For Discussion Purposes

TAC CHARRETTE WORKBOOK
Transportation and Air Quality

NEW JERSEY HIGHLANDS COUNCIL

March 28, 2006

Overview of RMP Goals and Structure

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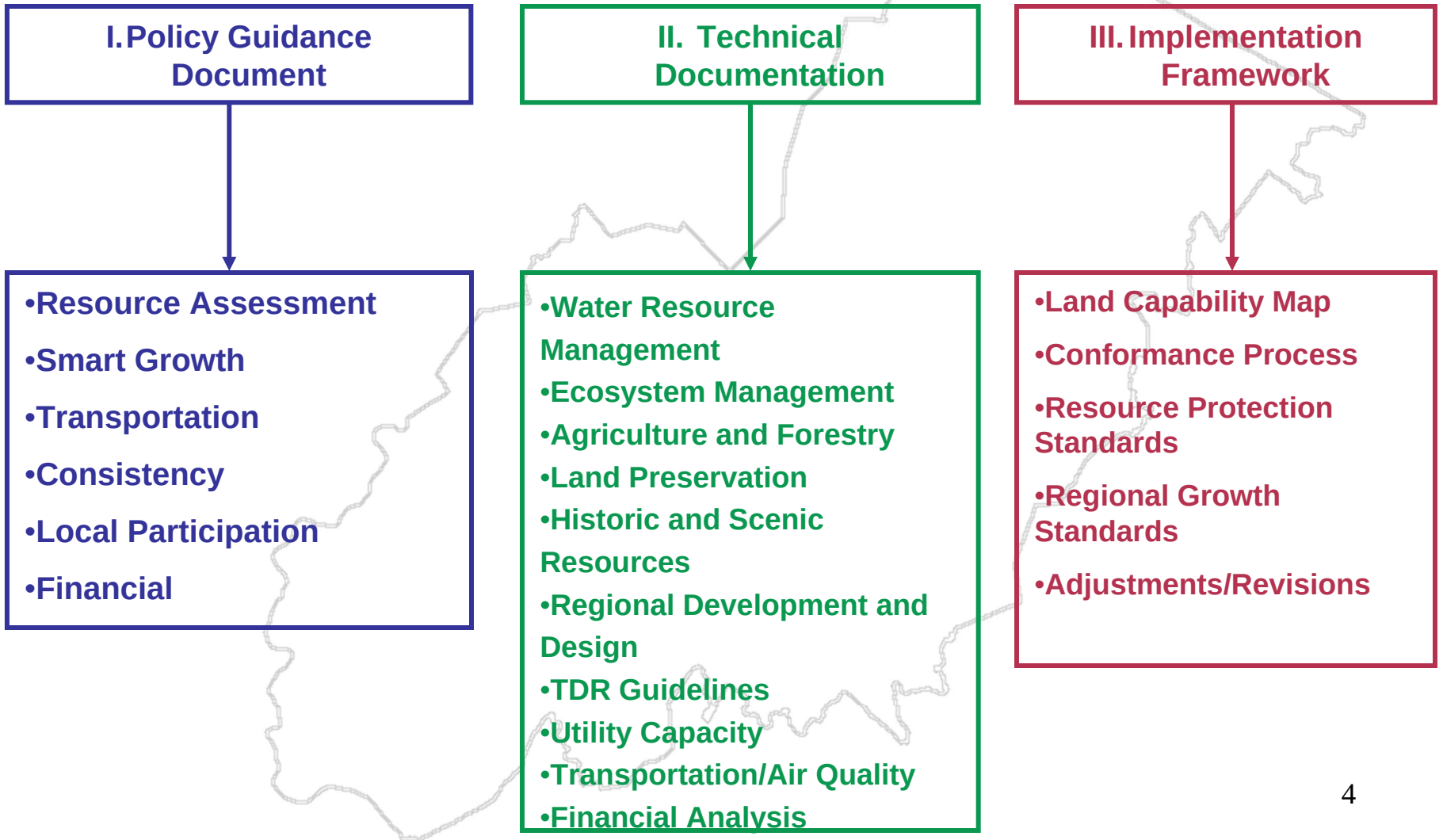
New Jersey Highlands

