North Jersey Regional Transportation Model- Enhanced
Transportation Modeling Overview
May 19, 2008

Instructors
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Agenda

- Transportation Planning and Modeling
- Typical Applications of Models
- Questions Put to Models
- The Model as but One Tool
- Data Driving the NJRTM-E
- Break
- Types and Varieties of Outputs
- Opportunities for Interagency Coordination
Transportation Planning and Modeling
How do they fit together?

- Planning and Modeling are Inextricably Linked
  - “Good forecasting is the start of good planning”
- Quiz for the Audience- What is a Model?
- The “Right” Model Depends on the Questions Asked
- The Goal Today- Demystifying the NJRTM-E
NJTPA Region Study Area

- 6.5 million residents, 3.6 million jobs in Northern New Jersey
- 15.3 million people in adjoining areas
- 23,000 miles of roads
- 250 bus routes, 12 rail lines
Our Challenge - Overburdened Infrastructure

- There’s Lots of Traffic Today
- Public Transit Capacity is Limited
- Travel Grows as the Region Grows
- Land Use Patterns Haven’t Always Helped
- We Must Do Something
- What Will be Effective?
What Do I Need to Know To Solve This Problem

- How Big is the Problem?
- Where is All the Travel Coming From?
- Where is All the Travel Going To?
- How Will Travelers Respond to Different Solutions?
- How Long Would a Solution be Good For (return on investment)?

Answer: LET’S STUDY IT!

- Maybe Toll It
- Maybe a BRT
- Maybe Build/Upgrade a Rail
- Maybe Upgrade a Parallel Facility
Possibilities...
Man, I’m Going to Need a Lot of Information. Where can I find it?

An Introduction to the NJRTM-E
The Basics

Who

Where

Why

How

Where
The Basics

- **Trip Generation- Who and Why Should I Go**
  - Considers the location of people and destination potential
  - Households, employment, land use, activity centers

- **Trip Distribution- Where to Go**
  - Considers the choices available to travelers and why they go to one vs. another
  - Where is it and how much does it cost me to go to one vs. another?

- **Mode Choice- By What Means to Go**
  - Considers the relative attractiveness of choices for various types of trip making
  - To go from home to work, should I drive, walk, take the bus, take the train, etc

- **Assignment- By What Route to Go**
  - Considers the best and alternate routes between the selected origin location and destination location now that I’ve selected a mode
The Basics
Saying it Differently (aka in Jargonese)

- **I** = origin or trip starting point, typically home
  - Maybe in Hackensack
- **J** = destination or trip ending point, typically a trip attractor (job, mall, etc)
  - Maybe in Newark
Traffic Analysis Zones

- A TAZ is a Unit of Geography Used to Forecast Trip Making
  - Should be consistent (nested inside) network boundaries
  - Should be consistent with model application

- Considerations
  - Fine Enough to Forecast Traffic
  - Course Enough to Get Data On

- Boundaries Typically Respect
  - Manmade Features (Roads, RR, etc)
  - Natural Features (Rivers, etc)
  - Political Features (census, city, county, state)
Standard Four-step Demand Forecasting Model

- Highway Network
  - Highway Path Building and Toll Estimation
- Socioeconomic Data
  - Trip Generation
- Transit Network
  - Transit Path Building and Fare Estimation

- Trip Distribution
- Mode Split
- Highway Assignment

Feedback to Convergence
The Basic Elements

- Households and their Trip Making Behavior
- Employees and their Trip Making Behavior
- Locations of Households and Employees
- Travel Opportunities and Costs
- Transportation Infrastructure Available and its Capacity
NJRTM-E Specific Examples

- Who & Where are They - Zonal Data
- Where to Go - Trip Ends, Travel Time and Cost Matrices
- By What Means to Travel - Mode Choice Model, Costs and Congestion, Roadway Network, Transit Network
- Which Route to Take - Traffic Assignment, Transit Assignment, Feedback Loop
Now Let’s Answer Question 1: How Big is the Problem?
Sources of Understanding The Problem

- Observation
  - Traffic Counts
  - Origin/Destination Surveys
  - Transit Ridership Surveys
- User Opinion Surveys
- Newspaper Articles
- Field Review
Now Let’s Answer Question 2: Where is All the Travel Coming From?
Simple Trip Chain

