Basic Freeway Segment – Part 1

6 Lane Highway (3 lanes each direction)

Specific Grade: 10mi, 2%

Lane Width: 12 ft.

Lateral Clearance: 5 ft.

Ramps Upstream: 2

Drive Population: Balanced, CAF = 0.939, SAF=0.950

Demand: 3000 veh/h

Heavy Vehicle: 15%

PHF= 0.94

Eq. 12-2

FFS: 75.4- flw-frlc-3.22 TRD0.84

Ex. 12-20 mi/h

Ex. 12-21 mi/h

Eq. 12-5

FFS ADJ : 73.7 × SAF

Eq. 12-6

Capacity: 2200 + 10 x (FFSADJ – 50)

pc/h/ln

Eq. 12-8

CADJ: C x CAF

pc/h/ln

Flowrate:

Eq. 12-10

Eq. 12-12

1292.62 pc/h/ln

Breakpoint:

Ex. 12-6

1057.54 pc/ln/h

Because , the speed formula below is used

Eq. 12-1

S

S 69.2 mi/h

Eq. 12-11

Density: 18.6 pc/mi/ln 🡪 LOS C

Basic Segment Service Volume – Part 2

|  |  |  |
| --- | --- | --- |
| LOS | Vp  pc/h/ln | Service vol  veh/h |
| A | 770.2 | 770.2(.94)(3)(.823) = 1788 |
| B | 1251 | 1251(.94)(3)(.823) =2903 |
| C | 1680 | 1680(.94)(3)(.823) =3899 |
| D | 2003.7 | 2003.7(.94)(3)(.823) =4650 |
| E | 2254.07 | 2254.07(.94)(3)(.823) =5231 |
|  |  |  |

1. LOS A

mi/h, pc/h/ln

Vp 770.2 pc/h/ln

1. LOS B

S

D pc/h/ln

1. LOS C

S

D pc/h/ln

1. LOS D

S

D pc/h/ln

1. LOS E

S

D pc/h/ln

From HCM-Calc Results

