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## Freeway Analysis

- 2012 Existing
- 2035 No Build
- 2035 Build Alternatives



VHB, Inc  
VHB  
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Watertown MA

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Operational Analysis

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Analyst: NBS (93-Ex7\_SB\_AM)  
Agency or Company: VHB  
Date Performed: 7/2/2012  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2012 Existing  
Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	1830	veh/h
Peak-hour factor, PHF	0.89	
Peak 15-min volume, v15	514	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1049	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1049	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	17.5	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (Ex7-Ex6\_SB\_AM)  
 Agency or Company: VHB  
 Date Performed: 7/2/2012  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2012 Existing  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	2485	veh/h
Peak-hour factor, PHF	0.89	
Peak 15-min volume, v15	698	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1424	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1424	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	23.7	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

Analyst: NBS (Ex6-Ex5\_SB\_AM)  
 Agency or Company: VHB  
 Date Performed: 7/2/2012  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2012 Existing  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	2935	veh/h
Peak-hour factor, PHF	0.89	
Peak 15-min volume, v15	824	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1682	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1682	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	28.0	pc/mi/ln

Level of service, LOS

D

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Operational Analysis

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Analyst: NBS (Ex5-Ex6\_NB\_AM)  
 Agency or Company: VHB  
 Date Performed: 7/2/2012  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 5 / Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2012 Existing  
 Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	1825	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	501	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1028	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1028	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	17.1	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Analyst: NBS (Ex6-Ex7\_NB\_AM)  
Agency or Company: VHB  
Date Performed: 7/2/2012  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 6 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2012 Existing  
Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	1480	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	407	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	834	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	834	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	13.9	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2012 Existing  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	935	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	257	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	527	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	527	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	8.8	pc/mi/ln

Level of service, LOS

A

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Operational Analysis

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Agency or Company: VHB  
Date Performed: 7/2/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2012 Existing  
Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	1585	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	431	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	883	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	883	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	14.7	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Agency or Company: VHB  
Date Performed: 7/2/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 7 - Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2012 Existing  
Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	1975	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	537	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1100	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1100	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.3	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_PM)  
 Agency or Company: VHB  
 Date Performed: 7/2/2012  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2012 Existing  
 Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	2410	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	655	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1343	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1343	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	22.4	pc/mi/ln

Level of service, LOS

C

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HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_PM)  
Agency or Company: VHB  
Date Performed: 7/2/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2012 Existing  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3310	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	909	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1864	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1864	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.3	mi/h
Number of lanes, N	2	
Density, D	31.4	pc/mi/ln

Level of service, LOS

D

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Operational Analysis

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 Agency or Company: VHB  
 Date Performed: 7/2/2012  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2012 Existing  
 Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	3150	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	865	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1774	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1774	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.8	mi/h
Number of lanes, N	2	
Density, D	29.7	pc/mi/ln

Level of service, LOS

D

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Operational Analysis

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Agency or Company: VHB  
Date Performed: 7/2/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 7 / I-93  
Jurisdiction: NHDOT  
Analysis Year: 2012 Existing  
Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	2200	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	604	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1239	pc/h/ln

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Speed Inputs and Adjustments

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Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1239	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	20.6	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	2300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	639	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1303	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1303	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	21.7	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

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Analyst: NBS (Ex7-Ex6\_SB\_AM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 7 - Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

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Flow Inputs and Adjustments

---

Volume, V	3125	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	868	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1771	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h

Urban Freeway

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LOS and Performance Measures

---

Flow rate, vp	1771	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.8	mi/h
Number of lanes, N	2	
Density, D	29.6	pc/mi/ln

Level of service, LOS

D

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst: NBS (Ex6-Ex5\_SB\_AM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 6 - Exit 5  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3690	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1025	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2091	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2091	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	56.5	mi/h
Number of lanes; N	2	
Density, D	37.0	pc/mi/ln

Level of service, LOS

E

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

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Analyst: NBS (Ex5-Ex6\_NB\_AM)  
 Agency or Company: VHB  
 Date Performed: 7/31/2012  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 5 / Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 No Build  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2295	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	638	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1307	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h

Urban Freeway

---

LOS and Performance Measures

---

Flow rate, vp	1307	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	21.8	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex7\_NB\_AM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 6 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

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Flow Inputs and Adjustments

---

Volume, V	1860	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	517	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1059	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1059	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	17.6	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (Ex7-93\_NB\_AM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 7 / I-93  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1175	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	326	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	669	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	669	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	11.1	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Analyst: NBS (93-Ex7\_SB\_PM)  
 Agency or Company: VHB  
 Date Performed: 7/7/2012  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 No Build  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1995	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	554	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1136	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1136	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.9	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex7-Ex6\_SB\_PM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 7 - Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2485	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	690	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1415	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1415	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	23.6	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (Ex6-Ex5\_SB\_PM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 6 - Exit 5  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3030	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	842	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1725	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1725	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.9	mi/h
Number of lanes, N	2	
Density, D	28.8	pc/mi/ln

