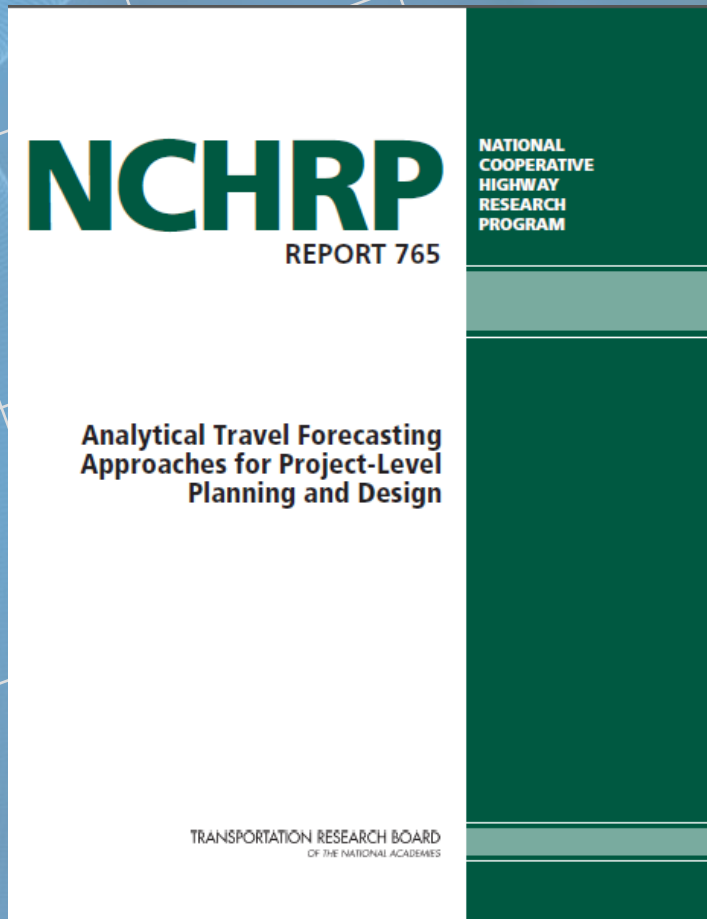


NCHRP Report 765 Overview



Roberto Miquel

November 19, 2014

North Carolina Model Users' Group

Presentation Overview

- NCHRP Report 765 Overview
- Traffic Forecasting Process (Chapter 4 Excerpts)
- Temporal Refinements and Time of Day Tables (Chapter 8 Excerpts)
- Possible Next Steps

NCHRP REPORT OVERVIEW

NCHRP Report 765

- NCHRP 8-83 (NCHRP Report 765)
 - Started in March, 2011
 - Finished in October, 2013
 - Published in July, 2014

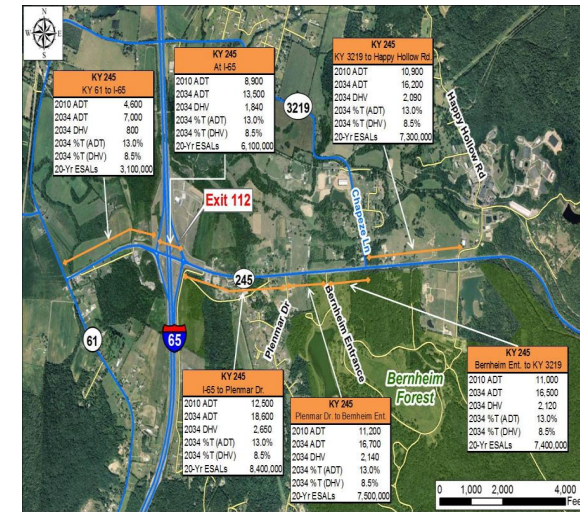
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_765.pdf
- Need
 - Guidance to produce traffic forecasts for design, planning and operational project analysis
 - Models and other tools produce results that need smoothing or factoring
 - Updates NCHRP 255 which has been used since 1982 refining traffic forecasts

Project Background

- Program Manager: Nanda Srinivasan
- Team
 - CDM Smith: Rob Bostrom, Principal Investigator, several others
 - Alan Horowitz: Proprietor AJH Associates
 - Tom Creasey: Stantec
 - Ram Pendyala: Georgia Tech University
 - Mei Chen: University of Kentucky
- Panel
 - Chair: Mike Bruff of NC DOT
 - Sarah Sun, Kermit Wies, Eric Pihl, Robert Winnick, Doug Laird, Jeff Shelton, Subrat Mahapatra, Derek Miura, Matthew Hardy, Phillip Cox, Dan Lamers

Contents

- Background
 - Introduction
 - Overview of the Fundamentals of Traffic Forecasting
 - Overview of Traffic Forecasting Tools and Methodologies
- Guidelines
 - The Project-Level Traffic Forecasting Process
 - Working with a Travel Model
 - Model Output Refinements
 - Refining the Spatial Data of Traffic Models
 - Improving the Temporal Accuracy of Traffic Forecasts
 - Traffic Forecasting Methods for Special Purpose Applications
 - Tools Other than Travel Models
 - Case Studies



Final Draft Report: Chapter 1

Introduction

- What are projects?
- History/context/significance of NCHRP 255
- Chapter by chapter review of NCHRP 255
- Forecasting state of the practice: national survey and source documents
- Organization of report

What are projects?

- Traffic Impact Studies
- Improvements to Improve Reliability
- Operational Studies of Highway Facilities
- Planning of New Highway Facilities
- Construction of New Highway Facilities

Chapter 2: Overview of the Fundamentals of Traffic Forecasting

- Traffic forecasting parameters and source data - e.g. ADT, DHV, T%
- Traffic forecasting tools - TDMs and more
- Measures of effectiveness - see graphic
- Essential bookshelf
 - must reads for forecasters

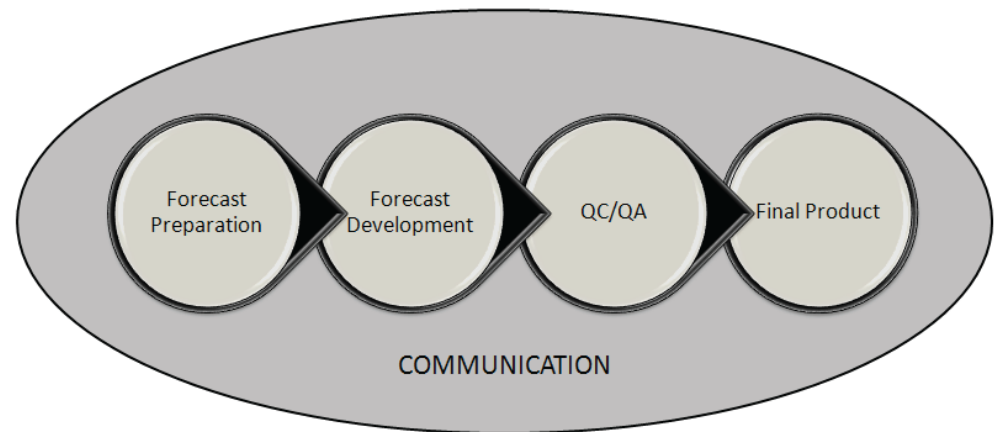
Traffic Forecasting Application	Typical Outputs/MOEs
Traffic impact studies	Intersection turning movements, LOS, delay per vehicle
Roadway (general and freight) long-range planning	VMT, VHT, LOS
Asset management, including bridge and pavement needs	Link-specific volumes
Air quality conformity analysis	Area-wide VMT, speeds
Congestion management process	Corridor volumes and speeds
Facility design and operations	Traffic volumes
Capital Improvement Program, prioritization	Benefit/cost, congestion
Environmental impact statements	VMT, VHT, emissions, accidents
Highway feasibility studies	Benefit/cost, screenline volumes, vehicle hours, LOS
Interchange justification requests	Traffic volumes, LOS
Corridor mobility studies	Intersection LOS, intersection turning movements, traffic volumes, travel times
Demand management plans	Vehicle hours of delay, LOS
Evacuation plans	Travel times, volumes, throughput

