JOINT FLORIDA
Model Task Force & Transportation
Data and Analytics Workshop

Streetlight Truck Data for Truck Traffic Forecasts on I-295 -Richmond VA

Srin Varanasi

The Corradino Group

Acknowledgements

Sulabh Aryal, AICP

Transportation Planning Manager

saryal@PlanRVA.org

9211 Forest Hill Avenue, Suite 200

Richmond, Virginia 23235

www.PlanRVA.org

Aditya Katragadda,

Sr. Transportation Planner

Akatragadda@Corradino.com

The Corradino Group

5200 N.W 33rd Ave., STE 203, Fort Lauderdale, FL 33309

www.Corradino.com

Location of the Study Area

Objectives of the Study

- To perform truck and auto forecasts- on I-295 Corridor
- Explore the use of Streetlight OD data for subarea corridor traffic forecasting

Tools Selection and Development

- Richmond-Tri Cities Travel Demand Model (RTC Model)
  - Time of day model with 4 time periods
  - Quick Response Freight Manual Method truck sub model
  - Assigns auto and truck trips using multiclass highway assignment
- Develop Subarea Extraction Routine
  - Extract subarea OD tables for the analysis
- Streetlight OD data and Expansion
  - GPS Navigation OD data within the subarea
  - Provides ramp-to-ramp traffic flows (corridor subarea OD) using “Pass-through” zones
  - Expand using ODME process, with a feedback loop with highway assignment

Methodology

Extract RTC Model Subarea OD

Subarea OD Growth= 2040 OD-2017OD

2017 Streetlight Subarea OD and Expansion

2040 Adjusted OD:

2017 Streetlight OD

+

Subarea OD Growth

Subarea Highway Assignment

Streetlight Data Processing Step1:

Create Subarea Boundary & Extract Subarea Network

- Select subarea boundary from the model
- Using subarea extraction process, extract the subarea network
- Extract subarea OD matrices from the RTC model

Streetlight Data Processing Step2:

Create Pass-through Zones that Match Subarea External Zones

- Create pass through polygons perpendicular to the network link
- All polygons correspond to “directional” links
- The zone names are automatically assigned by streetlight
- Correspond these to the model external nodes using a lookup table (GIS/manual process)

	A	B
1	Row Labels	Nodes
2	I-295new zones Zone 01	28
3	I-295new zones Zone 02	31
4	I-295new zones Zone 03	41
5	I-295new zones Zone 05	42
6	I-295new zones Zone 06	29
7	I-295new zones Zone 07	25
8	I-295new zones Zone 08	44
9	I-295new zones Zone 10	43
10	I-295new zones Zone 11	26
11	I-295new zones Zone 12	30
12	I-295new zones Zone 13	35
13	I-295new zones Zone 15	36
14	I-295new zones Zone 16	24
15	I-295new zones Zone 18	34
16	I-295new zones Zone 19	23
17	I-295new zones Zone 20	33
18	I-295new zones Zone 21	2
19	I-295new zones Zone 22	39
20	I-295new zones Zone 24	40
21	I-295new zones Zone 25	1
22	I-295new zones Zone 26	4

2017 Streetlight OD Data Expansion Routine

Results Discussion- 2017 Truck OD Travel Patterns Comparison

Results Discussion 2- 2017 Truck OD Travel Patterns Comparison

2017 Streetlight- Expanded Project Trucks

2017 RTC Model –Project Trucks

Results Discussion 3- 2040 Truck OD Travel Patterns Comparison

2040 Streetlight OD-Based Truck Forecast

2040 RTC Model-Based Project Truck Forecast

2017 AADT Validation

2040 Forecasts Comparison

Conclusions/Lessons Learned

- Streetlight Data/ Big Data can be used to develop OD seed matrices for corridor studies
- Streetlight-based data provides promising truck OD distribution for corridor studies
- Do not derive truck percentages from Streetlight Data (Auto and truck indices are obtained using separate processes)
- This procedure successfully adjusts for any errors in the base year validation
- It does not address the model's future growth uncertainties- It still needs a robust truck travel demand model that can forecast into the future

Thank You!

FOR MORE INFORMATION

Srin Varanasi

Vice President, Transportation Systems Planning

The Corradino Group

svaranasi@corradino.com

www.corradino.com

THE CORRADINO GROUP
Engineers • Planners • Program Managers • Environmental Scientists
Helping communities since 1970