Goals of the Act

- Protect and conserve the quality and quantity of drinking water
- Protect natural, scenic, recreational, cultural and historic resources
- Preserve contiguous lands in their natural state
- Preserve farmland and farming
- Promote appropriate patterns of development, redevelopment and economic growth
- Promote a sound and balanced transportation system

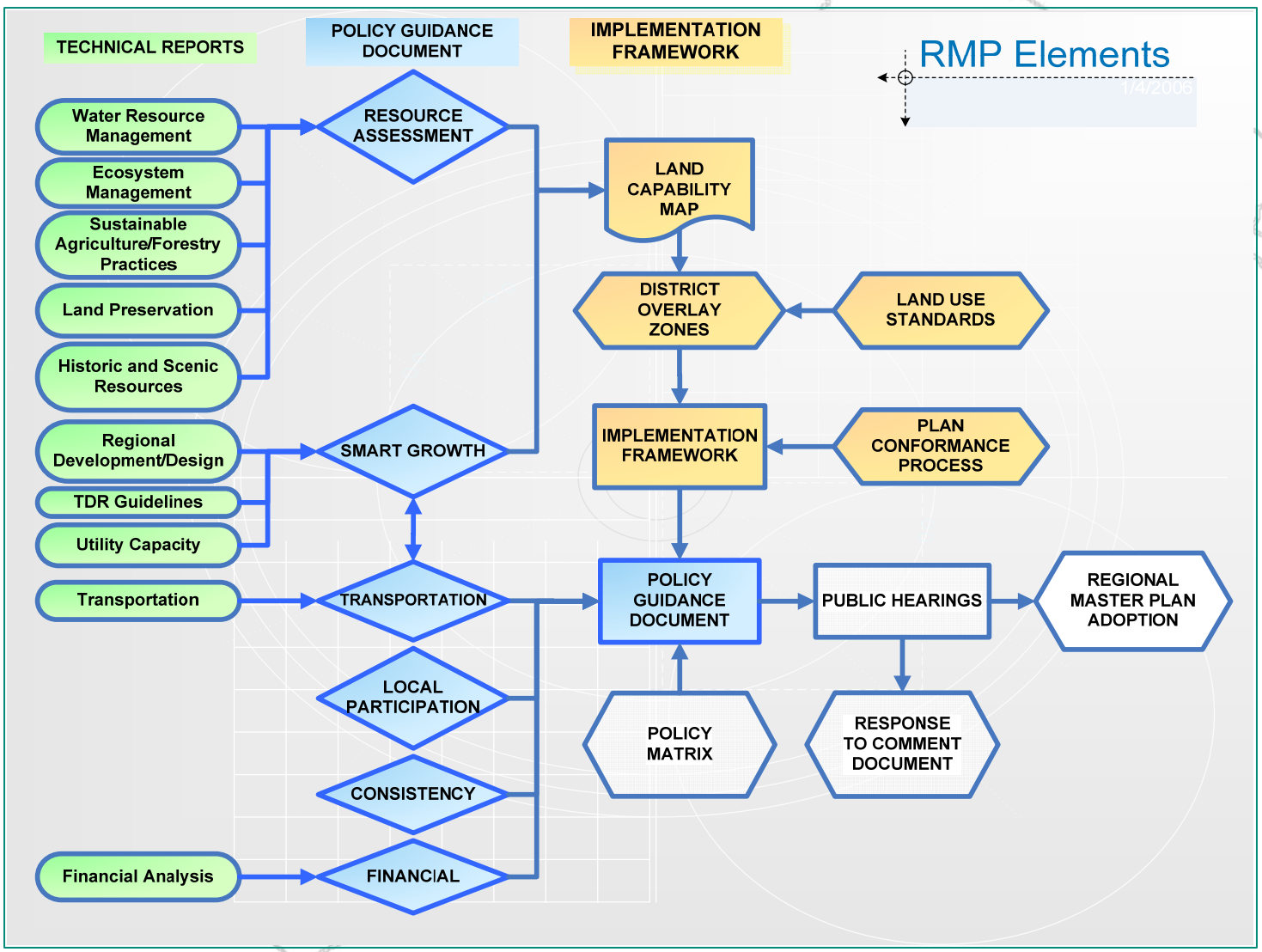
Highlands Regional Master Plan



Highlands Regional Master Plan

I. Policy Guidance Document	II. Technical Documentation	III. Implementation Framework
A statement of the goals, policies, strategies and public participation necessary to develop the RMP and implement the Act	The technical basis supporting the policies and standards, explains science and technical analyses supporting the RMP	The Land Use Capability Map, including district overlay zones and other tools for RMP conformance and implementation

