

Phone: Fax:
E-mail:

_____ Merge Analysis _____

Analyst:
Agency/Co.: Stantec
Date performed: 11/10/2016
Analysis time period: 2:00PM:3:00PM
Freeway/Dir of Travel: I-85 Northbound
Junction: Shelby Hwy On Ramp to I-85 NB
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

_____ Freeway Data _____

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.5	mph
Volume on freeway	2297	vph

_____ On Ramp Data _____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	169	vph
Length of first accel/decel lane	560	ft
Length of second accel/decel lane		ft

_____ Adjacent Ramp Data (if one exists) _____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	258	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1675	ft

_____ Conversion to pc/h Under Base Conditions _____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2297	169	258	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	611	45	69	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	1.000	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3543	180	274	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 1.000 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 3543 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3723	4790	No
v ₃ or v _{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		No	
If yes, v _{12A} = 3543		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{R12}	3723	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 30.9 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M _S = 0.443	
Space mean speed in ramp influence area,	S _R = 57.3	mph
Space mean speed in outer lanes,	S ₀ = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

_____ Merge Analysis _____

Analyst:
Agency/Co.: Stantec
Date performed: 11/10/2016
Analysis time period: 2:00PM-3:00PM
Freeway/Dir of Travel: I-85 Northbound
Junction: Shelby Hwy On Ramp to I-85 NB
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

_____ Freeway Data _____

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.5	mph
Volume on freeway	2297	vph

_____ On Ramp Data _____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	169	vph
Length of first accel/decel lane	560	ft
Length of second accel/decel lane		ft

_____ Adjacent Ramp Data (if one exists) _____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	8	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	5100	ft

_____ Conversion to pc/h Under Base Conditions _____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2297	169	8	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	611	45	2	v
Trucks and buses	30	0	100	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	0.667	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3543	180	13	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 1.000 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 3543 \quad \text{pc/h}$$

Capacity Checks

		Actual	Maximum	LOS F?
v _{FO}		3723	4790	No
v ₃ or v _{av34}	0	pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?			No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2			No	
If yes, v _{12A} = 3543			(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{R12}	3723	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 30.9 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M _S = 0.443	
Space mean speed in ramp influence area,	S _R = 57.3	mph
Space mean speed in outer lanes,	S ₀ = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst:
Agency/Co.: Stantec
Date performed: 11/10/2016
Analysis time period: 2:00PM-3:00PM
Freeway/Dir of Travel: I-85 Northbound
Junction: Gaffney Ferry On Ramp to I-85
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.8	mph
Volume on freeway	2466	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	8	vph
Length of first accel/decel lane	780	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	169	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	5100	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2466	8	169	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	656	2	45	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	1.000	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3804	9	180	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 1.000 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 3804 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3813	4796	No
v ₃ or v _{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		No	
If yes, v _{12A} = 3804		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{R12}	3813	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 30.3 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M _S = 0.443	
Space mean speed in ramp influence area,	S _R = 57.5	mph
Space mean speed in outer lanes,	S ₀ = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

Phone: Fax:
E-mail:

_____Merge Analysis_____

Analyst:
Agency/Co.: Stantec
Date performed: 11/10/2016
Analysis time period: 2:00PM-3:00PM
Freeway/Dir of Travel: I-85 Northbound
Junction: Gaffney Ferry On Ramp to I-85
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

_____Freeway Data_____

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.8	mph
Volume on freeway	2466	vph

_____On Ramp Data_____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	8	vph
Length of first accel/decel lane	780	ft
Length of second accel/decel lane		ft

_____Adjacent Ramp Data (if one exists)_____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	4730	ft

_____Conversion to pc/h Under Base Conditions_____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2466	8	2	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	656	2	1	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	1.000	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3804	9	2	pcph

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 EQ
 $P = 1.000$ Using Equation 0
 FM
 $v_{12} = v_F (P_{FM}) = 3804$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3813	4796	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3804$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3813	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 30.3$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$M_S = 0.443$	
Space mean speed in ramp influence area,	$S_R = 57.5$	mph
Space mean speed in outer lanes,	$S_0 = N/A$	mph
Space mean speed for all vehicles,	$S = 57.5$	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst:
Agency/Co.: Stantec
Date performed: 11/10/2016
Analysis time period: 2:00PM-3:00PM
Freeway/Dir of Travel: I-85 Northbound
Junction: Blacksburg On Ramp to I-85 NB
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

