Appendix H Road Segment Level of Service Calculations Worksheets

Fax:

Phone: E-mail:

___OPERATIONAL ANALYSIS__

___FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17 Analysis Period: Existing AM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph		mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
	_VOLUME			
Direction	1		2	
Volume, V	1265	vph	1645	vph
Peak-hour factor, PHF	0.91		0.91	
Peak 15-minute volume, v15	348		452	
Trucks and buses	2	%	3	용
Recreational vehicles	0	%	0	용
Terrain type	Grade		Grade	
Grade	6.00	%	-6.00	용
Segment length	0.73	mi	0.73	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.0		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.926		0.985	
Flow rate, vp	750	pcphpl	917	pcphpl
	_RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 750 43.0 45.0 B 16.7	pcphpl mph mph pc/mi/ln	42.7 45.0 C	pcphpl mph mph pc/mi/ln		
Bicycle Level of Service						
Posted speed limit, Sp Percent of segment with occupied	55		55			
on-highway parking	0		0			
Pavement rating, P	3		3			
Flow rate in outside lane, vOL	695.1		903.8			
Effective width of outside lane, We	22.00		22.00			
Effective speed factor, St	4.79		4.79			
Bicycle LOS Score, BLOS	3.14		3.52			
Bicycle LOS	C		D			

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____OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17
Analysis Period: Existing PM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW				
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
	_VOLUME			
Direction	1		2	
Direction Volume, V	1 1659	vph	2 1480	vph
		vph	_	vph
Volume, V	1659	vph	1480	vph
Volume, V Peak-hour factor, PHF	1659 0.95	vph	1480 0.96	vph
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15	1659 0.95 437	-	1480 0.96 385	-
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	1659 0.95 437 2	%	1480 0.96 385	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	1659 0.95 437 2	%	1480 0.96 385 1	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	1659 0.95 437 2 0 Grade	90	1480 0.96 385 1 0 Grade	- %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	1659 0.95 437 2 0 Grade 6.00	٠ ٥ ٥	1480 0.96 385 1 0 Grade -6.00	~ % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	1659 0.95 437 2 0 Grade 6.00 0.73 2	٠ ٥ ٥	1480 0.96 385 1 0 Grade -6.00 0.73	~ % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	1659 0.95 437 2 0 Grade 6.00 0.73 2	٠ ٥ ٥	1480 0.96 385 1 0 Grade -6.00 0.73	~ % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	1659 0.95 437 2 0 Grade 6.00 0.73 2 1.00 5.0	٠ ٥ ٥	1480 0.96 385 1 0 Grade -6.00 0.73 2	~ % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1659 0.95 437 2 0 Grade 6.00 0.73 2 1.00 5.0	٠ ٥ ٥	1480 0.96 385 1 0 Grade -6.00 0.73 2 1.00	~ % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1659 0.95 437 2 0 Grade 6.00 0.73 2 1.00 5.0 6.0	٠ ٥ ٥	1480 0.96 385 1 0 Grade -6.00 0.73 2 1.00 1.5	~ % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1659 0.95 437 2 0 Grade 6.00 0.73 2 1.00 5.0 6.0	* % % mi	1480 0.96 385 1 0 Grade -6.00 0.73 2 1.00 1.5	% % % mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 943 43.0 45.0 C 21.0	pcphpl mph mph pc/mi/ln	42.7 45.0 B	pcphpl mph mph pc/mi/ln
Bicycle L	evel of Se	rvice		
Posted speed limit, Sp			55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	873.2		770.8	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.25		2.96	
Bicycle LOS	C		C	

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____OPERATIONAL ANALYSIS____

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing Saturday

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW				
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
	_VOLUME			
			_	
Direction	1		2	
Direction Volume, V	1 1521	vph	2 1751	vph
		vph	_	vph
Volume, V	1521	vph	1751	vph
Volume, V Peak-hour factor, PHF	1521 0.91	vph	1751 0.97	vph
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15	1521 0.91 418	-	1751 0.97 451	-
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	1521 0.91 418 1	%	1751 0.97 451	ુ જ
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	1521 0.91 418 1 0	%	1751 0.97 451 1	ુ જ
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	1521 0.91 418 1 0 Grade	90 90	1751 0.97 451 1 0 Grade	* %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	1521 0.91 418 1 0 Grade 6.00	4 06 06 06	1751 0.97 451 1 0 Grade -6.00	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	1521 0.91 418 1 0 Grade 6.00 0.73	4 06 06 06	1751 0.97 451 1 0 Grade -6.00 0.73	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	1521 0.91 418 1 0 Grade 6.00 0.73	4 06 06 06	1751 0.97 451 1 0 Grade -6.00 0.73	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	1521 0.91 418 1 0 Grade 6.00 0.73 2 1.00 5.0	4 06 06 06	1751 0.97 451 1 0 Grade -6.00 0.73 2	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1521 0.91 418 1 0 Grade 6.00 0.73 2 1.00 5.0	4 06 06 06	1751 0.97 451 1 0 Grade -6.00 0.73 2 1.00	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1521 0.91 418 1 0 Grade 6.00 0.73 2 1.00 5.0 6.0	4 06 06 06	1751 0.97 451 1 0 Grade -6.00 0.73 2 1.00 1.5	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1521 0.91 418 1 0 Grade 6.00 0.73 2 1.00 5.0 6.0 0.962	% % % mi	1751 0.97 451 1 0 Grade -6.00 0.73 2 1.00 1.5	% % % mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 869 43.0 45.0 C	pcphpl mph mph pc/mi/ln	42.7 45.0 C	pcphpl mph mph pc/mi/ln
Bicycle L	evel of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied			55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	835.7		902.6	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.00		3.04	
Bicycle LOS	C		C	

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____OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17
Analysis Period: Existing AM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	VOLUME			
Direction	1		2	
Volume, V	1466	vph	1591	vph
Peak-hour factor, PHF	0.89	_	0.92	_
Peak 15-minute volume, v15	412		432	
Trucks and buses	3	용	4	8
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	8	-6.00	%
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.3		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.887		0.980	
Flow rate, vp	928	pcphpl	881	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	928	pcphpl	881	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	20.6	pc/mi/ln	19.6	pc/mi/ln
Bicycle	Level of Se	ervice		
Posted speed limit, Sp			55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	823.6		864.7	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.47		3.77	
Bicycle LOS	C		D	

Fax:

Phone: E-mail:

___OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17
Analysis Period: Existing PM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	nah	0.0	
Lateral clearance adjustment, FLC	0.2	moh	0.2	mph
Median type adjustment, FM	1.6	mph	1 6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed		mph	42.7	mph
	_VOLUME			
Direction	1		2	
Volume, V	1563	vph	1466	vph
Peak-hour factor, PHF	0.96		0.95	
Peak 15-minute volume, v15	407		386	
Trucks and buses	1	ક	2	8
Recreational vehicles	0	8	0	8
Terrain type	Grade		Grade	
Grade	6.00	8	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.5		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.957		0.990	
Flow rate, vp	850	pcphpl	779	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	850	pcphpl	779	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		В	
Density, D	18.9	pc/mi/ln	17.3	pc/mi/ln
Rigyale	Level of S	ervice		
Bicycle	never or a	ervice		
Posted speed limit, Sp			55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	814.1		771.6	
Effective width of outside lane, We	e 22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.99		3.19	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing Saturday

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

	_			
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivide	ed	Undivid	led
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, 1	FLC 0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	VOLUME			
	_		_	
Direction	1		2	
Volume, V	1507	vph	1580	vph
Peak-hour factor, PHF	0.93		0.94	
Peak 15-minute volume, v15	405	_	420	_
Trucks and buses	1	8	1	8
Recreational vehicles	0	용	0	%
Terrain type	Grade	_	Grade	_
Grade	6.00	용	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment,			1.00	
Trucks and buses PCE, ET	5.5		1.5	
Recreational vehicles PCE, ER			1.2	
Heavy vehicle adjustment, fHV			0.995	
Flow rate, vp	846	pcphpl	844	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	846	pcphpl	844	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	18.8	pc/mi/ln	18.8	pc/mi/ln
Bicycle	Level of S	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	810.2		840.4	
Effective width of outside lane, W	e 22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.98		3.00	
Bicycle LOS	C		C	

Phone: E-Mail: Fax:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO
Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Existing AM

Highway SR 1 From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 2 SB

_____Input Data_____

Highway	class	Class	2		eak hour factor	r, PHF	0.92	
Shoulder	r width		5.0	ft	Trucks and bus	ses	4	용
Lane wio	dth		12.0	ft	Trucks crawli	ng	0.0	용
Segment	length		0.9	mi	ruck crawl spe	ed	0.0	mi/hr
Terrain	type		Specific	c Grade	Recreational '	vehicles	0	용
Grade:	Length		0.90	mi	No-passing zon	nes	100	용
	Up/down	1	-6.0	용	access point der	nsity	19	/mi

Analysis direction volume, Vd $\,$ 1591 $\,$ veh/h Opposing direction volume, Vo $\,$ 1466 $\,$ veh/h

______Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(d) 1.0 1.0 V 1.000 1.00 1.00 1.00 pc/l	9.7 1.0 0.742 1.00
Free-Flow Speed from Field Measuremen Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	- - 45.0 e-3) fLS 1.3	mi/h veh/h mi/h mi/h mi/h
Free-flow speed, FFSd	39.0	mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* 6.6 16.9	mi/h mi/h %

Percent Time-Spent-Follow:	ing			
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		0pp	1.1 1.0 0.995 1.00	5
Directional flow rate,(note-2) vi 1729 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		0,0	1601	pc/h
Level of Service and Other Performa	ance Me	easur	es	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15	F 1.02 389 1432 59.3 0 1700	ve ve ve		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane,	Lu	0.9 - - 6.6 97.1 F	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lar	1e		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl		Ld	-	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF			0.0	용
Percent Time-Spent-Following with I	Passing	g Lan	e	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	2	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl	ing, Lo	1	_	mi
Percent time-spent-following including passing lane, PTSFpl			_	8
Level of Service and Other Performance Measur	res wit	h Pa	ssing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	ve:	h-h	
Bicycle Level of Service	e			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1729.3
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.97
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing PM Highway SR 1 From/To Ocean / CVR Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 2 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 95 Shoulder width 5.0 ft % Trucks and buses 2 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.9 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.90 mi % No-passing zones 100 Up/down -6.0 용 Access point density 19 /mi Analysis direction volume, Vd 1466 veh/h Opposing direction volume, Vo 1563 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 9.7 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.852 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1543 pc/h 1931 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h mi/h Adj. for access point density, (note-3) fA 4.8 Free-flow speed, FFSd 39.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 9.7 mi/h

24.9

용

Percent Free Flow Speed, PFFS

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.000		Opposing 1.1 1.0 0.998 1.00	(0)
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1543 p te-4) BPTSFd	91.8 6.8	1649 % %	pc/h
Level of Service and	Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		F 0.91 347 1319 35.8 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		0.9 nu – 9.7 95.1 F	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane	·	
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel spee	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel		.d - -	mi
Average travel speed including passin Percent free flow speed including pas			0.0	%
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time-	spent-followi:	ng, Lde	-	mi
Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing	-spent-follow lane			mi
on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl	fpl		-	8
Level of Service and Other Perf	ormance Measu	res with	Passing :	Lane _
Level of service including passing la Peak 15-min total travel time, TT15		A -	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1543.2
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.43
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

___Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co.

Date Performed 12/6/17

Analysis Time Period Existing Saturday

Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 2 SB

_____Input Data____

Highway	class	Class	2		Pea	ak hour fa	ctor, PHF	0.94	
Shoulder	r width		5.0	ft	용	Trucks and	l buses	1	용
Lane wio	dth		12.0	ft	용	Trucks cra	wling	0.0	용
Segment	length		0.9	mi	Trı	uck crawl	speed	0.0	mi/hr
Terrain	type		Specific	c Grade	% I	Recreation	al vehicles	0	용
Grade:	Length		0.90	mi	% I	No-passing	zones	100	용
	Up/down	ı	-6.0	용	Aco	cess point	density	19	/mi

Analysis direction volume, Vd 1580 veh/h Opposing direction volume, Vo 1507 veh/h