<table>
<thead>
<tr>
<th>TRIP PURPOSE</th>
<th>ZONE A</th>
<th>ZONE B</th>
<th>ZONE C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HB WORK</td>
<td>Zone A</td>
<td>Zone B</td>
<td></td>
</tr>
<tr>
<td>2. NHB</td>
<td>Zone B</td>
<td>Zone C</td>
<td></td>
</tr>
<tr>
<td>3. HB SHOP</td>
<td>Zone A</td>
<td>Zone C</td>
<td></td>
</tr>
</tbody>
</table>
Simple Cross-Classification Technique
NJRTM-E Trip Generation

- **Cross-classification**
  - **Household Lifecycle Groups (3)**
    - With Retirees (at least 1)
    - With Children
    - Without Retirees or Children
  - **Household Income Groups (5)**
    - 0-15K
    - 15-35K
    - 35-75K
    - 75-150K
    - 150k+
  - **Workers Per Household (4)**
    - 0 Worker
    - 1 Worker
    - 2 Workers
    - 3+ Workers
  - **Persons Per Household (6)**
    - 1 to 6+ Persons

An example of NJRTM-E trip rates
NJRTM-E Trip Purposes

- Trips are Classified Based on Whether they are Oriented Toward Home or Work:
  - Home-Based Work Direct (from home to work)
  - Home-Based Work Strategic (e.g., drop off kids, pick up coffee on the way)
  - Home-Based Shopping
  - Home-Based Other (e.g., leisure, visit family)
  - Home-Based University
  - Work-Based Other (e.g., to lunch, shopping)
  - Non-Home Non-Work (all the rest - e.g., from a store to school)
  - Trucks
Now Let’s Answer Question 3: Where is All the Travel Going To?
I. Trip Generation Estimates

<table>
<thead>
<tr>
<th>Zone</th>
<th>Production</th>
<th>Attraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>250</td>
</tr>
<tr>
<td>2</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>3</td>
<td>300</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>600</td>
<td>600</td>
</tr>
</tbody>
</table>

II. Trip Distribution (Zones)

- Zone 1: 100 Production, 250 Attraction
  - 20 Trips in 5 Minutes
- Zone 2: 300 Attraction
  - 30 Trips in 15 Minutes
- Zone 3: 50 Attraction
  - 50 Trips remain as Intrazonal Trips
Sample Trip Distribution

Final model must replicate trips by time interval. This proves the model allocates trips properly.

<table>
<thead>
<tr>
<th>OBS. AVG. (min.)</th>
<th>EST. AVG. (min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.3</td>
<td>23.1</td>
</tr>
</tbody>
</table>
NJRTM-E Distribution

- Direction and Magnitude of Travel
Now Let’s Answer Question 4: How Will Travelers Respond to Different Solutions?
Mode Choice

- Given the Available Modes to Get from Here to There, Which Ones are Travelers Likely to Use
- The Chance of a Mode Being Selected is a Function of:
  - Travel Time
  - Cost (Out of Pocket and Fixed)
  - Transfers
  - Walk Time
  - Wait Time
  - User Characteristics and Biases
Modes and Choices in NJRTM-E

Total Person Trips

Auto Mode Share

Drive-Alone Mode

HOV-2 Mode

Shared-Alone Mode

HOV-3 Mode

Transit Mode Share

Walk Access

HOV-4+ Mode

Auto Access
### Mode Choice Market Segmentation Example

#### Market Segment Calculations

<table>
<thead>
<tr>
<th>MARKET SEGMENT</th>
<th>PERCENTAGE ALLOCATION</th>
<th>TRIP ALLOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WALK - TRANSIT</td>
<td>1.0%</td>
<td>1</td>
</tr>
<tr>
<td>DRIVE - TRANSIT</td>
<td>9.0%</td>
<td>9</td>
</tr>
<tr>
<td>NO - TRANSIT</td>
<td>90.0%</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Competing Modes Available

<table>
<thead>
<tr>
<th>TRANSIT MODES</th>
<th>AUTO MODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL BUS</td>
<td></td>
</tr>
<tr>
<td>EXPRESS BUS</td>
<td></td>
</tr>
<tr>
<td>AUTO MODES</td>
<td></td>
</tr>
<tr>
<td>SOV</td>
<td></td>
</tr>
<tr>
<td>HOV2</td>
<td></td>
</tr>
<tr>
<td>HOV3</td>
<td></td>
</tr>
</tbody>
</table>