-----Freeway Data-----

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.8	mph
Volume on freeway	2317	vph

-----On Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	52	vph
Length of first accel/decel lane	900	ft
Length of second accel/decel lane		ft

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	155	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1440	ft

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2317	52	155	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	616	14	41	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	1.000	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3574	55	165	pcph

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 EQ
 $P = 1.000$ Using Equation 0
 FM
 $v_{12} = v_F (P_{FM}) = 3574$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3629	4796	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3574$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3629	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 28.1$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$M_S = 0.405$	
Space mean speed in ramp influence area,	$S_R = 58.5$	mph
Space mean speed in outer lanes,	$S_0 = N/A$	mph
Space mean speed for all vehicles,	$S = 58.5$	mph

Phone: Fax:
E-mail:

_____ Merge Analysis _____

Analyst:
Agency/Co.: Stantec
Date performed: 11/10/2016
Analysis time period: 2:00PM-3:00PM
Freeway/Dir of Travel: I-85 Northbound
Junction: SC 5 On Ramp to I-85 NB
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

_____ Freeway Data _____

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.7	mph
Volume on freeway	2014	vph

_____ On Ramp Data _____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	105	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

_____ Adjacent Ramp Data (if one exists) _____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	355	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	3940	ft

_____ Conversion to pc/h Under Base Conditions _____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2014	105	355	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	536	28	94	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%		%	%
Length	mi		mi	mi
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	1.000	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3107	112	378	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 1.000 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 3107 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3219	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3107$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3219	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 21.9 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.322$	
Space mean speed in ramp influence area,	$S_R = 61.5$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 61.5$	mph

Phone: Fax:
E-mail:

_____ Merge Analysis _____

Analyst:
Agency/Co.: Stantec
Date performed: 11/10/2016
Analysis time period: 2:00PM-3:00PM
Freeway/Dir of Travel: I-85 Northbound
Junction: Tribal Rd On Ramp to I-85 NB
Jurisdiction: SCDOT
Analysis Year: 2015 Existing Conditions
Description:

_____ Freeway Data _____

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.3	mph
Volume on freeway	1988	vph

_____ On Ramp Data _____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	131	vph
Length of first accel/decel lane	1080	ft
Length of second accel/decel lane		ft

_____ Adjacent Ramp Data (if one exists) _____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	131	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1111	ft

_____ Conversion to pc/h Under Base Conditions _____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1988	131	131	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	529	35	35	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	1.000	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3067	139	139	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 1.000 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 3067 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3206	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3067$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3206	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 23.6 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.342$	
Space mean speed in ramp influence area,	$S_R = 60.6$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 60.6$	mph

Phone: _____ Fax: _____
 E-mail: _____

_____ Merge Analysis _____

Analyst: _____
 Agency/Co.: Stantec
 Date performed: 11/10/2016
 Analysis time period: 2:00PM-3:00PM
 Freeway/Dir of Travel: I-85 Northbound
 Junction: US 29 On Ramp to I-85 NB
 Jurisdiction: SCDOT
 Analysis Year: 2015 Existing Conditions
 Description: _____

_____ Freeway Data _____

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.7	mph
Volume on freeway	2015	vph

_____ On Ramp Data _____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	88	vph
Length of first accel/decel lane	580	ft
Length of second accel/decel lane		ft

_____ Adjacent Ramp Data (if one exists) _____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	86	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	745	ft

_____ Conversion to pc/h Under Base Conditions _____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2015	88	86	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	536	23	23	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	1.5	1.5	
Recreational vehicle PCE, ER	2.0	1.2	1.2	

Heavy vehicle adjustment, fHV	0.690	1.000	1.000	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3108	94	91	pcph

Estimation of V12 Merge Areas

$$L = \text{(Equation 13-6 or 13-7)}$$

$$EQ$$

$$P = 1.000 \quad \text{Using Equation } 0$$

$$FM$$

$$v_{12} = v_F (P_{FM}) = 3108 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
v _{FO}	3202	4800	No
v ₃ or v _{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v ₃ or v _{av34} > 2700 pc/h?		No	
Is v ₃ or v _{av34} > 1.5 v ₁₂ / 2		No	
If yes, v _{12A} = 3108		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v _{R12}	3202	4600	No

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 26.8 \quad \text{pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M _S = 0.376	
Space mean speed in ramp influence area,	S _R = 59.9	mph
Space mean speed in outer lanes,	S ₀ = N/A	mph
Space mean speed for all vehicles,	S = 59.9	mph