Highlands Regional Master Plan



Transportation and Air Quality Requirements of the Act

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Requirements of the Act

- **Transportation Component: Provide "a plan for transportation system preservation... include projects to promote a sound, balanced transportation system that is consistent with smart growth strategies and principles and which preserves mobility and maintains the transportation infrastructure of the Highlands Region."**

  Highlands Act, Section 11, N.J.S.A. 13:20-11.a(5)

- **An assessment to "based upon the resource assessment of opportunities for appropriate development, redevelopment, and economic growth, including public investment priorities, infrastructure investments, economic development, revitalization, housing, transportation…including transit villages…" In the planning area the assessment "…shall identify infrastructure that would support or limit development or redevelopment ..."**

  Highlands Act, N.J.S.A. 13:20-11.a (6)

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Requirements of the Act (continued)

- **Determine "the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to: ….air quality; and other appropriate considerations affecting the ecological integrity of the Highlands Region"**

  Highlands Act, N.J.S.A. 13:20-11.a(1)(a)

- **"…The council shall also consult with the Department of Transportation in preparing the transportation component of the regional master plan.**

  Highlands Act, N.J.S.A. 13:20-9.a.

Technical Approach and Methods
Transportation and Air Quality

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Transportation and Air Quality

Program Objectives

- Describe the current condition and existing capacity of transportation in the Highlands
- Evaluate the extent to which existing and future human populations be served without further impairing air quality
- Develop transportation strategies that are most beneficial in creating sustainable growth and a reliable transportation system

Transportation and Air Quality

Data Sources

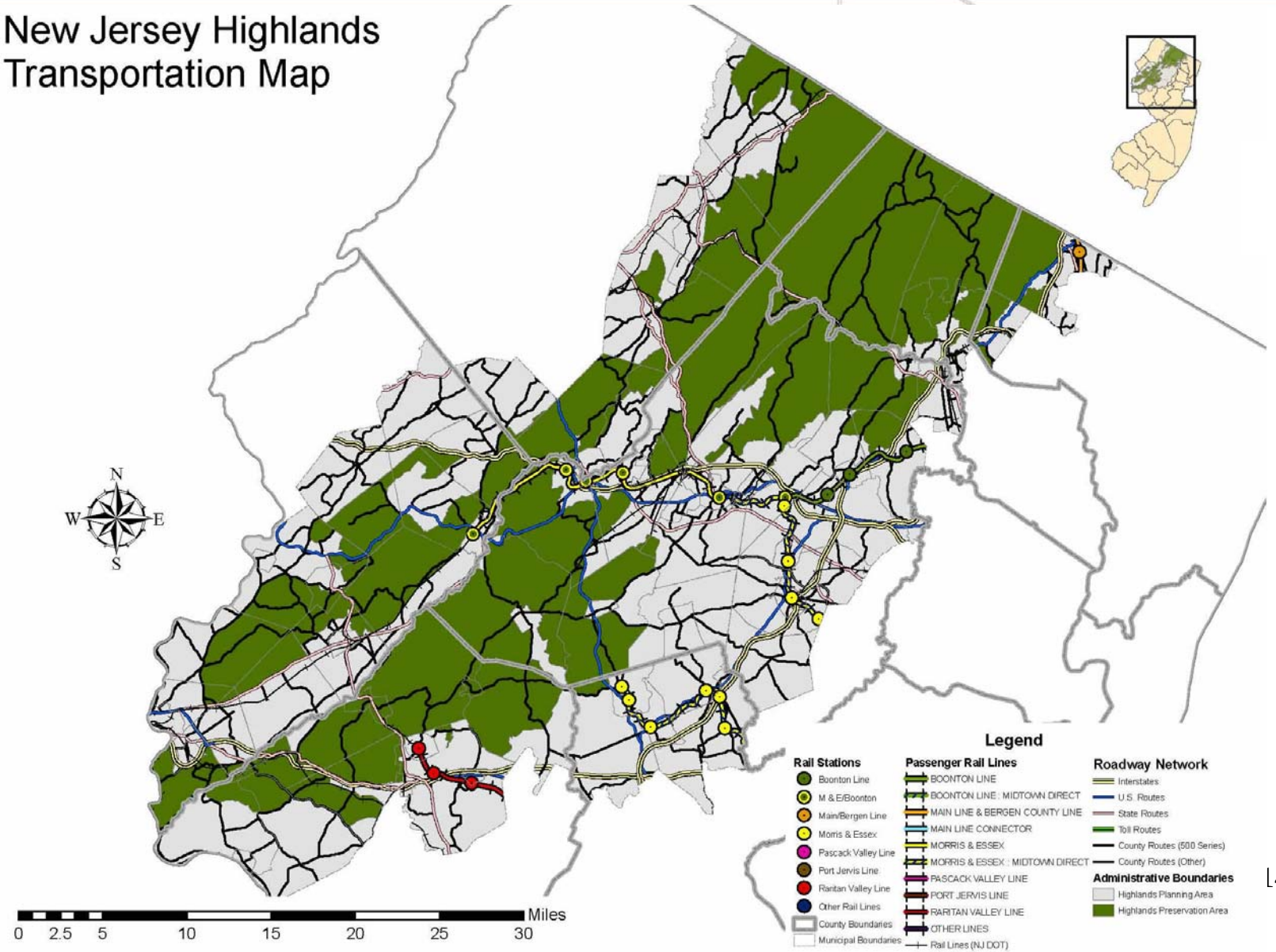
- **Transportation Assessment**
  - **North Jersey Regional Transportation Model - Focus Model for Highlands**
  - **Traffic Counts**
  - **Geographic Information System Mapping**
  - **Historical Patterns**
  - **Research on Air Quality and Transportation Issues**
  - **Transportation Assessment – Existing Conditions**
    - Results of Highlands Focus Model
    - New Jersey Transit data
    - New Jersey Dept. of Transportation data
    - North Jersey Transportation Planning Authority (NJTPA) data