 Average	Travel	Speed

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH' Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	1.00	Opposing 9.7 1.0 0.920 1.00)
Free-Flow Speed from Field Measurement Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (note-Adj. for access point density, (note-3)	45.0 - 3) fLS 1.3	mi/h veh/h mi/h mi/h	pc/n
Free-flow speed, FFSd	39.0	mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* 10.1 25.9	mi/h	

Percent Time-Spent-Follow	wing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h 93.1 6.6 96.5	1.1 1.0 0.999 1.00 1605	(o) pc/h
Level of Service and Other Perform	mance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi:	5		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.9 u - 10.1 96.5 F	mi mi mi mi/h
Average Travel Speed with Pass	sing Lane		
Downstream length of two-lane highway within effection length of passing lane for average travel spections. Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSp: Percent free flow speed including passing lane, Piercent flow speed flow speed passing lane, Piercent flow speed flo	ed, Lde e speed, Lo	- -	mi mi
referred free frow speed including publing fame, is	LIUPI	0.0	Ü
Percent Time-Spent-Following with	Passing 1	Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-follow. Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow.	ing, Lde e length o	of	mi mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Meas	ures with	Passing !	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	ਹਵ		

Posted speed limit, Sp
Percent of segment with occupied on-highway parking
0
Pavement rating, P
Flow rate in outside lane, vOL
Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS
C
C

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing AM Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 8 0 Shoulder width 6.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down 3.0 용 Access point density 0 /mi Analysis direction volume, Vd 577 veh/h Opposing direction volume, Vo 668 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.8 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.977 0.997 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 738 pc/h 838 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 30.5 mi/h Percent Free Flow Speed, PFFS 67.7 용

Percent Time-Spent-Follo	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 0.92		Opposing 1.0 1.0 1.000	(0)
Directional flow rate, (note-2) vi 782 Base percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		835	pc/h
Level of Service and Other Perfor	mance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.46 54 173 1.8 1678 1567	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - - 30.5 81.0 D	mi mi mi mi/h
Average Travel Speed with Pas	sing Lar	ne	
Downstream length of two-lane highway within effe length of passing lane for average travel spe Length of two-lane highway downstream of effectiv	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSp	speed,	Ld - - -	mi
Percent free flow speed including passing lane, P	FFSpl	0.0	8
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway downstream of effective	ing, Lde	e –	mi
the passing lane for percent time-spent-follo Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		_	8
Level of Service and Other Performance Meas	ures wit	h Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	721.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.82
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Existing PM

Highway SR 1

From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 NB

_____Input Data_____

Highway	class	Class	2		Pe	ak hour fac	ctor, PHF	0.89	
Shoulder	r width		6.0	ft	용	Trucks and	buses	3	8
Lane wio	dth		12.0	ft	용	Trucks craw	vling	0.0	8
Segment	length		0.3	mi	Tr	uck crawl s	speed	0.0	mi/hr
Terrain	type		Specifi	c Grade	용	Recreationa	al vehicles	0	8
Grade:	Length		0.30	mi	용	No-passing	zones	100	8
	Up/down	1	3.0	용	Αc	cess point	density	0	/mi

Analysis direction volume, Vd 831 veh/h Opposing direction volume, Vo 563 veh/h

______Average Travel Speed__

Direction	31	(3)	0	: (-	`
	Analysis		Oppo	osing (o)
PCE for trucks, ET	1.3			1.1	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV 0.99	2		0.997	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	941	pc/h		634	pc/h
Free-Flow Speed from Field Measurem	nent:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		_	veh/h		
Estimated Free-Flow Speed:			,		
Base free-flow speed, (note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (n	ote-3) fLS	0.0	mi/h		
Adj. for access point density, (note	-3) fA	0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fr	qı	2.3*	mi/h		
Average travel speed, ATSd	-	30.5	mi/h		
Percent Free Flow Speed, PFFS		67.7	%		
rereeme rice riow speed, Prrs		01.1			

Percent Time-Spent-	-Following	
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg 0	sis(d) Opp0 .0 .000 .0000 .92 013 pc/h BPTSFd 74.9 % 23.3 89.2 %	posing (o) 1.0 1.0 1.000 1.000 633 pc/h
Level of Service and Other I	Performance Measur	res
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	249 ve 2.3 ve 0 ve 1567 ve	eh-mi eh-mi eh-h eh/h eh/h eh/h
Passing Lane Ar	nalysis	
Total length of analysis segment, Lt Length of two-lane highway upstream of the p Length of passing lane including tapers, Lp Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from ab Level of service, LOSd (from above)	1	0.3 mi - mi - mi 30.5 mi/h 89.2
Average Travel Speed wit	th Passing Lane	
Downstream length of two-lane highway within length of passing lane for average trave Length of two-lane highway downstream of eff length of the passing lane for average tAdj. factor for the effect of passing lane on average speed, fpl	el speed, Lde fective travel speed, Ld	- mi - mi
Average travel speed including passing lane Percent free flow speed including passing la		0.0 %
Percent Time-Spent-Following	g with Passing Lar	ne
Downstream length of two-lane highway within of passing lane for percent time-spent-Length of two-lane highway downstream of eff	following, Lde fective length of	- mi
the passing lane for percent time-spent- Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	-rollowing, La	- mi -
including passing lane, PTSFpl		- %
Level of Service and Other Performance	e Measures with Pa	assing Lane
Level of service including passing lane, LOS Peak 15-min total travel time, TT15	Spl A - ve	eh-h
Bicycle Level of	Service	

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing Saturday Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Truck crawl speed Segment length 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down 3.0 용 Access point density 0 /mi Analysis direction volume, Vd 773 veh/h Opposing direction volume, Vo 758 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.4 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.996 0.999 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 844 pc/h 825 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 0.0 mi/h Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 29.7 mi/h Percent Free Flow Speed, PFFS 66.1 용

Percent Time-Spent-Fo	llowing		
Direction Analysis PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.00 Grade adjustment factor, (note-1) fg 0.92		Opposing 1.0 1.0 1.000	
Directional flow rate,(note-2) vi 911 Base percent time-spent-following,(note-4) BPT Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	23.1	824 % %	pc/h
Level of Service and Other Per	formance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.54 63 232 2.1 0 1567	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Anal	ysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pas Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above Level of service, LOSd (from above)		0.3 u - 29.7 85.2 E	mi mi mi mi/h
Average Travel Speed with	Passing Lane		
Downstream length of two-lane highway within e length of passing lane for average travel Length of two-lane highway downstream of effec	speed, Lde	-	mi
length of the passing lane for average tra Adj. factor for the effect of passing lane on average speed, fpl	vel speed, L	d - -	mi
Average travel speed including passing lane, A Percent free flow speed including passing lane	TSpl , PFFSpl	0.0	9
Percent Time-Spent-Following w	ith Passing	Lane	
Downstream length of two-lane highway within e of passing lane for percent time-spent-fol Length of two-lane highway downstream of effec	lowing, Lde	-	mi
the passing lane for percent time-spent-fo Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance M	easures with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Se	rvice		

Posted speed limit, Sp	
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	840.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.45
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst J0

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Existing AM

Highway SR 1

From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 3 SB

Input Data							
Highway class Class	2	Peak hour factor, PHF	0.97				
Shoulder width	6.0 ft	% Trucks and buses	4	용			
Lane width	12.0 ft	% Trucks crawling	0.0	용			
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr			
Terrain type	Specific Grade	% Recreational vehicles	0	용			
Grade: Length	0.30 mi	% No-passing zones	100	용			
Up/down	-3.0 %	Access point density	0	/mi			

Analysis direction volume, Vd $\,$ 668 $\,$ veh/h Opposing direction volume, Vo $\,$ 577 $\,$ veh/h

______Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER	Analysis 1.1 1.0		Opp	osing (o 2.0 1.0)
<pre>Heavy-vehicle adj. factor,(note-5) ff Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi</pre>	1.00			0.963 1.00 618	pc/h
Free-Flow Speed from Field Measuremen		F - 7 - 1			F - 7 - 1
Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed:		-	mi/h veh/h		
Base free-flow speed,(note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (not			mi/h		
Adj. for access point density, (note-3	3) IA	0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 32.5 72.3	mi/h mi/h %		

Percent Time-Spent-Follow	wing		
Direction PCE for trucks, ET PCE for RVs, ER 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h 63.5 29.9	Opposing (1.0 1.0 1.00 0.92 645	pc/h
Level of Service and Other Perform	mance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	_	0.3 u - 32.5 78.9 D	mi mi mi mi/h
Average Travel Speed with Pas	sing Lane		
Downstream length of two-lane highway within effe- length of passing lane for average travel spe- Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane	ed, Lde e		mi mi
on average speed, fpl		-	
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, Proceedings of the Process o		0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effe- of passing lane for percent time-spent-follow Length of two-lane highway downstream of effective	ing, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl		-	mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Meas	ures with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	688.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.04
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing PM Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.90 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 Access point density 0 /mi Analysis direction volume, Vd 563 veh/h Opposing direction volume, Vo 831 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.3 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.999 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 626 pc/h 926 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 30.7 mi/h Percent Free Flow Speed, PFFS 68.1 용

Percent Time-	Spent-Follow:	ing			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.000		Opp	1.0 1.0 1.00 0.92	
Directional flow rate,(note-1) rg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	626 po e-4) BPTSFd	c/h 63.9 23.6 73.0	000 000	1001	pc/h
Level of Service and O	ther Performa	ance Me	asuı	ces	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	60	D 0.37 47 169 1.5 1700 1700	VE VE VE	eh-mi eh-mi eh-h eh/h eh/h	
Passing L	ane Analysis				
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl			0.3 - - 30.7 73.0 D	mi mi mi mi/h
Average Travel Spee	d with Pass:	ing Lan	e		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel speed	d, Lde		-	mi
<pre>length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl</pre>	rage travel : lane	speed,	Ld	_	mi
Average travel speed including passing Percent free flow speed including pass	lane, ATSpl ing lane, PFI	FSpl		0.0	%
Percent Time-Spent-Fol	lowing with 1	Passing	Lar	1e	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-following	ng, Lde		-	mi
the passing lane for percent time- Adj. factor for the effect of passing on percent time-spent-following, f	spent-follow: lane				mi
Percent time-spent-following including passing lane, PTSFpl				-	ફ
Level of Service and Other Perfo	rmance Measu	res wit	h Pa	assing	Lane
Level of service including passing lan Peak 15-min total travel time, TT15	e, LOSpl	A -	ve	eh-h	
Bicycle Lev	el of Service	e			

Posted speed limit, Sp	
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	625.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.30
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

____Directional Two-Lane Highway Segment Analysis_____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing Saturday

Highway SR 1

From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County

Analysis Year Description Rio Ranch Seg 3 SB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.93	
Shoulder width	6.0 ft	% Trucks and buses	1	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	왕
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	0	/mi

Analysis direction volume, Vd 758 veh/h Opposing direction volume, Vo 773 veh/h

Average Travel Speed

Average	: IIavei	. ppec	-u			
		-				
Direction	Anal	ysis.	(d)	Oppo	sing (o)
PCE for trucks, ET		1.1			1.4	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	0.999	9		0.996	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		816	pc/h		835	pc/h
Free-Flow Speed from Field Measurem	ent:					
Field measured speed, (note-3) S FM			_	mi/h		
Observed total demand, (note-3) V			_	veh/h		
Estimated Free-Flow Speed:				,		
Base free-flow speed, (note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width, (n	ote-3)	fLS	0.0	mi/h		
Adj. for access point density, (note			0.0	mi/h		
,	- ,					
Free-flow speed, FFSd			45.0	mi/h		
Adjustment for no-passing zones, fn	qı		2.3*	mi/h		
Average travel speed, ATSd	-		29.9	mi/h		
Percent Free Flow Speed, PFFS			66.4	용		

