ADOT Ramp Metering Design Guide Errata
July 11, 2019

Throughout all sections the name *Transportation Technology Group* shall be replaced with *Systems Technology Group.*

Section 1.1, paragraph 1, sentence 1, shall be replaced with the following:

Ramp metering is a traffic management strategy used to regulate the flow of traffic entering the freeway.

Section 1.2, paragraphs 1- 2 shall be replaced with the following:

Ramp meter and traffic data collection station equipment location calculations shall use traffic data projected for approximately 20 years after the project will be completed. Traffic data includes:

- Volume of the entrance ramp
- Volume of the rightmost freeway lane prior to the entrance ramp
- Percentage of trucks and heavy vehicles on entrance ramp
- Speed of the freeway adjacent to and within 2 miles downstream of the entrance ramp

Additional data needed for calculations include:

- Entrance ramp length
- Length of parallel lane-type merge or auxillary lane if shorter than 200 feet.
- Grade of entrance ramp after the ramp meter stop bar expressed as a percentage
- The freeway's posted speed
- Whether or not a frontage road is present
- Number of metered lanes
- Highest 1 hour entrance ramp volume of special event traffic where nearby venues (such as professional sports stadiums) host more than 30,000 people and corresponding traffic data for the same 1 hour

Section 1.2, paragraphs 3, 4, and 5 shall be replaced with the following:

In the MAG region, ramp metering is transitioning to corridor adaptive which requires a ramp meter at every entrance ramp. Exceptions are outlined in Sections 2 and 3.

Section 2, Heading, shall be replaced with the following:

2.0 Ramp Meter Criteria

Section 2.0, remaining section, warrants, and figure, shall be replaced with the following:

In the MAG region, corridor adaptive ramp metering shall be installed at each entrance ramp unless the ramp is freeway-to-freeway or short. Short is defined as less than the calculated acceleration and queue storage distances, which typically total 1000 feet at a minimum. Equations and exceptions for these distances are outlined in Section 3.

Elsewhere in Arizona, ramp metering may be installed on freeways after the following criteria are met:

- Adequate acceleration and queue storage distances on entrance ramps which at a minimum total 1000 feet. See Section 3 for equations and exceptions.

- Sufficient flow rates on the right most freeway lane and entrance ramp, during a typical 15-minute period, which at a minimum total 2,051 vehicles per hour and 401 vehicles per hour.

  Flow Rate, during a typical 15-minute period:

  (Right most freeway lane + the entrance ramp) flow rate vph > 2,050 vph and
  the entrance ramp flow rate vph > 400 vph

- Freeway Speed, during a typical 15-minute period, 49 miles per hour at a maximum:

  The speed of the freeway (adjacent to or within 2 miles downstream of the entrance ramp) miles per hour < 50 miles per hour

Section 3.3, $Rate_{meter}$ shall be replaced with the following:

$Rate_{meter}$ = Design metering rate units vehicles per hour (vph)
Typical design values: 840 vph for a single-lane, 1200 vph for a dual-lane ramp meter
Maximum design values for dual-lane: 780 veh per hour per lane, 1560 veh per hour

Section 3.3, **Dual-Lane Ramp Meter** shall be replaced with the following:

Dual-Lane Ramp Meter: $Queue = (17.36 \times Rate_{ramp}) - 20{,}832$
Minimum *Queue* = 400 feet **Equation 3.3c**

Section 3.4, Figure 3.4, Title, shall be replaced with the following

Figure 3.4 Stop Bar Placement (without auxillary lane)

Section 4.3.1, paragraph 3, sentence 1, shall be deleted.

Section 4.3.2, paragraph 2, sentence 2, shall be deleted.