

AGENDA B:

PROJECT SCHEDULE - GANTT CHART / COORDINATION WITH TH-TDFM

Bob Donnelly

Project Status / Schedule

- See GANT Chart – Schedule / Progress
- About 35% complete, generally on schedule
- Work directed at completion of the TH-TDFM 2010 Update (aka BPM 2010 Stage 1)–by end of December 2012
- Focus on:
 - Final NY-TH transit network/assignment calibration
 - Integrating and testing the initial Applications model
 - Beginning of Stage 1 validation and calibration
 - Evaluation of data and methods for Task 6 Highway Network Conflation and Attribution and supporting PSA2 initiative

AGENDA ITEM C, D:

UPDATE SCREENLINE TRAFFIC AND VEHICLE CLASS COUNTS

Kyle Winslow

Vehicle Classification and Traffic Counts

• **Task 3 – Update Screenline Traffic Counts**

- Compile Available Traffic Volume Sources - completed
- Review Sources - completed
- Reconcile 2005 and 2010 Screenline Databases
- Update Screenline Database

Task 4 – Update Vehicle Classification Counts

- Compile Available Vehicle Classification Sources
- Review and Reconcile Sources
- Update Classification Database

Vehicle Classification and Traffic Counts

Vehicle Classification Files

	Received	Observations	Screenline ID	Direction	Year	Daily	Hourly	Monthly	Vehicle Class	Coordinates	
NYSDOT	Y	27888/68712	N	All	2010	Y	Y	N	A	N	
NJTPA/ NJRTM	Y	125 to 150	N	All	2007 to 2009	Y	N	N	N	*Y	
PANYNJ	Y	2304	N	EB /toll direction only	2010	Y	Y	Y	A	N	
NJTA	Y		N	Toll	2009 to 2012	Y	Y	Y	N	N	
DRJTBC	Y	168	N	WB/ toll direction only	2010	Y	Y	N	A	N	
NYCDOT	Y	5808	Y	All	2010	Y	Y	N	A	Y	
MTA	Y	456	N	Both	2010	Y	Y	N	A	Y	

Traffic Count Files

NJGSP	Y	78 sites	Created	Toll direction only	Oct-11	Y	Y	N	N	Created	
NYCDOT	Y	3393	N	ALL	Jul-05	Y	Y	N	N	N	

Vehicle Classification and Traffic Counts

- **Tasks 3 & 4 – Update Screenline and Classification Traffic Counts**
- Continue to compile data sources - completed
- Develop coordinates/screenline id's – in progress
- **Create common format for traffic counts – in progress**
- **Translate traffic factoring program – in progress**
- Update Screenline/Class Databases

Screenline Volumes - NJ

- NJTPA/NJRTM-E
 - Approximately 3,500 records
 - NJDOT Traffic counts primarily from 2007 to 2009
 - ADT Only
 - Joined with new NJRTM-E for 2G process yielding coordinates and screenline locations

AGENDA ITEM E:

WORK PLAN FOR REGIONAL HIGHWAY DEVELOPMENT

Bob Donnelly

Objective: Improved functional network for modeling - Road Attributes

- Same concept of Regional Highway Network modeling
 - Coverage – 28 Counties: NY, NJ, & CT mega-region
 - Level of Modeling – Good for Major Arterials and above (but includes all Minor Arterials)
- Improve geographic / topological accuracy of highway network
- Develop the data to fully populate the BPM-specific link attributes structured in the BPM to support PLT link type estimation
- Apply with Existing BPM highway network procedures to developed more precise capacity and free flow speed values used in assignment
- Extend the set of link attributes with New items, such as Posted Speed, Grade
- Establish linkages to external road data sources for ongoing network maintenance and updates

NYBPM Highway Network

Base Mapping and Development of Link Attributes

		Source of External Data: Road Information						
NYBPM Highway Network Link Attributes		Time of day indicators	Current BPM2-G	Current TH-TDRM	NYS Full Streets	Roadway Inventory	NavTeq	Priority - for Update
A	<u>Topology - External linkages</u>							
	Node / endpoint long/lat		Data	Data	YES	YES	YES	1
	Link / nodes and Shape		Data	Data	YES	YES	YES	1
	Distance		Data	Data	YES	YES	YES	1
	TAZ		Data	Data				1
	ID's - link to other Road data		Data	Data	YES	YES	YES	1
	ID's - link to Transit route system		Data	Data	YES	YES	YES	1
B	<u>Basic Attributes</u>							
	ID		Data	Data	YES	YES	YES	1
	Name 1,2,3		Data	Data	YES	YES	YES	1
	Direction		Data	Data		YES	YES	1
	Tolls - Auto	Y	Data: Day Avg	Data: TOD	?	?	?	1
	Tolls - HOV2, HOV3	Y	No	Data: TOD	?	?	?	1
	Tolls - Truck	Y	Data: Day Avg	Data: TOD	?	?	?	1
	Functional Class		Data	Data	YES?	YES?	YES?	1
	Number of Lanes	Y	Data: TOD	Data: TOD	no	YES	YES	1
C	<u>BPM Specific Attributes - Existing</u>							
	Design Standard		Field Avail.	Field Avail.		SOME		2
	Median Indicator		Field Avail.	Field Avail.		YES	YES	2
	Access Control Type		Field Avail.	Field Avail.		YES?		2
	Signal Density		Field Avail.	Field Avail.			YES?	2
	Driveway Spacing		Field Avail.	Field Avail.				2
	Turn Lane Indicator		Field Avail.	Field Avail.			YES	2
	Ramp Type		Data: TOD	Data: TOD		YES?		1
	Special Link Type		Data: TOD	Data: TOD		SOME		1
	HOV/Truck restrictions	Y	Data: TOD	Data: TOD		Daily	YES?	1
	Parking Indicator	Y	Data: TOD	Data: TOD		Daily		1
	Truck Routes		Data: TOD	Data: TOD		YES		1
D	<u>BPM Specific Attributes - New</u>							
	Posted Speed					YES	YES	1
	Grade					YES		2
	Turn penalties (intersections)						YES	2

Work Plan – Approach Summarized

- Three Stages – incremental improvement, to have networks and working model available at the end of each
 - Stage 1: NYBPM 2010 = TH-TDFM 2010 November 2012
 - Stage 2: NYBPM 2010 April 2013
 - Stage 3: NYBPM 2012(?) December 2013 ?
- Focus on NY 12 Counties, using unrestricted public data
- Establish formal relationship to NJ and CT models and network information
 - NJTPA
 - ConnDOT
- Resources to implement
- BPM 2010 Update: Task 6 Highway , Task 13 Procedures
 - PSA2-11-25: GIS/ Highway Attributes
 - Other: Task Orders to be determined

Work Plan – Approach Summarized

- Three Stages – incremental improvement, to have networks and working model available at the end of each
- Stage 1: NYBPM 2010 = TH-TDFM 2010
 - NJTPA highway network integrated with BPM 2G for NJ highway network and transit All Links
 - November 2012
- Stage 2: NYBPM 2010
 - Conflated NY 12 network (to NYS Full Streets), Attributed with Priority 1 attributes (mostly from Road Inventory), re-aligned TAZ boundaries, Future Year network building methods, and networks Updated for forecasting
 - April 2013
- Stage 3: NYBPM 2012(?)
 - Refinements to Conflation, further Attribution of links and intersections with Priority 2 attributes, enhanced PLT capacity /free flow process, Migration of Transit RTS coding to new All Links (Full Streets), methods for updating NJTPA and CT network updates

AGENDA ITEM F:

TASK 12 – MERGED BUS ROUTES – TH-TDFM

2010 UPDATE

Caliper – Jim Lam

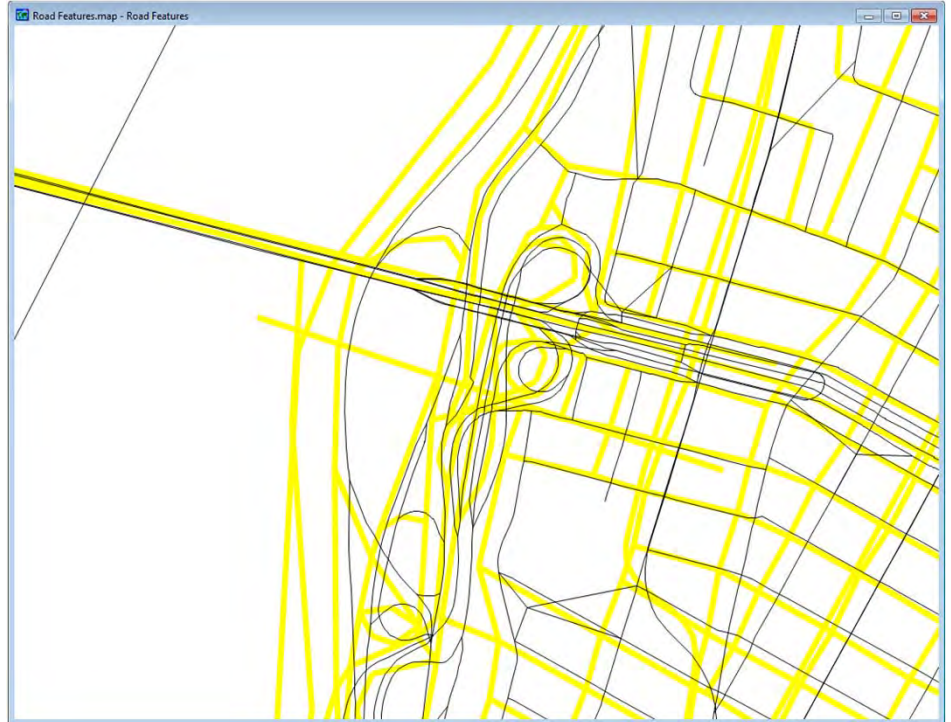
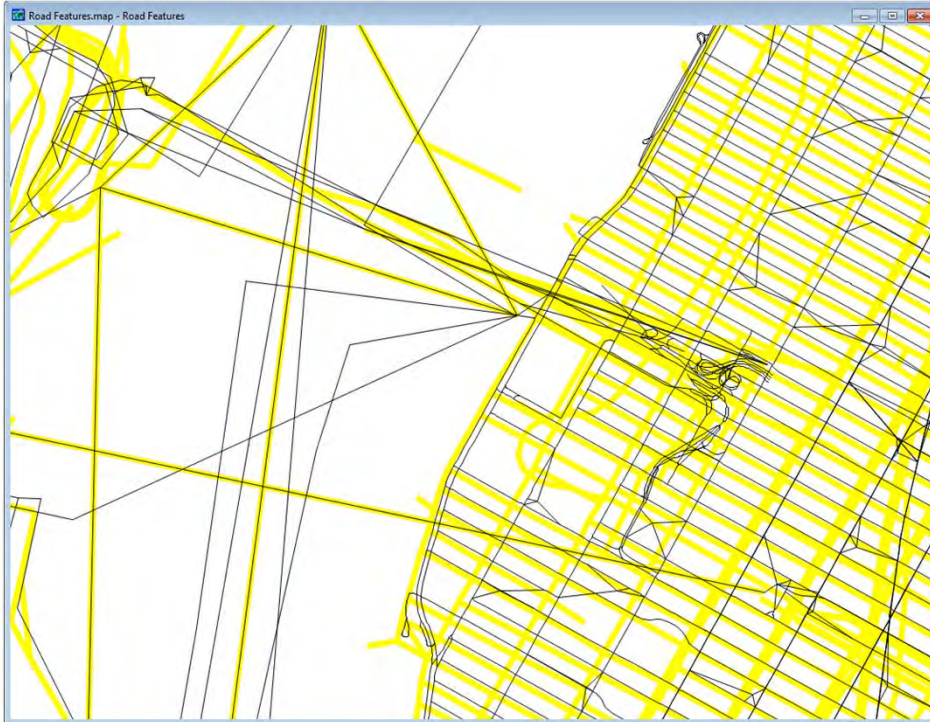
Overall Approach