#### Diagram

- **Origin Zone**
  - 10% Walk Coverage
- **Express Bus P/R**
- **Destination Zone**
  - 10% Walk Coverage
- **Bus Line**
NJRTM-E Mode Choice

- 5 Income Classes for Work Trips

![Graph showing 5 income classes for work trips in Year 2000.](image-url)
NJRTM-E Mode Choice - AM Peak

- Auto: 91%
- Walk to Transit: 6%
- Drive to Transit: 3%
Let’s Not Forget

- Trucks Can’t Readily Change Modes
- Some People Don’t Have a Car (captive)
- Some People Will Spend Anything to Save a Minute
- Some People Will Not Spend Anything to Save an Hour
Now Let’s Answer Question 4: How Will Travelers Respond to Different Solutions?
Assignment

- Given the Number of Trips by Mode have been Calculated, Assignment Puts those trips on Specific Routes (road, transit)
- Transit Assignment is a Function of the Best Choice
- Highway Assignment is a Function of the Best Choice
  - Travel Time
  - Toll Cost
  - Congestion
Equilibrium Assignment Process

<table>
<thead>
<tr>
<th>INITIAL</th>
<th>ITERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>25 19 23</td>
</tr>
<tr>
<td>0</td>
<td>75 58 55</td>
</tr>
<tr>
<td>0</td>
<td>0 23 22</td>
</tr>
<tr>
<td>LAMBDA</td>
<td>.75 .23 .05</td>
</tr>
</tbody>
</table>

First Interaction Path
Second Interaction Path
Third Interaction Path
Capacity Restraint - Bureau of Public Roads Delay Calculation “BPR Formula”

\[ T = T_0 \left(1 + 0.15\left(\frac{V}{C}\right)^4\right) \]

- Travel Time (Minutes)
- Traffic Volume/Capacity
Roadway Traffic Forecast

24,000 vehicles in AM peak hour

AM Peak Vehicle Trips by Purpose
Validation Year

24,000 vehicles in AM peak hour
NJRTM-E Transit Assignment

- Results for Modes, Lines or Stops
- Information Available About
  - Ridership
  - Revenues
  - Passenger Miles of Travel
  - Vehicle Fleet Requirements

<table>
<thead>
<tr>
<th>Station</th>
<th>Base</th>
<th>Scenario 3A</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay Head</td>
<td>885</td>
<td>889</td>
<td>1.00</td>
</tr>
<tr>
<td>Pt Pleasant Beach</td>
<td>2,376</td>
<td>2,372</td>
<td>1.00</td>
</tr>
<tr>
<td>Manasquan</td>
<td>1,811</td>
<td>1,814</td>
<td>1.00</td>
</tr>
<tr>
<td>Spring Lake</td>
<td>1,867</td>
<td>1,872</td>
<td>1.00</td>
</tr>
<tr>
<td>Belmar</td>
<td>1,083</td>
<td>1,086</td>
<td>1.00</td>
</tr>
<tr>
<td>Bradley Beach</td>
<td>1,799</td>
<td>1,804</td>
<td>1.00</td>
</tr>
<tr>
<td>Asbury Park</td>
<td>1,784</td>
<td>1,786</td>
<td>1.00</td>
</tr>
<tr>
<td>Allenhurst</td>
<td>294</td>
<td>294</td>
<td>1.00</td>
</tr>
<tr>
<td>Elberon</td>
<td>1,246</td>
<td>1,245</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td>13,145</td>
<td>13,162</td>
<td>1.00</td>
</tr>
<tr>
<td>Long Branch</td>
<td>4,592</td>
<td>4,598</td>
<td>1.00</td>
</tr>
<tr>
<td>Little Silver</td>
<td>4,615</td>
<td>4,603</td>
<td>1.00</td>
</tr>
<tr>
<td>Red Bank</td>
<td>4,340</td>
<td>4,337</td>
<td>1.00</td>
</tr>
<tr>
<td>Middletown</td>
<td>6,953</td>
<td>6,967</td>
<td>1.00</td>
</tr>
<tr>
<td>Hazlet</td>
<td>4,661</td>
<td>4,696</td>
<td>1.01</td>
</tr>
<tr>
<td>Matawan</td>
<td>16,378</td>
<td>17,047</td>
<td>1.04</td>
</tr>
<tr>
<td>South Amboy</td>
<td>4,914</td>
<td>5,813</td>
<td>1.18</td>
</tr>
<tr>
<td>Perth Amboy</td>
<td>3,123</td>
<td>3,125</td>
<td>1.00</td>
</tr>
<tr>
<td>Woodbridge</td>
<td>3,550</td>
<td>3,556</td>
<td>1.00</td>
</tr>
<tr>
<td>Avenal</td>
<td>486</td>
<td>489</td>
<td>1.01</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td>53,612</td>
<td>55,231</td>
<td>1.03</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>66,757</td>
<td>68,393</td>
<td>1.02</td>
</tr>
</tbody>
</table>
Now Let’s Answer Question 5: How Long Would a Solution be Good For (return on investment)?
Solution