Chapter 3: Overview of Traffic Forecasting Tools and Methodologies

- The travel forecasting model ideal
- State-of-the-practice travel forecasting models
- SOP of data inputs for travel forecasting models
- SOP of outputs for travel forecasting models
- Defaults vs. locally specific parameters
- Other traffic forecasting tools and methodologies

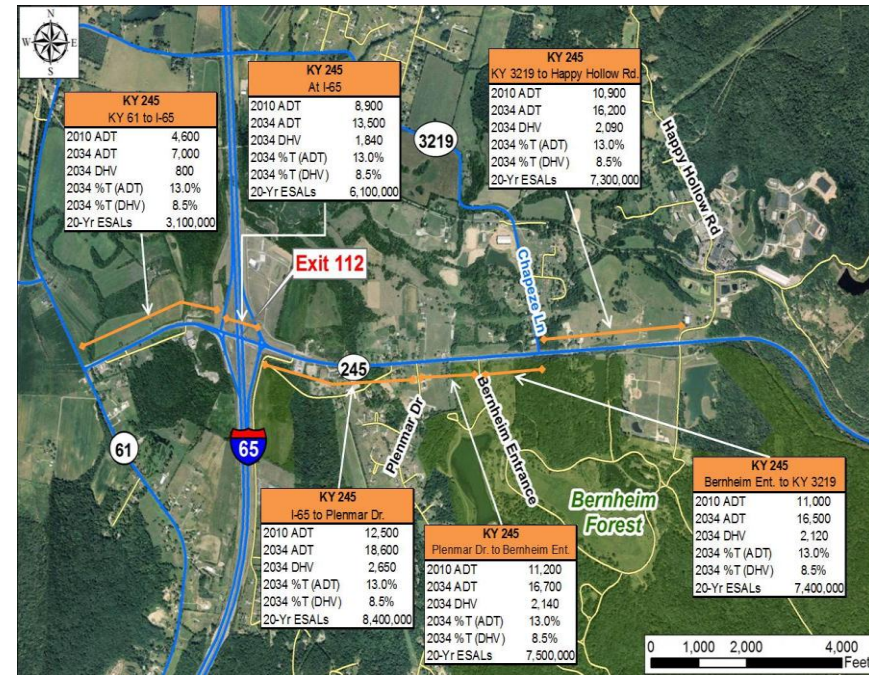
Chapter 4: The Project-Level Forecasting Process

- Traffic forecasting context
 - Application
 - Scope
- Traffic forecasting steps
 - Preparation
 - Forecast development
 - QA/QC
 - Documentation



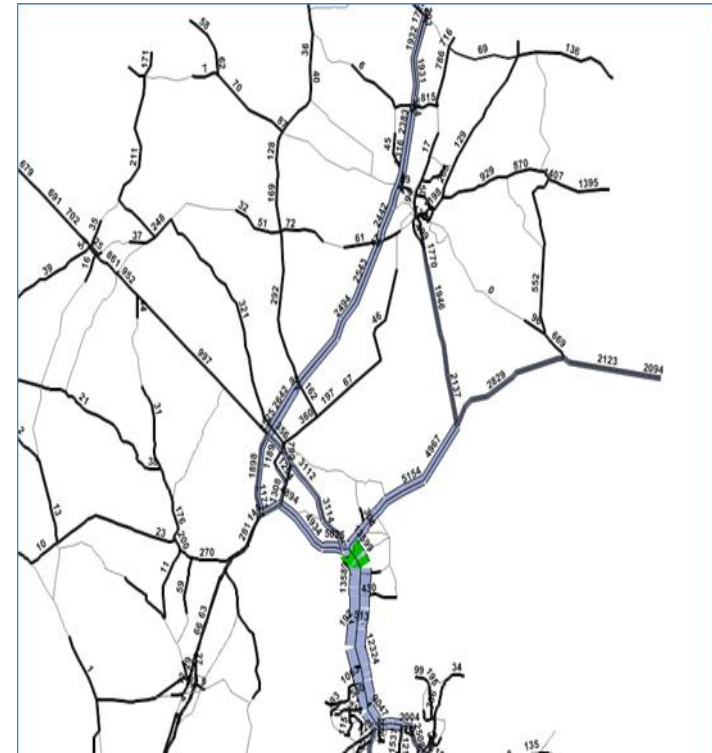
Chapter 4: The Project-Level Forecasting Process

- Key Traffic Forecasting Considerations
 - Accuracy
 - Judgment
 - Traffic forecasting rules of thumb: precision/rounding, importance of data



Chapter 5: Working with a Travel Model

- Understanding your model
- Validation methods and standards
- Errors and variability in speed and volume data
- Fixing issues in input or validation data
- Understanding travel model outputs
- Dealing with outliers in model outputs



Chapter 5: Working with a Travel Model

- Default free flow travel times for a TDM:

HCM Method	Base Free Flow Speed (mph)	Criterion
Basic Freeway Segments	75.4	
Multilane Highways	Posted Speed + 5 mph	Posted Speed \geq 50 mph
Multilane Highways	Posted Speed + 7 mph	Posted Speed \leq 50 mph
Two-Lane Highways	45 to 70	Little guidance given; based on speed data and local knowledge of operating conditions
Urban Streets	25 - 55	Based on recommended speed constant and geometric/traffic control parameters (HCM 2010 Ex. 17-11)

Chapter 6: Model Output Refinements

- Screenline refinement and base volumes
- Refining turning movement outputs of travel models
- Refining directional splits from travel models
- Refining speed and travel time outputs of travel models
- Model refinement with origin-destination matrix estimation

USER INPUT											
OPTIONAL INPUT											
FINAL REFINED FORECAST											
	COL 1	COL 2	COL 3	COL 3.5	COL 4	COL 5	COL 6	COL 7	COL 7.1	COL 7.2	COL 7.3
	Road/Link	Min Diff	Max Rat	Use SL	near base model count year	count data	2008 Ab	Ab ^{interpolate}	R	D	MR
(east leg)	SR 18 (State St)	0.5	2	Enable	2011	2215	1687	2243	0.99	-28	0.41
(north leg)	Mitchell Rd	0.5	2	Enable	2011	520	416	490	1.06	30	1.73
(west leg)	SR 18 (Deshler Rd)	0.5	2	Enable	2011	2011	1861	2479	0.81	-468	0.00
(south leg)	Mitchell Rd	0.5	2	Enable	2011	592	157	184	3.22	408	6.34
(up leg)		0.5	2	Enable				0	0.00	0	-1.00
(down leg)		0.5	2	Enable				0	0.00	0	-1.00
(other roads)		0.5	2	Enable				0	0.00	0	-1.00
(other roads)		0.5	2	Enable				0	0.00	0	-1.00
(other roads)		0.5	2	Enable				0	0.00	0	-1.00
(other roads)		0.5	2	Enable				0	0.00	0	-1.00
Total						5338		5396			
There are hidden rows if you want more roads in your intersection/screenline											
Model Base	Year	2008									
Model Opening (or	Year	2018									
Model Forecast	Year	2038									
Project Opening	Year	2018									
Project Design	Year	2036									
									Screenline Options (see field 3.5 description)		
									Enable		
									Disable		
									Force		

Chapter 8: Improving The Temporal Accuracy of Traffic Forecasts

- Activity and tour-based model systems
- Dynamic traffic assignment
- Peak spreading
- Pre-assignment factoring
- Post-assignment factoring
- Day of week
- Month of year
- Vehicle class considerations
- Case studies

Chapter 8: Pre-assignment Table (NCHRP 716)