- Source Datasets:
- NYBPM 2G
- TH-TDFM 4.8 (Based on NJTRME Model)
- Use NJ network from TH-TDFM, NY network from NYBPM 2G
- Use NYBPM 2G for rail networks
- Add Tier 1 zones and connectors

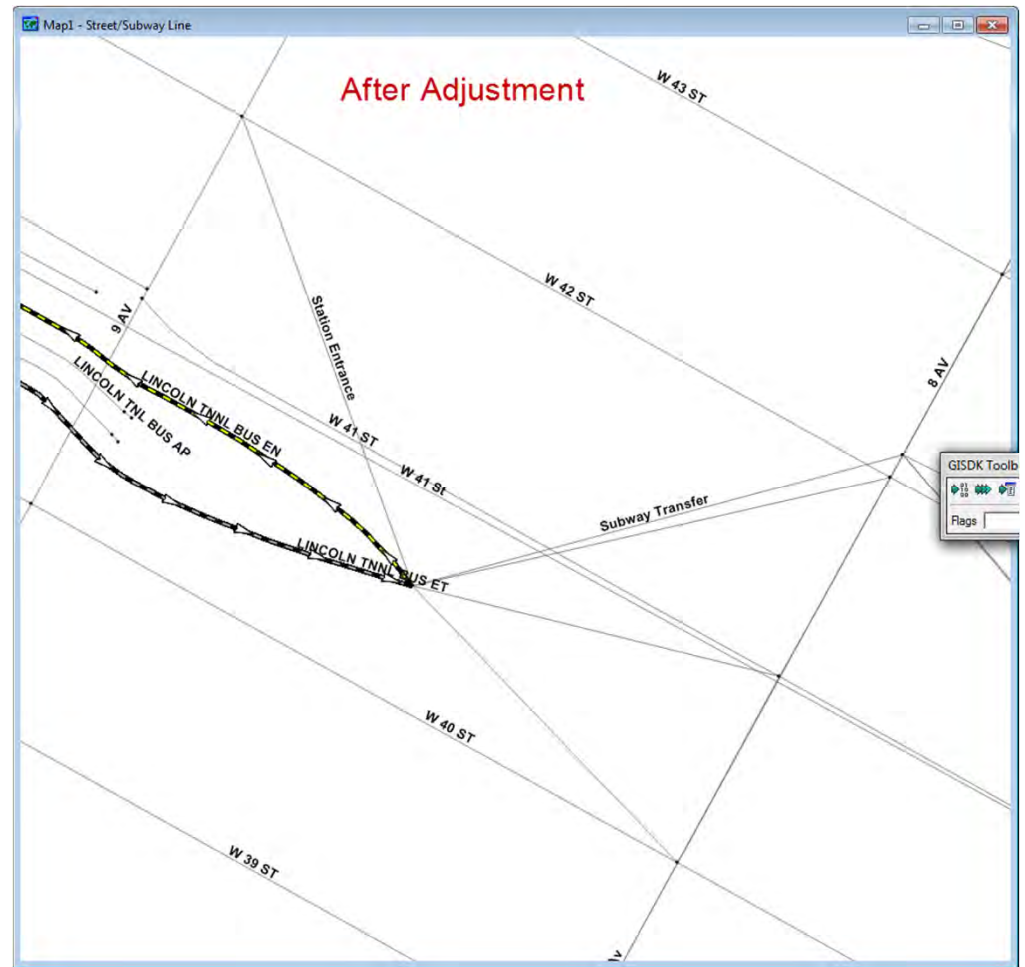
Merge NYBPM 2G with TH-TDFM

- Merge highway links
- Merge TH-TDFM bus routes in NJ with NYBPM 2G
- Merge Attributes

Merge NYBPM 2G with TH-TDFM



PABT Adjustments



Adding Connectors



Attributes

- Use NYBPM 2G attributes
- Convert TH-TDFM to 2G
- Estimate unspecified attributes
- AECOM adjustments

Model Integration

- Tests to run within 2G framework
- Tests to run within Tier 1 framework
- Test model components
 - Drive Access creation
 - Walk access
 - Transit Network Building
 - Transit Network Skimming
 - Transit Assignment

Manual Changes

- Adding routes
- Adding connections
- Adjusting attributes
- Adding NY-based special generator zones
- Performed by AECOM and PB
- Many more extensive edits by AECOM based on QC checks, Pathfinding results, and QC by Port Authority

AGENDA ITEM G:

BPM-3G: APPLICATIONS DEVELOPMENT AND TESTING

Yuri Teleshevsky

NYBPM-3G Development

Task 1 reference:

Trail: N;

Task: 13

- Development of Tier 1.1 zone system (3824 TAZ)
- Modification GISDK script codes
- Modification and recompilation “.exe” programs
- Modification of NYBPM GIS elements
- Modification of NYBPM input data files
- Development of processing special generators (SG) in NYBPM
- Incorporating transit drive access trips into highway assignment

NYBPM-3G Development (Cont.)

Task 1 reference:

Trail: N;

Task: 13

Update from previous meeting – 10/25/12

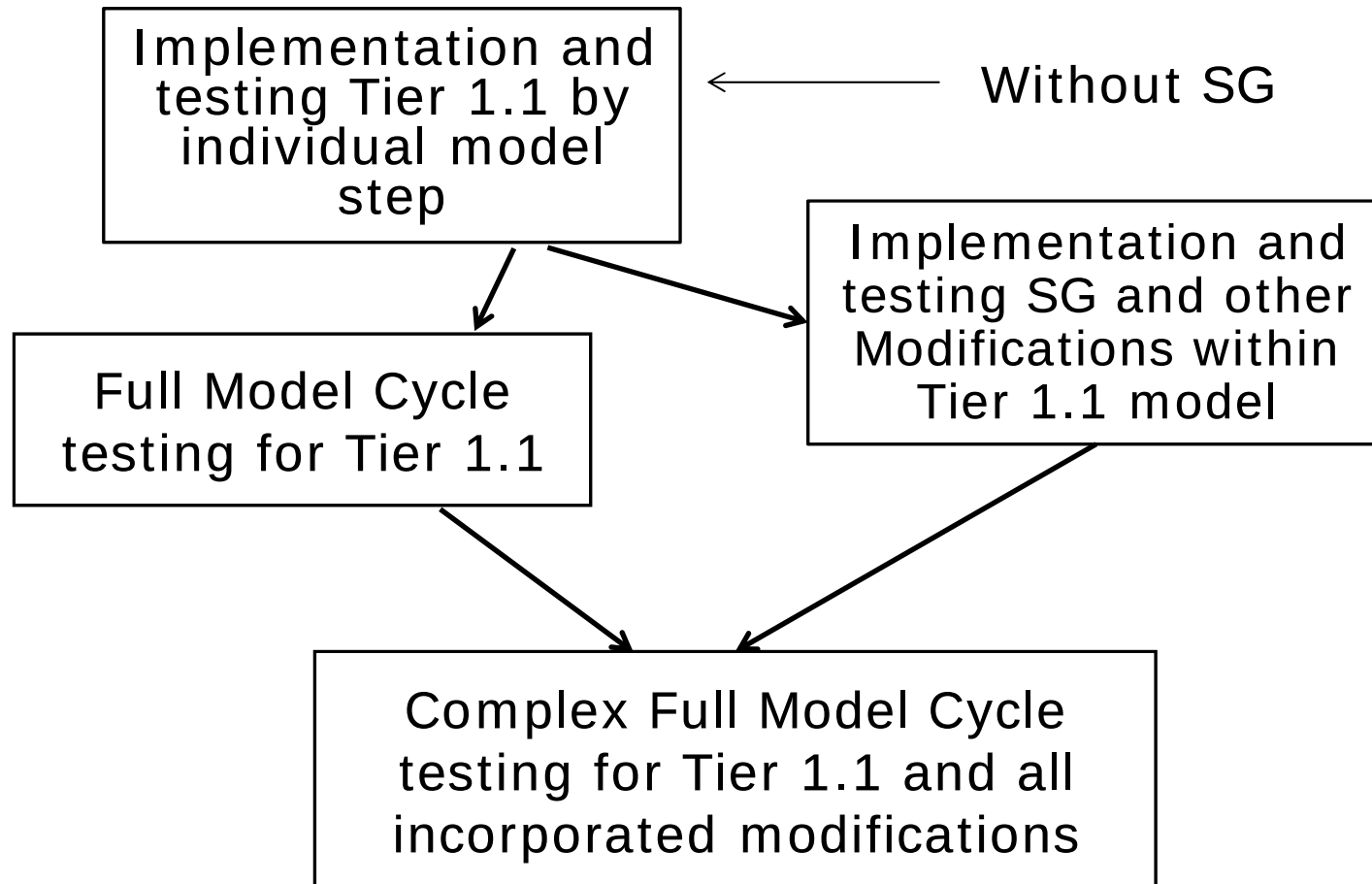
- Developed Tier 1.1 Zone System:
 - Adding TAZ zone details in NJ used in TH-TDFM 2005 (done)
 - Split selected TAZs in Manhattan (develop -> done)
 - Aggregation of selected TAZs in New Jersey (develop -> done)
 - Incorporating new SG zones representing air passengers (done)
- Updated GIS Model elements
 - TAZ Geographic Layer – add/split polygons
 - Highway and Transit GIS Link Layers
 - Incorporated additional Special Generator zones

