

Traffic Impact Studies

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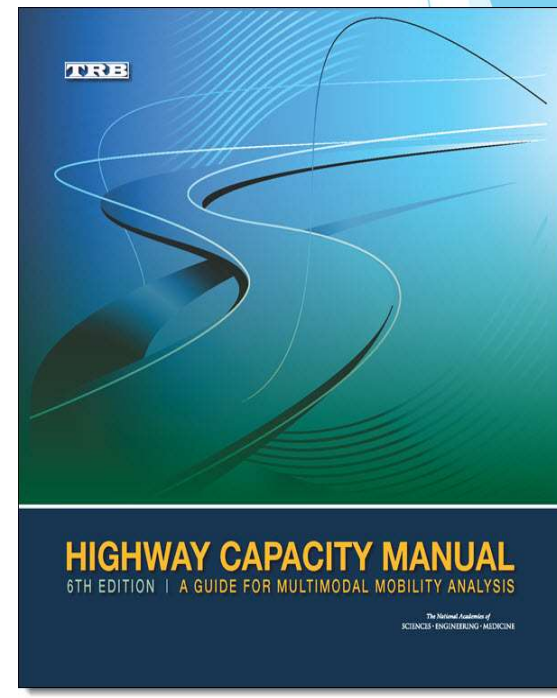
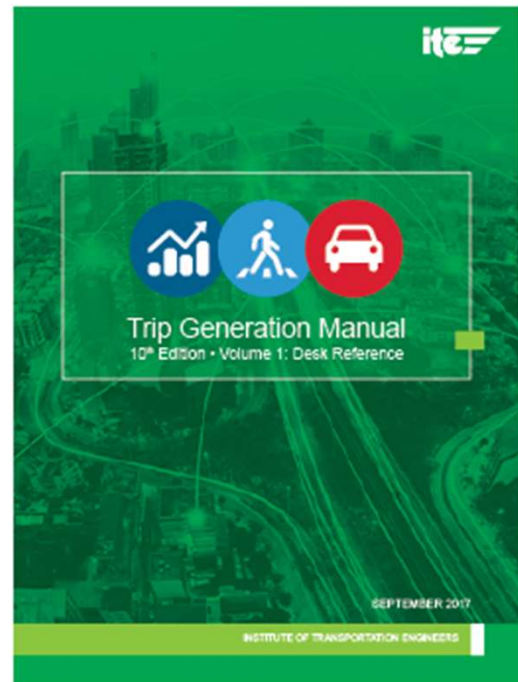
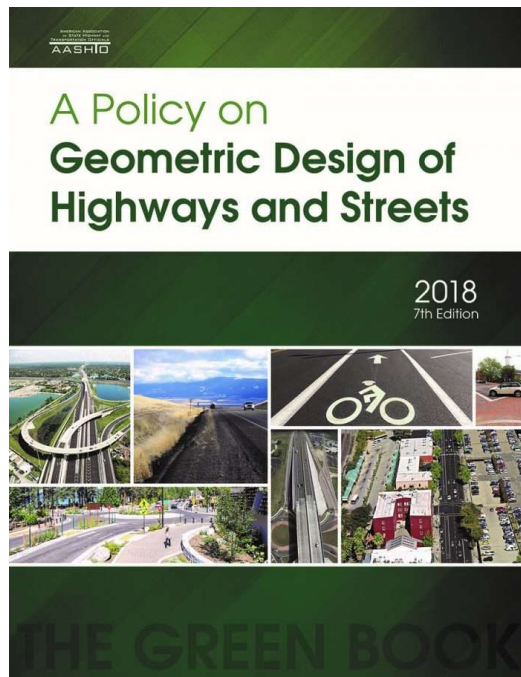
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Traffic Impact Analysis Review

- ▶ Important for public welfare and safety
- ▶ There are regional issues
 - Narrows Bridge, Orting, Bainbridge Island
- ▶ Who is the decision maker?
 - Staff, Hearing Examiner, Council
- ▶ What do you have in your wallet?
- ▶ Traffic is like water
- ▶ Should contribute but isn't the panacea



