

Phone: Fax:
E-mail:

Operational Analysis

Analyst:
Agency or Company: Stantec
Date Performed: 11/9/2016
Analysis Time Period: 2:00PM-3:00PM
Freeway/Direction: I-85 Northbound
From/To: Hampshire to SC 18
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2555	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	680	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1971	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	1.30	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	4.0	mi/h
Free-flow speed, FFS	69.5	mi/h

LOS and Performance Measures

Flow rate, vp	1971	pc/h/ln
Free-flow speed, FFS	69.5	mi/h
Average passenger-car speed, S	63.1	mi/h
Number of lanes, N	2	
Density, D	31.2	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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Date Performed: 11/9/2016
Analysis Time Period: 2:00PM-3:00PM
Freeway/Direction: I-85 Northbound
From/To: SC 18 to Gaffney Ferry Rd
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2466	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	656	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1902	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	1.17	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	3.7	mi/h
Free-flow speed, FFS	69.8	mi/h

LOS and Performance Measures

Flow rate, vp	1902	pc/h/ln
Free-flow speed, FFS	69.8	mi/h
Average passenger-car speed, S	64.3	mi/h
Number of lanes, N	2	
Density, D	29.6	pc/mi/ln
Level of service, LOS	D	

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Freeway/Direction: I-85 Northbound
From/To: Gaffney Ferry to Frontage Rd
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2474	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	658	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1908	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	1.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	3.2	mi/h
Free-flow speed, FFS	70.3	mi/h

LOS and Performance Measures

Flow rate, vp	1908	pc/h/ln
Free-flow speed, FFS	70.3	mi/h
Average passenger-car speed, S	64.2	mi/h
Number of lanes, N	2	
Density, D	29.7	pc/mi/ln
Level of service, LOS	D	

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Freeway/Direction: I-85 Northbound
From/To: Frontage Rd to Blacksburg Hwy
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2472	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	657	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1907	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.3	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	1.17	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	3.7	mi/h
Free-flow speed, FFS	69.8	mi/h

LOS and Performance Measures

Flow rate, vp	1907	pc/h/ln
Free-flow speed, FFS	69.8	mi/h
Average passenger-car speed, S	64.2	mi/h
Number of lanes, N	2	
Density, D	29.7	pc/mi/ln
Level of service, LOS	D	

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Freeway/Direction: I-85 Northbound
From/To: Blacksburg Hwy to SC 5
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2369	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	630	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1827	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.3	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	0.83	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	2.8	mi/h
Free-flow speed, FFS	70.7	mi/h

LOS and Performance Measures

Flow rate, vp	1827	pc/h/ln
Free-flow speed, FFS	70.7	mi/h
Average passenger-car speed, S	65.4	mi/h
Number of lanes, N	2	
Density, D	27.9	pc/mi/ln
Level of service, LOS	D	

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Freeway/Direction: I-85 Northbound
From/To: SC 5 to Tribal Road
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2119	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	564	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1634	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.2	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	1.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	3.2	mi/h
Free-flow speed, FFS	70.3	mi/h

LOS and Performance Measures

Flow rate, vp	1634	pc/h/ln
Free-flow speed, FFS	70.3	mi/h
Average passenger-car speed, S	67.8	mi/h
Number of lanes, N	2	
Density, D	24.1	pc/mi/ln
Level of service, LOS	C	

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Freeway/Direction: I-85 Northbound
From/To: Tribal Road to US 29
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2101	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	559	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1620	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.2	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	0.83	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	2.8	mi/h
Free-flow speed, FFS	70.7	mi/h

LOS and Performance Measures

Flow rate, vp	1620	pc/h/ln
Free-flow speed, FFS	70.7	mi/h
Average passenger-car speed, S	68.0	mi/h
Number of lanes, N	2	
Density, D	23.8	pc/mi/ln
Level of service, LOS	C	

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Freeway/Direction: I-85 Northbound
From/To: US 29 to NC 216
Jurisdiction: SCDOT/NC DOT
Analysis Year: 2015 Existing Conditions
Description:

Flow Inputs and Adjustments

Volume, V	2103	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	559	v
Trucks and buses	30	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.690	
Driver population factor, fp	1.00	
Flow rate, vp	1622	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.3	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	1.50	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
TRD adjustment	4.5	mi/h
Free-flow speed, FFS	69.0	mi/h

LOS and Performance Measures

Flow rate, vp	1622	pc/h/ln
Free-flow speed, FFS	69.0	mi/h
Average passenger-car speed, S	67.9	mi/h
Number of lanes, N	2	
Density, D	23.9	pc/mi/ln
Level of service, LOS	C	

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