NYBPM-3G Testing

Task 1 reference:

Trail: N;

Task: 13



NYBPM-3G Testing (Cont.1)

Task 1 reference:

Trail: N;

Task: 13

- Testing of each individual model step includes
 - Running capability
 - Development and/or Preparation of a benchmark (target) and
 - Reasonableness check against the step's target
- Full model cycle test is provided in two modes
 - Simple one-iteration run
 - Complete maximum (three) iterations run

NYBPM-3G Testing (Cont.2)

Task 1 reference:

Trail: N;

Task: 13

STAGES of Model Development (Tier 1.1)

	Model Step	GIS Layers	SED	LookUp's / References	Input Files	Step Run
1	Build Scenario Network					
2	- Base Year	Y	na	Y	Y	Y
3	- Future Year					
4	- Future Year Projects TIP coding					
5	Prepare Time Period Networks					
6	- Base Year	Y	na	Y	Y	Y
7	- Future Year					
8	Pre-Skim	Y	Y	Y	Y	Y
9	Transit Build and Skim	Y	Y	Y	Y	Y
10	Accessibility	Y	Y	Y	Y	Y
11	HAJ Model	Y	Y	Y	Y	Y
12	Regular MDC	Y	Y	Y	Y	Y
13	Trucks and Externals	Y	Y	Y	Y	Y
14	PAP and Time of Day	Y	Y	Y	Y	Y
15	Assignment and Skim	Y	Y	Y	Y	Y
16	Update All Period Skim Files	Y	Y	Y	Y	Y
17	Transit Assignment and Report	Y	Y	Y	Y	Y

AGENDA ITEM H: VALIDATION AND CALIBRATION

Bob Donnelly

Calibration - Issues

- Staging of Calibration
 - Stage 1: for TH-TDFM – focus on Trans-Hudson travel markets - transit and vehicular crossings
 - Stage 2: for BPM 2010 Stage 2
- Calibration – sequence of model components
 - Core model:
 - HAJ – journey production and attraction
 - MDSC – destination choice (stop choice)
 - MDSC – mode choice
 - PAP – Time of day
 - Highway Assignment
 - Transit Assignment

2010 Calibration Targets – Data Sources

- Stage 1
 - Interstate travel survey-based trip tables
 - All modes combined – destination choice (OD patterns)
 - By mode – Auto and transit modes
 - TH cordon – highway and transit counts 2005 -> 2010
- Stage 2
 - Re-estimation of the RHTS survey data with adjustments and reconciliation for:
 - RHTS 2010 survey
 - ACS – Journey to work data
 - Screenline highway counts
 - MTA / Metrocard trip tables
 - Other

Calibration Geography

- Production, Attraction and Destination choice
 - 31 x 31 BPM Districts – counties with Manhattan in 4 parts
 - Revise procedures to allow for sub-county user specified adjustments
- Mode Choice
 - User specified – by establishing TAZ to TAZ indices
 - TH-TDFM – current uses 45
 - BPM Stage 2 – flexible, to be established
- Time of Day
 - User specified – by establishing diurnal curves for user specified travel markets (origin/destination areas by mode)

TH-TDFM – Overlay OD's for Destination Choice

		1	2	3	4	5	6	7	8	9	10	11	12
		WHR-P-NJ	WHR-Oth-NJ	WHR-NY	EHR-Uptown	EHR-Midtown	EHR-Dwntn_Valley	EHR-Bronx	EHR-Qn+Brlyn	EHR-SI	EHR-LI	EHR-Oth-NY	EHR-CT
1	WHR-P-NJ				12	13	14	21	22	23	24	25	25
2	WHR-Oth-NJ				15	16	17	26	27	28	29	30	30
3	WHR-NY				18	19	20	26	27	28	29	30	30
4	EHR-Uptown	31	39	39									
5	EHR-Midtown	32	40	40									
6	EHR-Dwntn_Valley	33	40	40									
7	EHR-Bronx	34	41	41									
8	EHR-Qn+Brlyn	35	42	42									
9	EHR-SI	36	43	43									
10	EHR-LI	37	44	44									
11	EHR-Oth-NY	38	45	45									
12	EHR-CT	38	45	45									

TH-TDFM: Mode Choice Segment Indices (1-45)

		Mode Choice: OD Segment Indices (1-45)																													
			Lower Manhattan	Valley Manhattan	Midtown Manhattan	Upper Manhattan	Bronx	Queens	Kings	Richmond	Nassau	Suffolk	Westchester	Putnam	Dutchess	Rockland	Orange	Bergen	Passaic	Hudson	Essex	Union	Middlesex	Morris	Somerset	Monmouth	Ocean	Hunterdon	Warren	Sussex	Mercer
BPM District (O)	BPM District (D)	TH Subareas (12 x 12)	0	1	2	3	5	4	6	7	8	9	10	12	14	11	13	16	17	18	19	20	23	21	22	24	25	26	27	28	30
	District Name		6	6	5	4	7	8	8	9	10	10	11	11	11	3	3	1	1	1	1	1	1	2	2	2	2	2	2	2	2
0	Lower Manhattan	6	1	1	1	1	2	2	2	2	2	2	2	2	2	40	40	33	33	33	33	33	33	40	40	40	40	40	40	40	40
1	Valley Manhattan	6	1	1	1	1	2	2	2	2	2	2	2	2	2	40	40	33	33	33	33	33	33	40	40	40	40	40	40	40	40
2	Midtown Manhattan	5	1	1	1	1	2	2	2	2	2	2	2	2	2	40	40	32	32	32	32	32	32	40	40	40	40	40	40	40	40
3	Upper Manhattan	4	1	1	1	1	2	2	2	2	2	2	2	2	2	39	39	31	31	31	31	31	31	39	39	39	39	39	39	39	39
5	Bronx	7	3	3	3	3	7	7	7	11	11	11	11	11	11	41	41	34	34	34	34	34	34	41	41	41	41	41	41	41	41
4	Queens	8	3	3	3	3	7	7	7	11	11	11	11	11	11	42	42	35	35	35	35	35	35	42	42	42	42	42	42	42	42
6	Kings	8	3	3	3	3	7	7	7	11	11	11	11	11	11	42	42	35	35	35	35	35	35	42	42	42	42	42	42	42	42
7	Richmond	9	5	5	5	5	11	11	11	8	11	11	11	11	11	43	43	36	36	36	36	36	36	43	43	43	43	43	43	43	43
8	Nassau	10	4	4	4	4	11	11	11	11	9	9	11	11	11	44	44	37	37	37	37	37	37	44	44	44	44	44	44	44	44
9	Suffolk	10	4	4	4	4	11	11	11	11	9	9	11	11	11	44	44	37	37	37	37	37	37	44	44	44	44	44	44	44	44
10	Westchester	11	6	6	6	6	11	11	11	11	11	11	10	10	10	45	45	38	38	38	38	38	38	45	45	45	45	45	45	45	45
12	Putnam	11	6	6	6	6	11	11	11	11	11	11	10	10	10	45	45	38	38	38	38	38	38	45	45	45	45	45	45	45	45
14	Dutchess	11	6	6	6	6	11	11	11	11	11	11	10	10	10	45	45	38	38	38	38	38	38	45	45	45	45	45	45	45	45
11	Rockland	3	20	20	19	18	26	27	27	28	29	29	30	30	30	10	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8
13	Orange	3	20	20	19	18	26	27	27	28	29	29	30	30	30	10	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8
16	Bergen	1	14	14	13	12	21	22	22	23	24	24	25	25	25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
17	Passaic	1	14	14	13	12	21	22	22	23	24	24	25	25	25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
18	Hudson	1	14	14	13	12	21	22	22	23	24	24	25	25	25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
19	Essex	1	14	14	13	12	21	22	22	23	24	24	25	25	25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
20	Union	1	14	14	13	12	21	22	22	23	24	24	25	25	25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
23	Middlesex	1	14	14	13	12	21	22	22	23	24	24	25	25	25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
21	Morris	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
22	Somerset	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
24	Monmouth	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
25	Ocean	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
26	Hunterdon	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
27	Warren	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
28	Sussex	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
30	Mercer	2	17	17	16	15	26	27	27	28	29	29	30	30	30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
15	Fairfield	12	6	6	6	6	11	11	11	11	11	11	10	10	10	45	45	38	38	38	38	38	38	45	45	45	45	45	45	45	45
29	New Haven	12	6	6	6	6	11	11	11	11	11	11	10	10	10	45	45	38	38	38	38	38	38	45	45	45	45	45	45	45	45

