Determine LOS:

Flow Rate, up to the two-way capacity of 3200 pc/hv.

If > 3200 pc/hv then LOS = F

One Direction Flow Rate Does Not Exceed 1700 pc/hv

Class I → ATS, PTSF

Class II → PTSF
Table 6.24 to Determine LOS of Class I

<table>
<thead>
<tr>
<th>Los</th>
<th>PTSF</th>
<th>ATS (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤ 85</td>
<td>&gt; 55</td>
</tr>
<tr>
<td>B</td>
<td>≤ 50</td>
<td>&gt; 50</td>
</tr>
<tr>
<td>C</td>
<td>≤ 65</td>
<td>&gt; 45</td>
</tr>
<tr>
<td>D</td>
<td>≤ 80</td>
<td>&gt; 40</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 80</td>
<td>≤ 40</td>
</tr>
</tbody>
</table>

Los → B

Los → D
Example 6.6

Class I Two-Lane Highway (Rolling Terrain)

500 vph 5% Trucks, 2% Buses;

PHF = 0.94
6% RVs

Analysis Flow Rate for ATS, PTSP

Hourly Volume \( V \) = \( \frac{500}{0.94} \) = 532

\( f_a = 0.71 \)

\( E_T = 2.5 \)
\( E_R = 1.1 \)
\[ f_{4V} = \frac{1}{1 + P_T(E_T - 1) + P_E(E_E - 1)} \]

\[ = \frac{1}{1 + 0.07(2.5 - 1) + 0.06(1.1 - 1)} = 0.90 \]

\[ \nu_p = \frac{V}{PHF \times f_\alpha \times f_{4V}} = 8.32 \text{ pc/ly} \]

\[ 0 - 600 \]

\[ \sum \left( \begin{array}{c} f_\alpha = 0.93 \\ E_T = 1.9 \\ E_E = 1.1 \end{array} \right) \]

\[ f_{4V} = \frac{1}{1 + 0.07(1.7 - 1) + 0.06(1.1 - 1)} = 0.935 \]
\[ V_p = \frac{V}{p_{HE} \times f_a \times f_{HV}} = \frac{500}{0.94 \times 0.93 \times 0.95} = 612 \text{ pc/hv} \]

Analyzed Flow Rate for ATS = 612 pc/hv

Design Traffic Volumes

(1) LOS
(2) Number of Lanes / Capacity Improvements
ii) What Hourly Volume Should We Take For Design/Analysis?

- Graph showing variability of traffic with AADT values on the y-axis and time on the x-axis.
Problem 6.25

(No. of lanes with volume greater than)

\[ D = 0.70 \quad f_p = 4.00 \quad PHF = 0.80 \]

\[ FFS = 70 \text{m/h} \quad AADT = 30,000 \text{veh/day} \]

10th, 50th, 100th hour

\[ K_{10} = 0.135 \]

\[ K_{50} = 0.1125 \]

\[ K_{100} = 0.105 \]

\[ \rightarrow \quad \text{Figure 6.7} \]
\[ DDHV_{10} = K_{10} \times D \times AADT \]
\[ = 0.135 \times 0.70 \times 30,000 \]
\[ = 2835 \]

\[ DDHV_{50} = K_{50} \times D \times AADT \]
\[ = 0.1125 \times 0.70 \times 20,000 \]
\[ = 2363 \]

\[ DDHV_{100} = 2205 \]

\[ f_{HV} = 1.0 \quad f_p = 1 \quad N_f = 2 \quad PHF = 0.80 \]
\[ V_{p10} = \frac{DHF \times N \times f_{HV} \times f_p}{0.80 \times 2 \times 1 \times 1} = \frac{2635}{1772} \quad \text{LOS D (Table 6.1)} \]

\[ V_{p50} = \frac{DHF \times N \times f_{HV} \times f_p}{0.80 \times 2 \times 1 \times 1} = \frac{2363}{1477} \quad \text{LOS C (Table 6.1)} \]

\[ V_{p100} = \frac{DHF \times N \times f_{HV} \times f_p}{0.80 \times 2 \times 1 \times 1} = 1378 \quad \text{LOS C} \]
Traffic Control and Analysis

At

Signalized Intersections

Diagram:

[Diagram with labeled points A, B, and C]

[Diagram showing flow and intersections]
\[ C = \frac{20 \sec \theta - 12}{12 - \gamma} \]

120 - (C + T)