Purpose/History

- Initiative of the Federal Interagency Working Group on Transportation, Land Use, and Climate Change
  - Integrated regional planning and development
  - Intermodal gateway mobility planning

- Interagency Transportation, Land Use, and Climate Change Scenario Planning Pilot Project: Cape Cod, Massachusetts (2010-11)

- Central New Mexico Climate Change Scenario Planning Project (2013-14)
  - Solicitation posted April 30; May 30 deadline for responses
  - 10 regions applied; Central New Mexico selected June 21
Mid-Region Council of Governments of New Mexico

Source: MTP 2035 Forecast, MRCOG.
Study area
Tasks

1. Develop partnerships, coordinate resources, and collect data
2. Goals and objectives
3. Climate change mitigation
4. Climate change adaptation
5. Scenario planning
6. Final report

Source: MRCOG (June 2013)
Develop partnerships, coordinate resources, and collect data

- Organize Federal partners, new and old
  - Monthly Planning Group calls
  - Ad hoc Technical Committee meetings
- Talk with each agency to identify existing relevant resources and data available
  - Summarize in matrix and data assessment report
Goals and objectives

- **Goal 1: Advance the role of climate change analysis in scenario planning.** This project will improve the state of the practice for integrating climate change adaptation and mitigation into regional transportation and land use planning using scenario planning processes.

- **Goal 2: Influence decision-making in Central New Mexico.** This project will inform MRCOG’s 2040 Metropolitan Transportation Plan, municipal hazard mitigation plans, local and county land use plans, and Federal land management agency plans.

- **Goal 3: Develop a transferable process.** The process and analytical methods developed for this project will be transferable to other regions.

- **Goal 4: Build partnerships.** The project will build and strengthen relationships between federal, state, regional, municipal, and tribal governments.
Climate change mitigation

- Policies and strategies to reduce transportation-related greenhouse gas emissions
- Example strategies from Cape Cod:
  - Public transportation
  - Land use and smart growth
  - Pricing
  - Non-motorized transportation
  - Regional ride-sharing, car-sharing, and commuting
  - Operational and intelligent transportation system (ITS)
  - Vehicle efficiency and alternative fuel
Climate change mitigation

The Energy and Emissions Reduction Policy Analysis Tool (EERPAT) was developed to assist state transportation agencies with analyzing greenhouse gas reduction scenarios and alternatives for use in the transportation planning process. The development of state climate action plans, scenario planning exercises, and to measure the reduction potential of various transportation strategies to meet state greenhouse gas reduction goals and targets. The Tool allows agencies to quickly assess policy interactions in hundreds of scenarios. Many states are seeking to perform this type of analysis, but lack the tools to do so - the Energy and Emissions Reduction Policy Analysis Tool was developed to fill this gap. The Tool uses GreenSTEP, developed by the Oregon State DOT, as its foundation, and is expected to have regular enhancements.

Download the Tool and Related Documentation

Listed below are links to download the Energy and Emissions Reduction Policy Analysis Tool, an example application of the tool in Florida, user documentation, and model estimation files that are required to develop new applications of the tool. Right-click on the links and “Save Target As...” to save to your local computer.

- EERPAT Version 2.1
- EERPAT Version 2.1 Florida example application
- User’s guide (PDF)
  MS Word Version
- Model documentation (PDF)
  MS Word Version
- EERPAT Version 2.1 model estimation files

A Reference Sourcebook for Reducing Greenhouse Gas Emissions from Transportation Sources was developed by FHWA to accompany the Tool. The Sourcebook describes various transportation-related greenhouse gas mitigation strategies, estimates the potential range of GHG reductions, estimates costs, identifies barriers to implementation, identifies example projects, and describes any associated co-benefits or disadvantages.

- Reference Sourcebook for Reducing Greenhouse Gas Emissions from Transportation Sources (PDF)
  MS Word Version
Climate change mitigation

- Literature review of GHG mitigation strategies
  - Effectiveness
  - Cost estimates
  - Social feasibility of implementation
Climate change adaptation

- Identify:
  - Regional climate change impacts → Technical Committee
  - Climate change futures → Technical Committee with Federal partners
  - The effect of these impacts on transportation and land use → Consultant team with input from Technical Committee
  - The effect of transportation and land use policy choices on climate change impacts → Consultant team with input from Technical Committee

- Examples:
  - Mixed use
  - Density
  - Transit
  - New roads

*How will these be affected by climate change impacts?*

*How will these exacerbate or alleviate these impacts?*
Climate change adaptation

- Cape Cod expert elicitation identified “Areas of Concern”
  - Elevation
  - Exposure to storm surge
  - Erosion
  - Flooding history
  - Lack of redundant transportation access
  - Potential SLR impacts

- Areas of concern incorporated into scenario development
Climate change adaptation
Scenario planning

Scenario Development

2040 MTP
- Growth
- Transportation

Climate Change Project
- Water
- Air Quality
Scenario planning

- Two approaches

Risk mitigation

Shared vision

Selected Future

Possible Futures

A
B
C
D
Risk mitigation approach

Combining two selected drivers creates four possible futures

Source: NPS
Risk mitigation approach

4 Hotter

3 Close to status quo

2 Parched and warm

1 Hot and dry

Slightly drier

Significantly drier

Slightly warmer

Significantly warmer
Step 4: Act
Categorizing Options to Help Set Strategy

Robust  Pursue only those options that would work out well (or at least not hurt you too much) in any of the four scenarios

OR

Bet the Farm / Shaping: Make one clear bet that a certain future will happen — and then do everything you can to help make that scenario a reality

OR

Hedge Your Bets / Wait and See: Make several distinct bets of relatively equal size

OR

Core / Satellite: Place one major bet, with one or more small bets as a hedge against uncertainty, experiments, and real options
Shared vision approach

- Cape Cod
  - Pre-run scenarios
  - Workshop
  - Refined scenario

Development

Transportation

Dispersed

Trend

Targeted

Enhanced

Standard

2030

Volpe
Shared vision approach

- Workshop
  - Interactive, GIS-based decision-support technology
  - Placement of chips for housing and employment
  - Real-time updating of indicators

Source: Volpe Center (November 2010)
Trend – Housing
Targeted – Housing
Refined – Housing
Scenario assessment

- Assessment indicators
  - Greenhouse gas emissions
  - Vehicle miles traveled
  - Percent of new population and employees served by transit
  - Percent of new population in vulnerable areas
  - Percent of population in:
    - priority habitats
    - undeveloped lands
    - conservation areas
    - historic preservation areas
    - water resource/wellhead protection areas
Scenario assessment – mitigation

Percentage Change from Trend in Regional VMT and Transportation-related GHG Emissions
Scenario assessment – adaptation

Percentage of New Population in Vulnerable Areas

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Final report

- Integration Plans
  - MRCOG
  - FWS
  - BLM
- Technical Report
- Guidebook

Source: MRCOG (June 2013)
Guidebook: Overview

- Pilot Project background
- Process followed
- Scenario documentation
- Scenario assessment
- Observations
- Recommendations

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Available at: http://www.volpe.dot.gov/interagencypilotproject.html