BASIC FREEWAY SEGMENTS WORKSHEET

**General Information**

- Analyst
- Agency or Company
- Date Performed
- Analysis Time Period

**Site Information**

- Highway/Direction of Travel
- From/To
- Jurisdiction
- Analysis Year

**Flow Inputs**

- Volume, V: 2100 veh/h
- Annual avg. daily traffic, AADT: 5000 veh/day
- Peak-hour proportion of AADT, K: 0.5
- Peak-hour direction proportion, D: 0.5
- DDHIV = AADT * K * D: 1050 veh/h
- Driver type: Commuter/Weekday
- Grade Length: 0 mi
- Up/Down: 0%

**Calculate Flow Adjustments**

\[
\text{f}_f = \frac{V}{E_f} \quad \text{and} \quad \text{f}_{hr} = \frac{1}{1 + P_f(E_f - 1)} + P_f(1 - E_f - 1)
\]

**Speed Inputs**

- Lane width: 11 ft
- Right shoulder lateral clearances: 2.0 ft
- Interchange density: 2.0 veh/ln
- Number of lanes, N: 2
- FFS (measured): 70 m/h
- Base free-flow speed, BFFS: 70 m/h

**Calculate Speed Adjustments and FFS**

- \( f_{lw} \): 1.9 m/s
- \( f_{lc} \): 2.9 m/s
- \( f_d \): 0.0 m/s
- \( f_n \): 0.0 m/s
- \( V = f_{lw} \cdot PHF \cdot N \cdot f_{lc} \cdot f_d \cdot f_n / 0.917 \)

**LOS and Performance Measures**

Operational (LOS) or Planning (LOS)

- \( v_p = \frac{V}{D \cdot DDHIV} \)
- \( S = v_p / S \)
- \( D = v_p / S \)
- Design (v) or Planning (v)
- LOS

**Factor Location**

- Normal: Exhibit 23-8, 23-10
- Density: Exhibit 23-3
- Flow rate: Exhibit 23-9
- FFS: Exhibit 23-11
- OS, S, FFS, v: Exhibit 23-2, 23-3

**Glossary**

- N: Number of lanes
- V: Hourly volume
- \( v_p \): Flow rate
- LOS: Level of service
- DDHIV: Directional design-hour volume
- S: Speed
- D: Density
- FFS: Free-flow speed
- BFFS: Base free-flow speed
- LOS: Level of service
- Exhibit: 23-8, 23-9, 23-11
- Page: 23-12
- Exhibit: 23-3

Chapter 23 - Basic Freeway Segments