Steps for Stage 1 Calibration

1. Compare / calculate constant differences between 2005 BPM (4.8) and the 2005 (6.0) 2G models – which were only mode-specific constants –
2. Aggregate/allocate (as needed) these to the Tier 1.1 zone-to-district structure for HAJ, MDSC constants
3. Add these differences to current calibrated TH-TDFM 2005 set of constants
4. Convert (and update) targets to the Tier 1.1 system
5. Begin calibration to new 2010 targets using the Tier 1.1 configured targets and reporting system – compare scenario to base (either targets or prior scenario model results)
6. Update 2005 targets to 2010 – current counts
7. Continue and complete TH / BPM Stage 1 calibration

AGENDA ITEM I:

TH-TDFM: SURVEY-BASED TRANSIT ASSIGNMENT CALIBRATION (NJ) - UPDATE

AECOM – Jeff Roux

Big Picture

- BPM 2G Represents significant step forward in transit procedures – GUI, native TC procedures, speed, efficiency.
- Conversion of FORTRAN based transit procedures to native TransCAD
 - 2G conversion focused on mechanics
 - TH-TDFM is currently focused on **validation**
- Strong emphasis on **accurate** networks and constructing high-quality transit paths
- Assigning regional on-board surveys iteratively to validate path-building and assignment routines
 - Identifies where network changes required
 - Identifies where path-building/assignment parameter changes required

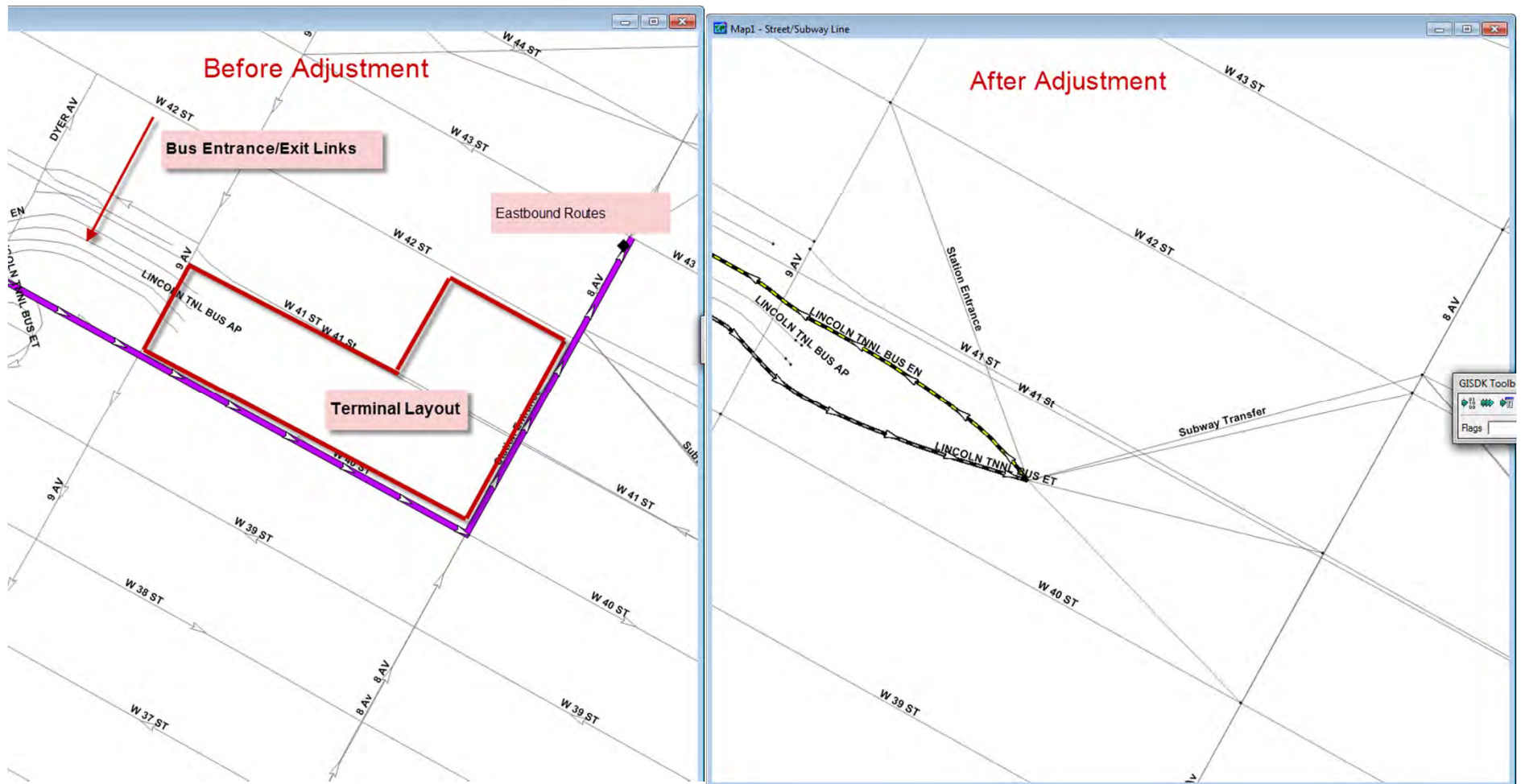
Progress to Date

- TH-TDFM Network Development
 - Fixing lingering 2G network issues (Uptown PATH & EWR AirTrain)
 - Instilling discipline to PABT bus coding
 - Cross-references PABT bus inventories from PANYNJ
 - Intermodal connections at key NJ facilities
 - Calibration of PNR procedures
 - Attributes (fares, capacities, **bus travel times**)
- Survey Based Assignments w/NYMTC 2G & TH-TDFM, yielding changes:
 - Network improvements
 - Accessibility improvements
 - Path-building changes

TH-TDFM Network Improvements

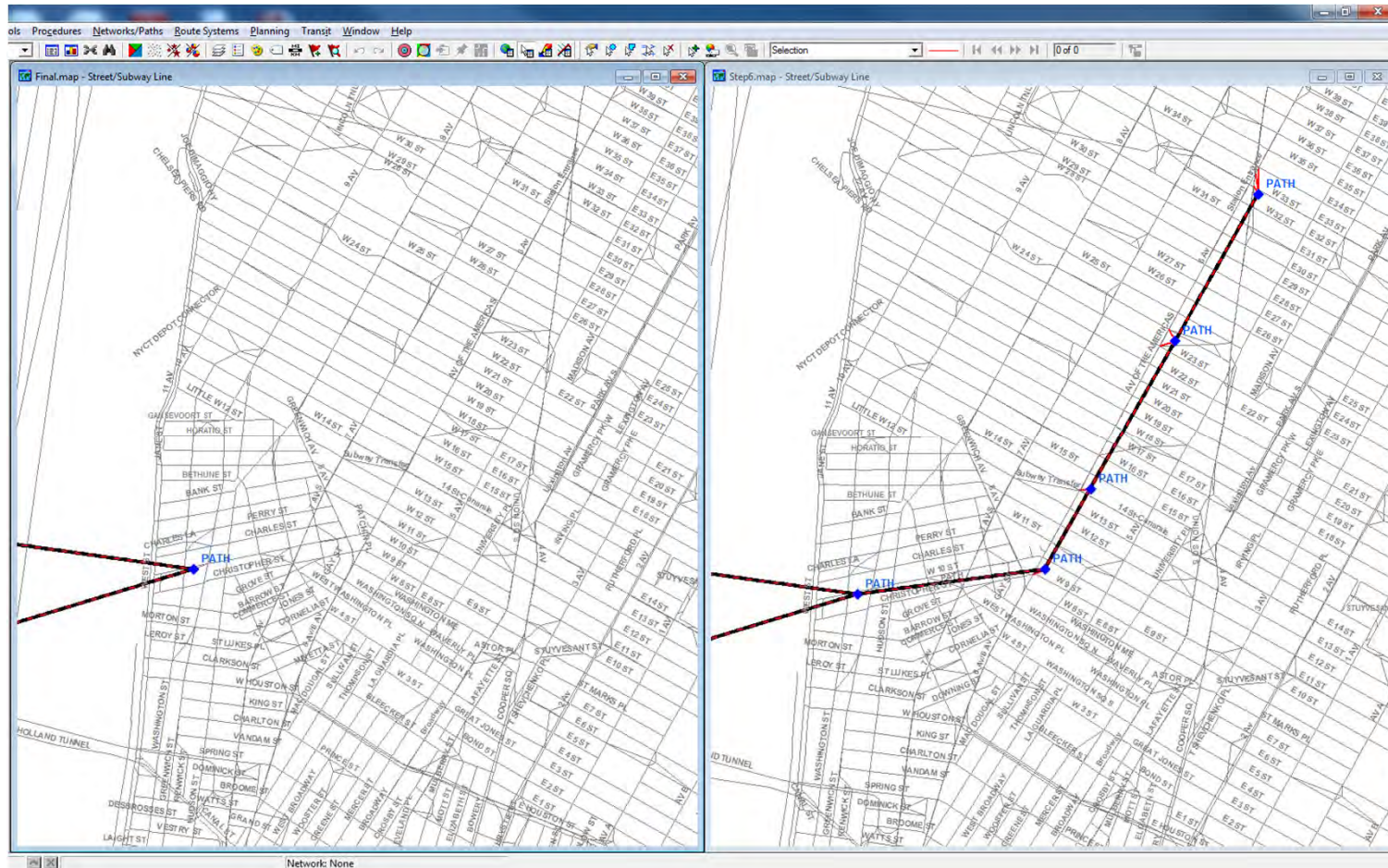
- PABT Refinements
- Uptown PATH
- Secaucus Junction
- Newark Penn
 - Rail – PATH
 - Rail/PATH – Newark LRT
- Hoboken
 - Rail – PATH/Ferry
 - Rail – Hudson-Bergen LRT

