

Socio-Economic Data and Model Development

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Why is SE Data Important?

**Socio-Economic
Data**



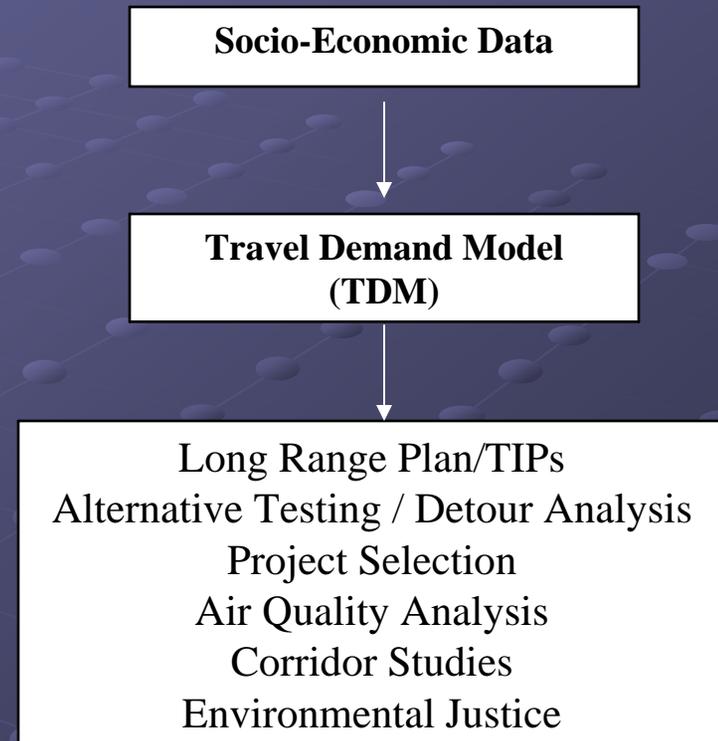
**Travel Demand
Model (TDM)**



Long Range Plan/TIPs
Alternative Testing / Detour Analysis
Project Selection
Air Quality Analysis
Corridor Studies
Environmental Justice

Why is SE Data Important?

- Travel Demand Model (TDM) needs Data
- The model is only as reliable as the data put into it
- The reliability of the model determines the results of the products



Why is SE Data Important?

- Current forecasting methodologies are sometimes not consistent with real world events
- Growth patterns are not straight line or consistent
- Factors applied in one area may not apply to another location

Goals of this Session

- A. To better understand why SE data is important
- B. To understand what methods are used
- C. To understand how and what one can do to enhance the current SE Data process

Objectives - What to Do?

1. Review SE Data Methods
2. Discuss Data Collection Process - Integrative
3. Discuss Documentation Methods
4. Discuss Importance of Base Year
5. Discuss Forecasting Conditions
6. Suggest Tools for Updating SE Data Collection

SE Data Methods

- Data Attributes for a TDM
 1. Population (in households vs. group quarters)
 2. Households (occupied vs. vacant DUs)
 3. Autos Available or Avg. Income
 4. Employment (retail, service, and other)

SE Data Methods

● What State Can Provide

■ Population and Households

● 2000 Census Blocks containing

- Population (total – not in group quarters)
- # of Households
- Persons/HH

● 2000 Census Block Groups containing

- Average Income/HH
- Auto Availability: # of HH with 0,1,2,3+ Autos

● Forecasted Population and HH by MCD or STWD TAZ

SE Data Methods

● What State can Provide

■ Types of Employment

- Retail Employment

- Service Employment

- Other (Non-Service, Non-Retail) Employment

■ Employment Databases

- MESA (2002)

- Claritas (2005)

SE Data Methods

● What MPOs need to Provide

- Determine Base Year Numbers for:
 - Occupied Households based on number of occupied building permits (minus group quarters)
 - Average Income/HH
 - # of Autos/HH or Auto Ownership/HH
- Review Claritas and MESA Data and provide correct location and number of employees by type for each TAZ
- Repeat Process for Future Years (Interim and Horizon Years)

Data Collection - Integrative Process

- Strong Coordination between MPO Staff and Local Communities
 - Local coordination and contacts determine the outcome of the TDM
 - Relationships with the local zoning and planning commissions
 - Use community master plans as sources

Data Collection - Integrative Process

- A methodology for the SE Data Process.
 - Consistent throughout base and future years
 - Clear and Comprehensive
 - Document and User Friendly
 - Consistent with the current trends in the real world

Documentation

- DOCUMENTATION is essential for several reasons
 - All Steps in Collecting and Gathering Data
- Documentation is Necessary to Defend Model Results
- The methodology/process is required for LRP