Important Documents



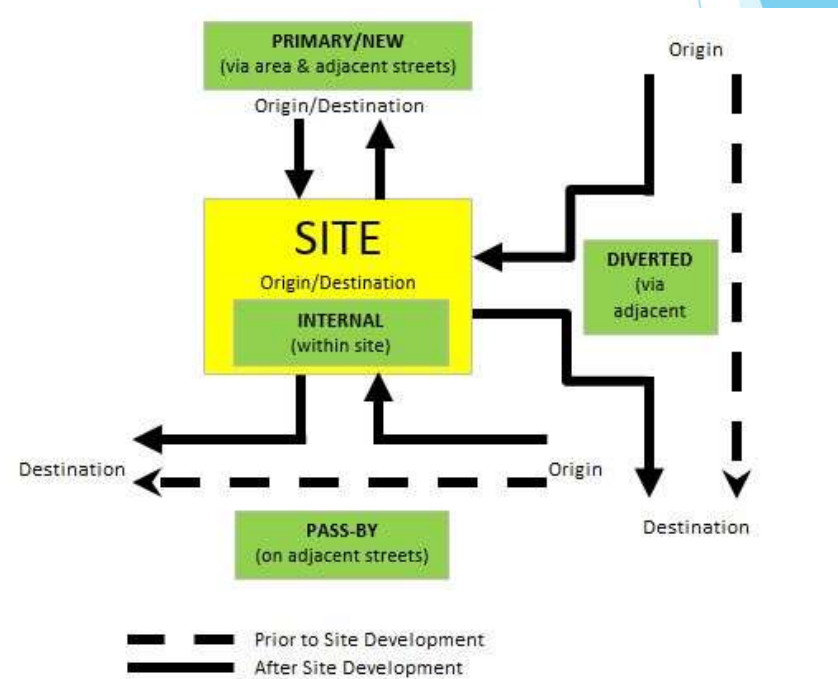
Data Collection

- ▶ How -
 - ▶ Method(s) used for data collection
- ▶ When -
 - ▶ Day of week
 - ▶ Time of year
 - ▶ Seasonal Patterns
 - ▶ May vary by use
- ▶ Where -
 - ▶ Specific intersections

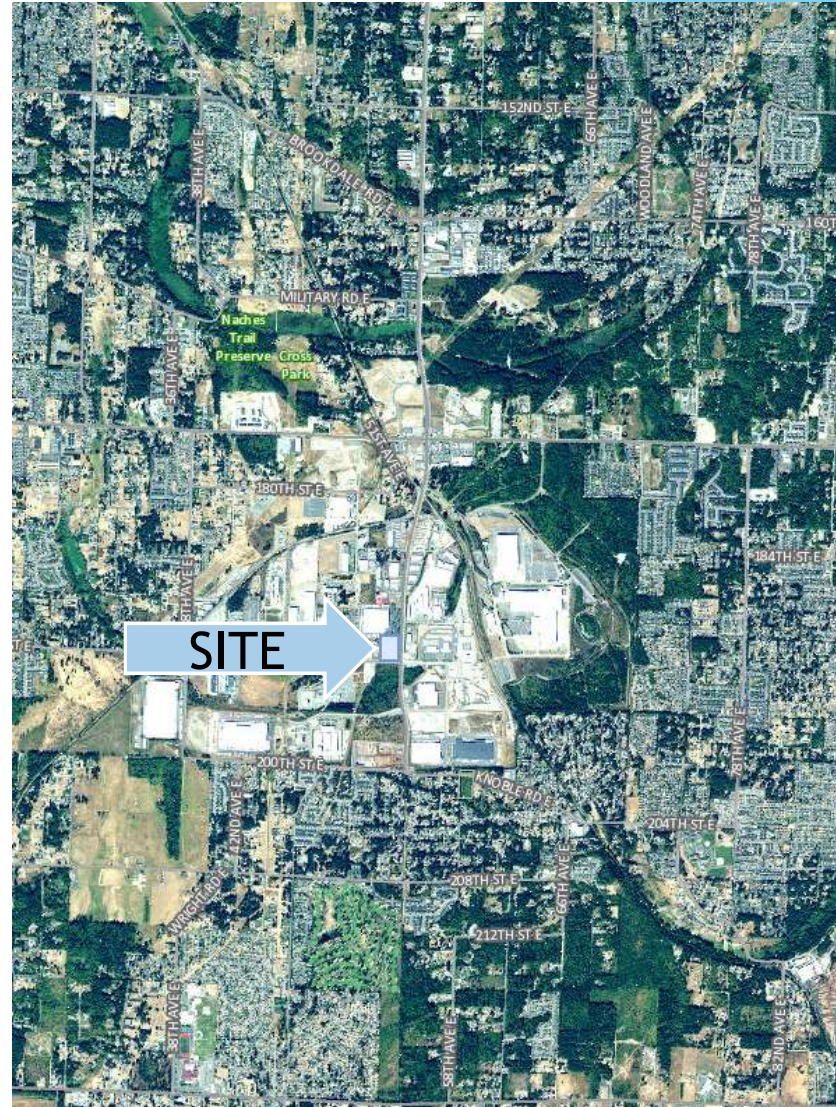


Trip Generation

- ▶ Type of use
 - ▶ Similar uses can vary in traffic demands
- ▶ Trip Generation is critical when analyzing potential impacts
- ▶ Trip Types
 - ▶ Primary
 - ▶ Passy-By
 - ▶ Diverted
 - ▶ Internal
- ▶ Trip Distribution