PABT Refinements

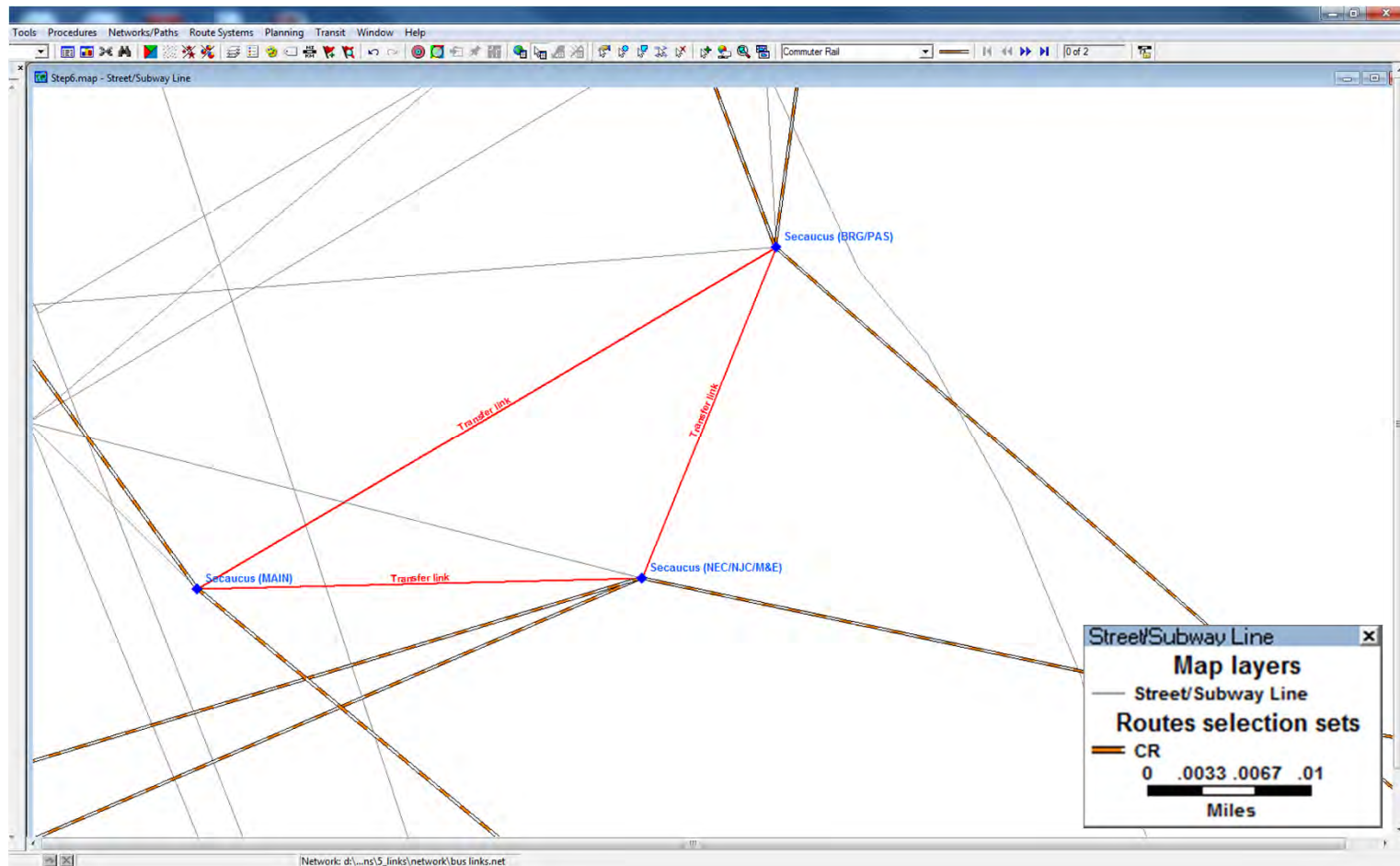


Original 2G

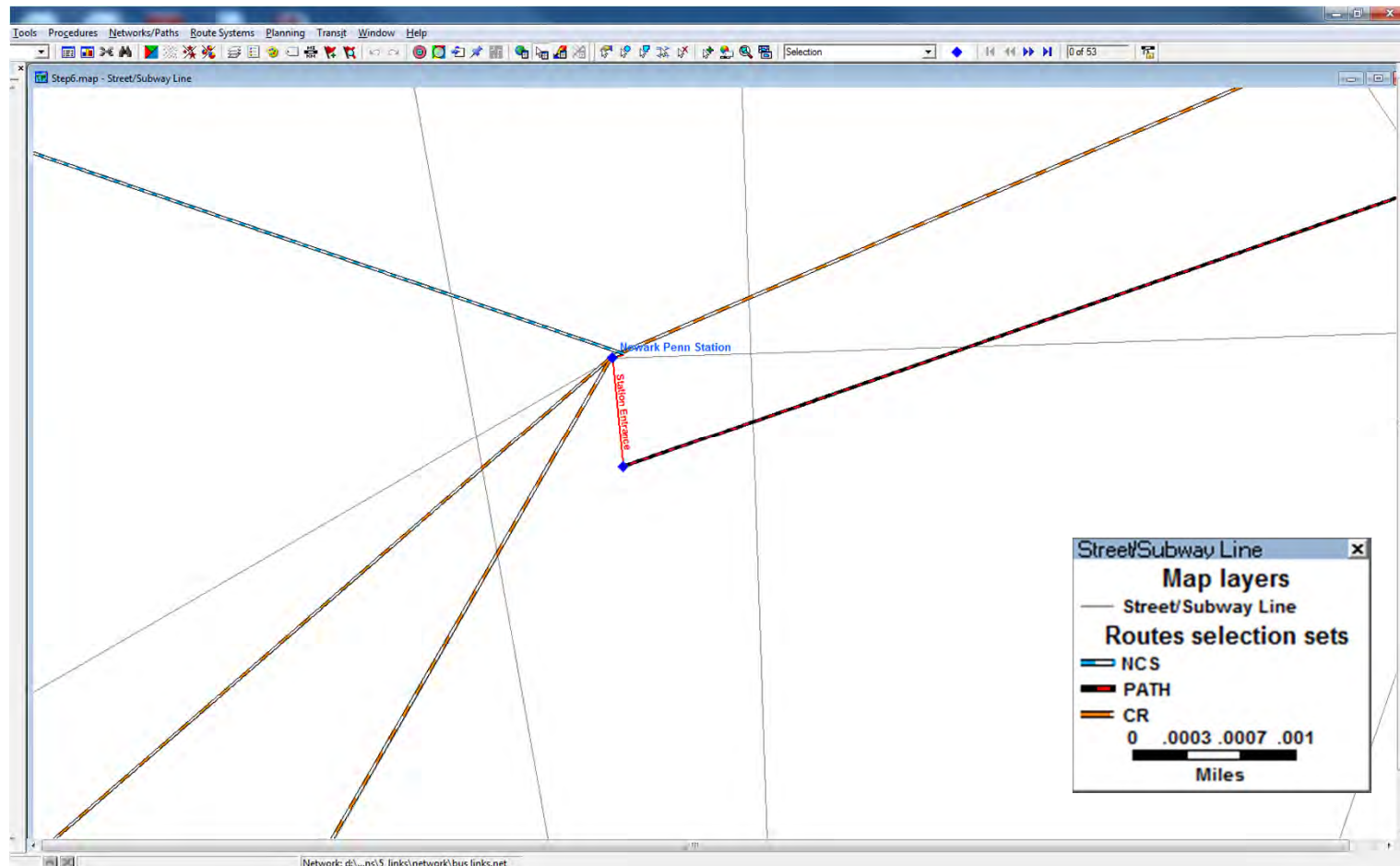
Refined TH-TDFM



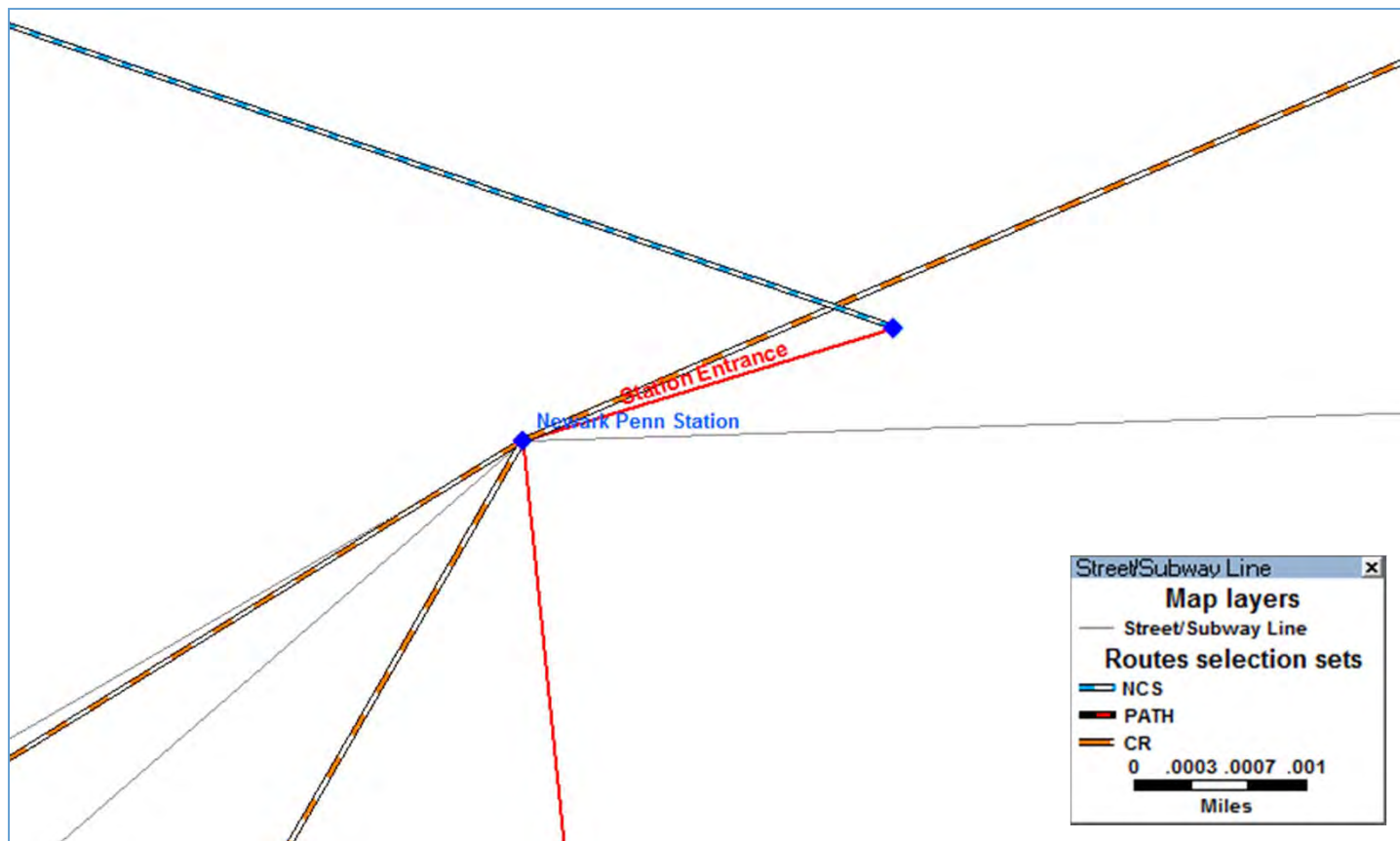
Secaucus Transfer Links



