

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: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3691	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	982	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	1898	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	3	
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	1898	pc/h/ln
Free-flow speed, FFS	69.5	mi/h
Average passenger-car speed, S	64.3	mi/h
Number of lanes, N	3	
Density, D	29.5	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: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3578	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	952	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	1840	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	3	
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	1840	pc/h/ln
Free-flow speed, FFS	69.8	mi/h
Average passenger-car speed, S	65.2	mi/h
Number of lanes, N	3	
Density, D	28.2	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: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3588	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	954	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	1845	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	3	
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	1845	pc/h/ln
Free-flow speed, FFS	70.3	mi/h
Average passenger-car speed, S	65.2	mi/h
Number of lanes, N	3	
Density, D	28.3	pc/mi/ln
Level of service, LOS	D	

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Analysis Time Period: 2:00PM-3:00PM  
Freeway/Direction: I-85 Northbound  
From/To: Frontage Rd to Blacksburg Hwy  
Jurisdiction: SCDOT  
Analysis Year: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3584	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	953	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	1843	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	3	
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	1843	pc/h/ln
Free-flow speed, FFS	69.8	mi/h
Average passenger-car speed, S	65.2	mi/h
Number of lanes, N	3	
Density, D	28.3	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: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3394	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	903	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	1745	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	3	
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	1745	pc/h/ln
Free-flow speed, FFS	70.7	mi/h
Average passenger-car speed, S	66.6	mi/h
Number of lanes, N	3	
Density, D	26.2	pc/mi/ln
Level of service, LOS	D	

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Analysis Time Period: 2:00PM-3:00PM  
Freeway/Direction: I-85 Northbound  
From/To: SC 5 to Tribal Road  
Jurisdiction: SCDOT  
Analysis Year: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3077	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	818	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	1582	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	3	
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	1582	pc/h/ln
Free-flow speed, FFS	70.3	mi/h
Average passenger-car speed, S	68.3	mi/h
Number of lanes, N	3	
Density, D	23.2	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: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3051	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	811	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	1569	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	3	
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	1569	pc/h/ln
Free-flow speed, FFS	70.7	mi/h
Average passenger-car speed, S	68.4	mi/h
Number of lanes, N	3	
Density, D	22.9	pc/mi/ln
Level of service, LOS	C	

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Agency or Company: Stantec  
Date Performed: 11/9/2016  
Analysis Time Period: 2:00PM-3:00PM  
Freeway/Direction: I-85 Northbound  
From/To: US 29 to NC 216  
Jurisdiction: SCDOT/NC DOT  
Analysis Year: 2040 Build Conditions  
Description:

### Flow Inputs and Adjustments

Volume, V	3054	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	812	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	1570	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	3	
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	1570	pc/h/ln
Free-flow speed, FFS	69.0	mi/h
Average passenger-car speed, S	68.4	mi/h
Number of lanes, N	3	
Density, D	22.9	pc/mi/ln
Level of service, LOS	C	

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