Transportation and Air Quality

Data Sources

- **Air Quality Assessment**
  - **NJ Dept. of Environmental Protection**
  - **Environmental Protection Agency**
  - **NJTPA Conformity analysis**
  - **Focus model air quality analysis**

Transportation and Air Quality



Transportation

Technical Approach

- **Transportation System Capacity Assessment**
  - **Use North Jersey Regional Transportation Model (NJRTM) to create Focus Model for Highlands (Base 2002 Year only):**
    - Objectives:
      - » identify existing NJRTM road and transit network and capacities;
      - » Identify roadways that cannot sustain additional vehicular growth
    - Determine geographic focus area
    - Collect data from regional and county models
    - Collect and validate traffic counts
    - Create and validate socioeconomic data
    - Validate and run model
    - Receive and Review Results

Transportation

Technical Approach

- **Transportation System Capacity Assessment (continued)**
  - **Data Gaps**
    - Additional traffic count and detailed socioeconomic data
    - Better road network and more detailed Traffic Analysis Zone (TAZ) structure

Transportation

Technical Approach

▪ Transportation System Preservation and Sustainability

Develop a transportation element that identifies improvements based on capacity and other analyses, interagency coordination, local input and sustainable transportation practices

- Research – Inform and Refine Approach:
  - Sustainable Transportation Strategies
  - Air Quality, Land Use and Transportation Planning connections
  - Sprawl Impacts on Transportation

Sprawl Attribute	Transportation Impacts
Density	Reduces density. Requires more land for roads and parking facilities.
Greenfield development	Allows urban fringe, greenfield development.
Dispersion	Allows more dispersed destinations.
Mix	Allows single-use development.
Scale	Requires large-scale roads and blocks.
Street design	Roads emphasize vehicle traffic flow, de-emphasize pedestrian activities.
Transportation options	Degrades walkability, reducing pedestrian and transit accessibility.