Percent Time-Spent-Fol	.lowing		
Direction Analysis(PCE for trucks, ET 1.0	(d)	Opposing 1.0	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000)	1.000	
Grade adjustment factor,(note-1) fg 1.00		0.92	
Directional flow rate, (note-2) vi 815	pc/h	901	pc/h
Base percent time-spent-following,(note-4) BPTS	Fd 70.9 %	è	=
Adjustment for no-passing zones, fnp	23.4		
Percent time-spent-following, PTSFd	82.0 %	è	
2			
Level of Service and Other Perf	ormance Meas	sures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.48		
Peak 15-min vehicle-miles of travel, VMT15		veh-mi	
Peak-hour vehicle-miles of travel, VMT60	227	veh-mi	
		veh-h	
Peak 15-min total travel time, TT15	2.0		
Capacity from ATS, CdATS	1700	veh/h	
Capacity from PTSF, CdPTSF		veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analy	sis		
			_
Total length of analysis segment, Lt		0.3	mi
Length of two-lane highway upstream of the pass	ing lane, Lu	1 -	mi
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		29.9	mi/h
Percent time-spent-following, PTSFd (from above	:)	82.0	
Level of service, LOSd (from above)		D	
Average Travel Speed with P	assing Lane		
Downstream length of two-lane highway within ef			
length of passing lane for average travel s	peed, Lde	-	mi
Length of two-lane highway downstream of effect	ive		
length of the passing lane for average trav	rel speed, Lo	i -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, AT	'Spl	-	
Percent free flow speed including passing lane,	PFFSpl	0.0	8
Percent Time-Spent-Following wi	th Passing I	lane	
Downstream length of two-lane highway within ef	fective lend	ath	
of passing lane for percent time-spent-foll			mi
Length of two-lane highway downstream of effect			III I
the passing lane for percent time-spent-fol			mi
Adj. factor for the effect of passing lane	.iowing, na		шт
on percent time-spent-following, fpl			
2 2 2		-	
Percent time-spent-following			용
including passing lane, PTSFpl		-	70
Level of Service and Other Performance Me	asures with	Passing :	Lane
Level of service including passing lane, LOSpl		, .	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Ser	rvi de		
project mever or ser	V T C C		

Posted speed limit, Sp
Percent of segment with occupied on-highway parking
0
Pavement rating, P
Flow rate in outside lane, vOL
Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS
B

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing AM Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.85 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 % Trucks crawling ft 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 329 veh/h Opposing direction volume, Vo 442 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.2 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.997 0.998 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 388 pc/h 521 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 34.9 mi/h

78.9

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Percent Free Flow Speed, PFFS

Percent Time-S	Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	analysis(d) 1.1 1.0 0.999 1.00		Opposing 1.0 1.0 1.000	
Directional flow rate, (note-1) Ig Base percent time-spent-following, (note Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	387 p		520 \$	pc/h
Level of Service and Ot	her Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT6 Peak hour vehicle-miles of travel, VMT6 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	50	C 0.23 29 99 0.8 1697 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing La	ne Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapers Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	s, Lpl		0.3 - - 34.9 61.5 C	mi mi mi mi/h
Average Travel Speed	l with Pass	ing Lane	·	
Downstream length of two-lane highway w length of passing lane for average Length of two-lane highway downstream of	travel speed	d, Lde	-	mi
length of the passing lane for aver Adj. factor for the effect of passing l on average speed, fpl Average travel speed including passing	age travel :	speed, L		mi
Percent free flow speed including passing			0.0	%
Percent Time-Spent-Foll	owing with	Passing	Lane	
Downstream length of two-lane highway wof passing lane for percent time-sp. Length of two-lane highway downstream of	ent-following	ng, Lde	-	mi
the passing lane for percent time-s Adj. factor for the effect of passing l on percent time-spent-following, fg	spent-follow. ane			mi
Percent time-spent-following including passing lane, PTSFpl			_	%
Level of Service and Other Perfor	mance Measu	res with	n Passing	Lane
Level of service including passing land Peak 15-min total travel time, TT15	e, LOSpl	A -	veh-h	
Bicycle Leve	el of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	387.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.06
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Existing PM

Highway SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 NB

_____Input Data_____

Highway class Class	2		Peak hour factor, PHF	0.90	
Shoulder width	6.0	ft	% Trucks and buses	3	8
Lane width	12.0	ft	% Trucks crawling	0.0	8
Segment length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	3	/mi

Analysis direction volume, Vd 683 veh/h Opposing direction volume, Vo 513 veh/h

______Average Travel Speed_

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) f8	Analysis(d) 1.1 1.0 W 0.997	Opposin 1.1 1.0 0.9	
Grade adj. factor,(note-1) fg	1.00	1.0	
Directional flow rate,(note-2) vi	761	pc/h 572	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	45 ee-3) fLS 0.	mi/h veh/h .0 mi/h 0 mi/h 8 mi/h	
Free-flow speed, FFSd	44	.3 mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	31	3* mi/h .6 mi/h .4 %	

Percent Time	-Spent-Followi	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1.00 759 po te-4) BPTSFd	c/h	1.0 1.0 1.000 1.00	o) pc/h
Level of Service and	Other Performa	ance Meas	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	VMT15 T60	205 1.8 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		0.3 - - 31.6 81.7 D	mi mi mi mi/h
Average Travel Spe	ed with Passi	ing Lane_		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl Average travel speed including passin Percent free flow speed including pas	within effect e travel speed of effective erage travel s lane g lane, ATSpl	cive d, Lde speed, Ld	- - -	mi mi
Percent Time-Spent-Fo	llowing with E	Passing La	ane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing	spent-followir of effective -spent-followi	ng, Lde length o	- £	mi mi
on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl			-	8
Level of Service and Other Perf	ormance Measur	res with 1	assing L	ane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl vel of Service	-	veh-h	
bicycle he	ACT OF DETAILS			

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing Saturday Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.87 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 % Trucks crawling ft 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 586 veh/h Opposing direction volume, Vo 684 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.999 0.999 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 674 pc/h 787 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 30.6 mi/h

69.2

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Percent Free Flow Speed, PFFS

Percent Time-	Spent-Follow	ing		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.0 1.0 1.000	C	1.0 1.0 1.00	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		63.9 % 27.1 76.4 %		pc/h
Level of Service and O	ther Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		176 1.7 1698 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing L	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl		0.3 - - 30.6 76.4 D	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lane_		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	rage travel lane	speed, Ld	l - -	mi
Average travel speed including passing Percent free flow speed including pass			0.0	olo
Percent Time-Spent-Fol	lowing with	Passing L	ane	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-followi	ng, Lde	-	mi
the passing lane for percent time- Adj. factor for the effect of passing	spent-follow			mi
on percent time-spent-following, f Percent time-spent-following	pl		-	0,
including passing lane, PTSFpl	rmange Meagu	res with	- Daggira	% Tane
Level of Service and Other Perfo		A	rassing	папе
Peak 15-min total travel time, TT15	<u> </u>		veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	673.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.34
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail:

Fax:

___Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald Date Performed 12/6/17

Analysis Time Period Existing AM

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 4 SB

Percent Free Flow Speed, PFFS

Input	Data
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Highway	class Class	2		Peak hour factor, PHF	0.91	
Shoulder	r width	6.0	ft	% Trucks and buses	4	8
Lane wid	lth	12.0	ft	% Trucks crawling	0.0	8
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	_	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 442 veh/h Opposing direction volume, Vo 329 veh/h

_____Average Travel Speed__

Direction	Analysis	(d)	gg0	osing (d	o)
PCE for trucks, ET	1.2			1.3	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor, (note-5) fF	IV 0.99	2		0.988	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	490	pc/h		366	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	e-3) fLS	- - 45.0 0.0 0.8	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd		2.3* 35.3	mi/h mi/h		

79.8 %

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00	(Opposing 1.1 1.0 0.996 1.00	(0)
Directional flow rate,(note-2) vi 486 p Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	41.5	363 %	pc/h
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	0	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, L	0.3 u - 35.3 72.6 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effecting length of passing lane for average travel speetength of two-lane highway downstream of effective	d, Lde		mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl		d - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	FSpl	0.0	%
Percent Time-Spent-Following with	Passing .	Lane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-followi Length of two-lane highway downstream of effective	ng, Lde length (- of	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl	ing, Ld	-	mi
Percent time-spent-following including passing lane, PTSFpl		-	왕
Level of Service and Other Performance Measu	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	485.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.87
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing PM Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 93 Shoulder width 6.0 ft % Trucks and buses 0 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 513 veh/h Opposing direction volume, Vo 683 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 552 pc/h 734 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 32.0 mi/h

72.3

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Percent Free Flow Speed, PFFS

Percent Time-	Spent-Follow	ing		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.0 1.0 1.000		1.0 1.0 1.00	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp		c/h 57.3 30.6	1.00 734 %	pc/h
Percent time-spent-following, PTSFd			8	
Level of Service and O	ther Periorm	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		D 0.32 41 154 1.3 1700 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing L	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl		0.3 u - - 32.0 70.4 D	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing	rage travel		d -	mi
on average speed, fpl Average travel speed including passing Percent free flow speed including pass			- 0.0	ક
Percent Time-Spent-Fol	lowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-followi	ng, Lde	-	mi
the passing lane for percent time- Adj. factor for the effect of passing	spent-follow lane			mi
on percent time-spent-following, f Percent time-spent-following including passing lane, PTSFpl	pl		-	90
Level of Service and Other Perfo	rmance Measu	res with	Passing	
Level of service including passing lan Peak 15-min total travel time, TT15		A -	veh-h	
Bicycle Lev	el of Servic	e		

. 6
0 0
2
5

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

_____Directional Two-Lane Highway Segment Analysis______

Analyst J0

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing Saturday

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 SB

_____Input Data_____

Highway	class Class	2		Peak hour factor, PHF	0.97	
Shoulder	r width	6.0	ft	% Trucks and buses	0	용
Lane wid	dth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	_	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 684 veh/h Opposing direction volume, Vo 586 veh/h

_____Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fE Grade adj. factor,(note-1) fg	Analysis 1.1 1.0 IV 1.00 1.00	0	0pp	osing 1.1 1.0 1.000	(0)
Directional flow rate,(note-2) vi	705	pc/h	L	604	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	e-3) fLS	- - 45.0 0.0 0.8	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 31.8 71.8	mi/h mi/h %		

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 1.00 Directional flow rate, (note-2) vi 705 p Base percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp	C/h 62.7 % 30.6	pposing 1.0 1.0 1.000 1.000	(o) pc/h
Percent time-spent-following, PTSFd			
Level of Service and Other Perform	ance Meası	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	205 1.7 0 1700	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 31.8 79.2 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel spee Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl		-	mi
Percent free flow speed including passing lane, PF		0.0	%
Percent Time-Spent-Following with	Passing La	ane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-followi Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj . factor for the effect of passing lane		-	mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ફ
Level of Service and Other Performance Measu	res with 1	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A 	reh-h	
bicycle mever of servic	~		

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing AM Highway Carmel Valley Road From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 91 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density 26 /mi Analysis direction volume, Vd 380 veh/h Opposing direction volume, Vo 843 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.977 1.000 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 427 pc/h 926 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 30.7 mi/h Percent Free Flow Speed, PFFS 70.6 용

Percent Time-S	pent-Follow	ing		
PCE for trucks, ET PCE for RVs, ER	nalysis(d) 1.0 1.0	(1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.00	U
Grade adjustment factor, (note-1) fg	1.00	(1)	1.00	/1-
Directional flow rate, (note-2) vi		c/h	926	pc/h
Base percent time-spent-following, (note	-4) BPTSFa		è	
Adjustment for no-passing zones, fnp		24.1	_	
Percent time-spent-following, PTSFd		58.8	8	
Level of Service and Ot	her Perform	ance Meas	sures	
7. 1. 5		~		
Level of service, LOS		C		
Volume to capacity ratio, v/c		0.25		
Peak 15-min vehicle-miles of travel, VM		157	veh-mi	
Peak-hour vehicle-miles of travel, VMT6	0	570	veh-mi	
Peak 15-min total travel time, TT15		5.1	veh-h	
Capacity from ATS, CdATS			veh/h	
Capacity from PTSF, CdPTSF		1700	veh/h	
Directional Capacity		1700	veh/h	
Passing La	ne Analvsis			
Total length of analysis segment, Lt			1.5	mi
Length of two-lane highway upstream of	the passing	lane, Lu	ı –	mi
Length of passing lane including tapers			_	mi
Average travel speed, ATSd (from above)			30.7	mi/h
Percent time-spent-following, PTSFd (fr			58.8	
Level of service, LOSd (from above)	,		C	
Average Travel Speed	with Pass	ing Lane_		
Downstream length of two-lane highway w	ithin effec	tive		
length of passing lane for average			-	mi
Length of two-lane highway downstream of				
length of the passing lane for aver	age travel	speed, Lo	d -	mi
Adj. factor for the effect of passing l				
on average speed, fpl			_	
Average travel speed including passing	lane, ATSpl		_	
Percent free flow speed including passi			0.0	%
		F-		
Percent Time-Spent-Foll	owing with	Passing I	Lane	
Downstream length of two-lane highway w	ithin effec	tive lend	rth	
of passing lane for percent time-sp			9 0 11	mi
			- -	шт
Length of two-lane highway downstream of				mi
the passing lane for percent time-s		ing, La	-	mi
Adj. factor for the effect of passing l				
on percent time-spent-following, fp) T		-	
Percent time-spent-following				0
including passing lane, PTSFpl			-	8
Level of Service and Other Perfor	mance Measu	res with	Passing	Lane
Level of service including passing lane	LOSpl	A		
Peak 15-min total travel time, TT15	, порът	_	veh-h	
rean 15 min cotal clavel cime, illi			A C11 11	
Bicycle Leve	l of Servic	e		

