TRAFFIC OPERATIONS POLICY DIRECTIVE	NUMBER: **21-12**	PAGE: 1 of 4
JASVINDERJIT S. BHULLAR, DIVISION CHIEF (Signature)	DATE ISSUED: November 1, 2021	EFFECTIVE DATE: November 1, 2021
SUBJECT: **Local Traffic Responsive and Corridor Adaptive Ramp Metering on the State Highway System**	DISTRIBUTION ☒ All District Directors ☒ All Deputy District Directors - Traffic Operations ☐ Chief Counsel, Legal Division Headquarters Division/Program Chiefs for: ☐ Construction ☐ Design ☐ Maintenance ☐ Safety Programs ☐ Transportation Planning ☐ Additional:	
DOES THIS DIRECTIVE AFFECT OR SUPERSEDE ANOTHER DOCUMENT? ☐YES ☒NO	IF YES, DESCRIBE	
WILL THIS DIRECTIVE BE INCORPORATED IN A DEPARTMENT MANUAL, GUIDELINE OR STANDARD PLAN? ☒YES ☐NO	IF YES, DESCRIBE Ramp Metering Operations Manual and Ramp Metering Design Manual.	

DIRECTIVE

District ramp metering operations shall use local traffic responsive metering. Districts should also use corridor adaptive ramp metering algorithms.

IMPLEMENTATION

Ramp meters shall be configured to operate in local traffic responsive mode continuously, 24 hours a day, seven (7) days a week. Ramp meters may be configured to operate in time-of-day fixed rate mode when and where detection is insufficient. Refer to the California Department of Transportation (Caltrans) Ramp Metering Operations Manual for additional information.

Ramp meters shall use the Universal Ramp Metering Software (URMS) program maintained by Caltrans Headquarters that runs on the Model 2070 controller platform. Ramp meter locations shall migrate to the URMS and Model 2070 controller platform as part of life cycle replacement projects and as other funding opportunities become available. The URMS currently supports the following legacy protocols: TOS2.0, SDRMS Rev 8, SATMS, and OCRMS. Ramp meter locations should utilize the native URMS communications protocol to minimize maintenance and support of multiple protocols on controllers and central systems.

Ramp meters shall default to local traffic responsive mode when corridor adaptive control is temporarily unavailable.

Adaptive ramp metering solutions implementations shall not degrade the performance of the Department's corridor ramp metering or arterial management operations.

When implementing corridor adaptive ramp metering algorithms, districts shall utilize algorithms via the California Advanced Transportation Management System (CATMS) as it is implemented statewide. Exceptions to CATMS shall be granted by the Headquarters Division Chief for Traffic Operations, or designee, when districts are partnering with agencies to provide regionalized solutions.

DELEGATION

No new delegations of authority are created under this policy.

BACKGROUND

There are two types of local ramp metering operations: time-of-day fixed rate and local traffic responsive. The discharge rate for a time-of-day fixed rate ramp meter is based on historic time-of-day data, volumes, occupancy, and speed. Districts use local traffic responsive ramp metering so long as the detectors are operating satisfactorily. Local traffic responsive is an advanced mode of operation that uses data from traffic detectors at the adjacent mainline lanes to automatically select the timing plan and discharge rate best suited to current traffic conditions. A predetermined library of timing plans is necessary. The logic for both types of ramp meter operations are programmed within the local ramp meter controller.

Central corridor adaptive ramp metering is becoming a common Caltrans practice to assist in dynamically managing freeway traffic flow along a corridor of ramp meter locations. Over the past two decades, several districts have tested and integrated corridor adaptive metering algorithms into their central ramp metering systems. The algorithms for corridor adaptive

BACKGROUND (Cont'd)

metering are stored within a central management system application. This allows the ramp metering parameters to dynamically change based on real-time feedback from the metered ramp and/or its corresponding corridor.

DEFINITIONS

When used in this Traffic Operations Policy Directive, the text shall be defined as follows:

1) **Standard** – a statement of required, mandatory or specifically prohibited practice. All standards text appears in **bold** type. The verb **shall** is typically used. Standards are sometimes modified by Options.

2) Guidance – a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate. All Guidance statements text appears in underline type. The verb should is typically used. Guidance statements are sometimes modified by Options.

3) Option – a statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance. All Option statements text appears in normal type. The verb may is typically used.

4) Support – an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements text appears in normal type. The verbs shall, should and may are not used in Support statements.