Hour Ending	Home-Based Work		Home-Based Nonwork		Home-Based School		Home-Based Other		Nonhome-Based	All Trips
	From Home	To Home	From Home	To Home	From Home	To Home	From Home	To Home		
1:00 AM	0.1%	0.5%	0.0%	0.3%	0.0%	0.0%	0.0%	0.3%	0.2%	0.3%
2:00 AM	0.0%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.2%	0.1%	0.1%
3:00 AM	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
4:00 AM	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
5:00 AM	1.4%	0.0%	0.2%	0.0%	0.0%	0.0%	0.2%	0.0%	0.3%	0.4%
6:00 AM	5.2%	0.0%	0.6%	0.1%	0.2%	0.0%	0.7%	0.1%	0.5%	1.3%
7:00 AM	11.5%	0.1%	2.3%	0.3%	6.4%	0.0%	1.8%	0.3%	1.7%	3.6%
8:00 AM	14.3%	0.1%	7.0%	1.0%	28.2%	0.1%	4.2%	1.0%	4.9%	7.9%
9:00 AM	7.7%	0.1%	4.8%	1.3%	12.6%	0.2%	3.9%	1.3%	5.1%	6.1%
10:00 AM	2.8%	0.3%	3.4%	1.4%	1.7%	0.2%	3.6%	1.4%	5.1%	4.6%
11:00 AM	1.3%	0.3%	3.1%	1.9%	0.8%	0.4%	3.4%	1.9%	6.4%	4.9%
Noon	1.1%	1.0%	2.5%	2.4%	0.6%	1.1%	2.8%	2.4%	9.2%	5.8%
1:00 PM	1.6%	1.8%	2.3%	2.9%	0.7%	2.0%	2.5%	2.9%	11.1%	6.8%
2:00 PM	1.7%	1.4%	2.5%	2.7%	0.3%	2.0%	2.8%	2.7%	8.8%	6.0%
3:00 PM	1.7%	2.7%	2.7%	4.7%	0.3%	13.4%	3.0%	4.7%	8.6%	7.3%
4:00 PM	1.1%	6.2%	2.6%	5.9%	0.4%	16.5%	2.9%	5.9%	9.2%	8.6%
5:00 PM	1.0%	9.0%	3.2%	4.6%	0.6%	3.8%	3.5%	4.6%	8.2%	8.2%
6:00 PM	0.5%	10.5%	3.7%	4.9%	0.8%	2.5%	4.0%	4.9%	7.3%	8.5%
7:00 PM	0.3%	4.5%	4.1%	4.0%	0.4%	1.0%	4.6%	4.0%	5.0%	6.7%
8:00 PM	0.1%	1.9%	2.5%	3.8%	0.0%	0.8%	2.8%	3.8%	3.8%	4.9%
9:00 PM	0.1%	1.2%	1.1%	3.7%	0.0%	0.7%	1.2%	3.7%	2.1%	3.5%
10:00 PM	0.2%	1.2%	0.6%	2.5%	0.1%	0.9%	0.6%	2.5%	1.4%	2.3%
11:00 PM	0.3%	1.3%	0.3%	1.3%	0.0%	0.3%	0.3%	1.3%	0.8%	1.3%
Midnight	0.1%	1.4%	0.2%	0.7%	0.0%	0.0%	0.2%	0.7%	0.3%	0.8%
Total	54.3%	45.7%	49.5%	50.6%	54.0%	46.0%	49.5%	50.6%	100.0%	100.0%
7-9 AM	22.0%	0.2%	11.8%	2.3%	40.7%	0.3%	8.1%	2.6%	10.0%	14.0%
3-6 PM	2.6%	25.7%	9.5%	15.3%	1.7%	22.8%	10.5%	14.4%	24.7%	25.3%

Chapter 8: Post-assignment Table

- Hourly factors derived from ATRs for post-assignment ADT processing.
- Categories: urban area small/medium/large, rural area; ½ of table below

Rural Area

Hour Begins	Hour Ends	Weekday			Saturday			Sunday			Average Day		
		Interstate	Arterial	Collector	Interstate	Arterial	Collector	Interstate	Arterial	Collector	Interstate	Arterial	Collector
12:00 AM	12:59 AM	1.43	0.72	0.57	1.83	1.34	1.16	1.59	1.50	1.38	1.50	0.89	0.75
1:00 AM	1:59 AM	1.12	0.49	0.36	1.37	0.84	0.69	1.16	0.95	0.87	1.15	0.59	0.46
2:00 AM	2:59 AM	0.99	0.43	0.31	1.14	0.68	0.50	0.95	0.68	0.62	1.00	0.48	0.37
3:00 AM	3:59 AM	1.02	0.51	0.38	1.04	0.55	0.44	0.80	0.50	0.43	0.99	0.52	0.40
4:00 AM	4:59 AM	1.31	0.93	0.84	1.15	0.71	0.58	0.83	0.52	0.47	1.22	0.85	0.76
5:00 AM	5:59 AM	2.12	2.28	2.19	1.52	1.27	1.22	1.01	0.83	0.85	1.88	1.97	1.90
6:00 AM	6:59 AM	3.58	4.54	4.36	2.25	2.18	2.09	1.45	1.38	1.34	3.11	3.85	3.70
7:00 AM	7:59 AM	4.89	6.63	6.55	3.24	3.22	3.17	2.10	2.01	1.99	4.29	5.64	5.56
8:00 AM	8:59 AM	4.95	5.55	5.58	4.43	4.35	4.41	3.10	3.06	3.22	4.63	5.10	5.14
9:00 AM	9:59 AM	5.23	5.24	5.25	5.63	5.58	5.71	4.39	4.89	5.23	5.17	5.25	5.31
10:00 AM	10:59 AM	5.64	5.41	5.44	6.63	6.58	6.75	5.72	5.92	6.22	5.80	5.63	5.71
11:00 AM	11:59 AM	5.92	5.67	5.71	7.08	7.14	7.29	6.67	6.53	6.65	6.18	5.97	6.04

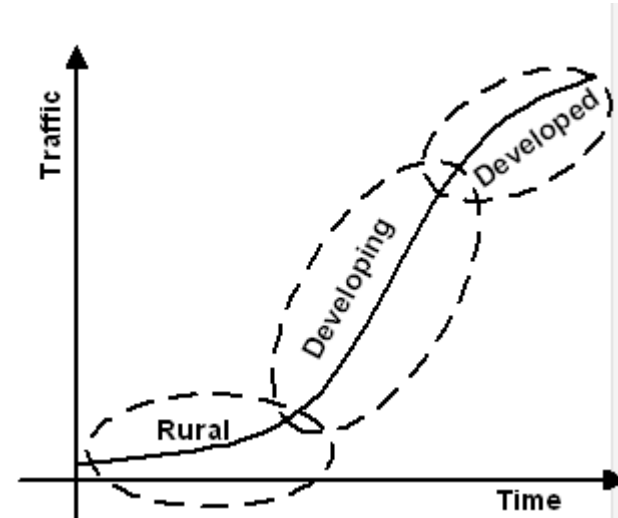
Chapter 9: Traffic Forecasting Methods for Special Purpose Applications

- Basic forecasts w/ ADT, DHV and turning movements
- Data extrapolations
- Vehicle mix & MOVES
- ESALs
- Benefit-cost analysis
- Toll/revenue forecasts
- Work zone congestion
- Incident management
- Non-recurring congestion
- Environmental justice
- Traffic impact studies

MOVES Screen	Input Item	Ozone
Description	Description	User Choice
Scale	Domain/Scale	County
	Calculation Type	Emission Rate
Time Spans	Time Aggregation Level	Hour
	Year	2002, 2010, 2015, 2020, 2025, 2030, 2035, 2040
	Months	July
	Days	Weekday
	Hours	Select All
	Geographic Bounds	Geographic Bounds
Vehicles	Vehicles	All Gas and Diesel Combinations