Posted speed limit, Sp	
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	417.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.16
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Existing PM

Carmel Valley Road Highway

From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB

_____Input Data___

		_				
Highway	class Class	3 2		Peak hour factor, PHF	0.92	
Shoulder	width	6.0	ft	% Trucks and buses	8	용
Lane wid	lth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	1	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	-	용	Access point density	26	/mi

Analysis direction volume, Vd 908 veh/h Opposing direction volume, Vo 438 veh/h

_____Average Travel Speed_

Direction	Ana	lysis	(d)	Opp	osing (0)
PCE for trucks, ET		1.0			1.2	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	1.00	0		0.984	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		987	pc/h		484	pc/h
Free-Flow Speed from Field Measurem	ent:					
Field measured speed,(note-3) S FM			_	mi/h		
Observed total demand,(note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			50.0	mi/h		
Adj. for lane and shoulder width,(n	ote-3)	fLS	0.0	mi/h		
Adj. for access point density,(note	-3) fA		6.5	mi/h		
Free-flow speed, FFSd			43.5	mi/h		
Adjustment for no-passing zones, fn	р		2.3*	mi/h		
Average travel speed, ATSd			29.8	mi/h		
Percent Free Flow Speed, PFFS			68.5	용		

Percent Time-	Spent-Follow:	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	e-4) BPTSFd	e/h	1.0 1.0 1.000 1.00	pc/h
Level of Service and O	ther Performa	ance Measu	res	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VI Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	60	1362 v 12.4 v 0 v 1700 v	eh-mi eh-mi eh-h eh/h eh/h	
Passing La	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapers. Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (from above)	s, Lpl)		1.5 - - 29.8 88.4 E	mi mi mi mi/h
Average Travel Speed	d with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream length of the passing lane for average. Adj. factor for the effect of passing on average speed, fpl Average travel speed including passing Percent free flow speed including passing	travel speed of effective rage travel s lane	d, Lde speed, Ld	-	mi mi
Percent Time-Spent-Fol	lowing with 1	Passing La	ne	
Downstream length of two-lane highway of passing lane for percent time-sp. Length of two-lane highway downstream the passing lane for percent time-Adj. factor for the effect of passing	pent-following of effective spent-following lane	ng, Lde length of	-	mi mi
on percent time-spent-following, fy Percent time-spent-following including passing lane, PTSFpl			-	%
Level of Service and Other Perfo	rmance Measu	res with P	assing La	ane
Level of service including passing land peak 15-min total travel time, TT15	e, LOSpl		eh-h	
Bicycle Leve	el of Service	=		

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing Saturday Highway Carmel Valley Road From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density 26 /mi Analysis direction volume, Vd 671 veh/h Opposing direction volume, Vo 538 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.992 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 735 pc/h 589 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 6.5 mi/h Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 30.9 mi/h

71.1

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follow	ving		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 1.00		Opposing 1.0 1.0 1.000	(0)
Directional flow rate,(note-2) vi 729 p Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		585	pc/h
Level of Service and Other Perform	nance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.43 274 1007 8.9 0 1700 1700		
Passing Lane Analysis	3		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 Lu - - 30.9 80.5 D	mi mi mi mi/h
Average Travel Speed with Pass	sing Lar	ne	
Downstream length of two-lane highway within effective length of passing lane for average travel spectength of two-lane highway downstream of effective	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PR		0.0	8
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-follows. Length of two-lane highway downstream of effective	ng, Lde	e -	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	ıres wit	th Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	729.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.40
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17

Analysis Time Period Existing AM
Highway Carmel Valley Road

From/To Robinson Canyon / Schulte
Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.82	
Shoulder width	6.0 ft	% Trucks and buses	8	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	1.5 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level	% Recreational vehicles	1	용
Grade: Length	- mi	% No-passing zones	100	용
Up/down	- %	Access point density	26	/mi

Analysis direction volume, Vd 843 veh/h Opposing direction volume, Vo 380 veh/h

_____Average Travel Speed_

Direction	Analy	r ysis(d)	 0ppc	osing (o)
PCE for trucks, ET]	1.0			1.2	
PCE for RVs, ER	1	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV 1	1.000			0.984	
Grade adj. factor,(note-1) fg	1	1.00			1.00	
Directional flow rate,(note-2) vi	1	1028	pc/h		471	pc/h
Free-Flow Speed from Field Measurer	ment:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			50.0	mi/h		
Adj. for lane and shoulder width, (r	note-3) f	fls	0.0	mi/h		
Adj. for access point density, (note	e-3) fA		6.5	mi/h		
Free-flow speed, FFSd			43.5	mi/h		
Adjustment for no-passing zones, fr	np		2.3*	mi/h		
Average travel speed, ATSd			29.6	mi/h		
Percent Free Flow Speed, PFFS			68.0	용		

Percent Time-Spent-Foll	owing		
Base percent time-spent-following,(note-4) BPTSF Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h d 73.8 21.6 88.7	1.0 1.0 1.000 1.000 463 %	(0) pc/h
Level of Service and Other Perfo	rmance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.60 386 1265 13.1 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	is		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passi Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 Lu – 29.6 88.7 E	mi mi mi mi/h
Average Travel Speed with Pa	ssing Lane	<u> </u>	
Downstream length of two-lane highway within eff length of passing lane for average travel sp Length of two-lane highway downstream of effecti length of the passing lane for average trave Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATS	eed, Lde ve l speed, I	- Ld - -	mi mi
Percent free flow speed including passing lane,		0.0	%
Percent Time-Spent-Following wit	h Dagging	Lane	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follo Length of two-lane highway downstream of effecti	ective ler wing, Lde	ngth -	mi
the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane on percent time-spent-following, fpl	owing, Ld	-	mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Mea	sures with	n Passing :	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Serv	ice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1028.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.57
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing PM Carmel Valley Road Highway From/To Robinson Canyon / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 438 veh/h Opposing direction volume, Vo 908 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.984 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 543 pc/h 1107 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 28.4 mi/h

65.3

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 534 points	Op c/h	pposing (1.0 1.0 1.000 1.000	
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp			p0/11
Level of Service and Other Performa	ance Meası	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	657 7.0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - - 28.4 67.4	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl	speed, Ld	- -	
Percent free flow speed including passing lane, PF	FSpl	0.0	8
Percent Time-Spent-Following with	Passing La	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	_	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	res with I	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	534.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.24
Bicycle LOS	D

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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing Saturday Highway Carmel Valley Road

From/To Robinson Canyon / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB

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Input Data						
Highway class Class	2		Peak hour factor, PHF	0.82		
Shoulder width	6.0	ft	% Trucks and buses	8	용	
Lane width	12.0	ft	% Trucks crawling	0.0	용	
Segment length	1.5	mi	Truck crawl speed	0.0	mi/hr	
Terrain type	Level		% Recreational vehicles	1	용	
Grade: Length	-	mi	% No-passing zones	100	용	
Up/down	_	용	Access point density	26	/mi	

Analysis direction volume, Vd 538 veh/h Opposing direction volume, Vo 671 veh/h

Average	Travel	Speed
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Direction	Anal	ysis	(d)	Opp	osing (o)
PCE for trucks, ET		1.1			1.1	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5) f	HV	0.992	2		0.992	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		661	pc/h		825	pc/h
Free-Flow Speed from Field Measureme	nt:					
Field measured speed,(note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			50.0	mi/h		
Adj. for lane and shoulder width,(no	te-3)	fLS	0.0	mi/h		
Adj. for access point density,(note-	3) fA		6.5	mi/h		
Free-flow speed, FFSd			43.5	mi/h		
Adjustment for no-passing zones, fnp)		2.3*	mi/h		
Average travel speed, ATSd			29.7	mi/h		
Percent Free Flow Speed, PFFS			68.2	8		

Percent Time-Spent-Follow	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	63.2 % 26.7 75.1 %	1.0 1.0 1.000 1.000 818	pc/h
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	807 8.3 1686 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - - 29.7 75.1 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effection length of passing lane for average travel speed. Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	d, Lde speed, Ld		mi mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		0.0	8
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followith Length of two-lane highway downstream of effective	ng, Lde length o	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	ing, Ld	-	mi
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	res with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	656.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.34
Bicycle LOS	D

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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing AM Highway Carmel Valley Road From/To Rancho San Carlos / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down -3.0 Access point density /mi Analysis direction volume, Vd 533 veh/h Opposing direction volume, Vo 909 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 655 pc/h 1117 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 35.9 mi/h

69.8

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.000 0.92	
Directional flow rate,(note-2) vi 650 p Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	67.7 18.7	1205 } }	pc/h
Level of Service and Other Perform	ance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.38 390 1279 10.8 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - 35.9 74.3 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effecting length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	speed, Lo	d - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		0.0	8
Percent Time-Spent-Following with	Passing I	Lane	
Downstream length of two-lane highway within effection of passing lane for percent time-spent-following. Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	9
Level of Service and Other Performance Measu	res with	Passing :	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	650.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.28
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
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- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Fax:

Phone: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Existing PM

Highway Carmel Valley Road From/To Rancho San Carlos /

From/To Rancho San Carlos / Schulte
Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.82	
Shoulder width	6.0 ft	% Trucks and buses	8	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	1	용
Grade: Length	0.25 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	14	/mi

Analysis direction volume, Vd $\,$ 970 $\,$ veh/h Opposing direction volume, Vo $\,$ 500 $\,$ veh/h $\,$

___Average Travel Speed_

Average	e Trave	I Spe	ed			
Direction	Ana	lysis	(d)	Oppo	osing (o)
PCE for trucks, ET		1.0			1.8	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	1.00)		0.941	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		1183	pc/h		648	pc/h
Free-Flow Speed from Field Measurer	ment:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			55.0	mi/h		
Adj. for lane and shoulder width, (note-3)	fLS	0.0	mi/h		
Adj. for access point density, (note	e-3) fA		3.5	mi/h		
Free-flow speed, FFSd			51.5	mi/h		
Adjustment for no-passing zones, fi	np		1.8*	mi/h		
Average travel speed, ATSd			35.5	mi/h		
Percent Free Flow Speed, PFFS			68.9	용		

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00	o c/h	1.0 1.0 1.000 0.92 663	pc/h
Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	17.9 91.4 %		
Level of Service and Other Perform	ance Meas	ures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	2328 20.0 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - - 35.5 91.4 E	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downston I work of how love high-			
Downstream length of two-lane highway within effec- length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl		-	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		- 0.0	8
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effec- of passing lane for percent time-spent-followi	_		mi
Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow		f -	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu:	res with	Passing L	ane
Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp
Percent of segment with occupied on-highway parking
0
Pavement rating, P
Flow rate in outside lane, vOL
Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS
EF