Base Year Importance

- The TDM Base Year Data is crucial to the overall reliability of the Model
- Need Reliable and Comprehensive Data
 - Detailed Traffic Count Program
 - Population/HH/Employment Estimates
- Base Year Appropriate to Capture any Major Changes in the Model Area

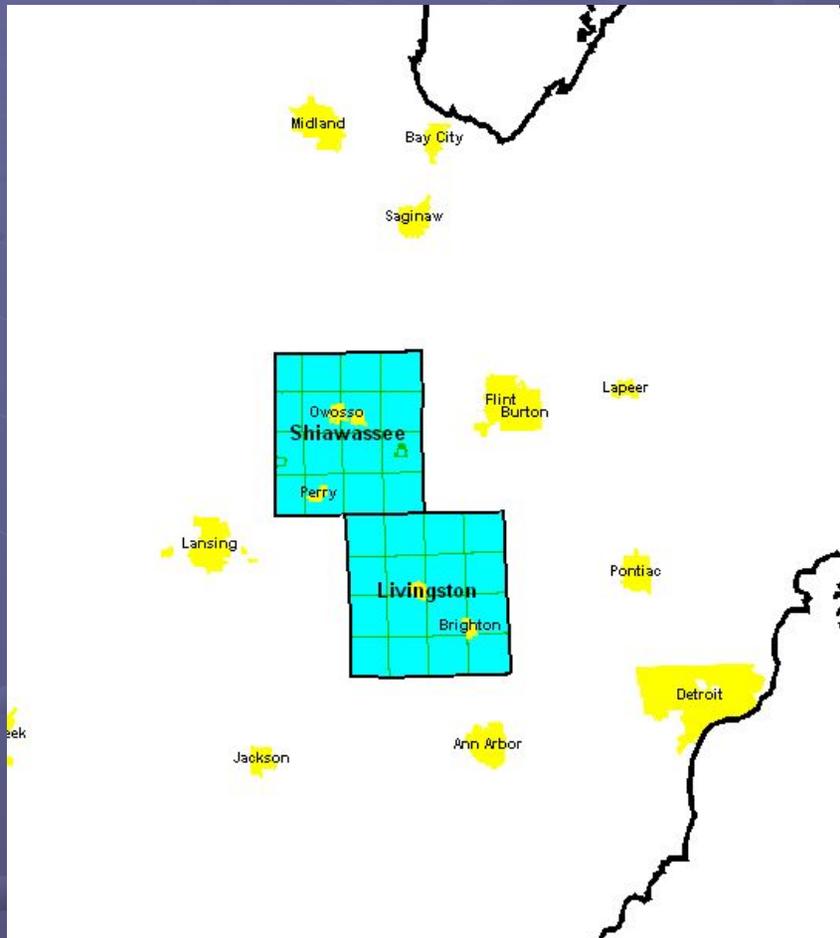
Forecasting Conditions

- Trends → Growth Patterns → Forecasting Behaviors
- MPOs develop interim year projections for traffic information
- Can't use a straight or compound growth factor to determine information for these years