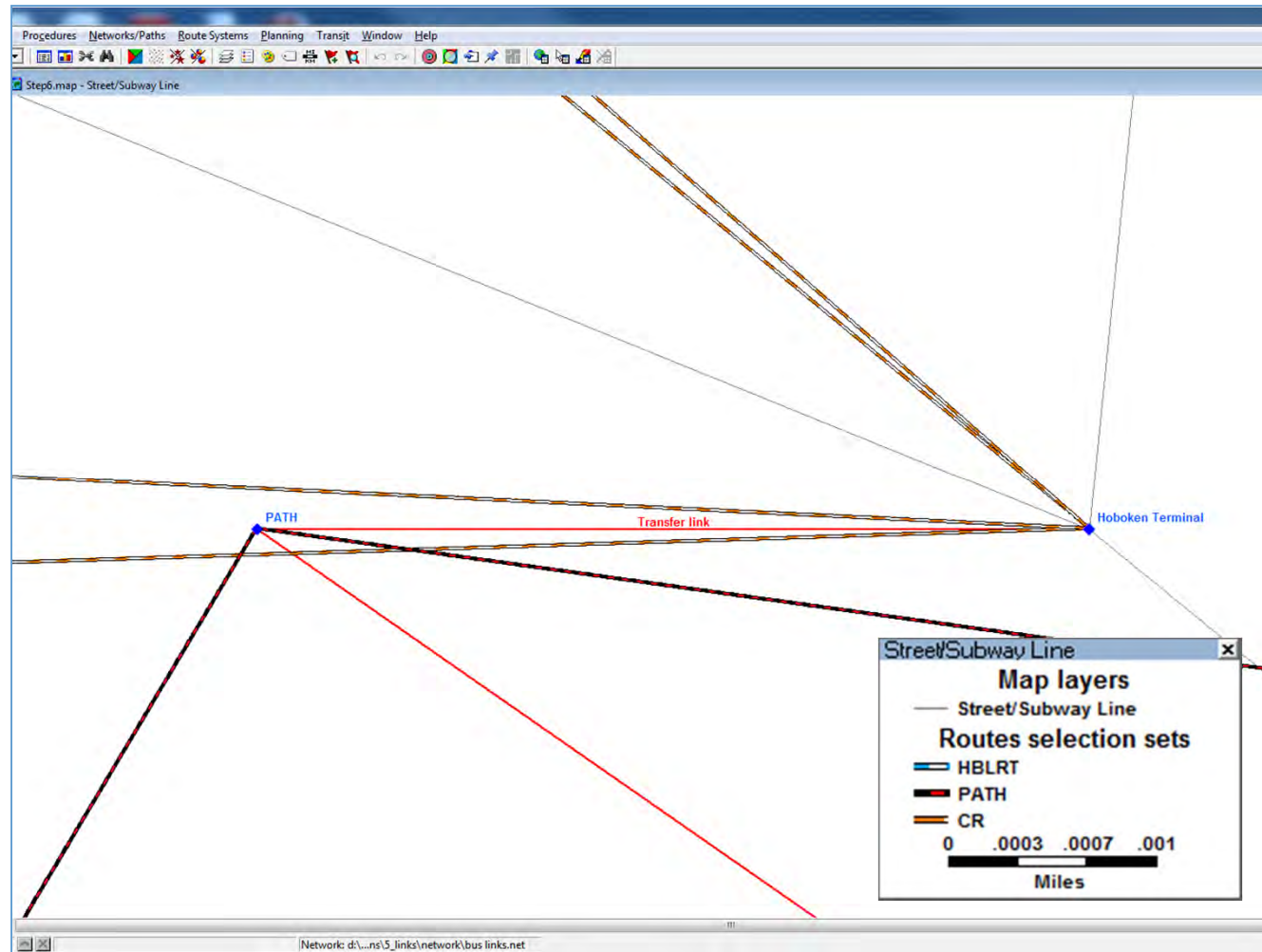
Newark Penn Station PATH Station Entrance/Transfer Link



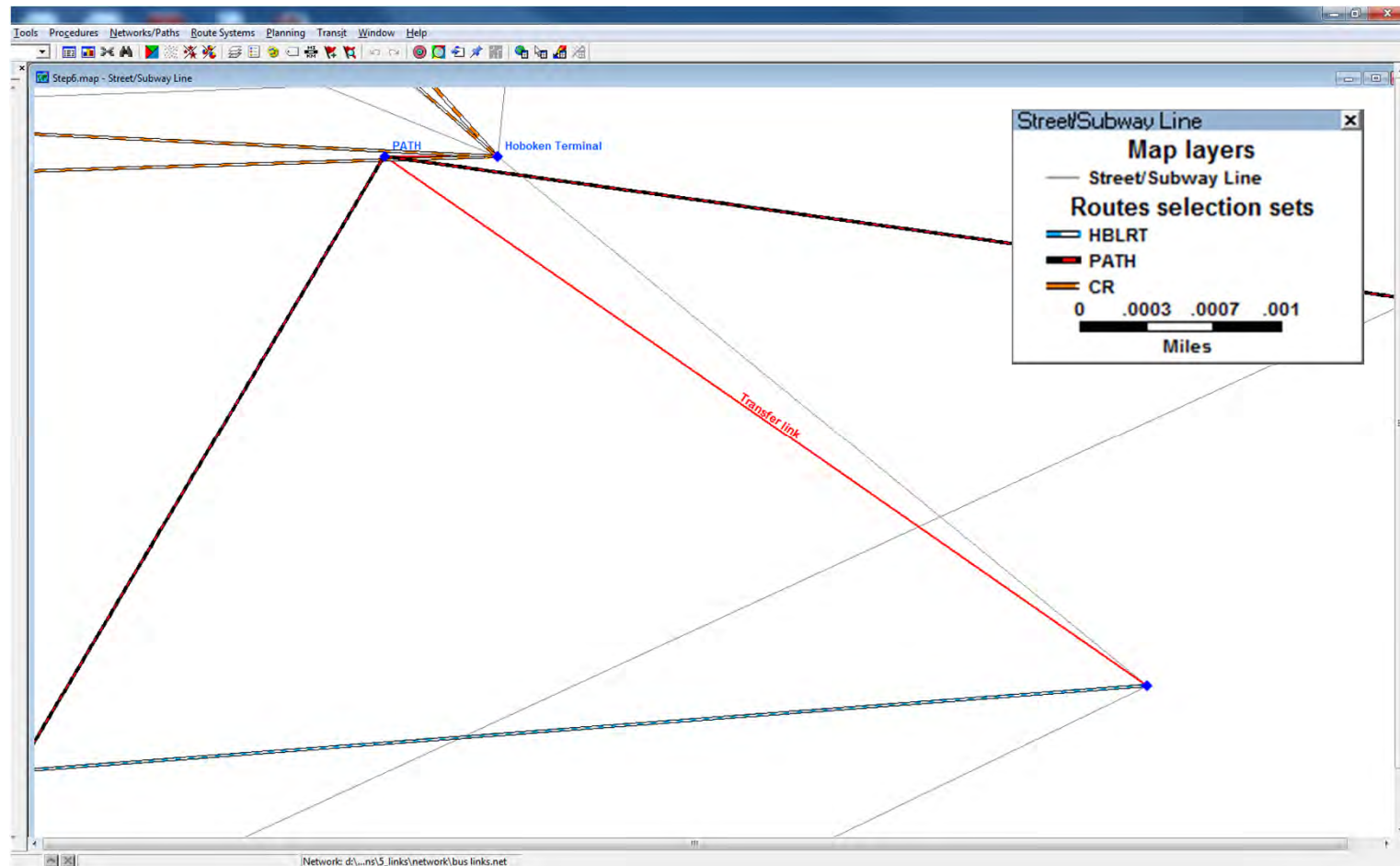
Newark Penn Station Newark City Subway Station Entrance/Transfer Link