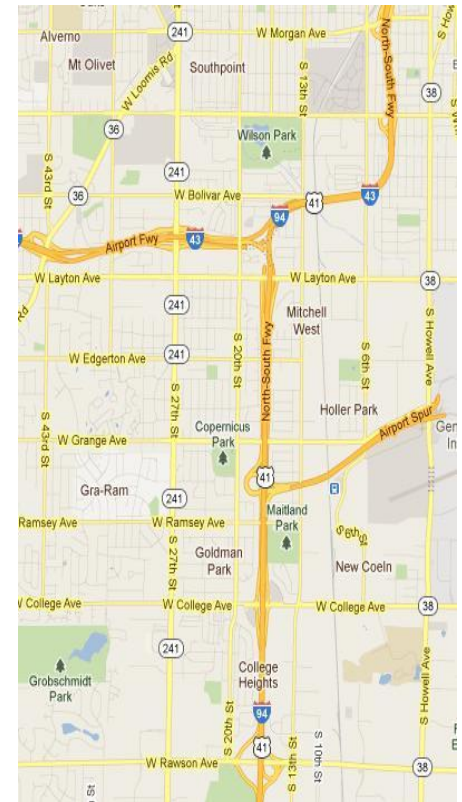
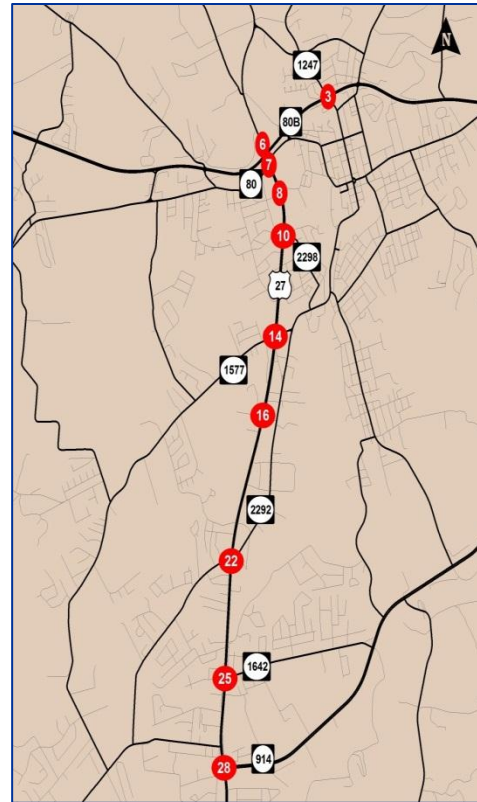
Chapter 10: Tools Other than Travel Models

- When to use non-TDM methods
- Time series of traffic volume data
- Sketch planning and spreadsheet techniques
- Elasticity methods
- Post processing using HCM 2010
- Stitching a model together



Chapter 11: Case Studies

- Suburban Arterial network
- Network window
- Small city (Charleston, SC)
- Large City (Atlanta)
- Time series on a link
- Blending a TDM and microsimulation



Appendices

- Glossary/acronyms
- Survey/expert panel/NCHRP 255 detailed review
- Modeling source documents
- Examples
 - Traffic forecasting
 - Trend line analysis
 - Turning movement
 - Model spreadsheet
- Modeling checklist

NCHRP 765 Recommendations

- Project-level forecasting, for the most part, use travel models and/or time series.
- Sketch planning tools are also fine for traffic forecasting.
- Most traffic forecasts for projects need some sort of refinement.
 - Ratios/deltas
 - ODME
- Engineering judgment is allowed and encouraged – must be documented though!

TRAFFIC FORECASTING PROCESS

Chapter 4 The Project-Level Forecasting Process

- Traffic Forecasting Context – Management Perspective
- Traffic Forecasting context – Analyst Perspective
- Role of Judgment
- Forecast Accuracy
- Traffic Forecasting Rules of Thumb

Traffic Forecasting Context: Management Perspective

- Forecast needs
 - Covers many disciplines
 - Operations, planning, design and subsets of each
- Forecast origins/protocols

Form version: March 2007
Please check for and use latest version form: <http://www.dot.state.oh.us/traffic>

Reset Form Print Form Submit by Email

Ohio Department of Transportation
Office of Technical Services - Modeling & Forecasting Section
Certified Traffic Request Form

1000 West Broad Street, 2nd Floor, Columbus, OH 43223 Phone: (614) 602-1020 Fax: (614) 710-6040 www.dot.state.oh.us/traffic

Use this form to submit a request for Certified Traffic volumes for a future year by providing all the information asked for. You may either submit this request electronically using the "Submit by Email" button or by printing and mailing/placing it to the attention of Project Analyses Administrator at the Office of Technical Services' Office Administrator.

REQUESTOR:

Name: Organization:

Address:

Phone: Fax: Email:

REQUEST:

Type: New Revision/Update

Reason(s): Change in future year(s) of interest
 Change in design alternative/alignment
 Change in project boundaries
 Other change(s) - specify below

Date of original request:

Project Details:

PID: District: County: Route:

Log Point: Project Type:

Project Description:

Project Boundaries & Any Other Relevant Project Information:

NOTE: Please include a street-network map of the study area. For all future scenarios, drawing(s) of every alternative for which certified traffic is sought, is required.

Page 1 of 2

Project Opening Year: Project Design Year:

Select Required Design Designations Identify Study Intersection(s)

TD T24 K & D Factors

8th highest hour factor

Turning movement volumes
 AM Peak PM Peak ADT

Identify Study Intersection(s):

Bridges Requiring Separate Design Designations (if any):

Committed and/or Planned Development in vicinity (if any):
 Expansion of Intermodal Plaza
 Full build out of National Mall

Special Conditions (if any):

SCHEDULE:
 Technical Services' goal is to meet time requirement 100 percent of the time. The District Office will be contacted to determine priority amongst pending requests for multiple projects from the same District. Technical Services will notify you immediately of any known problems which will impact the ability to respond within 45 working days of receipt of a request.
 Date when data is needed:

Reset Form Print Form Submit by Email

DO NOT WRITE BELOW FOR INTERNAL USE ONLY

Date request received: State Job No.: Analyst assigned:

Request logged in tracker on and by: Forecast source:

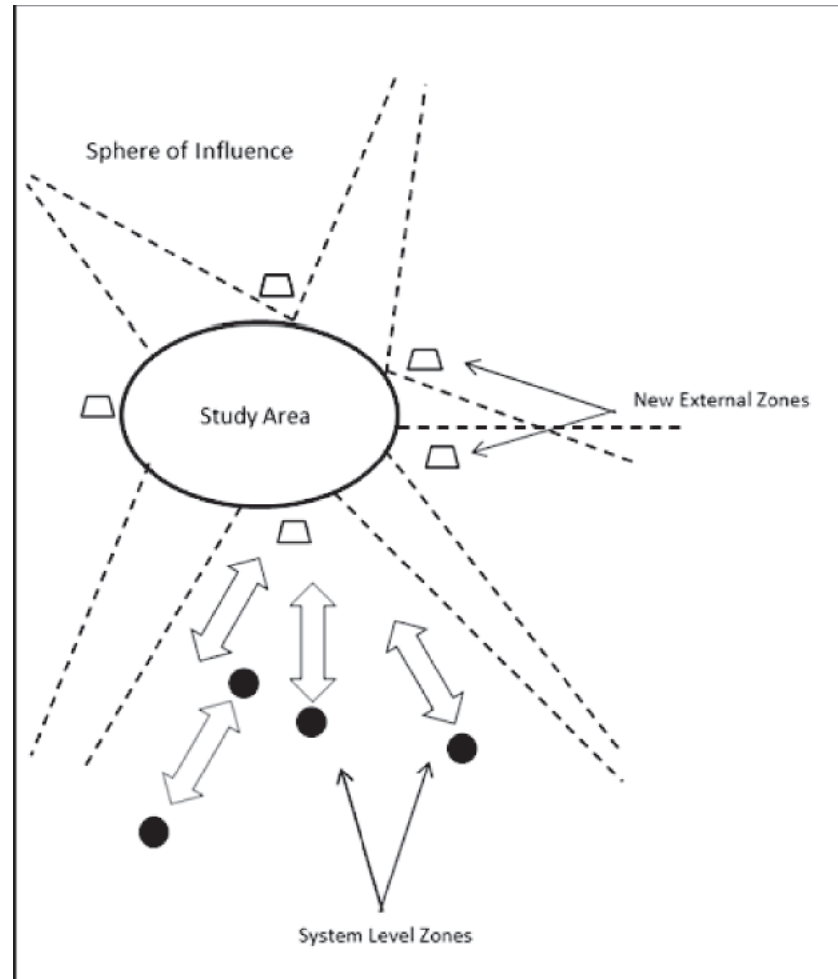
Notes:

Date of completion: Checked & Sent on:

Page 2 of 2

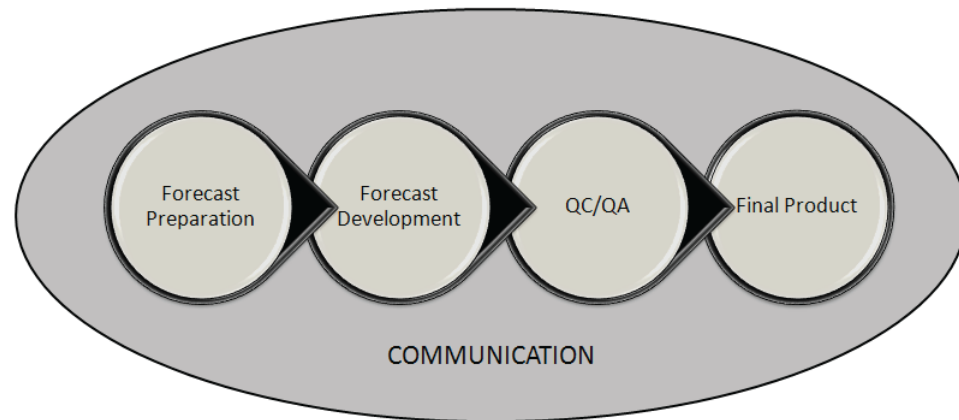
Traffic Forecasting Context: Management Perspective

- Scope
 - Timeframe
 - Study area (sphere of influence)
 - Alternatives and scenarios: both supply and demand
 - Resources
 - Tools

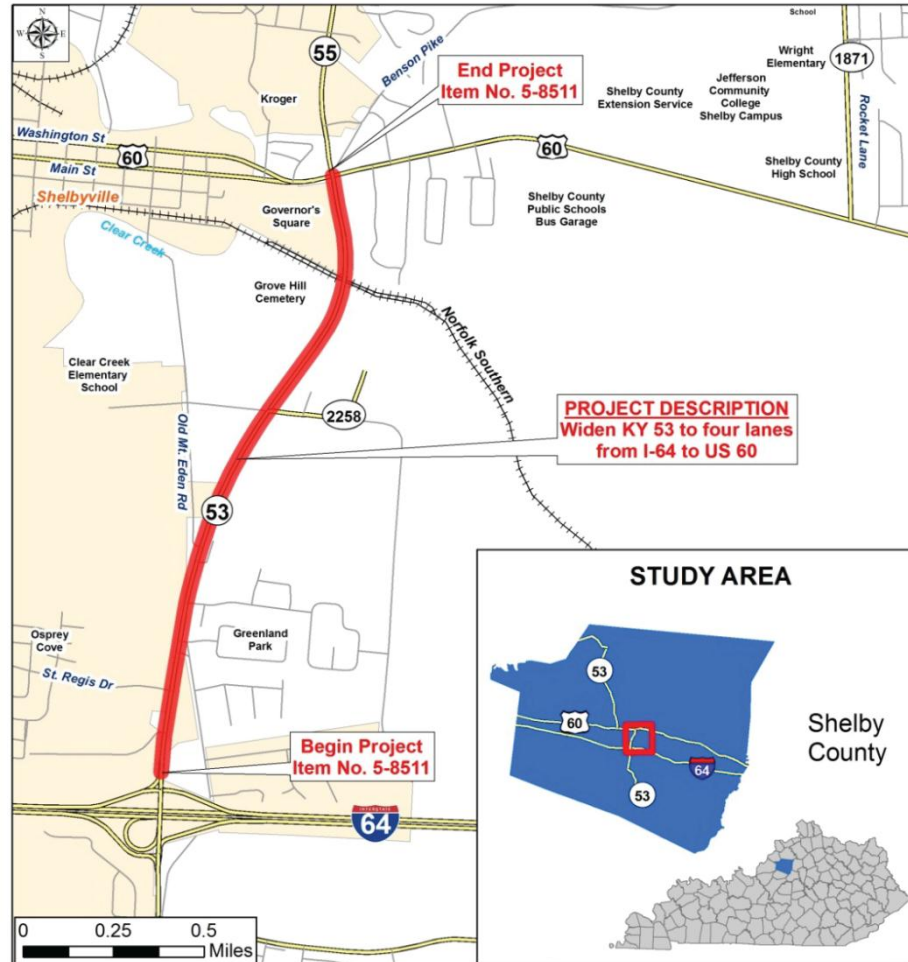


Traffic Forecasting Context: Analyst Perspective

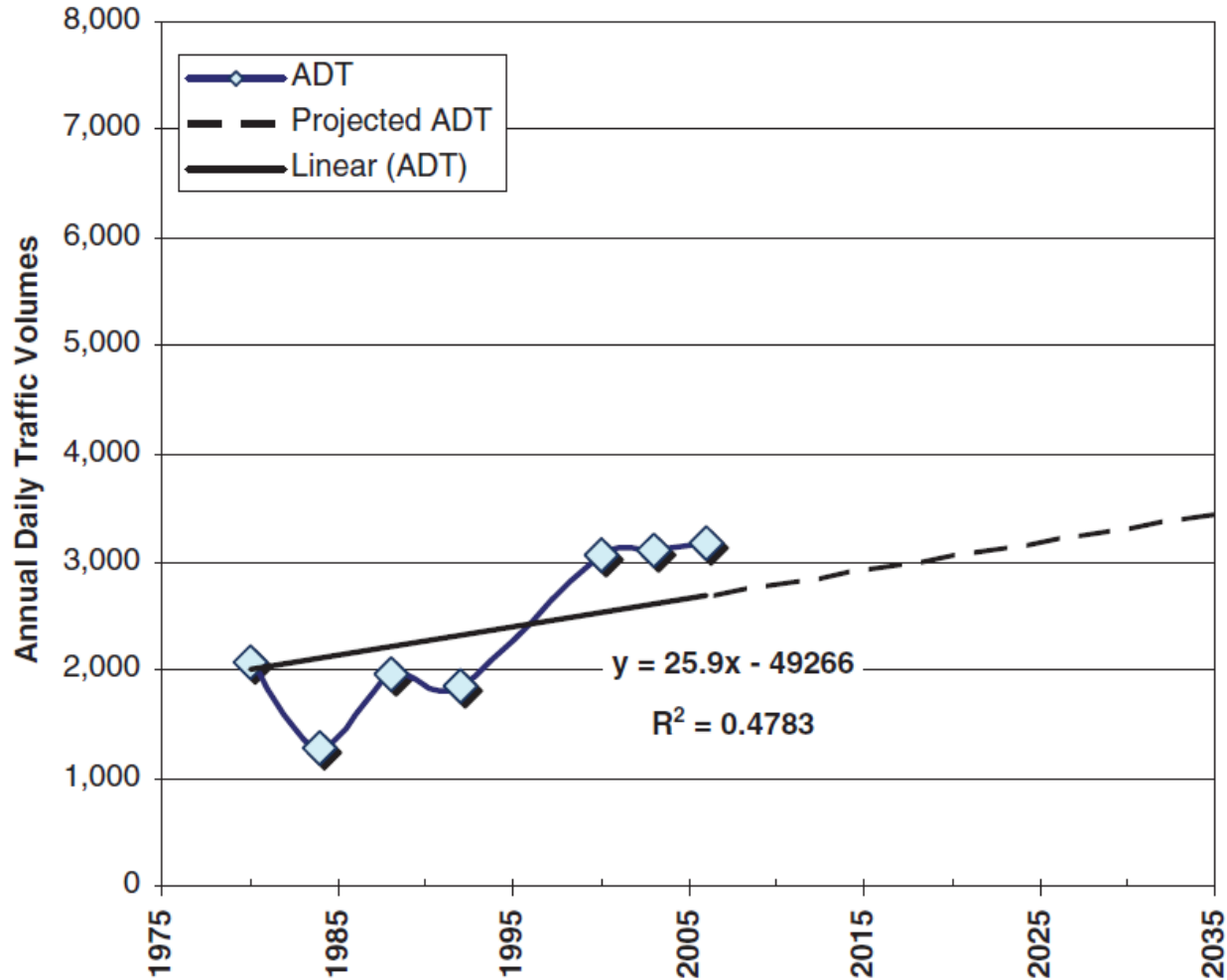
- Forecast preparation: data – old and new, related forecasts, site visits
- Forecast development – see Appendix F for 2 full TFs, 3 mini TFs in this section
- Quality analysis – feedback to data program, TF refinement
- Forecast product – comprehensive document w TC, TF purpose, data types/sources, tools and methods, results
- Communication



