**Example 8.1:** A minor road carrying 75 veh/h on each approach for eight hours of an average day crosses a major road carrying 145 veh/h on each approach for the same eight hours, forming a four-leg intersection. Determine whether a multiway stop sign is justified at this location if the following conditions exist:

1. Total pedestrian volume from the approaches of the minor street for the same eight hours as the traffic volumes is 40 ped/h.
2. The average delay to minor-street vehicular traffic during the maximum hours is 27 sec/veh.
3. There is an average of four crashes per year that may be corrected by a multiway stop control.

85th percentile approach speed on the major road = 35 mph.

**Example 8.2:** A tow-lane minor street crosses a four-lane major street. If the traffic conditions are as given, determine whether installing a traffic signal at this intersection is warranted.

1. The traffic volumes for each eight hours of an average day (both direction on major street) total 400 veh/h. For the higher volume minor street approach (one direction only), the total is 100 for each of the eight hours.
2. The 85th percentile speed of major-street traffic is 33 mph.
3. The pedestrian volume crossing the major street during each of any four hours of an average day is 450 ped/h. The nearest traffic signal is located 450 ft. from this location.

**Example 8.4:** The table below shows 15-minute volume counts during the peak hour on an approach of an intersection. Determine the PHF and the design hourly volume of the approach.

|  |  |
| --- | --- |
| Time | Volume |
| 6:00 – 6:15 pm | 375 |
| 6:15 – 6:30 pm | 380 |
| 6:30 – 6:45 pm | 412 |
| 6:45 – 7:00 pm | 390 |

**Example 8.5:** Determine the minimum yellow interval at an intersection whose width is 40 ft. if the maximum allowable speed on the approach roads is 30 mph. Assume average length of vehicle is 20 ft.

**Example 8.6:** Figure 8.18a shows peak hour volumes for a four-leg intersection on a highway. Using the Webster method, determine a suitable signal timing for the intersection using the four-phase system shown in the following table. Use a yellow change + red change interval of 3 sec. and the saturation flows given in the table.

Note: The influences of heavy vehicles and turning movements and all other factors that affect the saturation flow rate have already been considered.

|  |  |  |
| --- | --- | --- |
| **Phase** | **Lane Group** | **Saturation Flow (Veh/h/ln)** |
| A | 1. Exclusive left-turn movements
 | 1615 |
| 1. Through movements
 | 1800 |
| 1. Shared though & right-turn movements
 | 1725 |
| B | 1. Exclusive left-turn movements
 | 1615 |
| 1. Through movements
 | 1800 |
| 1. Shared though & right-turn movements
 | 1725 |
| C | 1. Exclusive left-turn movements
 | 1615 |
| 1. Through movements
 | 1800 |
| 1. Shared though & right-turn movements
 | 1725 |
| D | 1. Exclusive left-turn movements
 | 1615 |
| 1. Through movements
 | 1800 |
| 1. Shared though & right-turn movements
 | 1725 |