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
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Percent Time-Spent-Followi	ing		
Direction Analysis(d)	(Opposina	(0)
PCE for trucks, ET 1.0	`	1.0	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 1.00		0.92	
Directional flow rate, (note-2) vi 713 pc	c/h	974	pc/h
Base percent time-spent-following,(note-4) BPTSFd	67.4	हे	
Adjustment for no-passing zones, fnp	23.1		
Percent time-spent-following, PTSFd	77.2	8	
Level of Service and Other Performa	ance Meas	sures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.42		
	428	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	1404	veh-mi	
·	11.5	veh-h	
Capacity from ATS, CdATS	1700	veh/h	
Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh/h veh/h	
Directional Capacity	1700	V E11 / 11	
Passing Lane Analysis_			
Total length of analysis segment, Lt		2.4	mi
Length of two-lane highway upstream of the passing	lane. Lu		mi
Length of passing lane including tapers, Lpl	rune, r	_	mi
Average travel speed, ATSd (from above)		37.1	mi/h
Percent time-spent-following, PTSFd (from above)		77.2	
Level of service, LOSd (from above)		D	
Average Travel Speed with Passi	ing Lane		
	-		
Downstream length of two-lane highway within effect			
length of passing lane for average travel speed	d, Lde	-	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel s	speed, Lo	i -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, ATSpl		-	_
Percent free flow speed including passing lane, PFF	FSpl	0.0	8
Percent Time-Spent-Following with F	Passing I	Lane	
Downstream length of two leng highway within office	.i 1	~+ h	
Downstream length of two-lane highway within effect			m 4
of passing lane for percent time-spent-following			mi
Length of two-lane highway downstream of effective			mi
the passing lane for percent time-spent-following	шу, ша	-	ш±
Adj. factor for the effect of passing lane on percent time-spent-following, fpl		_	
Percent time-spent-following		-	
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res with	Passing I	Lane
	_		
Level of service including passing lane, LOSpl	A	1- 1:	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	713.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.39
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Fax:

Phone: E-Mail:

___Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co.

Date Performed 12/6/17 Analysis Time Period Existing AM

Carmel Valley Road Highway From/To

Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB

Percent Free Flow Speed, PFFS

_____Input Data____

Highway	class Cl	ass	2		Peak hour factor, PHF	0.77	
Shoulder			6.0	ft	% Trucks and buses	8	용
Lane wio	dth		12.0	ft	% Trucks crawling	0.0	용
Segment	length		2.4	mi	Truck crawl speed	0.0	mi/hr
Terrain	type		Specifi	c Grade	% Recreational vehicles	1	용
Grade:	Length		0.25	mi	% No-passing zones	100	용
	Up/down		3.0	용	Access point density	14	/mi

Analysis direction volume, Vd 909 veh/h Opposing direction volume, Vo 533 veh/h

_____Average Travel Speed__

Direction	Analysis	(d)	999	osing (o)
PCE for trucks, ET	1.1			1.1	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor, (note-5) fi	IV 0.99	2		0.992	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	1190	pc/h		698	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	ce-3) fLS	- - 55.0 0.0 3.5	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		51.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd		1.8* 35.0	mi/h mi/h		

68.1 %

Percent Time-	Spent-Following		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	16.8 93.5	1.0 1.0 1.000 1.000 692	pc/h
Level of Service and O	ther Performance	Measures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VM Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	60 2182 20.2 0 1564 1564	veh-mi veh-mi veh-h veh/h	
Passing L	ane Analysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f. Level of service, LOSd (from above)	s, Lpl) rom above)	- 35.0 93.5 E	mi mi mi mi/h
Average Travel Spee	d with Passing L	ane	
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream length of the passing lane for average, factor for the effect of passing on average speed, fpl Average travel speed including passing	travel speed, Ld of effective rage travel speed lane lane, ATSpl	, Ld - - -	mi mi
Percent free flow speed including pass	ing lane, PFFSpl	0.0	8
Percent Time-Spent-Fol	lowing with Passi	ng Lane	
Downstream length of two-lane highway of passing lane for percent time-stength of two-lane highway downstream the passing lane for percent time-Adj. factor for the effect of passing on percent time-spent-following, five percent time-spent-following including passing lane, PTSFpl	pent-following, L of effective leng spent-following, lane	de - th of	mi mi %
Level of Service and Other Perfo	rmance Measures w	ith Passing I	Lane
Level of service including passing lan- Peak 15-min total travel time, TT15		veh-h	

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1180.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.64
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing PM Highway Carmel Valley Road From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0 77 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 500 veh/h Opposing direction volume, Vo 970 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.8 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.943 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 689 pc/h 1260 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 34.6 mi/h

67.1

용

Percent Free Flow Speed, PFFS

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.0 1.0 1.00	C	Opposing 1.0 1.0	
Grade adjustment factor, (note-1) fg	0.92		1.00	
Directional flow rate, (note-2) vi	706 p	c/h	1260	pc/h
Base percent time-spent-following, (not	e-4) BPTSFd	70.6	ŧ	
Adjustment for no-passing zones, fnp		16.1		
Percent time-spent-following, PTSFd		76.4	Š	
Level of Service and (ther Perform	ance Meas	sures	
Level of service, LOS		D		
Volume to capacity ratio, v/c		0.42		
Peak 15-min vehicle-miles of travel, V		390	veh-mi	
Peak-hour vehicle-miles of travel, VM	760	1200	veh-mi	
Peak 15-min total travel time, TT15			veh-h	
Capacity from ATS, CdATS			veh/h	
Capacity from PTSF, CdPTSF		1564	veh/h	
Directional Capacity		1564	veh/h	
Passing l	ana Analysis			
	die Analysis			
Total length of analysis segment, Lt			2.4	mi
Length of two-lane highway upstream of	the passing	lane. Lu		mi
Length of passing lane including taper			_	mi
Average travel speed, ATSd (from above			34.6	mi/h
Percent time-spent-following, PTSFd (1			76.4	/ 11
Level of service, LOSd (from above)	120111 020107		D	
Edver of Bervice, Edba (110m above,			_	
Average Travel Spee	ed with Pass	ing Lane_		
Downstown launth of too laun high				
Downstream length of two-lane highway				
length of passing lane for average			-	mi
Length of two-lane highway downstream				
length of the passing lane for ave		speed, Lo	1 -	mi
Adj. factor for the effect of passing	lane			
on average speed, fpl			-	
Average travel speed including passing			-	
Percent free flow speed including pass	sing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fo	llowing with	Passing I	Lane	
-	_	_		
Downstream length of two-lane highway			gth	
of passing lane for percent time-s			-	mi
Length of two-lane highway downstream				
the passing lane for percent time-	spent-follow	ing, Ld	-	mi
Adj. factor for the effect of passing				
on percent time-spent-following,			-	
Percent time-spent-following				
including passing lane, PTSFpl			-	ક
Level of Service and Other Perfo	ormance Measu	res with	Passing	Lane
T1 -6i i11i ' 3	- TOG-1	7		
Level of service including passing lar	ne, LOSpI	A	1- 1-	
Peak 15-min total travel time, TT15		-	veh-h	
Bicycle Lev	vel of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	649.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.34
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co.

Date Performed 12/6/17

Analysis Time Period Existing Saturday Carmel Valley Road

Highway From/To Schulte / Rancho San Carlos

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 7 WB

Tnni	+	Data	

Highway	class	Class	2		Р	eak hour factor, PHF	0.94	
Shoulder	width		6.0	ft	왕	Trucks and buses	1	용
Lane wio	lth		12.0	ft	왕	Trucks crawling	0.0	용
Segment	length		2.4	mi	T	ruck crawl speed	0.0	mi/hr
Terrain	type		Specific	c Grade	용	Recreational vehicles	1	용
Grade:	Length		0.25	mi	용	No-passing zones	100	용
	Up/down	1	3.0	용	А	ccess point density	14	/mi

Analysis direction volume, Vd 735 veh/h Opposing direction volume, Vo 585 veh/h

_____Average Travel Speed_

Direction	Analy	ysis	(d)	Opp	osing (0)
PCE for trucks, ET		1.4			1.1	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5) f	HV	0.996	5		0.999	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		785	pc/h		623	pc/h
Free-Flow Speed from Field Measureme	ent:					
Field measured speed,(note-3) S FM			-	mi/h		
Observed total demand,(note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			55.0	mi/h		
Adj. for lane and shoulder width,(no	te-3) :	fLS	0.0	mi/h		
Adj. for access point density,(note-	3) fA		3.5	mi/h		
Free-flow speed, FFSd			51.5	mi/h		
Adjustment for no-passing zones, fnp)		1.8*	mi/h		
Average travel speed, ATSd			38.8	mi/h		
Percent Free Flow Speed, PFFS			75.3	용		

Percent Time	e-Spent-Followi	.ng		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-1) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	0.92 850 po ote-4) BPTSFd	e/h	1.0 1.0 1.000 1.00	o) pc/h
Level of Service and	Other Performa	ance Measu	res	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VN Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	VMT15 MT60	1764 v 12.1 v 0 v 1564 v	reh-mi reh-mi reh-h reh/h reh/h	
Passing	Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	ers, Lpl ve)		2.4 - - 38.8 84.4 D	mi mi mi mi/h
Average Travel Spe	eed with Passi	ng Lane		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl Average travel speed including passing Percent free flow speed including passing	y within effect ge travel speed m of effective verage travel s g lane ng lane, ATSpl ssing lane, PFF	rive d, Lde speed, Ld	- - - 0.0	mi mi
Percent Time-Spent-Fo	ollowing with E	assing La	.ne	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing	-spent-followir m of effective e-spent-followi	ng, Lde length of	-	mi mi
on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl			-	9
Level of Service and Other Perf	formance Measur	es with F	assing L	ane
Level of service including passing la Peak 15-min total travel time, TT15		A - v	reh-h	
bicycle be	OT DCTATCE			

Posted speed limit, Sp
Percent of segment with occupied on-highway parking
0
Pavement rating, P
Flow rate in outside lane, vOL
Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS
B

Notes:

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS_

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17

Analysis Period: Existing AM Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED						
FR						
Direction	1		2			
Lane width	12.0	ft	12.0	ft		
Lateral clearance:						
Right edge	6.0	ft	6.0	ft		
Left edge	6.0	ft	6.0	ft		
Total lateral clearance	12.0	ft	12.0	ft		
Access points per mile	8		4			
Median type	Divided		Divided			
Free-flow speed:	Base		Base			
FFS or BFFS	55.0	mph	55.0	mph		
Lane width adjustment, FLW	0.0	mph	0.0	mph		
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph		
Median type adjustment, FM	0.0	mph	0.0	mph		
Access points adjustment, FA	2.0	mph	1.0	mph		
Free-flow speed	53.0	mph	54.0	mph		
	VOLUME					
Direction	1		2			
Volume, V	691	vph	892	vph		
Peak-hour factor, PHF	0.80	=	0.87	_		
Peak 15-minute volume, v15	216		256			
Trucks and buses	3	용	1	8		
Recreational vehicles	0	용	0	8		
Terrain type	Level		Level			
Grade	0.00	용	0.00	8		
Segment length	0.00	mi	0.00	mi		
Number of lanes	2		2			
Driver population adjustment, fP	1.00		1.00			
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicles PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.985		0.995			
Flow rate, vp	438	pcphpl	515	pcphpl		
	RESULTS_					

Dir	ection	1		2		
Flow rate, vp		438	pcphpl	515	pcphpl	
Free-flow speed, FFS		53.0	mph	54.0	mph	
Avg. passenger-car tra	vel speed, S	55.0	mph	55.0	mph	
Level of service, LOS		A		A		
Density, D		8.0	pc/mi/ln	9.4	pc/mi/ln	
Bicycle Level of Service						
Posted speed limit, Sp)	55		55		
Percent of segment wit	h occupied					
on-highway parking		0		0		
Pavement rating, P		3		3		
Flow rate in outside 1	ane, vOL	431.9		512.6		
Effective width of out	side lane, We	24.00		24.00		
Effective speed factor	, St	4.79		4.79		
Bicycle LOS Score, BLO	S	2.69		2.29		
Bicycle LOS		C		В		

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald
Date: 12/6/17
Analysis Period: Existing PM

Highway: Carmel Valley Road From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED				
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	VOLUME			
Direction	1		2	
Volume, V	968	vph	650	vph
Peak-hour factor, PHF	0.88	-	0.93	-
Peak 15-minute volume, v15	275		175	
Trucks and buses	1	용	1	%
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	552	pcphpl	351	pcphpl
	RESULTS			

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing Saturday
Highway: Carmel Valley Road
From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	6.0	ft	6.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	12.0	ft	12.0	ft	
Access points per mile	8		4		
Median type	Divided		Divided		
Free-flow speed:	Base		Base		
FFS or BFFS	55.0	mph	55.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph	
Median type adjustment, FM	0.0	mph	0.0	mph	
Access points adjustment, FA	2.0	mph	1.0	mph	
Free-flow speed	53.0	mph	54.0	mph	
	VOLUME				
Direction	1		2		
Volume, V	778	vph	768	vph	
Peak-hour factor, PHF	0.91		0.94		
Peak 15-minute volume, v15	214		204		
Trucks and buses	1	8	1	8	
Recreational vehicles	0	8	0	8	
Terrain type	Level		Level		
Grade	0.00	용	0.00	8	
Segment length	0.00	mi	0.00	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	1.5		1.5		
Recreational vehicles PCE, ER	1.2		1.2		
Heavy vehicle adjustment, fHV	0.995		0.995		
Flow rate, vp	429	pcphpl	410	pcphpl	
	RESULTS				