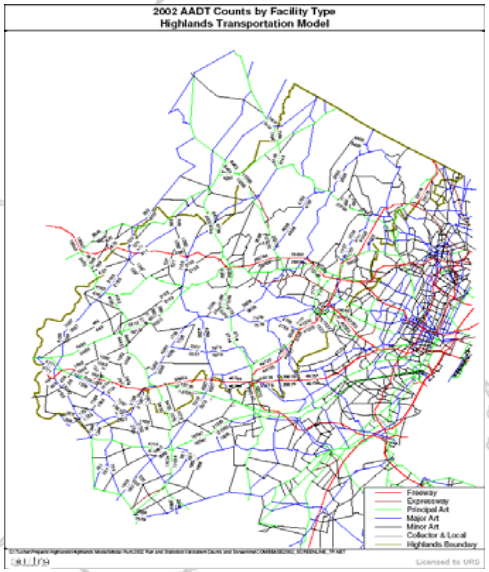
Source:Online TDM Encyclopedi, Victoria Policy Transport Institute, 2006

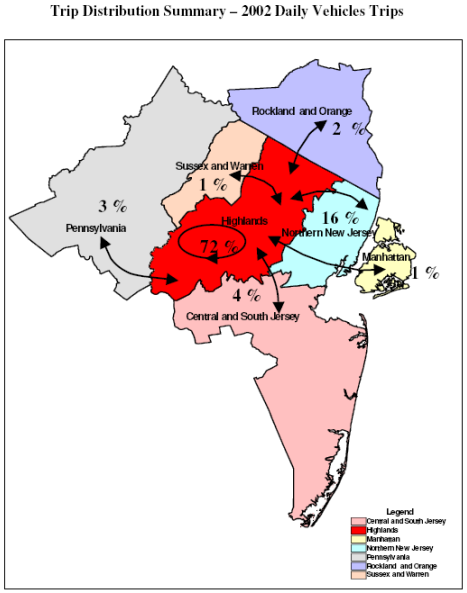
- Encourage community-developed local circulation planning
- Identify potential transportation improvements & capital investment strategies in support of projects, funding and programs which promote smart growth & fit above framework

Transportation

NJRTM Focus Model for Highlands

- **Data Gaps:**
  - Better road network – to provide comprehensive understanding of regional travel
  - More traffic counts to ensure valid results
  - Future Scenarios analyses and comparison





Transportation

NJRTM Focus Model for Highlands

Table 4: Total Lane-Miles in Highlands Portion of 2002 NJRTM Highway Network

County	Facility Type						Total
	Freeway	Expressway	Principal Arterial	Major Arterial	Minor Arterial	Collector	
Bergen	44	20	16	13	42	0	135
Hunterdon	112	0	84	120	121	6	443
Morris	359	62	303	214	430	2	1,370
Passaic	24	0	37	72	104	0	237
Somerset	136	0	37	62	25	2	262
Sussex	9	21	102	92	80	0	304
Warren	138	0	126	86	203	0	553
Total	**822**	**103**	**705**	**659**	**1,005**	**10**	**3,304**

Transportation

NJRTM Focus Model for Highlands

- **Data Gaps:**
  - Future socioeconomic data
  - More detailed socioeconomic data for model refinement

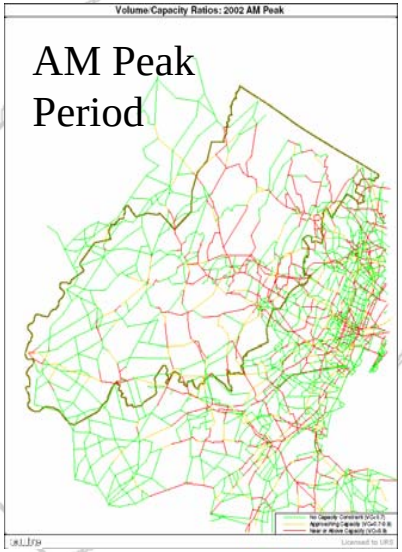
Table 11: Socioeconomic Data within Highlands Portion of 2002 NJRTM Highway Network

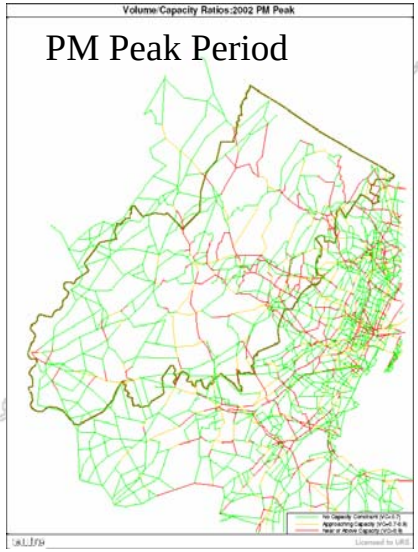
County	Population	Household	Employment			
			Basic	Retail	Service	Total
Bergen	37,263	13,909	10,577	3,325	10,265	24,167
Hunterdon	59,662	20,268	7,149	3,609	14,890	25,648
Morris	399,449	145,007	78,388	35,694	137,061	251,143
Passaic	68,961	24,364	4,061	2,166	10,995	17,222
Somerset	44808	17845	9858	3249	14214	27,321
Sussex	93,104	32,825	5,133	3,277	13,373	21,783
Warren	98,667	37,450	11,889	6,968	15,465	34,322
Total	**801,914**	**291,668**	**127,055**	**58,288**	**216,263**	**401,606**