Forecasting Conditions

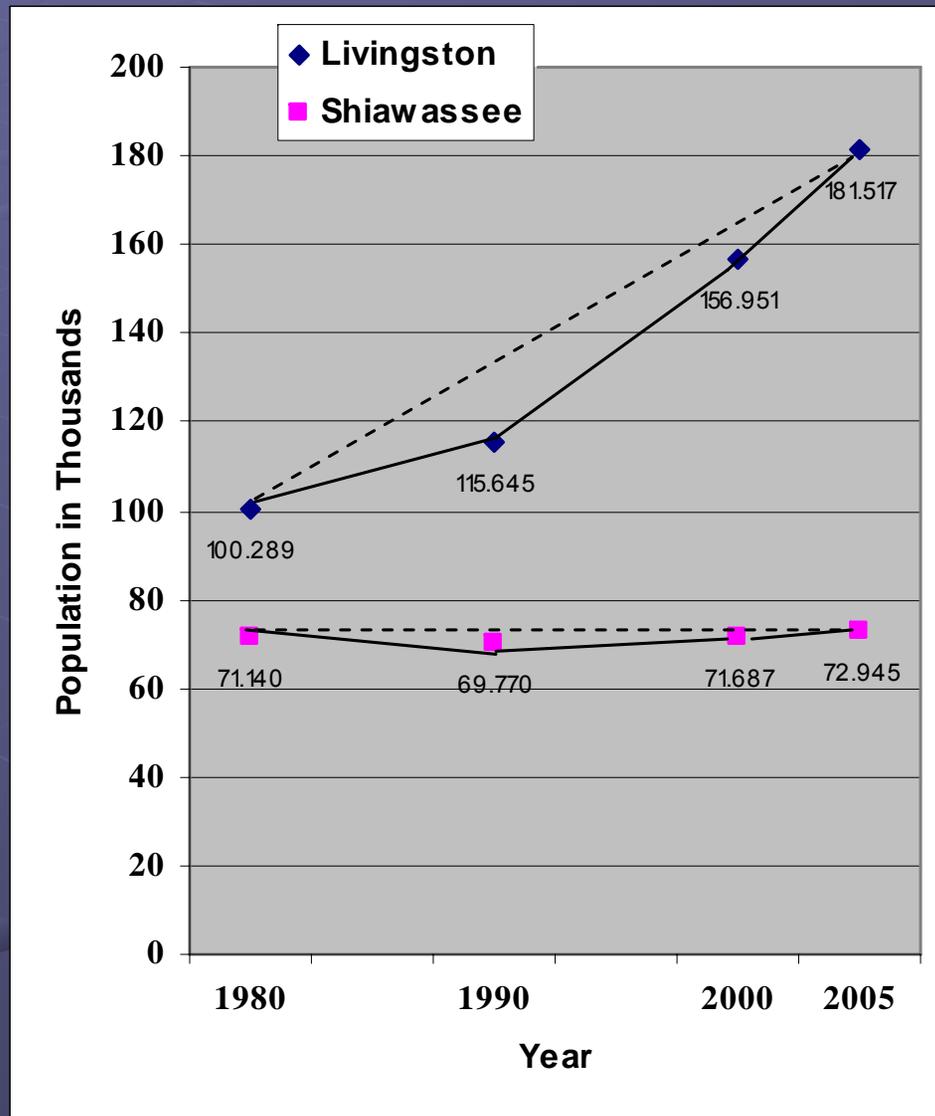
- MPO Staff should review characteristics of their areas (i.e.) growth patterns
- Outer Suburban communities are growing very rapidly
- Rural and Fringe areas grow at a slower speed
- High Density Urban and CBD areas are stable or are declining

Forecasting Conditions



- Examples: Livingston and Shiawassee Counties

Population Totals – Livingston and Shiawassee County



Livingston County: 1990-2005

- Livingston County: 57% growth
- Table: Average growth vs. Actual growth
- TAZs in same jurisdiction

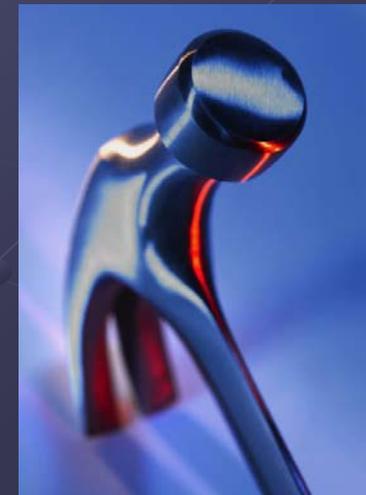
Jurisdiction	1990 Population	2005 Population (Average 57% across all jurisdictions)	2005 Actual Population	Actual Growth Percentage (1990-2005)
Unadilla Twp	2,949	4,629	3,406	15%
Howell	8,184	12,846	9,757	19%
Oceola Twp	4,825	7,573	10,877	125%
Hartland Twp	6,860	10,767	14,255	108%
Total	115,645	181,517	181,517	57%

Forecasting Conditions – Future Years

- When forecasting the interim and future year projections:
 - Understand current trends of model area
 - Use community master plans as sources
 - Use local partners to answer questions

Suggested Tools For Updating SE Data/Travel Demand Model

- a. TAZ Characteristic Document
- b. Preparation: Long-Term Timeline/ Implementation Task List
- c. Data/Model Maintenance – continuation process
- d. Continued Documentation of Process



TAZ Characteristics Document

- Comprehensive inventory of TAZ attributes
- Contains information such as: land use, growth potential, area types, etc.
- A separate document to be used as a basis for forecasting and updating SE Data
- Level of detail will be reflective of the size of one's area

TAZ Characteristics Document

● Group TAZs together by the following:

1. Land Use

2. Base and Future Year Area Types

3. Growth Patterns

4. Stages in Development Cycle

5. Potential Room for Growth within TAZ

TAZ Characteristics Document

● Other things to look for:

6. Proximity of TAZ to Urban/Suburban Area
7. Proximity of TAZ to the Major Attractions in the Model Area
8. Special Generators
9. Unique Attributes of the TAZ
10. Possibility of TAZ being split in future

TAZ Characteristics Document

● Why is this beneficial?