- Use the NJRTM-E
- Give it Forecasts of
  - Networks
  - Demographics
- Analyze Results to See if Solution Fits in 5 Years, 10 Years, 30 Years
- Does the Result Fit the Community’s Vision?
Break
Typical Applications of the NJRTM-E

- **Regional/State**
  - Air Quality Analysis
  - Evaluation of Major Regional Projects
  - Impacts on “Neighbors”
  - Freight
  - Roadway Revenue Forecasts (Toll, Gas Tax, etc)

- **Subarea and Local**
  - Land Use Plans
  - Bypasses and Widening
Model Users

- Agencies
  - NJTPA
  - NJDOT
  - NJ Transit

- Subregions
  - Counties
  - Newark/Jersey City

- Other Agencies
  - In-state Authorities
  - Adjacent MPOs

- Consultants
Data Driving the NJRTM-E

- **Socio-economic**
  - Households by Lifestyle, Income and Persons
  - Employment by Type
  - Truck Terminals
  - University Enrollment
  - Special Generators
  - Etc.

- **Network**
  - Facility Type
  - Lanes
  - Transit Services
  - Etc.

- **Behavioral**
  - Parameters, rates, coefficients, etc.

*Where’s The Traffic Coming From or Going To?*

*How Will Travelers Respond to Different Solutions?*
Questions Put to Models

- Those They Can Answer
- Those They Can Only Partially Answer
- Those They Can Not Answer
- A Function of
  - How far out is the forecast
  - What degree of sensitivity to variables
  - Certainty of Independent variables
  - How much variation in variables and coefficients
  - Sometimes the model is the ONLY tool available for certain analyses
Using the Tool Appropriately

- Understanding the Character of a Macroscopic Model
- Understanding the Limitations of Each Type of Model
  - Trend- No behavior considerations
  - Macroscopic/Demand
  - Microscopic/Operational
- Understanding the Causes of Model “Error”
  - Averages
  - Specification
  - Cumulative and Offsetting
- Compensating for Errors and Unknowns
  - NCHRP Methods
  - Sensitivity Analysis
  - Hedging Your Bet on Error- What if?
Types of Demand Models

- Gaming/Visioning
- Direct Demand
- Simple Four-step
- Complex Four-step
- Complex Four-step with Feedback (NJRTM-E)
- Activity-based
- Integrated Transport/Land Use Models
The NJRTM-E Model as One Tool in a Toolbox

- Long-Range Planning Tools (NJRTM-E)
- Short-Range Planning Tools (trend, pivot point, incremental)
- Operational Planning Tools (DYNASIM, CORSIM, SYNCRO)
- Tools to Communicate Alternatives’ Concepts and Likely Outcomes
Types and Varieties of Outputs

- Translating Model Outputs to Meaningful Decision Making Results
- Summaries
  - Tabular
  - Graphical
  - Map
Summarizing Land Use Input/Outputs

- **Thematic Maps**
- **Useful for Presenting Spatial Information that relates to a Specific Geography**
  - Zones
  - Census Tracts
  - City/County Boundaries
- **NJRTM-E Examples**
  - Zonal Attributes
  - Trip Ends
  - Travel Time

*Where’s The Traffic Coming From or Going To?* 

*Income by Traffic Zone*
Summarizing Land Use Inputs/Outputs

- **Total Employment in the Year 2000**

  
<table>
<thead>
<tr>
<th>Sector</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>40%</td>
</tr>
<tr>
<td>Service</td>
<td>42%</td>
</tr>
<tr>
<td>Retail</td>
<td>18%</td>
</tr>
</tbody>
</table>