	Direction	1		2	
Flow rate, vp		429	pcphpl	410	pcphpl
Free-flow speed, Fl	FS	53.0	mph	54.0	mph
Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Level of service,	LOS	A		A	
Density, D		7.8	pc/mi/ln	7.5	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit	, Sp			55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside	de lane, vOL	427.5		408.5	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fac	ctor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	2.22		2.18	
Bicycle LOS		В		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17 Analysis Period: Existing AM

Highway: Carmel Valley Road From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED				
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	mph
	VOLUME			
Direction	1		2	
Volume, V	985	vph	1181	vph
Peak-hour factor, PHF	0.86		0.68	
Peak 15-minute volume, v15	286		434	
Trucks and buses	2	8	2	8
Recreational vehicles	0	8	0	8
Terrain type	Level		Level	
Grade	0.00	%	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	578	pcphpl	877	pcphpl
	RESULTS			

	Direction	1		2			
Flow rate, vp		578	pcphpl	877	pcphpl		
Free-flow speed,	FFS	53.0	mph	53.0	mph		
Avg. passenger-ca	r travel speed, S	55.0	mph	55.0	mph		
Level of service,	LOS	A		В			
Density, D		10.5	pc/mi/ln	15.9	pc/mi/ln		
	Bicycle Level of Service						
Posted speed limi	t, Sp			55			
Percent of segmen	t with occupied						
on-highway parkin	a	0		0			
Pavement rating,	₽	3		3			
Flow rate in outs	ide lane, vOL	572.7		868.4			
Effective width o	f outside lane, We	24.00		24.00			
Effective speed f	actor, St	4.79		4.79			
Bicycle LOS Score	, BLOS	2.58		2.79			
Bicycle LOS		C		C			

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

____OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17 Analysis Period: Existing PM

Highway: Carmel Valley Road From/To: Carmel Rancho to Rio

Analysis Year: Carmer Rancho to Rio
Unincorporated Monterey County
2017

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	6.0	ft	6.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	12.0	ft	12.0	ft	
Access points per mile	8		8		
Median type	Divided		Divided		
Free-flow speed:	Base		Base		
FFS or BFFS	55.0	mph	55.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph	
Median type adjustment, FM	0.0	mph	0.0	mph	
Access points adjustment, FA	2.0	mph	2.0	mph	
Free-flow speed	53.0	mph	53.0	mph	
	VOLUME				
Direction	1		2		
Volume, V	1243	vph	938	vph	
Peak-hour factor, PHF	0.95	-	0.88	-	
Peak 15-minute volume, v15	327		266		
Trucks and buses	2	용	1	ક	
Recreational vehicles	0	용	0	ક	
Terrain type	Level		Level		
Grade	0.00	용	0.00	용	
Segment length	0.00	mi	0.00	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	1.5		1.5		
Recreational vehicles PCE, ER	1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.995		
Flow rate, vp	660	pcphpl	535	pcphpl	
	RESULTS				

Direction	1		2	
Flow rate, vp	660	pcphpl	535	pcphpl
Free-flow speed, FFS	53.0	mph	53.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	В		A	
Density, D	12.0	pc/mi/ln	9.7	pc/mi/ln
Bicycle	Level of Se	ervice		
Posted speed limit, Sp			55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	654.2		533.0	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.65		2.31	
Bicycle LOS	C		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

_OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing Saturday Highway: Carmel Valley Road From/To: Carmel Rancho to Rio

Analysis Year: 2017

TABLE TAGE CAPTER					
FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	6.0	ft	6.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	12.0	ft	12.0	ft	
Access points per mile	8		8		
Median type	Divided		Divided		
Free-flow speed:	Base		Base		
FFS or BFFS	55.0	mph	55.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph	
Median type adjustment, FM	0.0	mph	0.0	mph	
Access points adjustment, FA	2.0	mph	2.0	mph	
Free-flow speed	53.0	mph	53.0	mph	
	VOLUME				
Direction	1		2		
Volume, V	978	vph	970	vph	
Peak-hour factor, PHF	0.96	=	0.94	_	
Peak 15-minute volume, v15	255		258		
Trucks and buses	1	용	1	8	
Recreational vehicles	0	용	0	8	
Terrain type	Level		Level		
Grade	0.00	용	0.00	8	
Segment length	0.00	mi	0.00	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	1.5		1.5		
Recreational vehicles PCE, ER	1.2		1.2		
Heavy vehicle adjustment, fHV	0.995		0.995		
Flow rate, vp	511	pcphpl	518	pcphpl	
	RESULTS_				

	Direction	Τ.		2	
Flow rate, vp		511	pcphpl	518	pcphpl
Free-flow speed, F	FS	53.0	mph	53.0	mph
Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Level of service,	LOS	A		A	
Density, D		9.3	pc/mi/ln	9.4	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit	. Sp			5.5	
Percent of segment					
on-highway parking	-	0		0	
Pavement rating, P		3		3	
Flow rate in outside	de lane, vOL	509.4		516.0	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fa	ctor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	2.29		2.30	
Bicycle LOS		В		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

___OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald
Date: 12/6/17
Analysis Period: Existing AM

Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE	-FLOW SPEE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1010	vph	976	vph
Peak-hour factor, PHF	0.86		0.76	
Peak 15-minute volume, v15	294		321	
Trucks and buses	2	8	2	8
Recreational vehicles	0	8	0	용
Terrain type	Level		Level	
Grade	0.00	8	0.00	용
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	593	pcphpl	648	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	593	pcphpl	648	pcphpl
Free-flow speed, FFS	55.0	mph	55.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		В	
Density, D	10.8	pc/mi/ln	11.8	pc/mi/ln
Bicycle	Level of S	ervice		
Posted speed limit, Sp			55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	587.2		642.1	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Effective speed factor, St Bicycle LOS Score, BLOS	4.79 2.59		4.79 2.64	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

____OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald
Date: 12/6/17
Analysis Period: Existing PM

Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FR	EE-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	VOLUME			
Direction	1		2	
Volume, V	980	vph	849	vph
Peak-hour factor, PHF	0.95	vpii	0.90	VPII
Peak 15-minute volume, v15	258		236	
Trucks and buses	2	용	2	8
Recreational vehicles	0	8	0	8
Terrain type	Level	•	Level	•
Grade	0.00	8	0.00	<u>ે</u>
Segment length	0.00	mi	0.00	mi
Number of lanes	2	шт	2	шт
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	520	pcphpl	476	pcphpl
	RESULTS			

	Direction	1		2	
Flow rate, vp		520	pcphpl	476	pcphpl
Free-flow speed, Fl	FS	55.0	mph	55.0	mph
Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Level of service, 1	LOS	A		A	
Density, D		9.5	pc/mi/ln	8.7	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit	, Sp			55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside	de lane, vOL	515.8		471.7	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fac	ctor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	2.58		2.57	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing Saturday
Highway: Carmel Valley Road
From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREI	E-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	VOLUME			
Direction	1		2	
Volume, V	888	vph	802	vph
Peak-hour factor, PHF	0.96		0.98	
Peak 15-minute volume, v15	231		205	
Trucks and buses	2	8	2	8
Recreational vehicles	0	8	0	8
Terrain type	Level		Level	
Grade	0.00	8	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	467	pcphpl	413	pcphpl
	RESULTS			

Flow rate, vp		Direction	1		2	
Avg. passenger-car travel speed, S 55.0 mph 55.0 mph Level of service, LOS A A A Density, D 8.5 pc/mi/ln 7.5 pc/mi/ln	Flow rate, vp		467	pcphpl	413	pcphpl
Level of service, LOS A 8.5 pc/mi/ln 7.5 pc/mi/ln Bicycle Level of Service Posted speed limit, Sp Percent of segment with occupied on-highway parking 0 0 0 Pavement rating, P 3 3 3 7 Flow rate in outside lane, VOL 462.5 409.2 Effective width of outside lane, We 24.00 24.00 Effective speed factor, St 4.79 4.79	Free-flow speed, FI	rs -	55.0	mph	55.0	mph
Density, D 8.5 pc/mi/ln 7.5 pc/mi/ln Bicycle Level of Service Posted speed limit, Sp 55 Percent of segment with occupied on-highway parking 0 0 0 Pavement rating, P 3 3 3 Flow rate in outside lane, vOL 462.5 409.2 Effective width of outside lane, We 24.00 24.00 Effective speed factor, St 4.79 4.79	Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Posted speed limit, Sp 55 Percent of segment with occupied on-highway parking 0 0 0 Pavement rating, P 3 3 3 Flow rate in outside lane, VOL 462.5 409.2 Effective width of outside lane, We 24.00 24.00 Effective speed factor, St 4.79 4.79	Level of service, I	LOS	A		A	
Posted speed limit, Sp Percent of segment with occupied on-highway parking Pavement rating, P Percent of segment with occupied on-highway parking O Pavement rating, P S Flow rate in outside lane, vOL Effective width of outside lane, We Effective width of outside lane, We Effective speed factor, St A.79 A.79	Density, D		8.5	pc/mi/ln	7.5	pc/mi/ln
Posted speed limit, Sp Percent of segment with occupied on-highway parking Pavement rating, P Percent of segment with occupied on-highway parking O Pavement rating, P S Flow rate in outside lane, vOL Effective width of outside lane, We Effective width of outside lane, We Effective speed factor, St A.79 A.79						
Percent of segment with occupied on-highway parking 0 0 0 Pavement rating, P 3 3 3 Seffective width of outside lane, WOL 24.00 24.00 Effective speed factor, St 4.79 4.79		Bicycle L	evel of Se	rvice		
Percent of segment with occupied on-highway parking 0 0 0 Pavement rating, P 3 3 3 Seffective width of outside lane, WOL 24.00 24.00 Effective speed factor, St 4.79 4.79		_				
on-highway parking 0 0 0 Pavement rating, P 3 3 3 Flow rate in outside lane, vOL 462.5 409.2 Effective width of outside lane, We 24.00 24.00 Effective speed factor, St 4.79 4.79	_	-			55	
Pavement rating, P 3 3 Flow rate in outside lane, vOL 462.5 409.2 Effective width of outside lane, We 24.00 24.00 Effective speed factor, St 4.79 4.79	Percent of segment	with occupied				
Flow rate in outside lane, vOL 462.5 409.2 Effective width of outside lane, We 24.00 24.00 Effective speed factor, St 4.79 4.79	on-highway parking		-		-	
Effective width of outside lane, We 24.00 24.00 Effective speed factor, St 4.79 4.79	Pavement rating, P		3		3	
Effective speed factor, St 4.79 4.79	Flow rate in outsid	de lane, vOL	462.5		409.2	
	Effective width of	outside lane, We	24.00		24.00	
	Effective speed fac	ctor, St	4.79		4.79	
Bicycle LOS Score, BLOS 2.48 2.45	Bicycle LOS Score,	BLOS	2.48		2.45	
Bicycle LOS B B	Bicycle LOS		В		В	

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:		F	ax:				
Direc	tional Two-La	ne High	nway	Segment	Analys	is	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch	_	r / Ril ted Mor	ntere				
		nput Da	aca				
Lane width 1 Segment length 2	.0 ft 2.0 ft .6 mi olling mi %	% Truck % Rec: % No-1 Acces:	cks and cks character char	factor, nd buses rawling l speed conal veh ng zones nt densi	icles	0.76 3 0.0 0.0 0 100 5	% % mi/hr % % %
	Average	Trave	l Sne	ed.			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fac Grade adj. factor,(not Directional flow rate,	tor,(note-5) e-1) fg	Ana	lysis 2.0 1.1 0.97 0.89	(d) 1		posing 1.8 1.1 0.977 0.96 565	
Free-Flow Speed from F Field measured speed,(Observed total demand, Estimated Free-Flow Sp Base free-flow speed,(Adj. for lane and shou Adj. for access point Free-flow speed, FFSd	note-3) S FM (note-3) V eed: note-3) BFFS lder width,(n	ote-3)		- - 45.0 1.3 1.3	mi/h veh/h mi/h mi/h mi/h		
Adjustment for no-pass Average travel speed, Percent Free Flow Spee	ATSd	.p		2.3* 32.3 76.1	mi/h mi/h %		