Hoboken Terminal - PATH Station Entrance/Transfer Link



Hoboken Hudson-Bergen LRT-Path Transfer Link

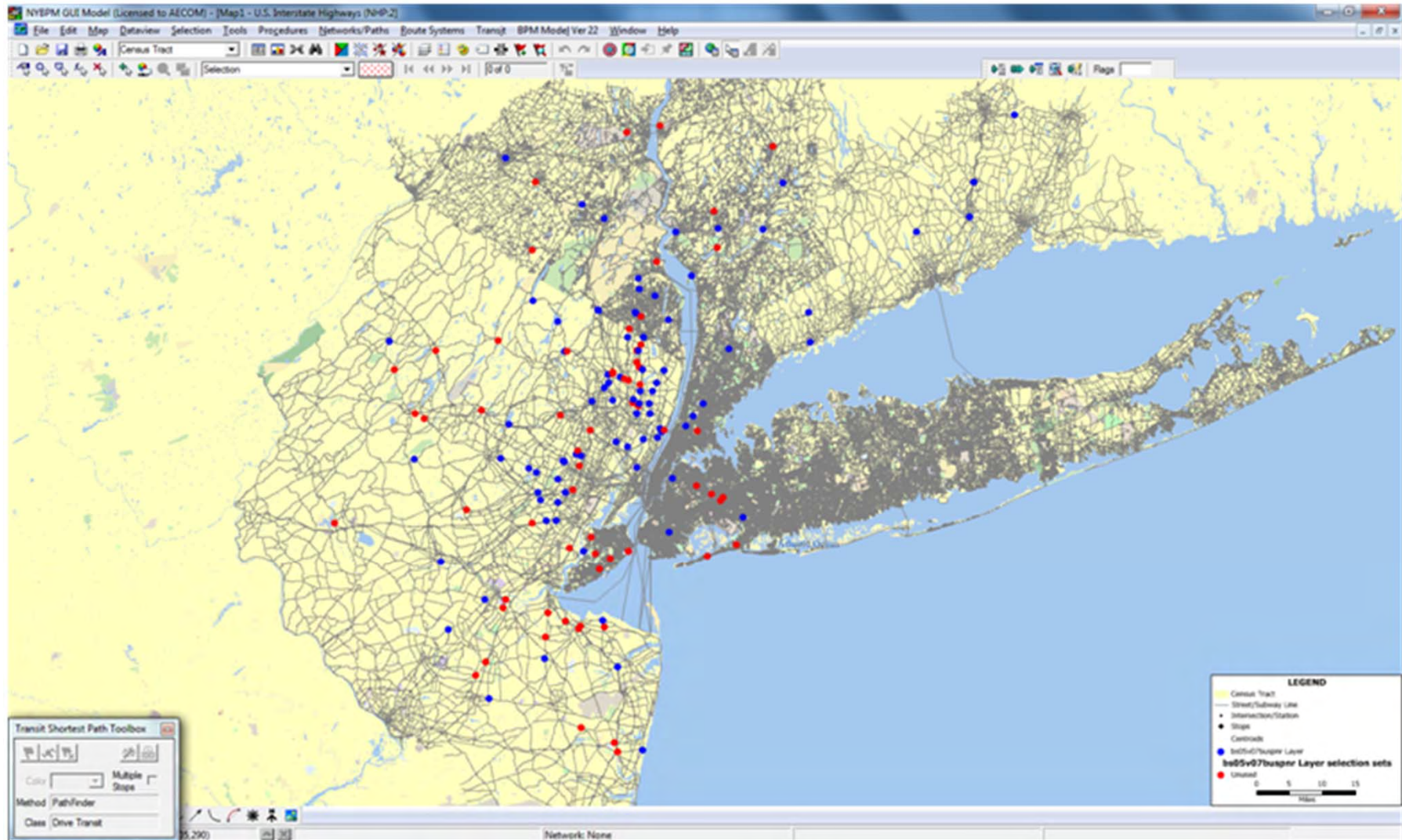


Accessibility Improvements

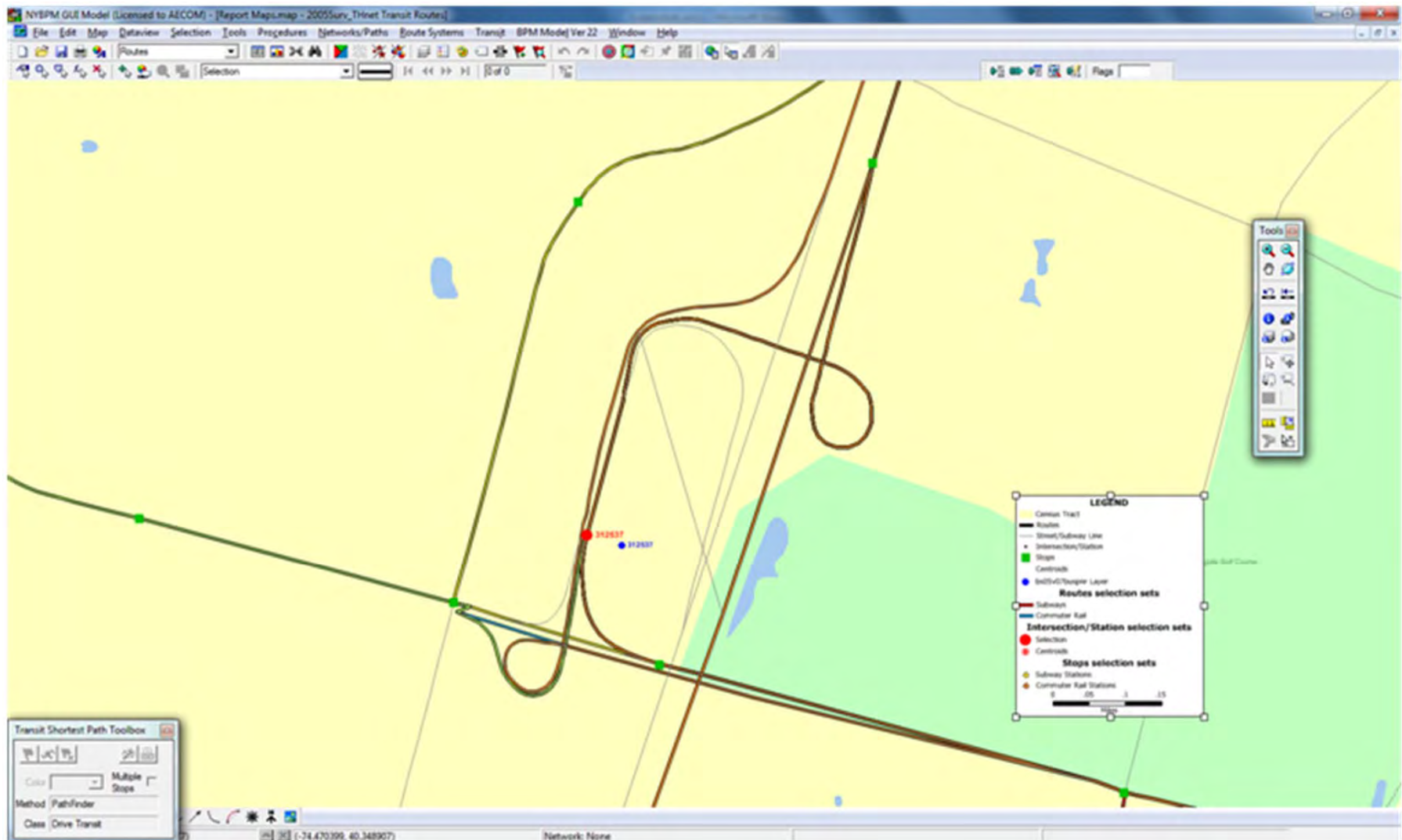
PNR Procedures:

- New procedures required extensive work to validate:
 - Expanded capture breadth in new procedures to account for distance changes between “network based” drive access connector and airline distances (old FOTRAN procedures)
 - NJ PNR connections were “manual” in prior BPM (from NJTDFM), now generated automatically. Parameter adjustments required to capture long-drive access trips in NJ (i.e. Route 9 corridor)
 - Restrict zone centroid to parking by transit skim network:
 - Drive-to-Rail: Parking occur at commuter rail lots
 - Drive-to-Other Transit: Parking at non-commuter rail lots
 - Bus PNR Refinements
- Significantly improved validation of path-building and assignment performance for commuter rail

Bus PNR Issues – Interface between PNR and STOPS



Example – NJ Turnpike Exit 8A Entrance



Multi-Class Pathfinder Assignment

- Prior BPM performed separate assignments by transit class (DC, WC, WT and DT)
 - Rail trips forced to use rail
 - Other transit trips forced to use other transit
- New procedures performs one assignment of all classes simultaneously:
 - The Good: Congestion impacts considered across all modes
 - What is Different: The mode choice module can assign a trip to commuter rail while transit assignment may never involve commuter rail. May pose application challenges...
 - The challenge: Tune routine to replicate today's behavior
 - Our findings to date: Requires an increased emphasis on network quality control (Biggies are bus travel times & capacities)

Transit Path-Building Parameters

- Expanded Maximum Walk Access/Egress distances

- 2G conversion = 25 min.
- TH-TDFM = 35 min.

Used survey data, particularly commuter rail-to-ultimate trip end walk distances in Manhattan to set parameter.

- Refined commuter rail mode-to-mode transfer penalties (consistent w/TC 4.8)

- Extensive market research by MVA and RSG for MTA & NJ TRANSIT
- 2G Conversion:
 - Commuter Rail Paths:
 - Commuter Rail to Other Transit = 3.0 min.
 - Other transit to other transit = 1.0 min.
- TH-TDFM Validation:
 - Commuter Rail Paths:
 - Commuter Rail to Other Transit = 4.7 min.
 - Other transit to other transit = 4.7 min.

