

New York Metropolitan Transportation Council's Best Practice Model (BPM) Data Collection Effort

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NYMTC's Role in Transportation Decision-making

- New York Metropolitan Transportation Council is an MPO -includes 10 counties in downstate New York.
- It encompasses 2,440 square miles
- 12 million population (65% of NYS)
- 22,870 centerline miles of roads



Requirement for a New Model

NYMTC embarked to build a Travel Demand Model in response to ISTEA and CAAA of 1990s:

- Conformity
- Regional Transportation Plan

The model would provide the region with a powerful tool for:

- Major Investment Studies
- Congestion Management System
- Corridor and Subregional Analysis

NYMTC's Best Practice Model (BPM)



- 28 counties
- 3,586 TAZs (smaller homogenous subareas)
- 4 time periods
- 8 trip purposes
- 10 modes
- 8 million households
- 22 million trips

Innovations in BPM

Comparison of BPM versus traditional models

- Geographical Information System (GIS) based networks
- Journey versus trip as travel unit
 - Looks at behavior of the traveler rather than trip
 - Auto Ownership and family Interactions
 - Stops and stop locations
- Microsimulation Concept - Simulates travel pattern of each individual residing in the study area.
 - Time constraints
- Non Motorized Mode

Data Collection

Household Interview Survey

- 24-hour place-based diary completed by 100% of household members
 - Places visited
 - Activities at each place
 - Mode(s) of travel
- Travel Recorded April 1997 - May 1998
 - “Typical” travel days (no - holidays/summer)
- 1.5 Million dollars
- 2-3 years to process and clean the data

Respondent Participation

- 11, 264 completed surveys - 26% overall response rate
- 34% of all households contacted agreed to participate in study (n=14,441)
- 78% of all households that agreed to participate actually completed study

Problems Encountered Household Interview Survey

- Lack of Local Knowledge
 - Geocoding
 - Local Jargon
- Biases
 - Income Group
 - Age Group

Data Collection

Vehicle Counts for Model Validation

- 2300 screenline locations by 3 priority categories
- 100 Locations - 48-Hrs ATR Counts
- Sample Vehicle Classification Counts (FHWA-13 Class) and vehicle occupancy counts
- Other traffic counts collected from state, counties, and local agencies
- Data reconciliation from various sources and years
- Data Linked to the BPM Highway Network

Socio Economic Demographic Data Collection and Forecast

Data Collection

- Land Use
- Population
- Household
- Employment
- Labor force

**Developed Forecast 1996 thru 2020 for every 5
year period.**

- Consensus Building

Data Collection

External Cordon Survey- external trip table

- Automobiles Only
- Twelve (12) Cordon Stations in NYS only
- Approximately 50,000 Questionnaires Distributed
- Questionnaires Coded using Digital Optical Scanning
- Responses Geo-coded to the BPM Zone System
- Data from other agencies in New Jersey
- *E-Z pass information option was not available at that time*