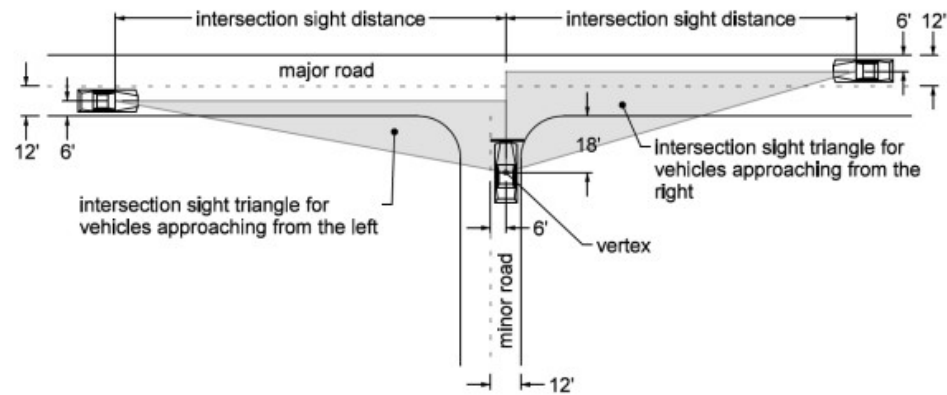


Trip Distribution



Access Management

- ▶ Sight Distance
- ▶ Lane Geometry
- ▶ Driveway Volumes
- ▶ Turning Movements
- ▶ Level of Service

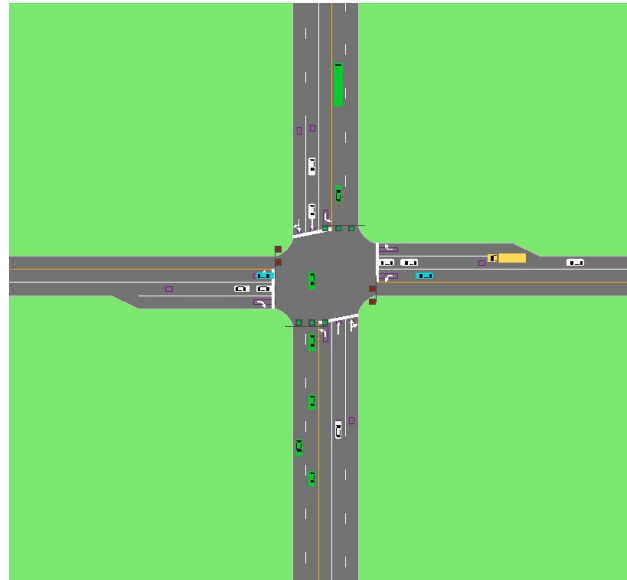


Level of Service

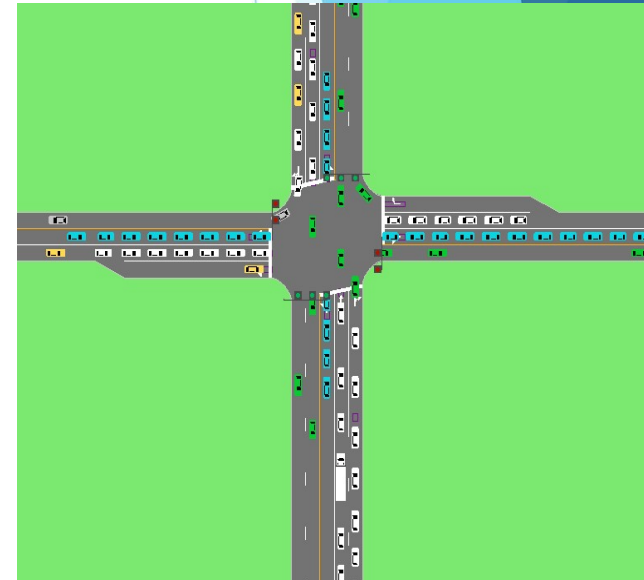
▶ LOS A-F

- ▶ LOS A - Free Flow Conditions
- ▶ LOS B - Stable Conditions; Minimal Delays
- ▶ LOS C - Stable Conditions; Mild Delays
- ▶ LOS D - Nearing Intersection Capacity; Moderate Delays
- ▶ LOS E - At or Near Capacity; Lengthy Queues; Low Speeds
- ▶ LOS F - Exceeds Capacity; Multiple Cycle lengths; High Delays