Level of service, LOS

D

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_PM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	4160	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1156	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	2369	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2369	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	2	
Density, D		pc/mi/ln

Level of service, LOS

F

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (Ex6-Ex7\_NB\_PM)  
 Agency or Company: VHB  
 Date Performed: 7/31/2012  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 No Build  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3960	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1100	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	2255	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2255	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	52.5	mi/h
Number of lanes, N	2	
Density, D	42.9	pc/mi/ln

Level of service, LOS

E

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

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Analyst: NBS (Ex7-93\_NB\_PM)  
Agency or Company: VHB  
Date Performed: 7/31/2012  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 7 / I-93  
Jurisdiction: NHDOT  
Analysis Year: 2035 No Build  
Description: FEET I-293

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Flow Inputs and Adjustments

---

Volume, V	2765	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	768	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1575	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1575	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	26.3	pc/mi/ln

Level of service, LOS

D

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

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Analyst: NBS (93-Ex7\_SB\_AM\_Alt-4&8)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build (Alt4&8)  
Description: FEET I-293

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Flow Inputs and Adjustments

---

Volume, V	2240	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	622	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	846	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	846	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.1	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (93-Ex7\_SB\_AM\_Alt-4&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build (Alt4&9)  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	2590	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	719	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	978	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	978	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	16.3	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

---

Analyst: NBS (93-Ex7\_SB\_AM\_Alt-4&10)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build (Alt4&10)  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2690	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	747	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1016	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1016	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	16.9	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

---

Analyst: NBS (93-Ex7\_SB\_AM\_Alt-5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build (Alt-5&9)  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2590	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	719	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	978	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	978	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	16.3	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Analyst: NBS (93-Ex7\_SB\_AM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build (Alt-6&9)  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2590	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	719	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	978	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	978	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	16.3	pc/mi/ln

Level of service, LOS

B

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### Operational Analysis

---

Analyst: NBS (93-Ex7\_SB\_AM\_Alt-7&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build (Alt-7&9)  
 Description: FEET I-293

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### Flow Inputs and Adjustments

---

Volume, V	2590	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	719	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	978	pc/h/ln

---

### Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

### LOS and Performance Measures

---

Flow rate, vp	978	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	16.3	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Analyst: NBS (93-Ex7\_SB\_PM\_Alt-4&8)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&8  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2120	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	589	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	805	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	805	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	13.4	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

Analyst: NBS (93-Ex7\_SB\_PM\_Alt-4&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&9  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	2310	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	642	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	877	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	877	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.6	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Analyst: NBS (93-Ex7\_SB\_PM\_Alt-4&10)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&10  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2460	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	683	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	934	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	934	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	15.6	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (93-Ex7\_SB\_PM\_Alt-5&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 5&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2330	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	647	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	885	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	885	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.8	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

---

Analyst: NBS (93-Ex7\_SB\_PM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: I-93 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2330	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	647	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	885	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	885	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.8	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Analyst: NBS (93-Ex7\_SB\_PM\_Alt-7&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: I-93 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 7&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2330	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	647	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	885	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	885	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.8	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

Analyst: NBS (Ex7-93\_NB\_AM\_Alt-4&8)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&8  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	1090	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	303	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	414	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	414	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	6.9	pc/mi/ln

Level of service, LOS

A

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

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Analyst: NBS (Ex7-93\_NB\_AM\_Alt-4&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1490	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	414	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	566	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	566	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	9.4	pc/mi/ln

Level of service, LOS

A

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Operational Analysis

---

Analyst: NBS (Ex7-93\_NB\_AM\_Alt-4&10)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&10  
 Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	1640	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	456	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	623	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	623	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	10.4	pc/mi/ln

Level of service, LOS

A

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

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Analyst: NBS (Ex7-93\_NB\_AM\_Alt-5&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 7 / I-93  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 5&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1490	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	414	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	566	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	566	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	9.4	pc/mi/ln

Level of service, LOS

A

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Operational Analysis

---

Analyst: NBS (Ex7-93\_NB\_AM\_Alt-6&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 7 / I-93  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 6&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1490	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	414	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	566	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	566	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	9.4	pc/mi/ln

Level of service, LOS

A

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Operational Analysis

---

Analyst: NBS (Ex7-93\_NB\_AM\_Alt-7&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 7&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1490	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	414	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	566	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	566	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	9.4	pc/mi/ln

Level of service, LOS

A

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Operational Analysis

---

Analyst: NBS (Ex7-93\_NB\_PM\_Alt-4&8)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&8  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2860	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	794	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1086	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1086	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.1	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.



HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst: NBS (Ex7-93\_NB\_PM\_Alt-4&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 7 / I-93  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&9  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3160	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	878	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1200	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1200	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.0	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex7-93\_NB\_PM\_Alt-4&10)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&10  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3260	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	906	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1238	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1238	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.6	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex7-93\_NB\_PM\_Alt-5&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 7 / I-93  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 5&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3160	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	878	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1200	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1200	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.0	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (Ex7-93\_NB\_PM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3160	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	878	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1200	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1200	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.0	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

Analyst: NBS (Ex7-93\_NB\_PM\_Alt-7&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 7 / I-93  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 7&9  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3160	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	878	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1200	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1200	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.0	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex7-Ex6\_SB\_AM\_Alt-4&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3005	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	835	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1135	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1135	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.9	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex7-Ex6\_SB\_AM\_Alt-4&10)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&10  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2955	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	821	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1116	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

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Flow rate, vp	1116	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.6	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex7-Ex6\_SB\_AM\_Alt-5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 5&9  
 Description: FEET I-293

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Flow Inputs and Adjustments

---

Volume, V	3005	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	835	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1135	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1135	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.9	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

---

Analyst: NBS (Ex7-Ex6\_SB\_AM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3005	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	835	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1135	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1135	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.9	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

---

Analyst: NBS (Ex7-Ex6\_SB\_AM\_Alt-7&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 7 - Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 7&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3005	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	835	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1135	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1135	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.9	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

---

Analyst: NBS (Ex7-Ex6\_SB\_PM\_Alt-4&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 7 - Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2385	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	663	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	905	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	905	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	15.1	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

Analyst: NBS (Ex7-Ex6\_SB\_PM\_Alt-4&10)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&10  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	2300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	639	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	873	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	873	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.6	pc/mi/ln

Level of service, LOS

B

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### Operational Analysis

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Analyst: NBS (Ex7-Ex6\_SB\_PM\_Alt-5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 5&9  
 Description: FEET I-293

---

### Flow Inputs and Adjustments

---

Volume, V	2405	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	668	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	913	pc/h/ln

---

### Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

### LOS and Performance Measures

---

Flow rate, vp	913	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	15.2	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (Ex7-Ex6\_SB\_PM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2405	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	668	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	913	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	913	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	15.2	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (Ex7-Ex6\_SB\_PM\_Alt-7&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 7 - Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 7&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2405	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	668	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	913	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	913	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	15.2	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (Ex6-Ex7\_NB\_AM\_Alt4&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 6 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1755	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	666	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	666	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	11.1	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

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Analyst: NBS (Ex6-Ex7\_NB\_AM\_Alt4&10)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&10  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1665	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	463	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	632	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	632	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	10.5	pc/mi/ln

Level of service, LOS

A

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Operational Analysis

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Analyst: NBS (Ex6-Ex7\_NB\_AM\_Alt5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 5&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1755	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	666	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	666	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	11.1	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (Ex6-Ex7\_NB\_AM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1755	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	666	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	666	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	11.1	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

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Analyst: NBS (Ex6-Ex7\_NB\_AM\_Alt-7&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 7&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	1755	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	666	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	666	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	11.1	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

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Analyst: NBS (Ex6-Ex7\_NB\_PM\_Alt4&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1056	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1443	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1443	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	24.0	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

---

Analyst: NBS (Ex6-Ex7\_NB\_PM\_Alt4&10)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 6 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&10  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3740	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1039	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1420	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1420	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.7	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

Analyst: NBS (Ex6-Ex7\_NB\_PM\_Alt-5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 5&9  
 Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1056	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1443	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h

Urban Freeway

LOS and Performance Measures

Flow rate, vp	1443	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	24.0	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex7\_NB\_PM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 6 / Exit 7  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1056	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1443	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1443	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	24.0	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

---

Analyst: NBS (Ex6-Ex7\_NB\_PM\_Alt-7&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 6 / Exit 7  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 7&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1056	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1443	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1443	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	24.0	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_AM\_Alt-4&8)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 6 - Exit 5  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&8  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3715	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1032	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1403	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1403	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.4	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_AM\_Alt-4&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 6 - Exit 5  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3715	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1032	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1403	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1403	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.4	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