- Starting Point for Forecasting Data.
- One Comprehensive Document of all Characteristics/Attributes
- Will increase one's knowledge of the area
 - Better determine patterns of growth
- Tracking Mechanism
- Overall results will be more reliable
- Documentation is good reference

Preparation – Timeline and Implementation Task List

● What we know:

- Gathering data and developing models are tough and very time-consuming
- One cannot develop a model overnight
- Data takes a long time to collect.
- Therefore, we should **START EARLY!**

Preparation – Timeline and Implementation Task List

● Solution:

- Put together Model Development Timelines and Implementation Task List

- 2 LRP Cycles

- Include: SE Data Collection/Forecasting
 - : Model Development
 - : Model Maintenance



Preparation – Timeline and Implementation Task List

● Solution:

- Start early
- MPOs have limited staff but multiple responsibilities
- Will reduce chance of modeling requirements interfere/delay remainder of LRP requirements
- Goal: begin calibrating model when the LRP Kickoff Meeting occurs

Data/Model Maintenance

- We know that collecting SE data for an urban area takes a long time.
- Will reduce greater task of gathering new SE data at next model go-around
- Routine or Preventative Annual Maintenance tasks can save extra work down the road
 - Example: Routine Car maintenance
 - Oil Changes every 3000 miles
 - Rotation of Tires every 5-7,000 miles

Data/Model Maintenance

● How can this be done?

1. Roads

- a. Review capacity-effected projects on roadways
- b. Use TIPs and MDOT MAP Database as sources

2. TAZs

- a. Use population, household and employment characteristics from local communities
- b. Update these attributes annually to TAZ network
- c. TAZ Characteristics Document (always keep a working copy for updates)

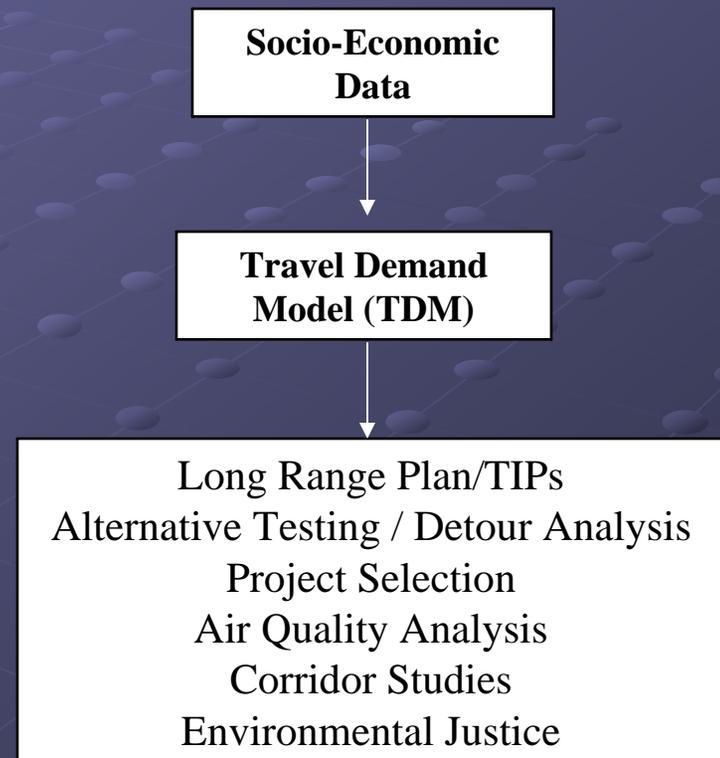
Documentation

● Continued Documentation of:

- Data Collection Methodology
- Data Collection Process
- Any additional surprises or hurdles
- Contacts within area (local, regional, statewide)
- TAZ Characteristics Document
- Model Development Process (SUTA)
- Model Validation Process and Results (SUTA)
- Ongoing Model Maintenance Updates

Conclusions

- Good Data creates Good Travel Demand Models which create Good Products



Conclusions

- Trends in development affect growth patterns
- SE Data development process is:
 - Integrative
 - Important
 - Must be documented
- Forecasting SE Data is as important and integrative as Base Year Collection
- We have discussed tools to address these issues

Highlights

- Maintain or increase contacts with local representatives
- Document the SE Data Methodology/Process
- Develop a TAZ Characteristics Report
- Develop a timeline and implementation plan for 2 LRP cycles
- Make sure to include model maintenance

Thank you.



Any Questions?