LOS A-B



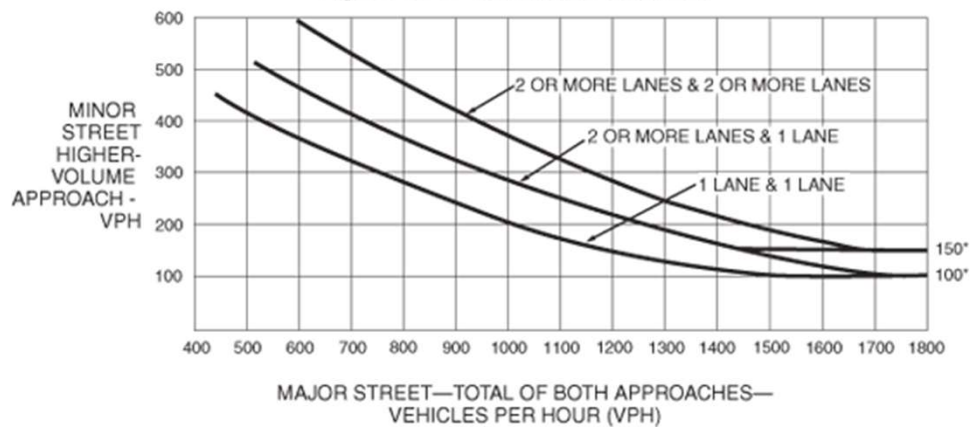
LOS E-F



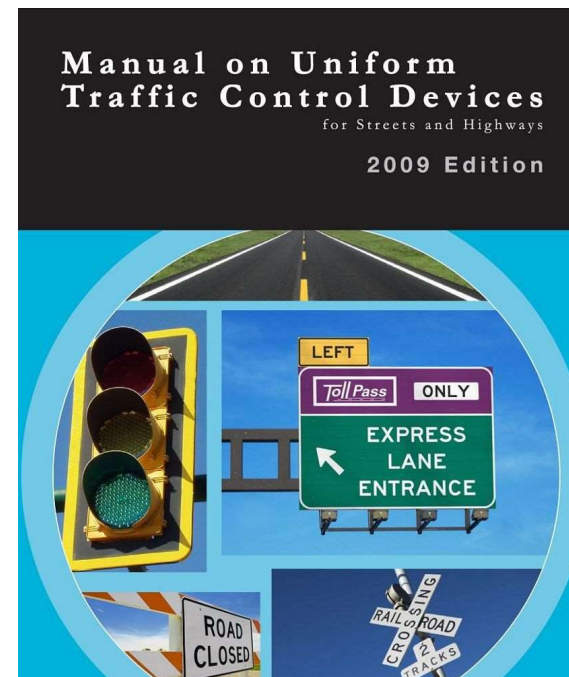
Mitigations

- ▶ Warrant Analysis
 - ▶ Signal
 - ▶ Stop Sign
 - ▶ Turn Lanes

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



Traffic Impact Fees

**APPENDIX E
INSTITUTE OF TRANSPORTATION ENGINEERS (ITE)
TRIP GENERATION MANUAL, 9TH EDITION**

Code Description	Unit of Measure	Daily Weekday Trips/Unit	\$/Trip	\$/Unit
853 Convenience Market with Gasoline Pumps	1,000 SF	845.60	\$638	\$539,493
854 Discount Supermarket	1,000 SF	90.86	\$638	\$57,969
857 Discount Club	1,000 SF	41.80	\$638	\$26,668
860 Wholesale Market	1,000 SF	6.73	\$638	\$4,294
862 Home Improvement Superstore	1,000 SF	30.74	\$638	\$19,612
863 Electronics Superstore	1,000 SF	45.04	\$638	\$28,736
875 Department Store	1,000 SF	22.88	\$638	\$14,597
876 Apparel Store	1,000 SF	66.40	\$638	\$42,363
879 Arts and Craft Store	1,000 SF	56.55	\$638	\$36,079
880 Pharmacy / Drugstore without Drive-Through Window	1,000 SF	90.06	\$638	\$57,458
881 Pharmacy / Drugstore with Drive-Through Window	1,000 SF	96.91	\$638	\$61,829
890 Furniture Store	1,000 SF	5.06	\$638	\$3,228
SERVICES				
912 Drive-In Bank	1,000 SF	148.15	\$638	\$94,520
931 Quality Restaurant	1,000 SF	89.95	\$638	\$57,388
932 High-Turnover (Sit-Down) Restaurant	1,000 SF	127.15	\$638	\$81,122
933 Fast Food Restaurant without Drive-Through Window	1,000 SF	716.00	\$638	\$456,808
934 Fast Food Restaurant with Drive-Through Window	1,000 SF	316.52	\$638	\$316,525
937 Coffee Shop	1,000 SF	1,148.40	\$638	\$1,148,400
938 Coffee Shop with Drive-Through Window	1,000 SF	522.25	\$638	\$522,254
941 Quick Service Restaurant	1,000 SF	25.52	\$638	\$25,520
944 Gasoline / Service Station	Fueling Positions	162.78	\$638	\$103,854
945 Gasoline / Service Station with Convenience Market	Fueling Positions	162.78	\$638	\$103,854
946 Gasoline / Service Station with Convenience Market and Car Wash	Fueling Positions	152.84	\$638	\$97,512
947 Self Service Car Wash	Stalls	108.00	\$638	\$68,904

Coffee Shop \$1,148,400!

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Code Description	Unit of Measure	Daily Weekday Trips/Unit	\$/Trip	\$/Unit