Analyst: NBS (Ex6-Ex5\_SB\_AM\_Alt-4&10)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 6 - Exit 5  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&10  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	3665	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1018	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1385	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1385	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.1	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_AM\_Alt-5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 5&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3715	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1032	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1403	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1403	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.4	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_AM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3715	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1032	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1403	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1403	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.4	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_AM\_Alt-7&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 6 - Exit 5  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 7&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	3715	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1032	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1403	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1403	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.4	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_PM\_Alt-4&8)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&8  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2910	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	808	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1105	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1105	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.4	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_PM\_Alt-4&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2910	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	808	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1105	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1105	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.4	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_PM\_Alt-4&10)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&10  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2860	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	794	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1086	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1086	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.1	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

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Analyst: NBS (Ex6-Ex5\_SB\_PM\_Alt-5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 5&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2930	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	814	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1112	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1112	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.5	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

---

Analyst: NBS (Ex6-Ex5\_SB\_PM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / SB  
 From/To: Exit 6 - Exit 5  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2930	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	814	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1112	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	1112	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.5	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

---

Analyst: NBS (Ex6-Ex5\_SB\_PM\_Alt-7&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / SB  
From/To: Exit 6 - Exit 5  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 7&9  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2930	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	814	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1112	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h

Urban Freeway

---

LOS and Performance Measures

---

Flow rate, vp	1112	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.5	pc/mi/ln

Level of service, LOS

C

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Operational Analysis

---

Analyst: NBS (Ex5-Ex6\_NB\_AM\_Alt-4&8)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&8  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2270	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	631	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	862	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	862	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.4	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (Ex5-Ex6\_NB\_AM\_Alt-4&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 5 / Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 4&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2270	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	631	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	862	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	862	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.4	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

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Analyst: NBS (Ex5-Ex6\_NB\_AM\_Alt-4&10)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&10  
Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2270	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	631	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	862	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	862	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.4	pc/mi/ln

Level of service, LOS

B

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Operational Analysis

---

Analyst: NBS (Ex5-Ex6\_NB\_AM\_Alt-5&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 5 / Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 5&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2270	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	631	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	862	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	862	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.4	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

---

Analyst: NBS (Ex5-Ex6\_NB\_AM\_Alt-6&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: AM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 5 / Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 6&9  
 Description: FEET I-293

---

Flow Inputs and Adjustments

---

Volume, V	2270	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	631	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	862	pc/h/ln

---

Speed Inputs and Adjustments

---

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

---

LOS and Performance Measures

---

Flow rate, vp	862	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.4	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_AM\_Alt-7&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: AM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 7&9  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	2270	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	631	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	862	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	862	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.4	pc/mi/ln

Level of service, LOS

B

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_PM\_Alt-4&8)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&8  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	4000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1111	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1519	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1519	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	25.3	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_PM\_Alt-4&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&9  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	4000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1111	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1519	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1519	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	25.3	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_PM\_Alt-4&10)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 4&10  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	4000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1111	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1519	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, flW	0.0	mi/h
Lateral clearance adjustment, flC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1519	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	25.3	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

VHB, Inc  
VHB  
101 Walnut St.  
Watertown MA

Phone: 617-924-1770  
E-mail:

Fax:

Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_PM\_Alt-5&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 5&9  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	4000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1111	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1519	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1519	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
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Level of service, LOS

C

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Operational Analysis

Analyst: NBS (Ex5-Ex6\_NB\_PM\_Alt-6&9)  
Agency or Company: VHB  
Date Performed: 3/12/2013  
Analysis Time Period: PM Peak Hour  
Freeway/Direction: I-293 / NB  
From/To: Exit 5 / Exit 6  
Jurisdiction: NHDOT  
Analysis Year: 2035 Build - Alt 6&9  
Description: FEET I-293

Flow Inputs and Adjustments

Volume, V	4000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1111	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1519	pc/h/ln

Speed Inputs and Adjustments

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Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1519	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	25.3	pc/mi/ln

Level of service, LOS

C

Overall results are not computed when free-flow speed is less than 55 mph.



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Operational Analysis

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Analyst: NBS (Ex5-Ex6\_NB\_PM\_Alt-7&9)  
 Agency or Company: VHB  
 Date Performed: 3/12/2013  
 Analysis Time Period: PM Peak Hour  
 Freeway/Direction: I-293 / NB  
 From/To: Exit 5 / Exit 6  
 Jurisdiction: NHDOT  
 Analysis Year: 2035 Build - Alt 7&9  
 Description: FEET I-293

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Flow Inputs and Adjustments

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Volume, V	4000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1111	v
Trucks and buses	5	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.976	
Driver population factor, fp	1.00	
Flow rate, vp	1519	pc/h/ln

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Speed Inputs and Adjustments

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Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	60.0	mi/h
	Urban Freeway	

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LOS and Performance Measures

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Flow rate, vp	1519	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	25.3	pc/mi/ln

Level of service, LOS

C

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