Data Collection Travel Time Survey

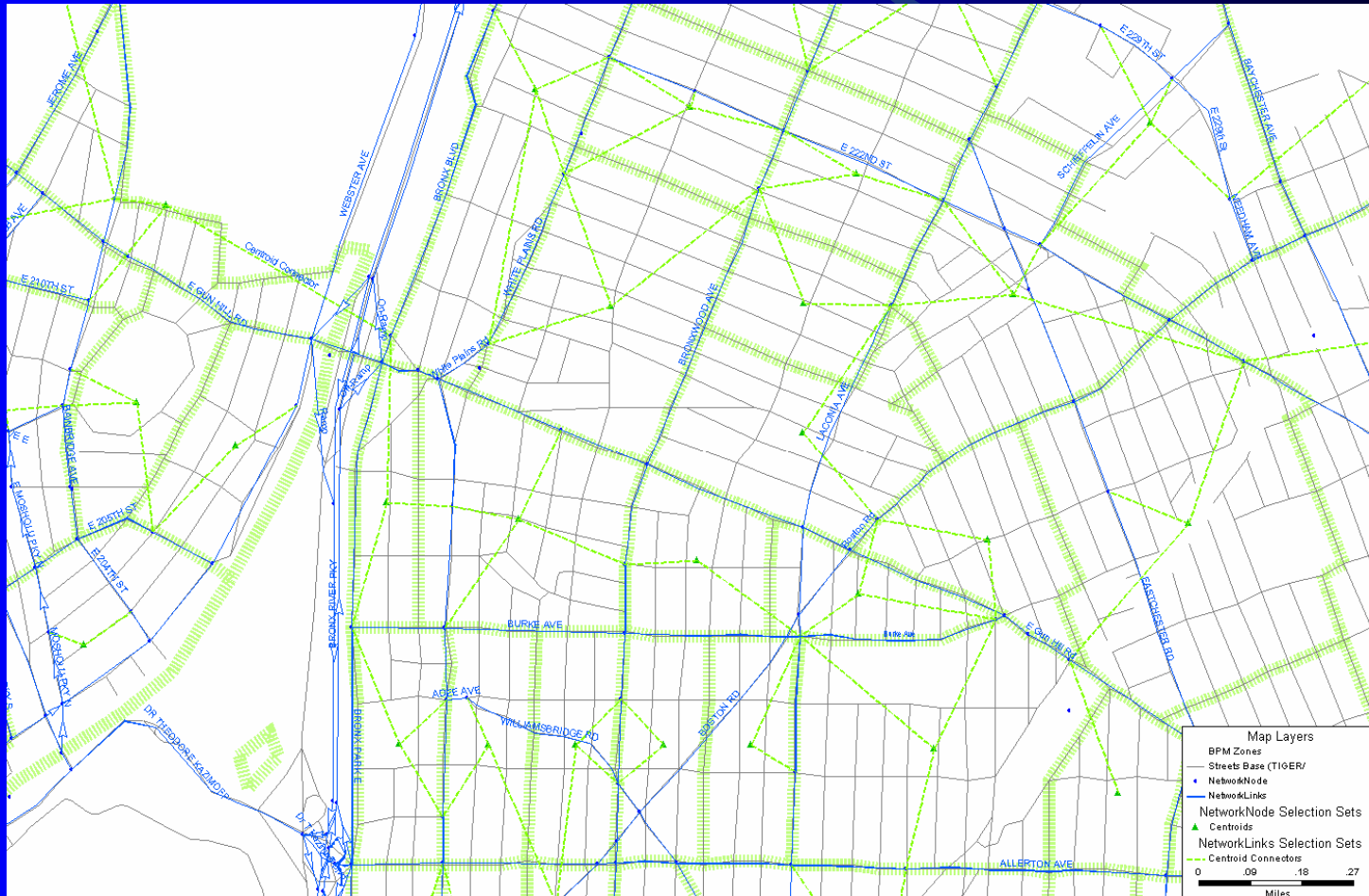
- Travel Times Collected between 5AM & 9 PM
- Focus on Principal Arterials & Freeways
- 4,500 Roadway Segments and 40,000 Travel Time Observations
- Data Linked to the BPM Highway Network

Highway Network

- Very large network - 52,794 links in 28 county 3 state NY metro area
- SOV, HOV2, HOV3+, taxi, truck, other commercial
- Networks from various sources – IAM, LITP, NJ Transit, Connecticut DOT
- Attributes include capacities, initial speeds, lanes, parking availability, truck restriction, signal spacing, and functional class - Enlisted member agencies' help.
- Created speed and capacity lookup tables