*Where’s The Traffic Coming From or Going To?*
Summarizing Land Use Inputs/Outputs

- **Histograms**
  - Great for Showing Shares, Trip Length and Other Frequency-type Data

---

**Where’s The Traffic Coming From or Going To?**

Year 2000

<table>
<thead>
<tr>
<th>Household Income</th>
<th>AM Peak Work Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>150k+</td>
<td>600,000</td>
</tr>
<tr>
<td>75-150K</td>
<td>1,400,000</td>
</tr>
<tr>
<td>35-75K</td>
<td>1,500,000</td>
</tr>
<tr>
<td>15-35K</td>
<td>700,000</td>
</tr>
<tr>
<td>0-15K</td>
<td>100,000</td>
</tr>
</tbody>
</table>
### Summarizing Land Use Inputs/Outputs

- **Tables**
  - Easily Show Detailed Results and Can Make Subtle Data Differences Clearer

#### Transit Ridership Summary

<table>
<thead>
<tr>
<th>Rail/Ferry Services</th>
<th>Observed</th>
<th>Estimated</th>
<th>Diff</th>
<th>% Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main/Bergen/Port Jervis Line</td>
<td>22,380</td>
<td>26,192</td>
<td>3,812</td>
<td>17.0%</td>
</tr>
<tr>
<td>Pascack Valley Line</td>
<td>7,018</td>
<td>3,352</td>
<td>-3,666</td>
<td>-52.2%</td>
</tr>
<tr>
<td>Boonton Line</td>
<td>9,824</td>
<td>14,620</td>
<td>4,796</td>
<td>48.8%</td>
</tr>
<tr>
<td>Morris/Essex Line</td>
<td>40,250</td>
<td>30,904</td>
<td>-9,346</td>
<td>-23.2%</td>
</tr>
<tr>
<td>Raritan Valley Line</td>
<td>18,070</td>
<td>16,556</td>
<td>-1,514</td>
<td>-8.4%</td>
</tr>
<tr>
<td>North Jersey Coastline/Northeast Corridor Line</td>
<td>106,052</td>
<td>94,154</td>
<td>-11,898</td>
<td>-11.2%</td>
</tr>
<tr>
<td>Metro North Trips from West of Hudson Locations</td>
<td>5,248</td>
<td>3,224</td>
<td>-2,024</td>
<td>-38.6%</td>
</tr>
<tr>
<td><strong>Total Rail Service</strong></td>
<td>208,842</td>
<td>189,002</td>
<td>-19,840</td>
<td>-9.5%</td>
</tr>
<tr>
<td><strong>PATH</strong></td>
<td>500,532</td>
<td>519,082</td>
<td>18,550</td>
<td>3.7%</td>
</tr>
<tr>
<td><strong>Newark City Subway Line</strong></td>
<td>36,232</td>
<td>30,385</td>
<td>-5,847</td>
<td>-16.1%</td>
</tr>
<tr>
<td><strong>Hudson-Bergen LRT</strong></td>
<td>22,000</td>
<td>31,838</td>
<td>17,580</td>
<td>123.3%</td>
</tr>
<tr>
<td><strong>NJ Ferry Service</strong></td>
<td>23,097</td>
<td>14,838</td>
<td>-8,259</td>
<td>-35.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>790,703</td>
<td>785,145</td>
<td>-5,558</td>
<td>-0.7%</td>
</tr>
</tbody>
</table>

**How Will Travelers Respond to Different Solutions?**
Presenting Trip Distribution Results

- Thematic Map

How Will Travelers Respond to Different Solutions?

Destinations, Color by Trips Attracted from a Zone
Presenting Trip Distribution Results

- Desire Lines

Where’s The Traffic Coming From or Going To?
Understanding Mode Choice Results

- Thematic Map of Low Income Households

Where’s The Traffic Coming From or Going To?

How Will Travelers Respond to Different Solutions?

