



TRAFFIC AND SAFETY MANUAL

Chapter 6 – Lighting 6C – Interchanges

Interchange Lighting Warrants

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Interchange Lighting

The review of interchange lighting warrants should be made early in a project's development so that lighting plans may be completed at the same time as the paving plan. In most cases, lighting plans are let as a separate project from paving plans.

New Interchanges

All new interchanges that are built will normally include partial lighting as part of the overall project provided AASHTO warrants are met (see Appendix A).

Partial lighting typically consists of lighting at the intersection of the ramps with the side road. Lighting may also be considered along exit tapers, around exit loops and in unusual situations along entrance tapers.

Existing Interchanges

Annually, the Office of Traffic and Safety will review and rank the list of unlit interchanges on the interstate, freeway, and expressway systems using the criteria listed in Appendix B. In addition, partial interchange lighting shall meet one or more AASHTO warrants, plus one of the following conditions:

- The night-to-day crash rate ratio is 2.0 or greater with a minimum of 3 nighttime reportable crashes in a 12-month period at the interchange. If this criterion is met, a review should be made of the crash data to determine if lighting would be beneficial.
- Substantial lighted commercial or industrial development that is affecting operations exists within one-half mile of the interchange.
- Motorists are experiencing operational problems which might be alleviated by lighting.
- The interchange is qualified for complete interchange lighting under AASHTO warrants.

The Office of Traffic and Safety, in consultation with the districts, will recommend each year a list of interchanges for lighting utilizing 4R funds, intersection lighting funds or other program funds.

The programming of lighting projects is a responsibility of the Transportation Commission and is determined in relation to the needs of the entire highway system and not on the warrants established above. Meeting the warrants, therefore, does not obligate the Department to provide lighting. For funding responsibilities see [Section 6A-2](#) of the Traffic and Safety Manual.

Appendix A

AASHTO Warrants for Interchange Lighting

Complete Interchange Lighting (CIL)

Case CIL-1--- Complete interchange lighting is considered to be warranted where the total current ADT ramp traffic entering and leaving the freeway within the interchange areas exceeds 10,000 for urban conditions, 8,000 for suburban conditions or 5,000 for rural conditions.

Case CIL-2---Complete interchange lighting is considered to be warranted where the current ADT on the crossroad exceeds 10,000 for urban conditions, 8,000 for suburban conditions or 5,000 for rural conditions.

Case CIL-3---Complete interchange lighting on unlighted freeways is considered to be warranted at locations where existing substantial commercial or industrial development, which is lighted during hours of darkness, is located in the immediate vicinity of the interchange, or where the crossroad approach legs are lighted for ½ mile or more on each side of the interchange.

Case CIL-4---Complete interchange lighting is considered to be warranted where the ratio of night to day accident rate within the interchange area is at least 1.5 or higher than the statewide average for all unlighted similar sections, and a study indicates that lighting may be expected to result in a significant reduction in the night accident rate.

Partial Interchange Lighting (PIL)

Case PIL-1---Partial interchange lighting is considered to be warranted where the total current ADT ramp traffic entering and leaving the freeway within the interchange area exceeds 5,000 for urban conditions, 3,000 for suburban conditions, or 1,000 for rural conditions.

Case PIL-2---Partial interchange lighting is considered to be warranted where the current ADT on the freeway through traffic lanes exceeds 25,000 for urban conditions, 20,000 for suburban conditions, or 10,000 for rural conditions.

Case PIL-3---Partial interchange lighting is considered to be warranted where the ratio of night to day accident rate within the interchange area is at least 1.25 or higher than the statewide average for all unlighted similar sections, and a study indicates that lighting may be expected to result in a significant reduction in the night accident rate.

Appendix B

Interchange Lighting Priority Ranking Factors

<u>FACTOR</u>	<u>RATING VALUE</u>	<u>WEIGHT</u>
1. RAMP TYPE		
Direct	1	
Diamond	2	
Cloverleaf and Button Hooks	3	1
Trumpet	4	
Scissors and left entrance and exit	5	
2. CROSSROAD		
2 lane	1	
3 or 4 lane	3	1
4 lane divided	5	
3. HORIZONTAL CURVATURE OF MAINLINE		
0 to 1 00'	1	
1 01'to 2 00'	2	
2 01'to 3 00'	3	8
3 01'to 4 00'	4	
>4 00'	5	
4. COMMERCIAL DEVELOPMENT		
None	1	
1 quadrant	2	
2 quadrant	3	2
3 quadrant	4	
4 quadrant	5	
5. CRASHES (NIGHT/DAY RATE RATIO)		
<1.5	1	
1.5 - 2.0	2	
2.1 - 3.0	3	8
3.1 - 4.0	4	
>4.0	5	
6. OPERATIONAL (TRAFFIC), (ADT) sum of all ramp traffic plus highest cross road traffic volume		
<1,000	1	
1,001 - 5,000	2	
5,001 - 10,000	3	5
10,001 - 15,000	4	
>15,000	5	
7. SIGHT DISTANCE (FEET) sight distance for cross road		
>1,000	1	
700 - 1,000	2	
500 - 699	3	1
400 - 499	4	
<400	5	

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