



SYNTH in GISDK

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Model Research and Development Group

NCDOT - TPB



External Station Analysis - EE

- Developed by David G. Modlin, Jr. in 1985
- Estimated based on:
 - functional classification of the highway,
 - ADT at the external station,
 - percentage of trucks,
 - population of the study area, and
 - route continuity.
- *External Travel Estimation* in NCHRP 365

SYNTH Equations

- Interstate

$$Y = -2.70 + 0.21 \text{ PTTDES} + 67.86 \text{ RTECON}$$

- Principal Arterial

$$Y = -7.40 + 0.55 \text{ PTTDES} + 24.68 \text{ RTECON} + 45.62 \text{ ADT/CD}$$

- Minor Arterial

$$Y = -0.63 + 86.68 \text{ ADT/CD} + 30.04 \text{ RTECON}$$

- Major Collector

$$Y = -1.08 + 0.00079 \text{ DESADT} + 0.47 \text{ PTKDES} + 31.78 \text{ ADT/CD}$$

- Minor Collector

$$Y = -0.40 + 109.42 \text{ ADT/CD}$$



External Station Analysis

– IX Trip Generation (IX ~ EI & IE trips)

- IX Productions at the External Station
 - $IXP = \text{External Station Count}_{ADT} - EE \text{ trips}_{Synth}$
- IX Attractions at the TAZ
 - IX Attraction Regression equation
- Reasonableness Check: PA ratio

Input to SYNTH - GISDK

- Baseyear SE Data

TAZ	District	Population	route	ADT	ptruck	fccode	pttdes	[adt/cd]	ixp
1001	1		SR-1209-Old Empo	1546	5	L	80.00	0.014651	310
1002	1		NC-48	2012	8	L	80.00	0.019067	404
1003	1		I-95	33088	12	I	95.00	0.313559	1656
1004	1		US-301	1359	10	L	80.00	0.012879	273
1005	1		NC-186	3786	8	L	80.00	0.035878	758
1006	1		NC-158	5533	8	P	80.00	0.052434	1107
1007	1		US-301	3592	10	M	80.00	0.034040	720
1008	1		NC-125	4175	8	L	80.00	0.039564	835
1009	1			1456	8	L	80.00	0.013798	292
1010	1		SR-1600	1307	5	L	80.00	0.012386	263
1011	1		I-95	35846	12	I	95.00	0.339695	1794

- Route Continuity

ExtStaA	ExtStaB
1002	1012
1003	1011
1004	1007
1006	1014
1009	1014



Questions and Comments

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