

Phone: _____ Fax: _____
 E-mail: _____

-----Diverge Analysis-----

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

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

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.3	mph
Volume on freeway	2033	vph

-----Off Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	141	vph
Length of first accel/decel lane	228	ft
Length of second accel/decel lane		ft

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

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	122	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2738	ft

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

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2033	141	122	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	541	38	32	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3136	150	130	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

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

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3136 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_F = v_{Fi}$	3136	4800	No
$v_F = v_F - v_R$	2986	4800	No
v_R	150	2000	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, $v_{12A} = 3136$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3136	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 L_D = 29.2 \quad \text{pc/mi/ln}$$

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

Speed Estimation

Intermediate speed variable,	$D_S = 0.442$	
Space mean speed in ramp influence area,	$S_R = 57.8$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 57.8$	mph

Phone: Fax:
E-mail:

Diverge Analysis

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

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.0	mph
Volume on freeway	2066	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	89	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	136	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1615	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2066	89	136	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	549	24	36	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3187	95	145	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

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

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3187 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3187	4780	No
$v_{FO} = v_F - v_R$	3092	4780	No
v_R	95	2000	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, $v_{12A} = 3187$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3187	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 \frac{L}{D} = 25.4 \quad \text{pc/mi/ln}$$

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

Speed Estimation

Intermediate speed variable,	$D_S = 0.437$	
Space mean speed in ramp influence area,	$S_R = 57.2$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 57.2$	mph

Phone: Fax:
E-mail:

Diverge Analysis

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

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.4	mph
Volume on freeway	2093	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	109	vph
Length of first accel/decel lane	255	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	136	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3467	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2093	109	136	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	557	29	36	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3229	116	145	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

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

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3229 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3229	4788	No
$v_{FO} = v_F - v_R$	3113	4788	No
v_R	116	2000	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, $v_{12A} = 3229$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3229	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 29.7$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence D			

Speed Estimation

Intermediate speed variable,	$D_S = 0.438$	
Space mean speed in ramp influence area,	$S_R = 57.4$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 57.4$	mph

Phone: Fax:
E-mail:

-----Diverge Analysis-----

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

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

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.4	mph
Volume on freeway	2093	vph

-----Off Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	109	vph
Length of first accel/decel lane	255	ft
Length of second accel/decel lane		ft

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

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	109	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2352	ft

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

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2093	109	109	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	557	29	29	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3229	116	116	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

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

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3229 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3229	4788	No
$v_{FO} = v_F - v_R$	3113	4788	No
v_R	116	2000	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, $v_{12A} = 3229$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3229	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 L_D = 29.7 \quad \text{pc/mi/ln}$$

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

Speed Estimation

Intermediate speed variable,	$D_S = 0.438$	
Space mean speed in ramp influence area,	$S_R = 57.4$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 57.4$	mph

Phone: Fax:
E-mail:

Diverge Analysis

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

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.4	mph
Volume on freeway	2063	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	139	vph
Length of first accel/decel lane	465	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	109	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2216	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2063	139	109	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	549	37	29	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3182	148	116	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

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

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P = 3182 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3182	4788	No
$v_{FO} = v_F - v_R$	3034	4788	No
v_R	148	2000	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, $v_{12A} = 3182$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3182	4400	No

Level of Service Determination (if not F)

$$\text{Density, } D = 4.252 + 0.0086 v_R - 0.009 \frac{L}{D} = 27.4 \quad \text{pc/mi/ln}$$

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

Speed Estimation

Intermediate speed variable,	$D_S = 0.441$	
Space mean speed in ramp influence area,	$S_R = 57.3$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 57.3$	mph

Phone:
E-mail:

Fax:

Diverge Analysis

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

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.4	mph
Volume on freeway	2063	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	139	vph
Length of first accel/decel lane	465	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	267	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2290	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2063	139	267	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	549	37	71	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3182	148	284	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

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

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3182 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3182	4788	No
$v_{FO} = v_F - v_R$	3034	4788	No
v_R	148	2000	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, $v_{12A} = 3182$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3182	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 27.4$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence C			

Speed Estimation

Intermediate speed variable,	$D_S = 0.441$	
Space mean speed in ramp influence area,	$S_R = 57.3$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 57.3$	mph

Phone: Fax:
E-mail:

Diverge Analysis

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

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	69.4	mph
Volume on freeway	2268	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	62	vph
Length of first accel/decel lane	164	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	205	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2560	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2268	62	205	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	603	16	55	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3499	66	218	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

EQ

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

FD

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3499 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3499	4788	No
$v_{FO} = v_F - v_R$	3433	4788	No
v_R	66	2000	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, $v_{12A} = 3499$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3499	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 32.9$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence D			

Speed Estimation

Intermediate speed variable,	$D_S = 0.434$	
Space mean speed in ramp influence area,	$S_R = 57.5$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 57.5$	mph

Phone:
E-mail:

Fax:

-----Diverge Analysis-----

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

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

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.7	mph
Volume on freeway	2381	vph

-----Off Ramp Data-----

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	92	vph
Length of first accel/decel lane	295	ft
Length of second accel/decel lane		ft

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

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	195	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1322	ft

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

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2381	92	195	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	633	24	52	v
Trucks and buses	30	0	0	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 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	3673	98	207	pcph

Estimation of V12 Diverge Areas

$$L = \text{(Equation 13-12 or 13-13)}$$

$$EQ$$

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

$$FD$$

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3673 \quad \text{pc/h}$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3673	4800	No
$v_{FO} = v_F - v_R$	3575	4800	No
v_R	98	2000	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, $v_{12A} = 3673$		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3673	4400	No

Level of Service Determination (if not F)

Density,	$D = 4.252 + 0.0086 v_R - 0.009 L_D$	$= 33.2$	pc/mi/ln
Level of service for ramp-freeway junction areas of influence D			

Speed Estimation

Intermediate speed variable,	$D_S = 0.437$	
Space mean speed in ramp influence area,	$S_R = 58.2$	mph
Space mean speed in outer lanes,	$S_0 = \text{N/A}$	mph
Space mean speed for all vehicles,	$S = 58.2$	mph