Bus Travel Speed Calibration

	Schedule		Model		Original	Iter 2	Iter 3	Iter 4	Iter 5	Iter 6	Iter 7
	Route	IVTT (min)			IVTT (min)	Runtime	Runtime	Runtime	Runtime	Runtime	Runtime
			Route	Starting Node	LinDelay=5 All NJ=50	LinDel=20 HighSpd=50	LinDel=5 HighSpd=60	Rem Hwy Stops PNR fixed	Speed 55 for NJ-NY stop del=10	Speed 50 for NJ-NY stop del=15	Speed 55 for NJ-NY stop del=15
Tenaflly	Rockland20	40	166A1	2721	26	53	43	35	32	39	37
	NJ166	40, 60 (Exp)									
Ridgewood	NJ163	62	163E1	2711	33	67	57	55	60	65	65
Clifton	NJ191	28	191A1	3732	23	46	36	32	37	42	42
Wayne	NJ197	53	197B1	301526	32	68	58	52	57	62	62
Dover	LK46	90	LK46A1	3152	46	94	84	77	82	87	87
Exit 8A	Exit 8A	60	SUX8AA1	300549	50	112	102	82	60	69	65
		From 8A PNR			From 8A PNR						
Old Bridge	NJ139	62	139G1	3218	60	112	102	85	70	79	75
West Milford	NJ194	73	194A1	301464	42	108	98	93	98	103	103
Somerville NJ	NJ114	106	114A1	3200	58	138	128	122	127	132	132
Princeton NJ	Subarbahn Rt	95	SUPTD1	3580	69	133	123	103	87	96	92
	Coach USA										
Lakewood	NJ139	106	139A1	301430	92	167	154	139	125	134	130
Oradell		45	165D1	2704	29	60	50	43	40	47	45
Vince Lombardi		25	321A1	2709		35	25	21	21	26	26

Survey Assignments

Surveys Used:

2002 PANYNJ Interstate Bus Survey

2005 NJT On-Board Rail Survey

2007 PATH On-Board Rail Survey

2007 NJ Hudson-Bergen LRT Survey

1998 PANYNJ Ferry Survey (scaled to 2005)

Late 1990's NJT Local Bus Surveys (scaled to 2005)

2007 Metro-North On-Board OD Survey

2006 LIRR On-Board OD Survey

2008 MTA RTFM Estimates of East of Hudson
Subway/Bus Trips

**Construct a complete 6-10 AM transit trip
table to feed assignment of TH-TDFM**

6-10 AM Survey Assignments –NJT Rail (Bergen County & M&E)

		Counts			Version 1 - 08/29/12			TH Version24 - 11/21/12		
				2005/2006/2007	AM Peak Period Suvey Based Trip Tables			Assignment w ith all Netw ork and		
Node	Station			Est. AM Peak	Single OP Matrix for CR and Transit			Pathbuilding Improvements		
				Total						
		Ons	Offs	Ons+Offs	Ons	Offs	Total	Ons	Offs	Total
NJT Commuter Rail				<i>2005 Counts</i>						
Main/Bergen/Port Jervis										
Port Jervis Subtotal		1,962	44	2,006	1,911	0	1,911	2,022	2	2,024
Suffern-Glen Rock		4,202	49	4,251	1,069	159	1,227	2,789	301	3,090
Main Line Subtotal		1,761	130	1,891	99	67	166	891	118	1,009
Bergen County Subtotal		1,845	56	1,901	374	243	617	1,522	148	1,670
Total Pt Jervis/Main/Bergen		9,770	279	10,049	3,452	469	3,921	7,224	569	7,793
Pascack Valley Line										
Outer Pascack Subtotal		2,045	10	2,055	472	24	497	1,644	535	2,179
Inner Pascack		973	75	1,048	82	138	220	691	28	719
TOTAL Pascack		3,018	85	3,103	554	162	717	2,335	562	2,897
Boonton Line										
Outer Boonton Subtotal		1,545	50	1,595	1,054	97	1,152	1,635	102	1,737
Middle Boonton Subtotal		391	13	404	72	16	88	365	2	367
Inner Boonton Subtotal		1,576	37	1,613	285	96	381	599	72	670
TOTAL Boonton Line		3,512	100	3,612	1,411	209	1,620	2,599	175	2,775
Morris/Essex Line										
Outer M&E Subtotal		4,401	271	4,672	1,952	331	2,284	3,093	475	3,568
Gladstone Br. Subtotal		2,484	41	2,525	1,901	415	2,316	2,484	200	2,684
Inner M&E Subtotal		9,197	635	9,832	6,167	432	6,598	6,437	506	6,943
NEWARK BROAD ST		402	796	1,198	1,223	1,662	2,885	2,904	3,342	6,246
TOTAL Morris & Essex		18,474	1,753	20,227	12,281	2,879	15,160	16,546	4,543	21,089

6-10 AM Survey Assignments –NJT Rail (RVL, NJCL, NEC and Terminals)

		Counts			Version 1 - 08/29/12			TH Version24 - 11/21/12		
Node	Station			2005/2006/2007	AM Peak Period Suvey Based Trip Tables			Assignment w ith all Netw ork and		
				Est. AM Peak	Single OP Matrix for CR and Transit			Pathbuilding Improvements		
				Total						
		Ons	Offs	Ons+Offs	Ons	Offs	Total	Ons	Offs	Total
NJT Commuter Rail				2005 Counts						
Raritan Valley Line										
	Outer Raritan Subtotal	1,260	20	1,280	608	32	640	686	113	799
	Inner Raritan Subtotal	5,685	143	5,828	2,259	249	2,507	5,279	196	5,475
	Total Raritan	6,945	163	7,108	2,867	280	3,147	5,965	309	6,274
Northeast Corridor/NJ Coast Line										
	Outer NJC Subtotal	1,517	93	1,610	1,025	167	1,193	1,232	78	1,311
	Central NJC Subtotal	9,898	360	10,258	2,136	821	2,956	7,797	832	8,629
	Outer NEC Subtotal	26,685	1,674	28,359	8,749	1,369	10,118	19,135	2,140	21,275
	Inner NEC/NJC Subtotal	4,342	1,124	5,466	1,351	873	2,224	4,345	1,072	5,417
	TOTAL NJC/NEC	42,442	3,251	45,693	13,261	3,230	16,491	32,510	4,121	36,631
NJT Terminal Stations										
	Secaucus Subtotal	3,603	3,515	7,118	114	88	202	3,365	3,394	6,759
	New ark Penn Station (NJT)	4,199	15,322	19,521	2,570	5,963	8,534	7,383	16,209	23,592
	Hoboken (NJT)		16,579	16,579	237	9,442	9,679	268	10,749	11,017
	New York Penn Station (NJT)		50,966	50,966	872	14,239	15,110	1,980	40,314	42,295
	Total Terminal Stations	7,802	86,382	94,184	3,793	29,732	33,525	12,996	70,665	83,662
NJT Rail without Terminal Station		84,161	5,631	89,792	33,826	7,230	41,056	67,179	10,280	77,459
NJT Rail with Terminal Stations		91,963	92,013	183,976	37,619	36,961	74,580	80,176	80,945	161,121

6-10 AM Assignments – PATH & PABT

		Counts			Version 1 - 08/29/12			TH Version24 - 11/21/12		
Node	Station			2005/2006/2007 Est. AM Peak Total	AM Peak Period Suvey Based Trip Tables Single OP Matrix for CR and Transit			Assignment with all Network and Pathbuilding Improvements		
		Ons	Offs	Ons+Offs	Ons	Offs	Total	Ons	Offs	Total
PATH										
	33rd St Line									
	33rd St	2,534	10,746	13,280	573	5,044	5,617	731	7,289	8,020
	23rd St	297	3,547	3,844	114	3,339	3,453	114	2,623	2,738
	14th St	446	3,071	3,517	169	2,759	2,928	186	2,061	2,247
	9th St	246	1,498	1,744	249	1,739	1,989	173	1,554	1,727
	Christopher St	309	1,374	1,683	442	2,330	2,772	383	2,443	2,826
	33rd St Line Subtotal	3,832	20,236	24,068	1,547	15,211	16,758	1,586	15,971	17,557
	WTC	7,726	41,404	49,130	3,312	26,073	29,386	6,856	41,580	48,436
	New Jersey									
	Hoboken	23,434	1,035	24,469	28,141	4,249	32,390	16,803	1,755	18,557
	Pavonia/New port	3,391	2,061	5,452	4,373	1,108	5,481	3,090	108	3,199
	Exchange Place	1,863	6,462	8,325	3,550	3,723	7,273	1,259	1,517	2,777
	Grove St	6,036	1,448	7,484	2,404	590	2,994	13,312	5,712	19,024
	Journal Square	12,648	2,446	15,094	328	221	549	10,140	2,740	12,881
	Harrison	3,895	496	4,391	840	236	1,076	6,105	1,624	7,729
	NEWARK PENN STATION	18,785	3,194	21,979	8,007	1,091	9,099	13,388	1,468	14,857
	Subtotal	70,052	17,142	87,194	47,643	11,218	58,862	64,097	14,925	79,022
	TOTAL PATH	81,610	78,782	160,392	52,503	52,503	105,005	72,539	72,476	145,015
Bus										
	PABT Terminal							13,205	69,989	83,194

6-10 AM Survey Assignments – LIRR & MNR

		Counts			Version 1 - 08/29/12			TH Version24 - 11/21/12		
Node	Station			2005/2006/2007 Est. AM Peak Total	AM Peak Period Suvey Based Trip Tables Single OP Matrix for CR and Transit			Assignment w ith all Network and Pathbuilding Improvements		
		Ons	Offs	Ons+Offs	Ons	Offs	Total	Ons	Offs	Total
LIRR				2006 Counts						
CITY TERMINAL ZONE				(2000 for CTZ offs)						
3000	New York-Penn Station	5,965	85,526	91,491	2,491	63,893	66,384	4,014	73,120	77,134
3807	New York-GCT	0								
3002	Hunterspoint Ave	0	3,409	3,409	0	4,103	4,103	0	4,018	4,018
3001	Long Island City	0	79	79	0	188	188	0	151	151
3091	Flatbush Ave	4,143	10,593	14,736	1,261	7,703	8,963	1,793	9,357	11,150
	Subtotal	10,108	99,607	109,715	3,752	75,886	79,638	5,807	86,646	92,453
METRO-NORTH										
3500	125th St	142	2,514	2,656	2,330	4,152	6,481	980	2,098	3,079
3201	125th St									
3200	NYC-Grand Central	0	70,632	70,632	2,307	60,776	63,083	4,263	66,757	71,020
	Total	142	73,146	73,288	4,637	64,928	69,564	5,243	68,855	74,099

Where we are/Next Steps

- NJ Commuter rail path-building very good:
 - Able to generate valid skim for 95+ % of surveyed trips (we started at 60%)
 - Survey assignments, while not perfect are much improved
- Bus paths also relatively good
- Expand NJ network/path-building validation to ferry and LRT
- Support TH-TDFM calibration (targets) and assignments
- Develop Future Year alternatives
- Develop scope for similar EHR (NY,CT) transit network and assignment calibration for EHR (NY,CT) – to support BPM 2010 Update

AGENDA ITEM J,K:
OTHER DISCUSSION
NEXT STEPS / NEXT MEETING
