Integrating Climate Change Analysis into the Metropolitan Transportation Planning Process

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Albuquerque, New Mexico

- Albuquerque population = 555,000
  - Less than 100,000 in 1950
  - Metropolitan area = 900,000
    (Projected >1.3 million by 2040)
- City area = 190 mi.$^2$ / MSA = 8,400 mi.$^2$
- Surrounded by mountains to the east; tribal lands to north, south, and west
- Northern edge of Chihuahuan Desert
- 9” of rain per year
- Elevation = 5312’
Central New Mexico Climate Change Scenario Planning Project

- Partnership with FHWA and US DOT Volpe Center
- Participants
  - Federal land management agencies
  - Metropolitan planning stakeholders (e.g. city, county, NMDOT)
  - Natural resource agencies (e.g. Reclamation, Army Corps of Engineers, water utility authority)
- Minimal experience with scenario planning
Integration with 2040 Metropolitan Transportation Plan

Climate Change Analysis

- Understanding of climate trends
  - Temperature & precipitation

- Climate change impacts NM
  - Droughts
  - Wildfires
  - Flooding
  - Water availability

- Consider whether development patterns make us more or less resilient to climate impacts

Metropolitan Transportation Plan

- Long-range (20+ years) transportation plan for the Albuquerque metro area

- Updated every 4 years (current plan to be adopted April 2015)

- Projections of growth

- List of all anticipated transportation projects in the region
Scenario Planning Objectives

◆ Consider alternative development patterns that result in:
  - smaller regional footprint
  - improved regional mobility
  - reduced dependency on single-occupancy vehicles
  - greater resiliency to climate change impacts
  - lower greenhouse gas emissions
Scenario Planning Process

- Identify Challenges
- Scenario Concepts
- Preliminary Scenarios
- Scenario Evaluation
- Refined Scenarios

June 2013 | Spring 2014 | Summer 2014 | Fall 2014

Committees / Workshops / Focus Groups

Spring 2015

Futures 2040 Recommendations

Mid-Region Council of Governments

Futures 2040
Metropolitan Transportation Plan
Scenario Planning Process

- **Workshops**
  - Feedback on initial land use scenarios
  - Refine scenarios and generate implementation strategies

- **Land use and travel demand models**
  - Inputs based on land use plans, zoning
  - Apply “shifters” as means of emphasizing development in certain locations
  - Evaluate distribution of growth and resulting transportation conditions
Preferred Scenario

- Increase attractiveness:
  - Activity centers
  - Transit nodes

- Infrastructure differences:
  - Same roadway network
  - Built-out transit network

- Same levels of population and employment growth as the Trend Scenario
LESSONS LEARNED

Tying scenario planning to metropolitan transportation planning
process has its pros and cons

Pros
- Structure of MTP (built-in forecasting) ensures scenario
  planning is linked to policy decisions
- Market-based modeling tools generated realistic scenarios
  that were immediately respected

Cons
- MTP development process is constrained by member agency
  policies and investment decisions
- Market-based modeling approach not utilized to diagnose
  necessary changes in region

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Lessons Learned

❖ Land use and transportation scenarios lend themselves to creative spatial analysis.

❖ Creating an inventory of physical infrastructure and built environment in vulnerable locations is a challenging but critical first step.

❖ Analysis requires understanding of changing conditions and impacts to natural features (e.g., floodplains, fire risk areas).
Thank you!

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