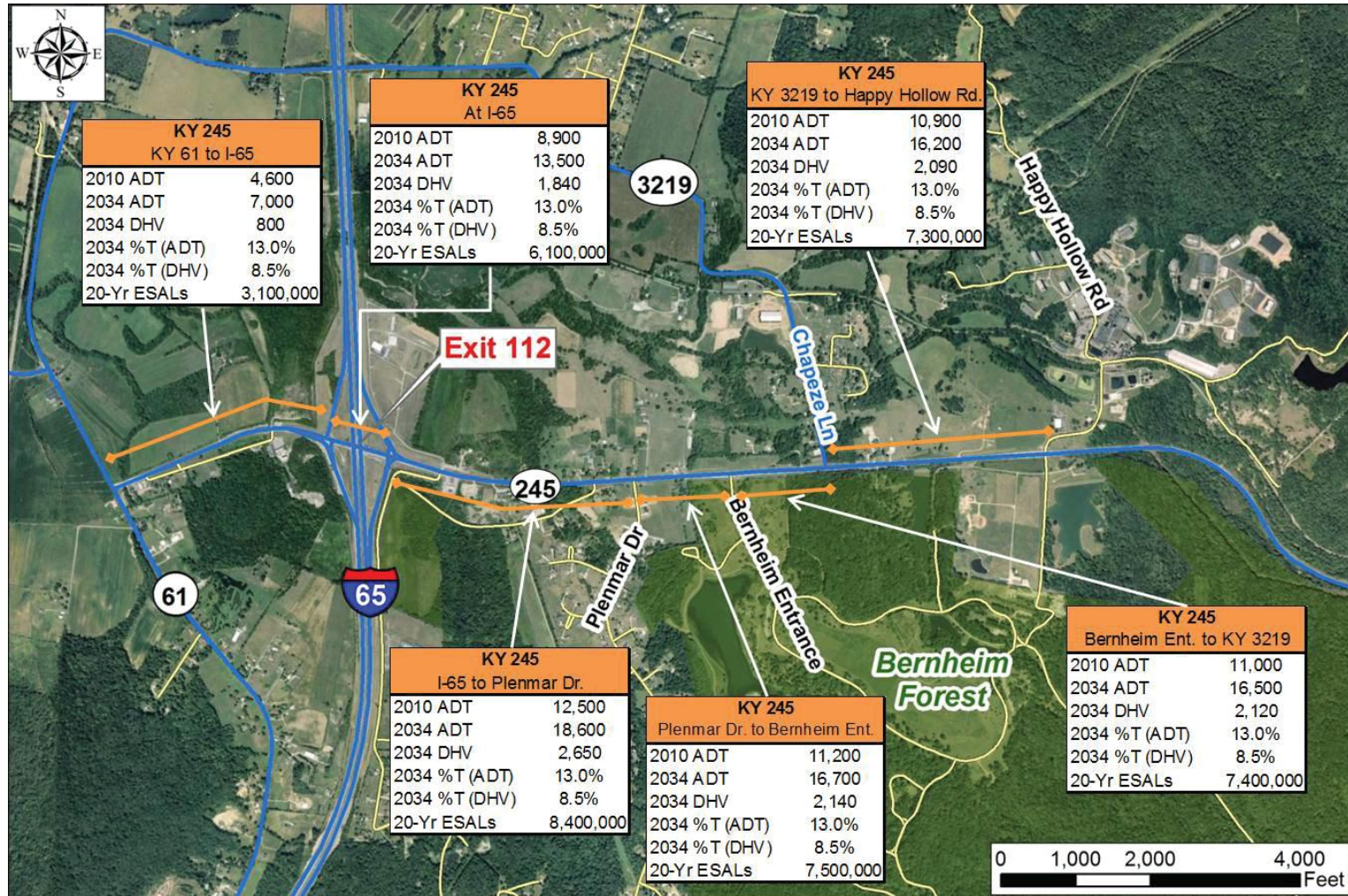
Traffic Forecasting Context: Analyst Perspective



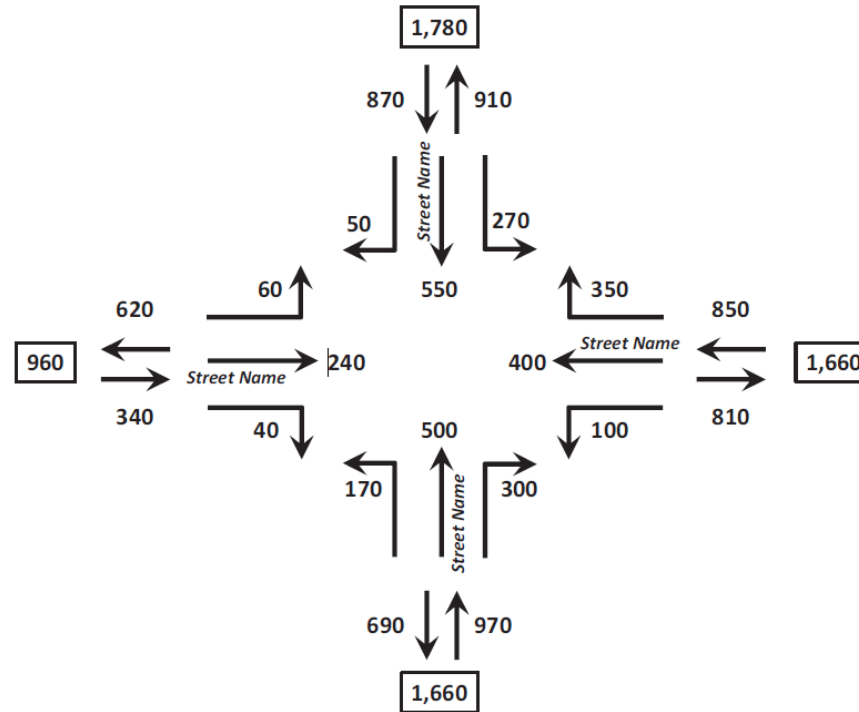
Traffic Forecasting Context: Analyst Perspective



Traffic Forecasting Context: Analyst Perspective



Traffic Forecasting Context: Analyst Perspective



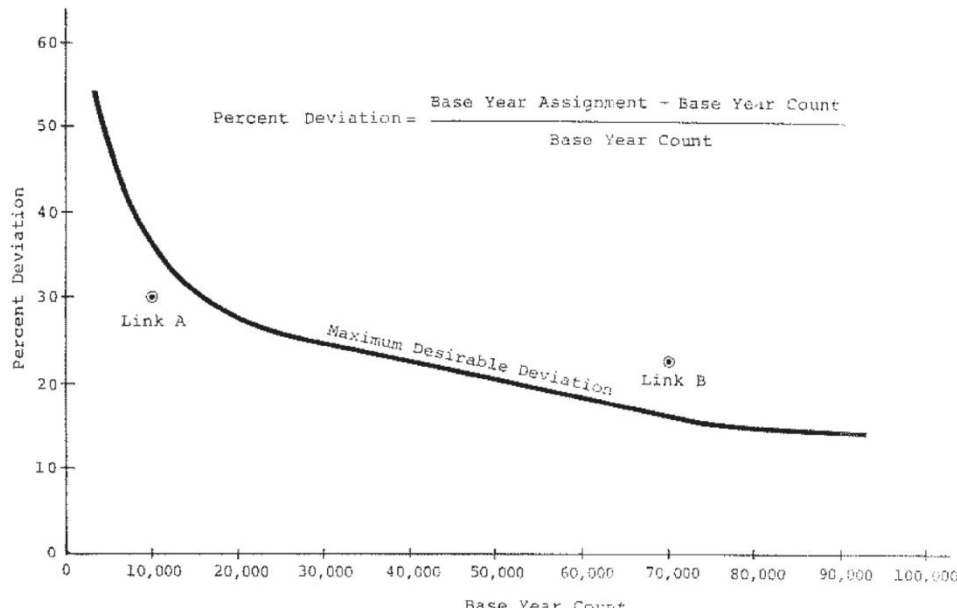
Approach	Turning Volume			
	Left	Through	Right	Total
Northbound	170	500	300	970
Southbound	270	550	50	870
Eastbound	60	240	40	340
Westbound	100	400	350	850
Total				3,030

