



9 Numbers Every Traffic Engineer Should Know

9 Numbers Every Traffic Engineer Should Know

We're in a lot of meetings where we're seen as the expert on traffic issues (shocking, we know) and we get asked questions related to basic standards and general practice. You can always respond you don't know the answer and you need to look it up, but you look better if you're able to rattle off the numbers from memory.

To that end, here's a list of numbers every traffic engineer should consider memorizing (or at least have at their fingertips).

1. ABOUT HOW MUCH TRAFFIC WILL MY DEVELOPMENT GENERATE?

(round numbers based on ITE Trip Generation Report, 10th Edition)

Single Family Houses (per unit): 10 trips per day, 1 per peak hour

Apartments/Condos/Townhouses (per unit): 7 trips per day, 0.7 per peak hour

Office (per 1000 sq ft): 10 trips per day, 1.5 per peak hour

Retail (per 1000 sq ft): 38 trips per day, 4.2 per peak hour

Industrial (per 1000 sq ft): 5 trips per day, 0.9 per peak hour

2. PLANNING LEVEL DAILY CAPACITY OF A ROAD

(round numbers based on Level of Service D/E thresholds in HCM 6th Edition)

2 lane local street: 1,000 vehicles per day based on livability

2 lane (w/ left turn lanes): 18,300 vehicles per day

4 lane (w/ left turn lanes): 36,800 vehicles per day

6 lane (w/ left turn lanes): 55,300 vehicles per day

3. PEAK HOUR CAPACITY OF AN INTERSECTION

(based on Level of Service D/E thresholds in HCM 6th Edition)

- Stop sign controlled:** 35 seconds/vehicle

- Roundabout controlled:** 35 seconds/vehicle

- Traffic Signal controlled:** 55 seconds/vehicle

4. THEORETICAL MAXIMUM SATURATION FLOW RATE PER LANE

(this will allow you to do quick calculations in your head to check reasonableness at big events)

- 1,900 vehicles per hour per lane

5. THRESHOLD FOR WHEN YOU NEED TO ADD A SECOND (DUAL) LEFT TURN LANE AT A SIGNALIZED INTERSECTION

- 300 left turning vehicles from that leg of the intersection in the peak hour

6. WIDTH OF A COMMERCIAL DRIVEWAY

(based on NCHRP Report 659)

- One lane in only:** 14 feet curb to curb

- Two lane, bi-directional:** 24 feet curb to curb

- Three lane, one lane in with median then two lanes out:** 40 feet curb to curb

- Minimum industrial driveway:** 26 feet curb to curb

7. DISTANCE BETWEEN DRIVEWAYS AND INTERSECTIONS

(these are very rough rules of thumb – other regions are less stringent)

On a local street: 150 feet

On a collector street: 660 feet

On an arterial: 1,320 feet to 2,640 feet (with medians, right-in/ right-outs can be 660 feet away)

8. ROUNDABOUT FOOTPRINT SIZE REQUIREMENTS

Single lane diameter: 132 foot

Double lane diameter: 165 foot

9. PARKING NEEDED FOR FUNCTIONALITY

Multifamily Residential: 1 per bedroom

Retail: 4 per 1,000 SF per bedroom

Restaurant: 15 per 1,000 SF (varies a lot)
