National Committee on
Uniform Traffic Control Devices

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National Committee on Uniform Traffic Control Devices (NCUTCD)
Recommended Changes to Proposed Text for 11th Edition of the MUTCD
Docket Number: FHWA-2020-0001

Federal Register Item Number: 435, 436 (see listing below)
NPA MUTCD Section Number: Chapter 4P
Legend: Base text shown in proposal is the NPA "clean" proposed text.

- NCUTCD recommendation for text to be added in final rule.
- ~~NCUTCD recommendation for text to be deleted in final rule~~.
- NCUTCD recommendation for text to be moved/relocated in final rule.
- NPA text that was not previously approved by NCUTCD but is now approved.
- Explanatory note: [Note that explains purpose of recommended change.]

The following pages present NCUTCD recommendations for changes to the MUTCD NPA proposed text, tables, and figures for Chapter 4P. Below is a short summary of the NCUTCD position for each section of this chapter. A more detailed summary is provided at the beginning of each section.

- NPA #NA, Section 4P.01: NCUTCD agrees with NPA content.
- NPA #435, Section 4P.02: Changes recommended based on Council action in spring 2021.
- NPA #436, Section 4P.03: NCUTCD agrees with NPA content.

Section 4P.01 Comments: NCUTCD agrees with 4P.01 as presented in the NPA.

Section 4P.01 Application of Freeway Entrance Ramp Control Signals

Support:

Ramp control signals are traffic control signals that control the flow of traffic entering the freeway facility. This is often referred to as "ramp metering."

Freeway entrance ramp control signals are sometimes used if controlling traffic entering the freeway could reduce the total expected delay to traffic in the freeway corridor, including freeway ramps and local streets.

Guidance:

The installation of ramp control signals should be preceded by an engineering study of the physical and traffic conditions on the highway facilities likely to be affected. The study should include the ramps and ramp connections and the surface streets that would be affected by the ramp control, as well as the freeway section concerned.

Support:

Information on conditions that might justify freeway entrance ramp control signals, factors to be evaluated in traffic engineering studies for ramp control signals, design of ramp control

signals, and operation of ramp control signals can be found in the FHWA's "Ramp Management and Control Handbook" (see Section 1A.05).

Section 4P.02 Comments: NCUTCD recommends revising the second Standard paragraph to state that on 2-lane controlled ramps where the 2 lanes are not controlled separately, only 1 signal face per lane is required in accordance with the 2009 MUTCD and NCUTCD recommendation 14A-STC-01. The NPA changed the requirement to 2 faces per lane based on an Official Interpretation. However, the Official Interpretation itself states that 1 face per lane is sufficient for this condition. With the prevalent use of LED signals, indication failures are rare, and if one face is dark, vehicles only encounter a downstream merge with the other lane, which is not a significant conflict or safety issue. Many ramp signal systems currently operate with one face per controlled lane and no documented safety problems have been reported. NCUTCD also recommends a change in the first Guidance paragraph for consistency with this revision.

Section 4P.02 Design of Freeway Entrance Ramp Control Signals

Standard:

Ramp control signals shall meet all of the standard design specifications for traffic control signals, except as otherwise provided in this Section.

The signal face for freeway entrance ramp control signals shall be either a two-section signal face containing red and green signal indications or a three-section signal face containing red, yellow, and green signal indications.

Option:

Ramp control signals may be placed in the dark mode (no indications displayed) when not in use.

Ramp control signals may be used to control some, but not all, lanes on a ramp, such as when non-metered HOV bypass lanes are provided on a ramp.

Standard:

If only one controlled lane is present on an entrance ramp, or if more than one controlled lane is present on an entrance ramp and the ramp control signals are operated such that green signal indications are always displayed simultaneously to all of the controlled lanes on the ramp, then a minimum of two signal faces per ramp shall face entering traffic.

If two controlled lanes are present on an entrance ramp and the ramp control signals are operated such that green signal indications are not always displayed simultaneously to both of the controlled lanes on the ramp, a minimum of ~~two~~ one signal face~~s~~ shall be provided for each of the two lanes. (replaced text per 14A-STC-01)

If three or more controlled lanes are present on an entrance ramp and the ramp control signals are operated such that green signal indications are not always displayed simultaneously to all of the controlled lanes on the ramp, then one signal face shall be provided over the approximate center of each separately-controlled lane.

Guidance:

Additional side-mounted signal faces should be considered for ramps with ~~three~~ two or more separately-controlled lanes. (replaced text per 14A-STC-01)

Option:

For entrance ramps with only one controlled lane, the two required signal faces may both be mounted at the side of the roadway on a single pole (as a specific exception to the normal 8-foot minimum lateral separation of signal faces required by Section 4D.06), with the lower signal face installed at a minimum mounting height of 4.5 feet.

For entrance ramps with two or more controlled lanes, if two signal faces are installed for the right-hand lane or for the left-hand lane, the two signal faces for that lane may both be mounted at the closest side of the roadway on a single pole (as a specific exception to the normal 8-foot minimum lateral separation of signal faces required by Section 4D.06), with the lower signal face installed at a minimum mounting height of 4.5 feet.

Guidance:

Ramp control signals should be located and designed to minimize their viewing by mainline freeway traffic.

Regulatory signs with legends appropriate to the control, such as XX VEHICLE(S) PER GREEN or XX VEHICLE(S) PER GREEN EACH LANE (see Section 2B.66), should be installed.

When ramp control signals are installed on a freeway-to-freeway ramp, special consideration should be given to assuring adequate visibility of the ramp control signals, and multiple advance warning signs with flashing warning beacons should be installed to warn road users of the metered operation.

Section 4P.03 Comments: NCUTCD agrees with 4P.03 as presented in the NPA.

Section 4P.03 Operation of Freeway Entrance Ramp Control Signals

Guidance:

Operational strategies for ramp control signals, such as periods of operation, metering rates and algorithms, and queue management, should be determined by the operating agency prior to the installation of the ramp control signals and should be closely monitored and adjusted as needed thereafter.

When the ramp control signals are operated only during certain periods of the day, a RAMP METERED WHEN FLASHING (W3-8) sign (see Section 2C.39) should be installed in advance of the ramp control signal near the entrance to the ramp, or on the arterial on the approach to the ramp, to alert road users to the presence and operation of ramp meters.

Standard:

The RAMP METERED WHEN FLASHING sign shall be supplemented with a warning beacon (see Section 4S.03) that flashes when the ramp control signal is in operation. Flashing light emitting diode (LED) units shall not be used within the legend or border of the sign to inform road users that the ramp control signal is in operation.