



Title <b>Interchange and Freeway Lighting</b>		Policy No. <b>630.03</b>
Responsible Office  Office of Traffic and Safety		Related Policies and Procedures
Effective/Revision Dates 5-1-77/ 3-16-04	Approval(s) Kevin M. Mahoney	

**Authority:** Director of the Highway Division.

**Contents:** This policy establishes the warrants and the programming procedure for lighting freeways and interchanges.

**Affected Offices:** District Offices; Offices of Traffic and Safety and Program Management.

**Who to Contact for Policy Questions:** Office of Traffic and Safety.

**Definitions:**

*Freeway* - A primary highway constructed with Priority I access control. For the purpose of highway lighting, "freeway" means a primary highway constructed with Priority I access control for a length of five miles or greater.

*Freeway lighting, continuous* - Lighting along the entire length of the freeway traffic lanes and complete lighting at all interchanges.

*Freeway lighting, conflict-point* - Lighting only in areas of potential traffic movement conflicts; i.e., at sideroad terminals or locations of merging, diverging or weaving traffic.

*Interchange* - A system that provides for the movement of traffic between intersecting roadways via one or more grade separations.

*Complete interchange lighting* - Lighting of the freeway through the interchange, the traffic lanes of all ramps, the acceleration and deceleration lanes, all ramp terminals, and the crossroad between the outermost ramp terminals.

*Partial interchange lighting, terminal* - Lighting with luminaire(s) near some or all ramp terminals.

*Partial interchange lighting, conflict-point* - Lighting the general areas where the exit and entrance ramps connect with the through traffic lanes of the freeway and where the ramps intersect the crossroad.

*Warrants* - The criteria for roadway lighting established by the American Association of State Highway and Transportation Officials (AASHTO).

**Forms:** None.

**Policy and Procedure:**

## **I. General**

- A. Administrative rules 761 IAC 150.2(3) and 150.3(3) apply to lighting primary road extensions.
- B. Priority points for all existing unlighted interchanges shall be calculated as shown in the **Appendix** of this policy.
- C. New interchanges shall be evaluated according to the **Appendix** using the projected traffic and night-to-day crash ratios of the statewide average for similar types of interchanges.
- D. Recommendations for the programming of lighting projects is a responsibility of the Highway Division and is determined in relation to the needs of the entire highway system and not on the warrants established by this policy. Meeting the criteria, therefore, does not obligate the Department to provide lighting.

## **II. Responsibilities**

- A. The Office of Traffic and Safety shall:
  - 1. Evaluate the possibility of including lighting in projects for construction or reconstruction of freeways and interchanges.
  - 2. Update annually a list of all existing unlighted interchanges on freeways and other primary roads.
  - 3. Review the list of unlighted interchanges and evaluate them according to warrants. Submit the list of interchanges to the Director of the Highway Division with recommendations. The Director of the Highway Division will then in consultation with the Office of Program Management determine if they should be considered for programming.
  - 4. As directed, prepare plans for interchange and freeway lighting projects.
- B. Upon recommendation by the Director of the Highway Division and when funding is available, the Office of Program Management shall recommend the inclusion of projects for lighting specific interchanges in the Five-Year Transportation Improvement Program for approval by the Transportation Commission.

## **III. Warrants**

- A. The following criteria must be met for a lighting project:
  - 1. Partial interchange lighting. Partial interchange lighting shall meet one or more AASHTO warrants, plus one of the following conditions:
    - a. The night-to-day crash ratio is 2.0 or greater with a minimum of 3 nighttime reportable crashes in a 12-month period at the interchange (night-to-day ratio = 3 x nighttime crashes/daytime crashes). If this criterion is met, a review should be made of the crash data to determine if lighting would be beneficial.
    - b. Substantial lighted commercial or industrial development that is affecting operations exists within one-half mile of the interchange.

- c. Motorists are experiencing operational problems which might be alleviated by lighting.
  - d. The interchange qualifies for complete interchange lighting under AASHTO warrants.
2. Complete interchange lighting. Complete interchange lighting is warranted if the interchange is located within a length of continuously lighted freeway.
3. Freeway lighting.
- a. Conflict-point freeway lighting is warranted when, after considering AASHTO warrants and specifics of the location, the Department determines that lighting is prudent.
  - b. Continuous freeway lighting is warranted when AASHTO warrants for continuous freeway lighting are met and the Department, after considering the specifics of the location, determines that this level of lighting is justified.
  - c. Either complete or conflict-point interchange lighting may be used for interchanges within a conflict-point lighted freeway.

**Appendix****Interchange Lighting Priority Ranking Factors**

	<b>Factor</b>	<b>Rating Value</b>	<b>Weight</b>
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), VPD		
	= 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)		
	> 1,000	1	
	700 - 1,000	2	
	500 - 699	3	1
	400 - 499	4	
	< 400	5	

See next page for sample calculations