Highway Network

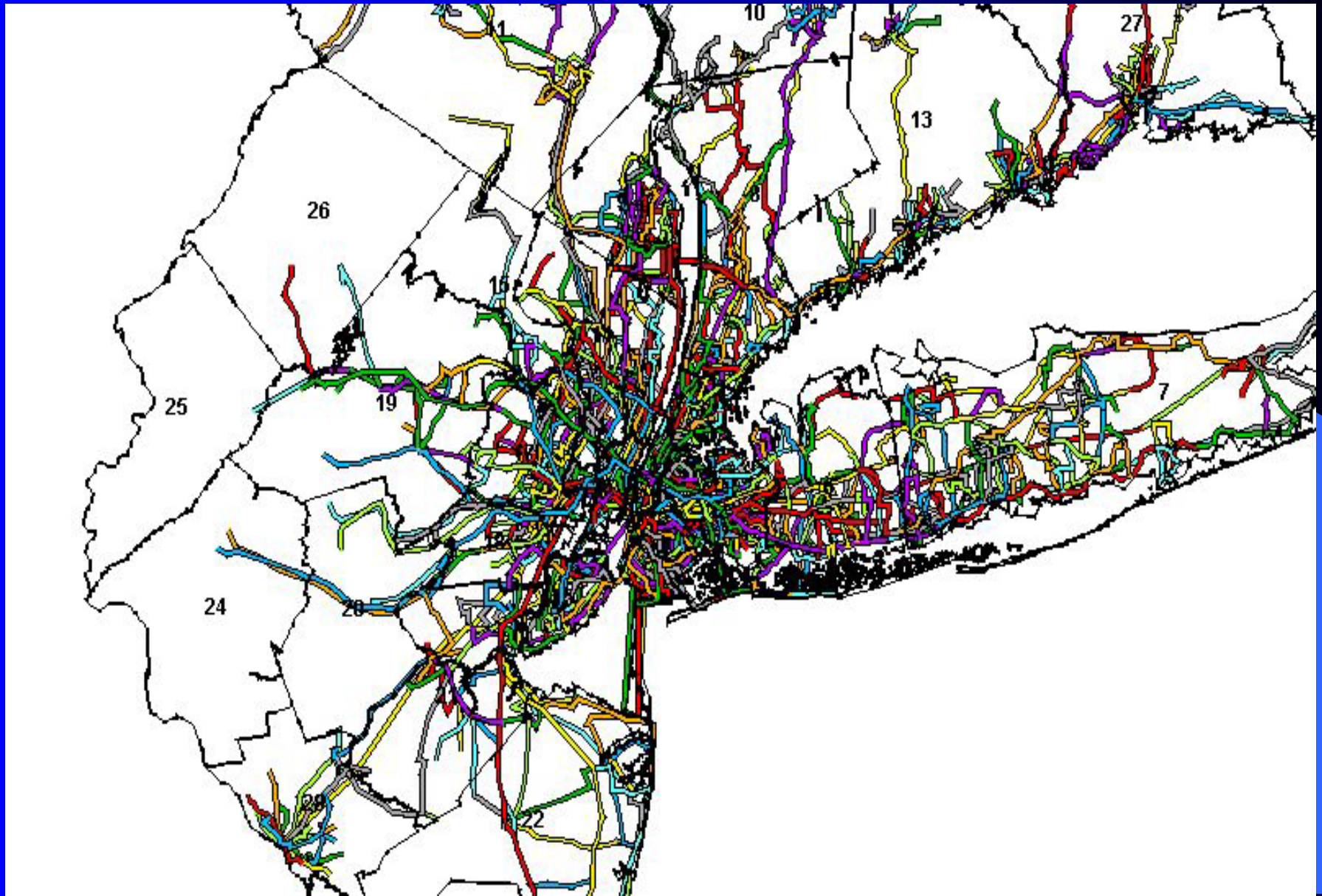
Unidirectional coding of expressways and ramps



Transit Network

- Network Routes – Individual Route coding
 - 100 NY city subway routes
 - 900 commuter rail routes
 - 2300 bus routes
 - 50 ferry routes
 - sidewalk network in Manhattan
- Data collected from all private and public transit carriers
- Manually coded private bus routes from schedules.
- Network Components:
 - Station and Station transfer databases
 - Walk/Drive links for connectivity
 - Park-and-Ride
 - Sidewalk
 - Walk access/egress links
- Attributes include headway, capacities, schedules, and fares

Regional Transit Network – TransCAD Route System



Projects Currently Using BPM

- Tappan Zee Bridge
- Gowanus Expressway
- Bronx Arterial Needs
- Bruckner Sheriden
- Long Island East Side Study
- Canal Area Transportation Study
- Lower Manhattan Development
- NYMTC's Freight Plan

Model Update

- **Conformity Waiver in 2002**
- **Conformity 2005**
- New Set of Socioeconomic and Demographic Forecasts to reflect 2000 Census and post 9/11 changes in employment
- Collection of 2002 traffic counts and transit data
- BPM linked to Mobile 5 and Mobile 6 via a Post Processing Software
- Updated 2002 base year Model by January, 2004
- **Work closely with all the agencies**
 - Technical Committee
 - Advisory Committee
 - Air Quality Interagency Consultation Group