PORT AND TERMINAL				
30 Truck Terminal	Acres	81.90	\$638	\$52,252
90 Park and Ride Lot with Bus Service	Parking Spaces	4.50	\$638	\$2,871
INDUSTRIAL				
110 General Light Industrial	1,000 SF	6.97	\$638	\$4,447
120 General Heavy Industrial	Acres	6.75	\$638	\$4,307
130 Industrial Park	1,000 SF	6.83	\$638	\$4,358
140 Manufacturing	1,000 SF	3.82	\$638	\$2,437
150 Warehousing	1,000 SF	3.56	\$638	\$2,271
151 Mini-Warehouse	1,000 SF	2.50	\$638	\$1,595
152 High-Cube Warehouse	1,000 SF	1.68	\$638	\$1,072
RESIDENTIAL				
210 Single-Family Detached Housing	Dwelling Units	9.52	\$638	\$6,074
220 Apartment	Dwelling Units	6.65	\$638	\$4,243
221 Low-Rise Apartment	Dwelling Units	6.59	\$638	\$4,204
230 Residential Condominium / Townhouse	Dwelling Units	5.81	\$638	\$3,707
240 Mobile Home Park	Dwelling Units	4.99	\$638	\$3,184
251 Senior Adult Housing -Detached	Dwelling Units	3.68	\$638	\$2,348
252 Senior Adult Housing -Attached	Dwelling Units	3.44	\$638	\$2,195
253 Congregate Care Facility	Dwelling Units	2.02	\$638	\$1,289
254 Assisted Living	Beds	2.74	\$638	\$1,748
255 Continuing Care Retirement Community	Dwelling Units	2.40	\$638	\$1,531
LODGING				
310 Hotel	Rooms	8.17	\$638	\$5,212
320 Motel	Rooms	5.63	\$638	\$3,592
RECREATIONAL				
411 City Park	Acres	1.89	\$638	\$1,206
412 County Park	Acres	2.28	\$638	\$1,455
413 State Park	Acres	0.65	\$638	\$415
415 Beach Park	Acres	29.81	\$638	\$19,019
417 Regional Park	Acres	4.57	\$638	\$2,916
420 Marina	Berths	2.96	\$638	\$1,888
430 Golf Course	Acres	5.04	\$638	\$3,216
432 Golf Driving Range	Positions	13.65	\$638	\$8,709
435 Multi-Purpose Recreational Facility	Acres	90.38	\$638	\$57,662
437 Bowling Alley	1,000 SF	33.33	\$638	\$21,265
443 Movie Theater without Matinee	1,000 SF	78.06	\$638	\$49,802
452 Horse Race Track	Acres	43.00	\$638	\$27,434
460 Arena	Acres	33.33	\$638	\$21,265
480 Amusement Park	Acres	75.76	\$638	\$48,335
488 Soccer Complex	Fields	71.33	\$638	\$45,509
490 Tennis Courts	Courts	31.04	\$638	\$19,804
491 Racquet / Tennis Club	Courts	38.70	\$638	\$24,691

Questions?