Income by Traffic Zone
Understanding Mode Choice Results

- Pie Charts and Histograms

**New Development**

- **LOV Trips**: 80%
- **HOV Trips**: 20%

*Work Trips Shares from a New Development*

*Trips by Purpose*
Understanding Mode Choice Results

- Thematic Maps of Walk Buffer Areas Maps

Mountainside Twp.  
(Zone 1784)
Understanding Mode Choice Results

- Thematic Map of Trip Ends Served by Transit

Example - Zones with Significant Commuter Rail Mode Trip Destinations

How Will Travelers Respond to Different Solutions?
Understanding Mode Choice Results

- **FTA SUMMIT Application**
  - Convert Model Outputs to Summit-ready Inputs
  - Executes Fixed Trip Table Mode Choice for Work and Non-work Trips
  - Allows Mode Results to be Sent to SUMMIT Program for FTA Project Funding Requests
Presenting Transit Assignment

Simple Tables of Ridership, Boardings, Passenger Miles and other statistics by line/mode/operator

Transit Ridership Summary

<table>
<thead>
<tr>
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</tr>
<tr>
<td>North Jersey Coastline/Northeast Corridor Line</td>
<td>106,052</td>
<td>94,154</td>
<td>-11,898</td>
<td>-11.2%</td>
</tr>
<tr>
<td>Metro North Trips from West of Hudson Locations</td>
<td>5,248</td>
<td>3,224</td>
<td>-2,024</td>
<td>-38.6%</td>
</tr>
<tr>
<td>Total Rail Service</td>
<td>208,842</td>
<td>189,002</td>
<td>-19,840</td>
<td>-9.5%</td>
</tr>
<tr>
<td>PATH</td>
<td>500,532</td>
<td>519,082</td>
<td>18,550</td>
<td>3.7%</td>
</tr>
<tr>
<td>Newark City Subway Line</td>
<td>36,232</td>
<td>30,385</td>
<td>-5,847</td>
<td>-16.1%</td>
</tr>
<tr>
<td>Hudson-Bergen LRT</td>
<td>22,000</td>
<td>31,838</td>
<td>17,838</td>
<td>123.3%</td>
</tr>
<tr>
<td>NJ Ferry Service</td>
<td>23,097</td>
<td>14,838</td>
<td>-8,259</td>
<td>-35.8%</td>
</tr>
<tr>
<td>Total</td>
<td>790,703</td>
<td>785,145</td>
<td>-5,558</td>
<td>-0.7%</td>
</tr>
</tbody>
</table>

How Will Travelers Respond to Different Solutions?
Presenting Highway Assignment

- Simple Bandwidths of volume

How Will Travelers Respond to Different Solutions?
Presenting Highway Assignment

- Complex Bandwidths by SOV, HOV & Truck

How Will Travelers Respond to Different Solutions?
Presenting Highway Assignment

- Simple System-wide Indicator Tables
  - VMT
  - VHT
  - Hours of Delay
  - Lane Miles by FT, Congestion, Travel Speed, etc
Presenting Highway Assignment

Where's The Traffic Coming From or Going To?

- **Select Link Map**
  - Show where volumes are coming from and going to
  - Build select link trip table for district-to-district type summaries
Presenting Highway Assignment

Where's The Traffic Coming From or Going To?

Select-Link for I-78 Just West of I-287
Presenting Highway Assignment

Example of a Select Zone Analysis, Useful for Development Impact Review
Presenting Highway Assignment

- Turning Movement Diagrams

Where’s The Traffic Coming From or Going To?
Opportunities for Interagency Coordination

- Scheduled Model Updates
- Technical Coordination
- Users’ Group
- Pooled Data Development Opportunities
Coordination

Benefits

- Use of common modeling methodology
  - Model Structure
  - Model Database
- Facilitates transfer of study products between agencies
- Maximizes Resources
- Facilitates Regulatory Approvals
Schedule

- **Database Refinements & Minor Model Adjustments**
  - Annual Process
  - Lead by Single Agency
  - Input from All Agencies, Subregions and Adjacent MPOs
  - Should not impact ongoing planning studies

- **Major Model & Database Enhancements**
  - Influenced by Process of the Update Element
  - Influenced by Federal Regulatory Requirements
Caveats

- The NJRTM-E Model Is A Tool
  - Based on Average Human Behavioral Characteristics and Responses and the Transport System’s Characteristics
  - Remember, the AVERAGE family has 2.5 kids (none do)
  - For Every Average (mean), there is a standard deviation
  - The NJRTM-E is Built Upon the Most Recent AVAILABLE Data (some data are dated and some data are not available locally)

- Detailed Studies (FTA New Starts, Corridor Studies, Impact Assessment, etc) Should ALWAYS review the Model Data, Assumptions and Results and TAILOR the Tool to Fit the Conditions/Needs of the Study
Now it is Time for Q&A