**761—136.1(319) Lighting of primary-secondary intersections.** The purpose of this rule is to establish the qualification criteria, application procedure and financial responsibilities for the placement of roadway luminaires within the limits of the primary road right-of-way at a rural intersection of a primary road and a paved secondary road.

136.1(1) *Lighting criteria.* A primary-secondary intersection is a candidate for lighting if one of the following is met:
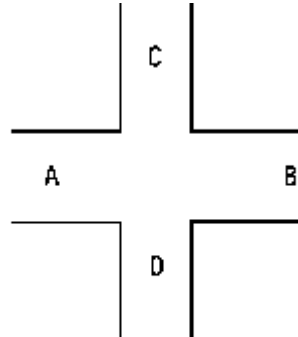
Major traffic flow (primary): A to B and B to A
Minor traffic flow (secondary): C to D and D to C
Possible left turns: A to C, B to D, C to B and D to A

a. The night-to-day accident rate ratio is 2.0 or greater with a minimum of three reportable nighttime accidents in a 12-month period.

b. Substantial lighted commercial or business development that is affecting operations exists adjacent to the intersection.

c. Motorists are experiencing operational problems which might be expected to be reduced by lighting.

d. The current average daily traffic (ADT) is 3500 entering vehicles for the intersection and:

(1) The intersection is channelized or "T," or

(2) A change in the direction of the major route occurs.

e. After making the following calculations, the total in subparagraph (3) below exceeds 3000 points.

(1) Determine the "Roadway/Traffic Factors" for traffic at A and for traffic at B, using the following formula and "Standard Sight Distances for Speed":

$$\frac{\text{Roadway/}}{\text{Traffic}} = \frac{\text{Standard Passing Sight Distance for Speed}}{\text{Actual Sight Distance}} \times \frac{\text{Actual Approaching Traffic Volume}}{1000}$$

Standard Passing Sight Distances For Posted Speeds

Speed	Distance
55 mph	2000 ft.
50 mph	1800 ft.
45 mph	1700 ft.
40 mph	1500 ft.

(2) Compare the two answers; the larger number is the "Greater Roadway/Traffic Factor."

(3) Calculate points based on the following formula, using current average daily traffic (ADT):

Greater Roadway/Traffic Factor × Traffic Volume from C to D   = _____

Greater Roadway/Traffic Factor × Traffic Volume from D to C   = _____

Greater Roadway/Traffic Factor × Traffic Volume from C to B × (1.5) = _____

Greater Roadway/Traffic Factor × Traffic Volume from D to A × (1.5) = _____

Roadway/Traffic Factor for A × Traffic Volume from B to D × (1.5)   = _____

Roadway/Traffic Factor for B × Traffic Volume from A to C × (1.5)   = _____

TOTAL = _____

136.1(2) Reserved.

136.1(3) *Procedures.*

a. A request for lighting shall be made by the county to the appropriate district engineer. The request shall indicate the type and size of luminaires proposed, sight distance measurements and posted speed. If the county is requesting that the department participate in the installation costs as a C-STEP (County-State Traffic Engineering Program) project, this should be indicated in the request. A lighting plan shall accompany the request showing:

(1) The complete dimensions of the intersection including pavement and shoulders.

(2) The locations of proposed luminaires and poles.

(3) The mounting heights, mast arm lengths, lateral and vertical light distributions of proposed luminaires and the approximate location for electrical service.

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■——————● Lighting Unit (pole, mastarm and luminaire)



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               50 - 15 - II - M
               ↑     ↑    ↑   ↑
                              (vertical) light distribution)
                         (lateral light distribution)
                    (mastarm length in feet)
               (mounting height in feet)
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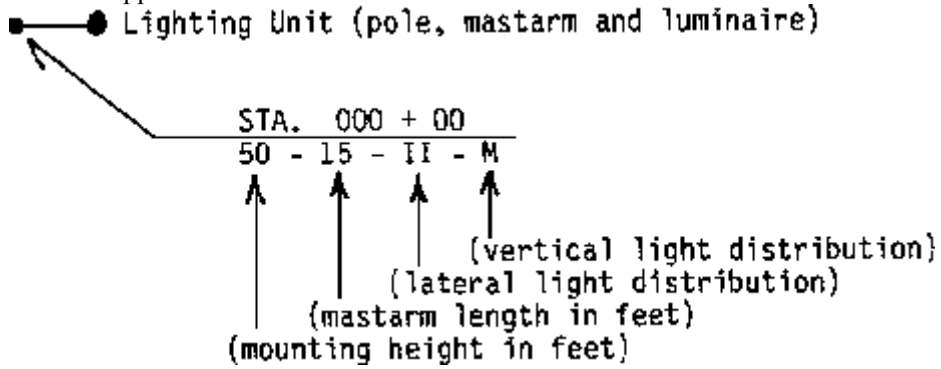
b. The district engineer shall forward the request to the department's office of traffic and safety for review.

c. If design requirements are satisfied, the department shall approve the lighting installation.

(1) The county shall be responsible for designing and installing the lighting and for all future energy and maintenance costs.

(2) If the location qualifies for lighting installation and if funds are available, the department shall share the installation costs on the basis of the current C-STEP participation ratio.

(3) If the department does not share the installation costs but the county wishes to install the lighting, the county shall be responsible for the installation costs.

d. If the department will share the installation costs, the department shall prepare an agreement for departmental and county approval.

This rule is intended to implement Iowa Code sections 319.1, 319.12 and 319.14.