Transportation

NJRTM Focus Model for Highlands

- **Transportation Capacity 2002**
  - **Identifies worst capacity per link for morning and evening rush hours**
    - Red = at or near capacity
    - Yellow = approaching capacity
    - Green = capacity not constrained





Air Quality

Technical Approach

- **Consider air quality in the development of plans and programs for the Highlands**
  - **Consider how the built environment and it's geographical arrangements impact the quality and quantity of air pollutants, how industry emissions from other locales may travel and affect human health, and how and by what mode people and goods are transported which affects the amounts of pollutants emitted from traffic.**
  - **Promote a transportation system for the Highlands Region that is protective of the regional air quality.**
  - **Develop a process for interagency coordination that is supportive of regional air quality initiatives.**

Problem Statements
Transportation and Air Quality

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Problem Statement #1

- In light of identifying where existing infrastructure is at capacity, where is additional traffic growth most appropriate? And what roadways cannot sustain additional vehicular growth?

Potential Approach:

- Identify corridors or growth areas for further evaluation

Data Gaps

- Additional Traffic Analysis Zone definition to model more Highlands roads – many not in NJRTM
- Limited traffic count data
- Corridor specific analyses
- Community: land use- transportation analyses once growth areas determined
- Transportation analysis of future trend and build scenarios

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Problem Statement #2

- **How do we best integrate land use and transportation planning to minimize impacts on the transportation system?**

Potential Approach:

- **Sustainable Transportation Strategies**
- **Air Quality, Land Use and Transportation Planning connections**
- **Sprawl Impacts on Transportation**

Sprawl Attribute	Transportation Impacts
Density	Reduces density. Requires more land for roads and parking facilities.
Greenfield development	Allows urban fringe, greenfield development.
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Mix	Allows single-use development.
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Transportation options	Degrades walkability, reducing pedestrian and transit accessibility.

Source:Online TDM Encyclopedi, Victoria Policy Transport Institute, 2006

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Data Gaps

- Community-developed local circulation planning in coordination with Highlands RMP
- Smart growth design principles
- Local pedestrian and bicycle plans
- Potential transportation improvements & capital investment strategies which promote smart growth & fit above framework
- Identify missing roadway links

Transportation and Air Quality

Problem Statement #3

- For growth areas to be the most efficient, what land planning and transportation techniques could be incorporated to maximize multi-modal transportation opportunities?

Potential Approach:

- Establish criteria for design guidelines which encourage multi-modal and non-motorized travel

Data Gaps

- Research and evaluation of design guidelines for Transit Oriented Developments in environmentally sensitive locations
- Quantification of changes in selected criteria such as vehicle miles traveled, mode choice, etc

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Problem Statement #4

- In consideration of the uniqueness of Highlands area natural resources, what is the best way to coordinate regional and statewide transportation planning strategy decision-making amongst the various agencies and technical experts?

Potential Approaches:

- Protect capacity,
- minor physical improvements that aid capacity and improve safety;
- system maintenance;
- Intelligent Transportation Systems; incident management;
- access management;
- travel demand management
- Road ecology

Data Gaps

- Detailed analysis/application of appropriate strategies to regional (NJRTM) and local major roads in light of Highlands sensitivities

Transportation and Air Quality

Problem Statement #5

- What are the key air quality issues related to transportation that affect the Highlands Region? What are the key stationary source issues that affect the Highlands Region? What measures or strategies could be employed to have the least negative impact on air quality?

Potential Approach:

- How should interagency coordination best be facilitated to support addressing this issue?

Data Gaps

- Current analysis of road network useful largely for comparison of alternate scenarios for transportation system only (not stationary sources) – awaiting completion of build out model process to proceed
- Not a hot spot analysis
- Stationary source data