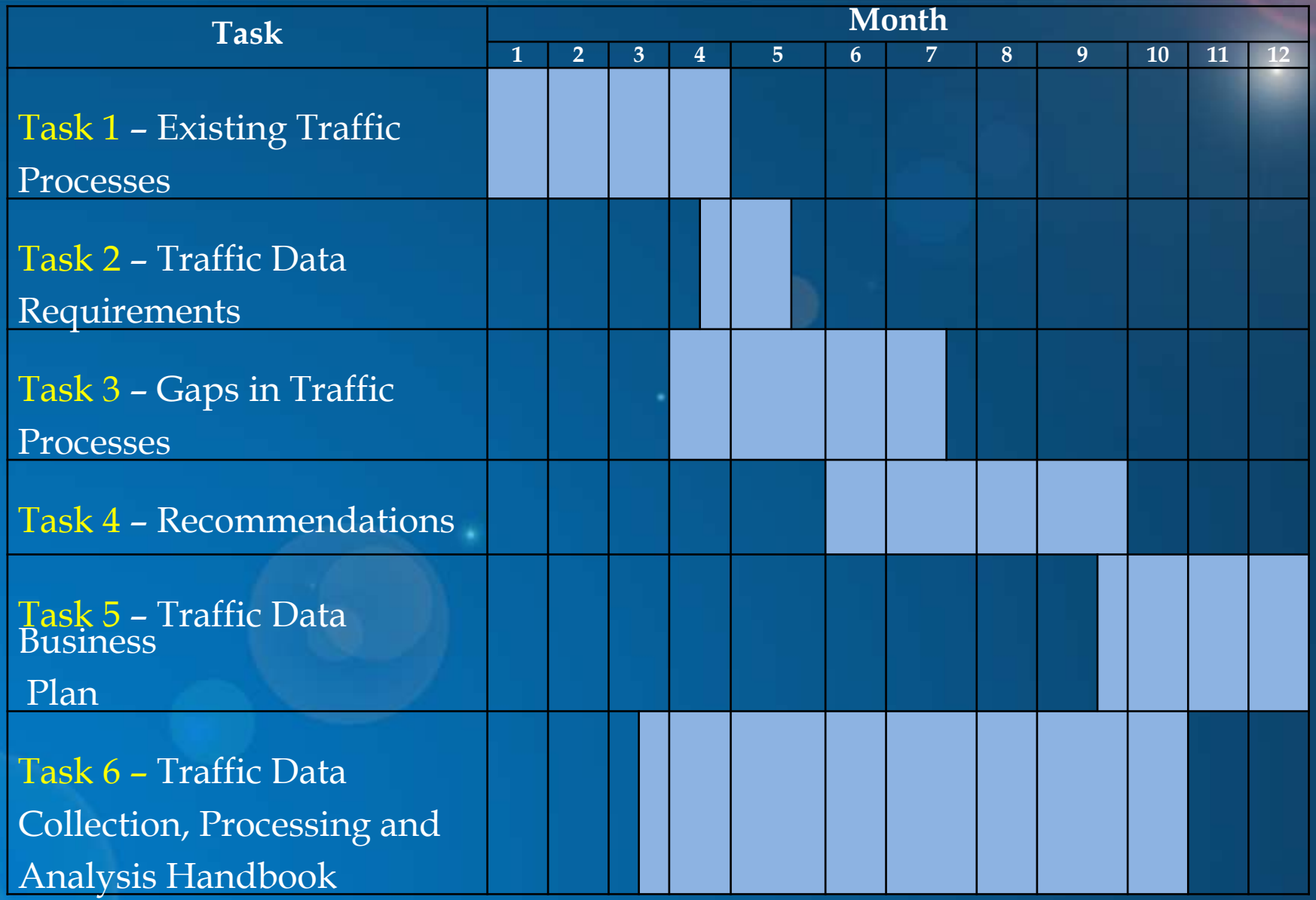
Task 6: Traffic Data Collection, Processing and Analysis Handbook

Objective: To develop a Traffic Data Collection, Processing and Analysis Handbook to support the traffic data responsibilities of the Traffic Modeling & Analysis Unit

Deliverables: Outline for Handbook; Draft and Final Traffic Handbook



Project Schedule



Project Team

- WVDOT Traffic Modeling & Analysis Unit (TM&A)
  - Gehan Elsayed, *WVDOT Project Manager*
  - *TM&A staff*
- Cambridge Systematics, Inc.
  - Barbara Sloan, *Principal in Charge*
  - Anita Vandervalk, *Project Manager*
  - Kim Hajek, *Deputy PM, Transportation Analyst*
  - Dena Snyder, *Transportation Analyst*
  - Hui Chen, *Transportation Analyst*
  - Lisa Smith, *Transportation Analyst*

Available Resources

- WVDOT Traffic Modeling & Analysis Unit
- MPOs
- Other traffic data users at WVDOT
- TRB Highway Traffic Monitoring Committee (ABJ-35)
- NHI – TMG Training Course
- Traffic Monitoring Guide
- AASHTO Guidelines for Traffic Data Programs
- NCHRP 8-70
- HPMS Field Manual

Questions

Wrap-Up/Next Steps

Next Steps

- Identify Key WVDOT and external DOT contacts for project
- Conduct official Project Kick-off Meeting at WVDOT offices
- Conduct on-site work group meetings with TM&A staff and subject matter experts (GIS, traffic, HPMS, etc.)
- Begin review of existing traffic data collection, analysis, and reporting documentation

Thank You!