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	0.89		1. 1. 0.	2 0 994 96
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		c/h 48.6 37.5 65.2		6 pc/h
Level of Service and	Other Perform	ance Me	asures_	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Y Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	T60	C 0.26 251 762 7.8 1598 1639 1639	veh-m veh-m veh-h veh/h veh/h	i
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape: Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		2.6 Lu - - 32. 65. C	mi mi 3 mi/h
Average Travel Spe	ed with Pass	ing Lan	e	
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel speed	d, Lde	-	mi
length of the passing lane for av- Adj. factor for the effect of passing on average speed, fpl	erage travel :		Ld -	mi
Average travel speed including passing Percent free flow speed including passing passi			- 0.0	%
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing on percent time-spent-following,	-spent-follow lane			mi
Percent time-spent-following including passing lane, PTSFpl	- P -		-	%
Level of Service and Other Perf	ormance Measu	res wit	h Passi	ng Lane
Level of service including passing last Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	385.5
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.96
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Existing PM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 13 NB

_____Input Data_____

Highway	class	Class	2		Peak hour factor, PHF	0.88	
Shoulder	r width		5.0	ft	% Trucks and buses	2	8
Lane wid	dth		12.0	ft	% Trucks crawling	0.0	용
Segment	length		2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain	type		Rolling		% Recreational vehicles	0	용
Grade:	Length		-	mi	% No-passing zones	100	용
	Up/down		_	용	Access point density	5	/mi

Analysis direction volume, Vd 653 veh/h Opposing direction volume, Vo 477 veh/h

______Average Travel Speed_

- IIuvc	L DPC	eu			
Ana	lysis	(d)	Opp	osing (c)
	1.5			1.8	
	1.1			1.1	
fHV	0.99	0		0.984	
				0.96	
	765	pc/h		574	pc/h
ment:					
		-	mi/h		
		-	veh/h		
		45.0	mi/h		
note-3)	fLS	1.3	mi/h		
e-3) fA		1.3	mi/h		
		42.5	mi/h		
np		2.3*	mi/h		
-		29.8	mi/h		
		70.1	8		
	Ana: fHV ment: note-3) e-3) fA	Analysis 1.5 1.1 fHV 0.99 0.98 765 ment:	1.5 1.1 0.990 0.98 765 pc/h ment: - 45.0 note-3) fLS 1.3 e-3) fA 1.3 42.5 mp 2.3* 29.8	Analysis(d) Opp 1.5 1.1 fHV 0.990 0.98 765 pc/h ment: - mi/h - veh/h 45.0 mi/h alote-3) fLS 1.3 mi/h 2-3) fA 1.3 mi/h 42.5 mi/h 42.5 mi/h 29.8 mi/h 29.8 mi/h	Analysis(d) Opposing (d) 1.5 1.8 1.1 1.1 fHV 0.990 0.984 0.98 0.96 765 pc/h 574 ment: - mi/h - veh/h 45.0 mi/h anote-3) fLS 1.3 mi/h 2-3) fA 1.3 mi/h 42.5 mi/h 1.3 mi/h 29.8 mi/h 29.8 mi/h

Percent Time-Spent-Fo	llowing		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg 0.99	pc/h	1.2 1.0 0.996 0.96 567	o) pc/h
Level of Service and Other Per	formance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1698 16.2 0	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Anal	ysis		
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Posted speed limit, Sp
Percent of segment with occupied on-highway parking
0
Pavement rating, P
Flow rate in outside lane, vOL
Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS
C
C

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing Saturday Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 95 Shoulder width 5.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Truck crawl speed Segment length 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 553 veh/h Opposing direction volume, Vo 649 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.7 1.6 PCE for RVs, ER 1.1 1.1 0.994 Heavy-vehicle adj. factor, (note-5) fHV 0.993 Grade adj. factor,(note-1) fg 0.97 0.98 Directional flow rate, (note-2) vi 604 pc/h 701 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 30.0 mi/h Percent Free Flow Speed, PFFS 70.7 용

Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.0 PCE for trucks, ET 1.2 1.0 PCE for RVS, ER 1.2 1.0 PCE for RVS, ER 1.2 1.0 PCE for RVS, ER 1.0 1.0 1.0 Heavy-webicle adjustment factor, (note-1) fg 0.97 0.99 1.000 Grade adjustment factor, (note-1) fg 0.97 0.99 Directional flow rate, (note-2) vi 601 pc/h 690 pc/h Base percent time-spent-following, (note-4) BPTSFd 59.0 % Adjustment for no-passing zones, fnp 31.1 Percent time-spent-following, PTSFd 73.5 % Peak 15-min total travel time, TT15 12.6 veh-h Peak 15-min total travel time, TT15 12.6 veh-h Capacity from ATS, CdATS 1656 veh/h Capacity from PTSF, CdPTSF 1683 veh/h Percent time-spent-following, PTSFd 1683 veh/h Percent time-spent-following, PTSFd 1683 veh/h Percent time-spent-following, PTSFd (from above) 73.5 Level of service, LOSG (from above) 73.5 Level of service hospital passing lane including tapers, Lpl - mi Average travel speed, ATSG (from above) Percent time-spent-following, PTSFd (from above) D D D D D D D D D D D D D D D D D D D	Percent Time	-Spent-Follow	ing		
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Percent Time-Spent-Following with Passing Lane Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde - mi Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld - mi Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h	Average travel speed including passin	g lane, ATSpl		-	
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde - mi Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld - mi Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h	Percent free flow speed including pas	sing lane, PF	FSpl	0.0	용
Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde - mi Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld - mi Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h	,				
of passing lane for percent time-spent-following, Lde - mi Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld - mi Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h	Percent Time-Spent-Fo	llowing with	Passing L	ane	
of passing lane for percent time-spent-following, Lde - mi Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld - mi Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h	Downstream length of two-lane highway	within effec	tive leng	th	
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld - mi Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h				_	mi
the passing lane for percent time-spent-following, Ld - mi Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h				f	
Adj. factor for the effect of passing lane on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h					mi
on percent time-spent-following, fpl - Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h			,u		шт
Percent time-spent-following including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h					
including passing lane, PTSFpl - % Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h		тЪт		-	
Level of Service and Other Performance Measures with Passing Lane Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h				_	8
Level of service including passing lane, LOSpl A Peak 15-min total travel time, TT15 - veh-h	Farring Tame, Tibipi				-
Peak 15-min total travel time, TT15 - veh-h	Level of Service and Other Perf	ormance Measu	res with	Passing	Lane
Peak 15-min total travel time, TT15 - veh-h	Level of service including passing la	ne. LOSpl	A		
		тс, порът		weh-h	
Bicycle Level of Service	rear 15 min cocar craver crme, 1115			A C11 11	
	Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	582.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.73
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Existing AM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 13 SB

Highway class Class 2 Peak hour factor, PHF 0.92	
Shoulder width 5.0 ft % Trucks and buses 3 % Lane width 12.0 ft % Trucks crawling 0.0 % Segment length 2.6 mi Truck crawl speed 0.0 mi Terrain type Rolling % Recreational vehicles 0 % Grade: Length - mi % No-passing zones 100 % Up/down - % Access point density 5 /m	/hr

Analysis direction volume, Vd 403 veh/h Opposing direction volume, Vo 293 veh/h

Average	Trave:	l Speed
---------	--------	---------

Average Tra	wel Spe	ed			
Direction A	analysis	(4)	Oppo	osing (c	.)
	1.9		ОРРС		′ /
PCE for trucks, ET				2.1	
PCE for RVs, ER	1.1			1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.97	4		0.968	
Grade adj. factor,(note-1) fg	0.92			0.84	
Directional flow rate,(note-2) vi	489	pc/h		392	pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-Adj. for access point density,(note-3)	-3) fLS		mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd	IA	42.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 33.3 78.5	mi/h mi/h %		

Percent Time-Spent-F	ollowing	
	s(d) Opposi	
PCE for trucks, ET		
PCE for RVs, ER 1.0		
Heavy-vehicle adjustment factor, fHV 0.9		982
Grade adjustment factor, (note-1) fg 0.9		86
Directional flow rate, (note-2) vi 482		'7 pc/h
Base percent time-spent-following,(note-4) BP		
Adjustment for no-passing zones, fnp	41.0	
Percent time-spent-following, PTSFd	70.9 %	
Level of Service and Other Pe	erformance Measures_	
Level of service, LOS	D	
Volume to capacity ratio, v/c	0.28	
Peak 15-min vehicle-miles of travel, VMT15	285 veh-m	.4
Peak-hour vehicle-miles of travel, VMT60	1048 veh-m	
Peak 15-min total travel time, TT15	8.6 veh-h	
Capacity from ATS, CdATS	0 veh/h	
Capacity from PTSF, CdPTSF	1486 veh/h	
Directional Capacity	1486 veh/h	1
Passing Lane Ana	ulysis	
Total length of analysis segment, Lt	2.6	mi
Length of two-lane highway upstream of the pa	assing lane, Lu -	mi
Length of passing lane including tapers, Lpl		mi
Average travel speed, ATSd (from above)	33.	
Percent time-spent-following, PTSFd (from abo		
Level of service, LOSd (from above)	D	
	_	
Average Travel Speed with	Passing Lane	
Downstream length of two-lane highway within	effective	
length of passing lane for average travel	speed, Lde -	mi
Length of two-lane highway downstream of effe		
length of the passing lane for average tr		mi
Adj. factor for the effect of passing lane		
on average speed, fpl	_	
Average travel speed including passing lane,	ATSpl -	
Percent free flow speed including passing lan		8
	,	
Percent Time-Spent-Following	with Passing Lane	
Downstream length of two-lane highway within	effective length	
of passing lane for percent time-spent-fo		mi
Length of two-lane highway downstream of effe		
the passing lane for percent time-spent-f		mi
Adj. factor for the effect of passing lane	orrowing, Ed	
on percent time-spent-following, fpl	_	
Percent time-spent-following		
including passing lane, PTSFpl	=	8
Level of Service and Other Performance	Measures with Passi	ng Lane
Level of service including passing lane, LOSp	ol A	
Peak 15-min total travel time, TT15	- veh-h	1
Bicycle Level of S	Service	

Posted speed limit, Sp
Percent of segment with occupied on-highway parking
0
Pavement rating, P
Flow rate in outside lane, vOL
Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS
C
C

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing PM Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 93 Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Truck crawl speed Segment length 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 477 veh/h Opposing direction volume, Vo 653 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.8 1.6 PCE for RVs, ER 1.1 1.1 0.982 Heavy-vehicle adj. factor, (note-5) fHV 0.977 Grade adj. factor,(note-1) fg 0.95 0.98 Directional flow rate, (note-2) vi 553 pc/h 730 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 30.2 mi/h Percent Free Flow Speed, PFFS 71.1 용

Percent Time-	Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER	Analysis(d) 1.2 1.0	C)pposing 1.0 1.0	(0)
Heavy-vehicle adjustment factor, fHV	0.994		1.000)
Grade adjustment factor,(note-1) fg	0.96		0.99	
Directional flow rate,(note-2) vi		c/h	709	pc/h
Base percent time-spent-following, (not	e-4) BPTSFd		5	
Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		31.4 70.2 %		
Level of Service and O	ther Perform	ance Meas	sures	
Level of service, LOS		D		
Volume to capacity ratio, v/c		0.32		
Peak 15-min vehicle-miles of travel, V		333	veh-mi	
Peak-hour vehicle-miles of travel, VMT	60	1240	veh-mi	
Peak 15-min total travel time, TT15			veh-h	
Capacity from ATS, CdATS Capacity from PTSF, CdPTSF			veh/h veh/h	
Directional Capacity			veh/h	
Passing L	ane Analysis			
Total length of analysis segment, Lt			2.6	mi
Length of two-lane highway upstream of	the passing	lane, Lu	1 -	mi
Length of passing lane including taper			-	mi
Average travel speed, ATSd (from above			30.2	mi/h
Percent time-spent-following, PTSFd (f	rom above)		70.2	
Level of service, LOSd (from above)			D	
Average Travel Spee	d with Pass	ing Lane_		
Downstream length of two-lane highway	within effec	tive		
length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde		mi
length of the passing lane for ave Adj. factor for the effect of passing		speed, Lo	l –	mi
on average speed, fpl			_	
Average travel speed including passing	lane, ATSpl		-	
Percent free flow speed including pass	ing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fol	lowing with	Passing I	ane	
Downstream length of two-lane highway	within effec	tive lend	rth	
of passing lane for percent time-s			-	mi
Length of two-lane highway downstream				
the passing lane for percent time-	spent-follow			mi
Adj. factor for the effect of passing				
on percent time-spent-following, f	pl		-	
Percent time-spent-following including passing lane, PTSFpl			_	8
			=	
Level of Service and Other Perfo	rmance Measu	res with	Passing	Lane
Level of service including passing lan	e, LOSpl	A		
Peak 15-min total travel time, TT15	-,	-	veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	512.9
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.11
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