Role of Judgment

- Model Errors
- Decision-making process
- Types of error
- Sensitivity
- Common sense
- Wrong performance measures
- Personal integrity

Forecast Accuracy

- Model Error – RMSE, other measures
- Forecasting error – confidence intervals



Traffic Forecasting Rules of Thumb

- Tools – use a model rather than TLA if possible, behavior over history
- Understand increases/decreases in traffic
- Data, data, data
- Document assumptions
- Rounding

Traffic Forecast Precision	
Forecast Volume	Round to Nearest
<100	10
100 to 999	50
1,000 to 9,999	100
10,000 to 99,999	500
>99,999	1,000

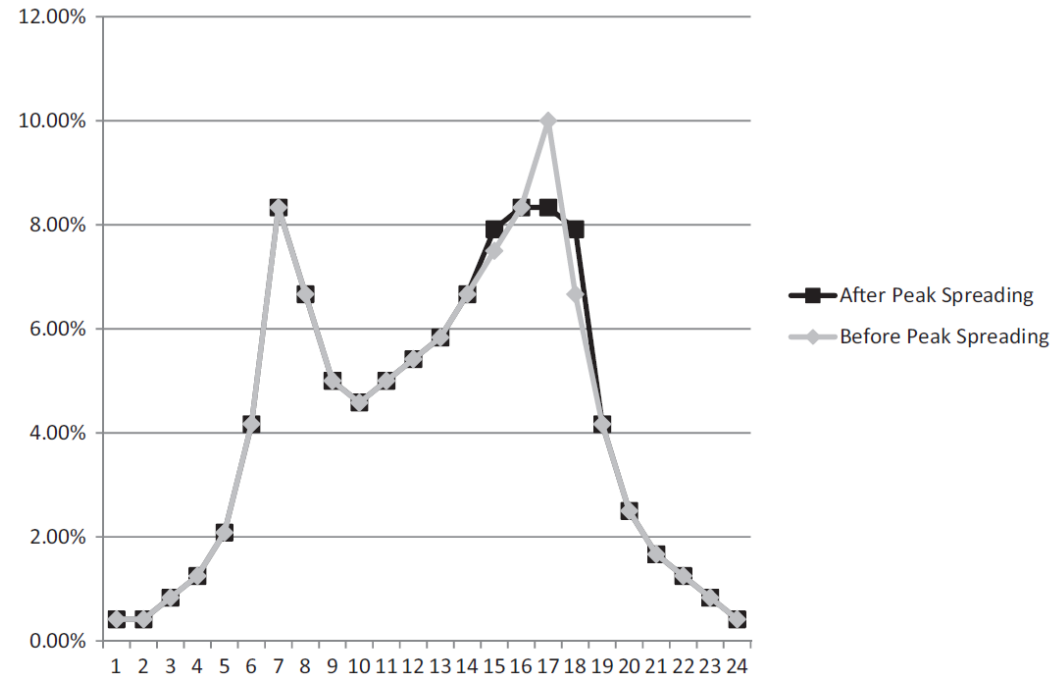
TEMPORAL REFINEMENTS AND TOD TABLES

Improving the Temporal Accuracy of Traffic Forecasts

- Activity based travel demand model systems
- Dynamic traffic assignment
- Peak spreading
- Pre-assignment time of day factoring
- Post-assignment time of day factoring
- Day of the week factors and monthly factors
- Vehicle class considerations

Peak Spreading

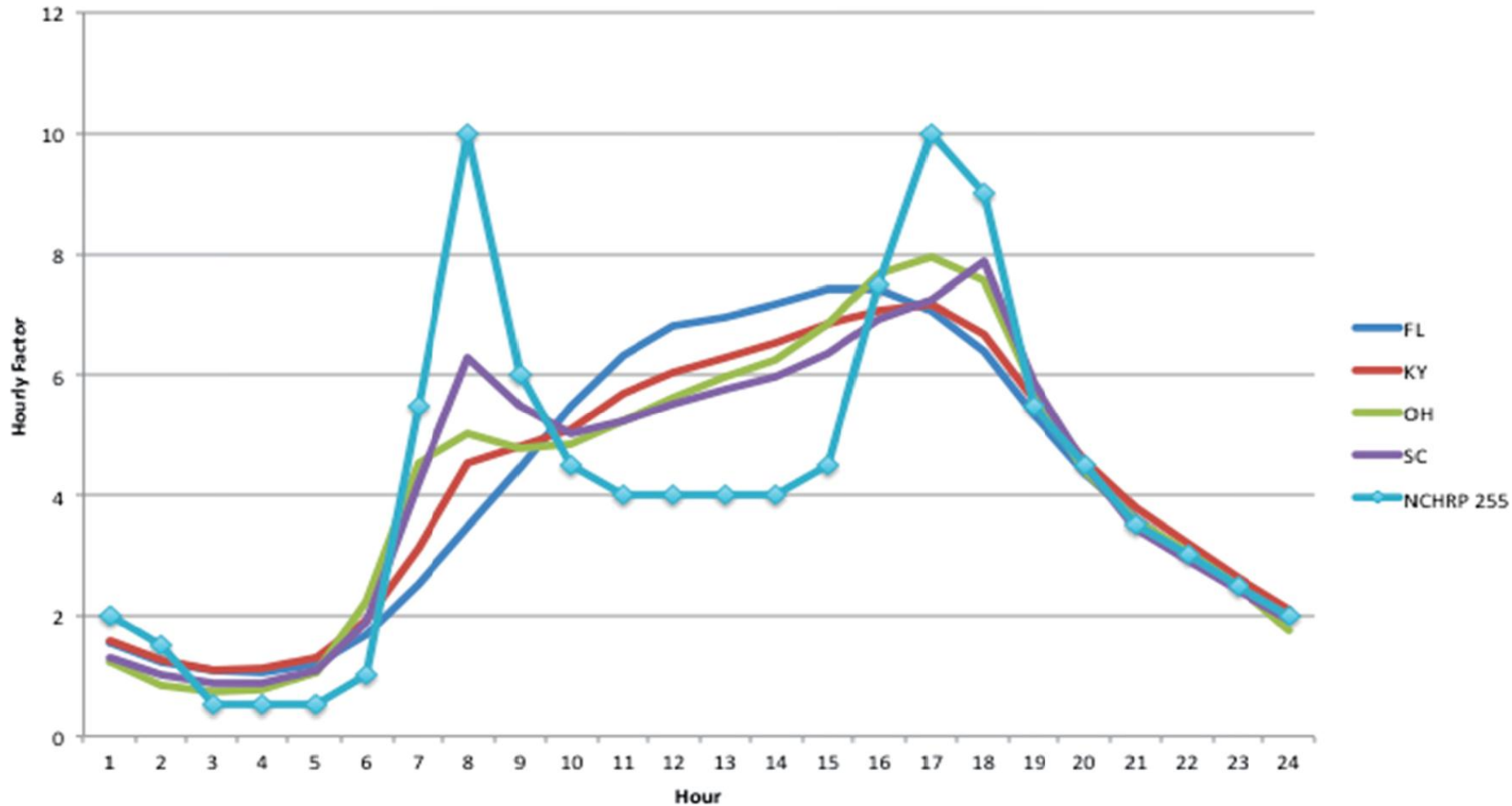
- Application adapted from Ohio DOT congestion analysis tool
- Iterative movement of excess traffic to shoulder hours
- Daily forecasts may exceed 24 x hourly capacity
- Revisit forecasts
- Use professional judgment.



Post-assignment Time-of-day Factoring

- $DHV = AADT \times K$
- 30th highest hour (K30), K50, K100, K200, standard K factors (FL)
- D factors
- Data sources: FL, SC, OH, TX, KY
- Categories
 - Area population
 - Facility type
 - Weekday and weekend

Post-assignment Time-of-day Factoring



Day-of-the-week Factors and Monthly Factors

Table 8-13. Monthly factors.

