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 auxiliary 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\textsubscript{meter} shall be replaced with the following:

\[ Rate\textsubscript{meter} = \text{Design metering rate units vehicles per hour (vph)} \]

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:

\[ \text{Dual-Lane Ramp Meter: } Queue = (17.36 \times Rate\textsubscript{ramp}) - 20,832 \]

Minimum \( Queue = 400 \) feet \hspace{1cm} \text{Equation 3.3c}

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

\textbf{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.