		January	February	March	April	May	June	July	August	September	October	November	December
Rural	Interstate	1.144	1.103	0.985	1.002	1.005	0.946	0.935	0.985	1.054	1.011	1.002	1.056
	Arterial	1.127	1.052	0.982	0.981	0.987	0.989	1.008	0.999	1.018	0.998	1.022	1.090
	Collector	1.092	1.038	0.964	0.970	0.980	0.992	1.034	1.017	1.030	1.001	1.031	1.113
Urban - Small	Interstate	1.125	1.075	0.968	0.987	1.020	0.982	0.969	1.011	1.074	1.028	0.982	1.026
	Arterial	1.107	1.027	0.982	0.995	0.988	1.023	1.057	1.001	1.033	1.033	1.077	1.113
	Collector	1.161	1.137	0.951	0.999	1.037	0.962	1.012	0.946	0.993	1.023	1.039	1.148
Urban - Medium	Interstate	1.088	1.051	0.999	1.023	1.022	1.001	1.011	1.015	1.060	1.018	1.017	1.053
	Arterial - CBD	1.124	1.010	0.959	0.987	1.044	1.033	1.099	1.014	1.060	0.992	1.075	1.102
	Arterial - Other	1.084	1.015	0.981	1.011	1.017	1.009	1.035	1.017	1.048	1.029	1.039	1.051
	Collector	1.011	0.931	0.929	0.941	1.010	1.107	1.174	1.164	1.179	1.093	1.051	1.055
Urban - Large	Interstate	1.097	1.051	0.982	0.997	1.012	1.012	1.048	1.015	1.032	1.004	1.017	1.068
	Arterial - CBD	1.054	0.970	0.980	1.007	1.033	1.065	1.081	1.056	1.058	1.056	1.077	1.060
	Arterial - Other	1.078	1.023	0.984	0.994	0.989	0.998	1.043	1.025	1.032	1.013	1.049	1.072
	Collector	1.066	1.018	0.966	0.972	0.999	1.051	1.090	1.086	1.107	1.043	1.014	1.001

Day-of-the-week Factors and Monthly Factors

Table 8-12. Day-of-the-week factors.

		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Mon-Thu	Weekday	Weekend
Rural	Interstate	1.079	1.090	1.032	0.985	0.875	1.041	1.060	1.046	1.012	1.051
	Arterial	1.013	1.000	0.984	0.955	0.875	1.071	1.268	0.988	0.965	1.169
	Collector	1.009	0.999	0.985	0.967	0.895	1.075	1.250	0.990	0.971	1.162
Urban - Small	Interstate	1.058	1.088	1.054	0.983	0.863	1.029	1.080	1.046	1.009	1.055
	Arterial	0.993	0.974	0.959	0.940	0.879	1.135	1.384	0.966	0.949	1.259
	Collector	0.962	0.956	0.927	0.937	0.897	1.167	1.422	0.946	0.936	1.294
Urban - Medium	Interstate	0.997	0.974	0.948	0.929	0.881	1.151	1.341	0.962	0.946	1.246
	Arterial - CBD	0.997	0.967	0.950	0.939	0.879	1.113	1.432	0.964	0.947	1.273
	Arterial - Other	1.000	0.975	0.952	0.943	0.880	1.079	1.376	0.967	0.950	1.228
	Collector	0.994	0.959	0.939	0.934	0.912	1.173	1.410	0.971	0.963	1.292
Urban - Large	Interstate	1.002	0.970	0.943	0.938	0.893	1.140	1.321	0.964	0.950	1.231
	Arterial - CBD	0.985	0.948	0.935	0.931	0.909	1.155	1.456	0.950	0.942	1.305
	Arterial - Other	0.997	0.960	0.943	0.938	0.892	1.092	1.368	0.960	0.948	1.234
	Collector	0.984	0.951	0.934	0.976	0.874	1.145	1.387	0.965	0.947	1.266

Vehicle Class Considerations

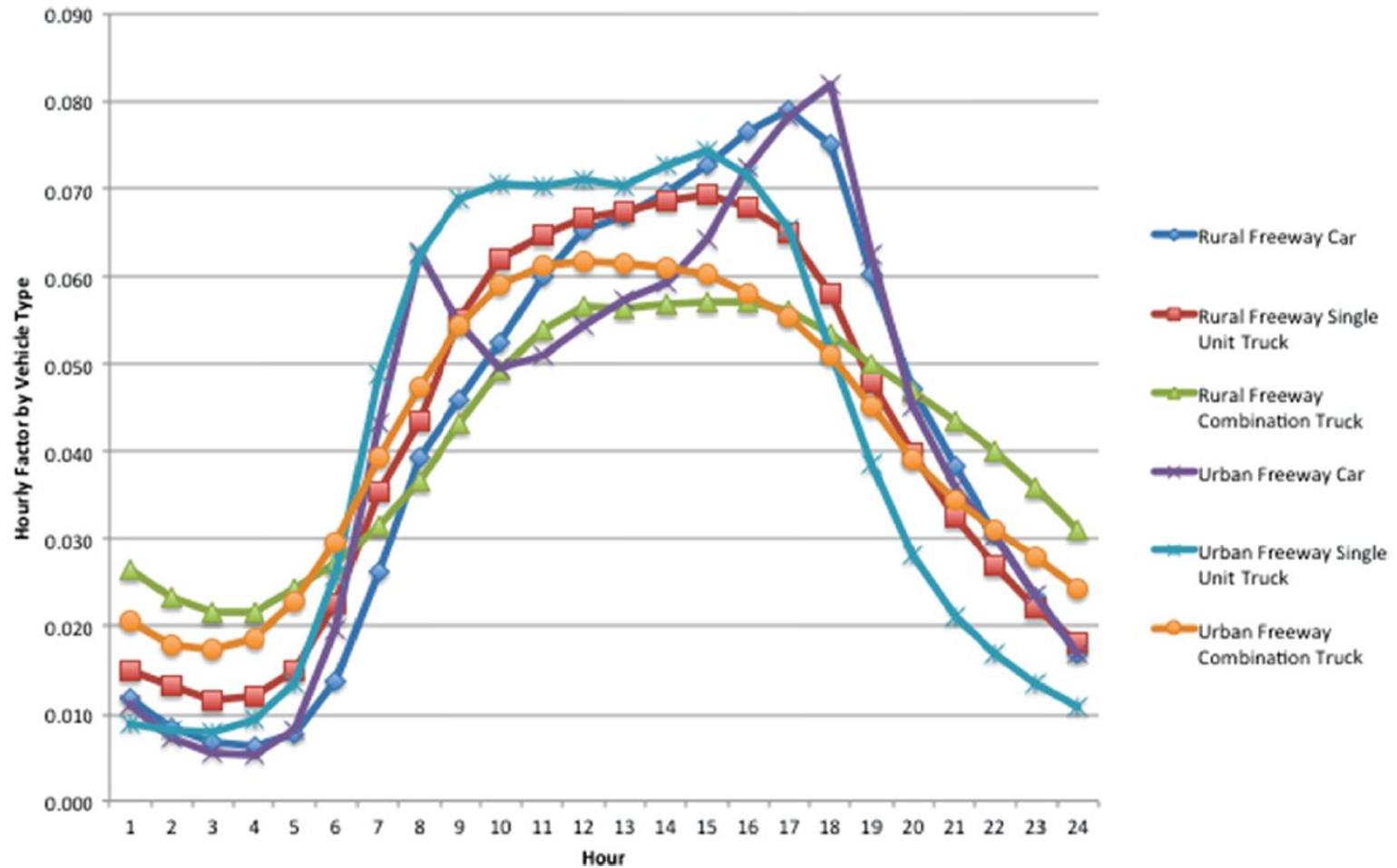


Figure 8-17. Freeway hourly factor distribution comparison.

POSSIBLE NEXT STEPS

NCHRP 765: What's Next?

- Forecast guidelines for areas not covered such as transit forecasting
- More work on “hot” areas
 - Speed data usage for forecasting
 - Forecasting accuracy/ranges
 - Refinement of toolkit approach - NCHRP 8-84 ongoing
 - Development of forecast adjustments for metrics other than volumes.
- Nanda mentioned a possible update in five years.
- Consideration of a TRB forecasting committee – not just modeling!

Thanks for Your Attention!

- Any questions/comments
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