___Directional Two-Lane Highway Segment Analysis_____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing Saturday

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 13 SB

Input	Data

Highway class Class	2		Peak hour factor, PHF	0.92	
Shoulder width	5.0	ft	% Trucks and buses	3	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	5	/mi

Analysis direction volume, Vd 649 veh/h Opposing direction volume, Vo 553 veh/h

Average Travel Speed

nverage frav	DPC	cu			
Direction Ana	alysis	(d)	aq0	osing (0)
PCE for trucks, ET	1.6	,,		1.7	
PCE for RVs. ER	1.1			1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.98	2		0.979	
Grade adj. factor,(note-1) fg	0.98			0.97	
Directional flow rate,(note-2) vi	733	pc/h		633	pc/h
Free-Flow Speed from Field Measurement:					
Field measured speed,(note-3) S FM		-	mi/h		
Observed total demand,(note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (note-3) fLS	1.3	mi/h		
Adj. for access point density,(note-3) fa	A	1.3	mi/h		
Free-flow speed, FFSd		42.5	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		29.5	mi/h		
Percent Free Flow Speed, PFFS		69.6	용		

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.000 0.99	Oŗ	pposing (1.0 1.0 1.000 0.97	0)
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	713 p ce-4) BPTSFd		620	pc/h
Level of Service and (Other Perform	ance Meası	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	r60	1687 T 15.5 T 1649 T 1649	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapes Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Evel of service, LOSd (from above)	rs, Lpl e)		2.6 - - 29.5 79.4 D	mi mi mi mi/h
Average Travel Spec	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing		speed, Ld	-	mi
on average speed, fpl Average travel speed including passing Percent free flow speed including pass			- 0.0	ે
Percent Time-Spent-Fo	llowing with	Passing La	ane	
Downstream length of two-lane highway of passing lane for percent time-: Length of two-lane highway downstream	spent-followi of effective	ng, Lde length oi	-	mi
the passing lane for percent time. Adj. factor for the effect of passing on percent time-spent-following, Percent time-spent-following	lane	ing, Ld	-	mi
including passing lane, PTSFpl			-	8
Level of Service and Other Perfo	ormance Measu	res with I	Passing L	ane
Level of service including passing lar Peak 15-min total travel time, TT15	ne, LOSpl		reh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	705.4
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.26
Ricycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project AM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED						
Direction	1		2			
Lane width	12.0	ft	12.0	ft		
Lateral clearance:	12.0	10	12.0	10		
Right edge	5.0	ft	5.0	ft		
Left edge	6.0	ft	6.0	ft		
Total lateral clearance	11.0	ft	11.0	ft		
Access points per mile	1	10	2	T C		
Median type	Undivide	ad.	Undivid	ed		
Free-flow speed:	Base		Base	·cu		
FFS or BFFS	45.0	mph	45.0	mph		
Lane width adjustment, FLW	0.0	mph	0.0	mph		
Lateral clearance adjustment, FL		mph	0.2	mph		
Median type adjustment, FM	1.6	mph	1.6	mph		
Access points adjustment, FA	0.3	mph	0.5	mph		
Free-flow speed	43.0	mph	42.7	mph		
riee-ilow speed	43.0	шрп	42.7	шрп		
	VOLUME					
Direction	1		2			
Volume, V	1268	vph	1650	vph		
Peak-hour factor, PHF	0.91		0.91			
Peak 15-minute volume, v15	348		453			
Trucks and buses	2	용	3	8		
Recreational vehicles	0	용	0	8		
Terrain type	Grade		Grade			
Grade	6.00	용	-6.00	8		
Segment length	0.73	mi	0.73	mi		
Number of lanes	2		2			
Driver population adjustment, fP	1.00		1.00			
Trucks and buses PCE, ET	5.0		1.5			
Recreational vehicles PCE, ER	6.0		1.2			
Heavy vehicle adjustment, fHV	0.926		0.985			
Flow rate, vp	752	pcphpl	920	pcphpl		
	RESULTS					

Direc	tion	1		2	
Flow rate, vp		752	pcphpl	920	pcphpl
Free-flow speed, FFS		43.0	mph	42.7	mph
Avg. passenger-car trave	el speed, S	45.0	mph	45.0	mph
Level of service, LOS		В		C	
Density, D		16.7	pc/mi/ln	20.4	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit, Sp		55		55	
Percent of segment with	occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside lar	ne, vOL	696.7		906.6	
Effective width of outsi	de lane, We	22.00		22.00	
Effective speed factor,	St	4.79		4.79	
Bicycle LOS Score, BLOS		3.14		3.52	
Bicycle LOS		C		D	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

_OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project PM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017
Project ID: Rio Ranch Seg 1

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FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:				= +	
Right edge	5.0	ft	5.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	11.0		11.0	ft	
Access points per mile	1		2		
Median type	Undivide	ed	Undivid	ed	
Free-flow speed:	Base		Base		
FFS or BFFS	45.0	mph		mph	
Lane width adjustment, FLW		mph			
Lateral clearance adjustment, FLC					
Median type adjustment, FM	1.6	mph	1.6	mph	
Access points adjustment, FA					
Free-flow speed	43.0				
	VOLUME				
Direction	1		2		
Volume, V	1674	vph	1493	vph	
Peak-hour factor, PHF	0.95		0.96		
	441		389		
Trucks and buses	2	용	1	8	
Recreational vehicles	0	용	0	8	
Terrain type	Grade		Grade		
Grade	6.00	8	-6.00	8	
Segment length		mi		mi	
Number of lanes	2		2		
Driver population adjustment, fP			1.00		
Trucks and buses PCE, ET	5.0		1.5		
Recreational vehicles PCE, ER			1.2		
Heavy vehicle adjustment, fHV			0.995		
Flow rate, vp	951	pcphpl	781	pcphpl	
	RESULTS				

Direction	1		2	
Flow rate, vp	951	pcphpl	781	pcphpl
Free-flow speed, FFS	43.0	mph	42.7	mph
Avg. passenger-car travel speed,	S 45.0	mph	45.0	mph
Level of service, LOS	C		В	
Density, D	21.1	pc/mi/ln	17.4	pc/mi/ln
Bicyc	le Level	of Service		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	881.	1	777.6	
Effective width of outside lane,	We 22.0	0	22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.26		2.96	
Bicycle LOS	C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project Saturday

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	5.0	ft	5.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	11.0	ft	11.0	ft	
Access points per mile	1		2		
Median type	Undivid	ed	Undivid	ed	
Free-flow speed:	Base		Base		
FFS or BFFS	45.0	mph	45.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph	
Median type adjustment, FM		mph		mph	
Access points adjustment, FA			0.5	mph	
Free-flow speed	43.0	mph	42.7	mph	
	VOLUME				
Direction	1		2		
Volume, V	1542	vph	1770	vph	
Peak-hour factor, PHF	0.91		0.97		
Peak 15-minute volume, v15	424		456		
Trucks and buses	1	용	1	8	
Recreational vehicles	0	용	0	8	
Terrain type	Grade		Grade		
Grade	6.00	용	-6.00	8	
Segment length	0.73	mi	0.73	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	5.0		1.5		
Recreational vehicles PCE, ER	6.0		1.2		
Heavy vehicle adjustment, fHV	0.962		0.995		
Flow rate, vp	881	pcphpl	916	pcphpl	
	RESULTS_				

1		2	
881	pcphpl	916	pcphpl
43.0	mph	42.7	mph
45.0	mph	45.0	mph
C		C	
19.6	pc/mi/ln	20.4	pc/mi/ln
Level of Se	rvice		
FF			
55		55	
0		0	
3		3	
847.3		912.4	
22.00		22.00	
4.79		4.79	
3.01		3.04	
C		C	
	43.0 45.0 C 19.6 Level of Se 55 0 3 847.3 22.00 4.79 3.01	43.0 mph 45.0 mph C 19.6 pc/mi/ln Level of Service 55 0 3 847.3 22.00 4.79 3.01	43.0 mph 42.7 45.0 mph 45.0 C C C 19.6 pc/mi/ln 20.4 Level of Service

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project AM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	5.0	ft	5.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	11.0	ft	11.0	ft	
Access points per mile	2		2		
Median type	Undivid	ed	Undivid	ed	
Free-flow speed:	Base		Base		
FFS or BFFS	45.0	mph	45.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph	
Median type adjustment, FM		mph		mph	
Access points adjustment, FA			0.5	mph	
Free-flow speed	42.7	mph	42.7	mph	
	VOLUME				
Direction	1		2		
Volume, V	1471	vph	1599	vph	
Peak-hour factor, PHF	0.89		0.92		
Peak 15-minute volume, v15	413		435		
Trucks and buses	3	용	4	8	
Recreational vehicles	0	용	0	8	
Terrain type	Grade		Grade		
Grade	6.00	용	-6.00	8	
Segment length	0.87	mi	0.87	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	5.3		1.5		
Recreational vehicles PCE, ER	6.0		1.2		
Heavy vehicle adjustment, fHV	0.887		0.980		
Flow rate, vp	931	pcphpl	886	pcphpl	
	RESULTS_				

	Direction	1		2	
Flow rate, vp		931	pcphpl	886	pcphpl
Free-flow speed, F	FS	42.7	mph	42.7	mph
Avg. passenger-car	travel speed, S	45.0	mph	45.0	mph
Level of service,	LOS	C		C	
Density, D		20.7	pc/mi/ln	19.7	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit	, Sp	55		55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsi	de lane, vOL	826.4		869.0	
Effective width of	outside lane, We	22.00		22.00	
Effective speed fa	ctor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	3.47		3.77	
Bicycle LOS		C		D	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

___OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project PM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	5.0	ft	5.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	11.0	ft	11.0	ft	
Access points per mile	2		2		
Median type	Undivid	ed	Undivid	ed	
Free-flow speed:	Base		Base		
FFS or BFFS	45.0	mph	45.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph	
Median type adjustment, FM	1.6	mph	1.6	mph	
Access points adjustment, FA	0.5	mph	0.5	mph	
Free-flow speed	42.7	mph	42.7	mph	
	VOLUME				
Direction	1		2		
Volume, V	1590	vph	1488	vph	
Peak-hour factor, PHF	0.96		0.95		
Peak 15-minute volume, v15	414		392		
Trucks and buses	1	용	2	%	
Recreational vehicles	0	용	0	%	
Terrain type	Grade		Grade		
Grade	6.00	8	-6.00	8	
Segment length	0.87	mi	0.87	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	5.5		1.5		
Recreational vehicles PCE, ER	6.0		1.2		
Heavy vehicle adjustment, fHV	0.957		0.990		
Flow rate, vp	865	pcphpl	790	pcphpl	
	RESULTS				

	Direction	1		2	
Flow rate, vp		865	pcphpl	790	pcphpl
Free-flow speed, F	FS	42.7	mph	42.7	mph
Avg. passenger-car	travel speed, S	45.0	mph	45.0	mph
Level of service,	LOS	C		В	
Density, D		19.2	pc/mi/ln	17.6	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit	, Sp	55		55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside	de lane, vOL	828.1		783.2	
Effective width of	outside lane, We	22.00		22.00	
Effective speed fa	ctor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	3.00		3.20	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project Saturday

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED							
Direction	1		2				
Lane width	12.0	ft	12.0	ft			
Lateral clearance:							
Right edge	5.0	ft	5.0	ft			
Left edge	6.0	ft	6.0	ft			
Total lateral clearance	11.0	ft	11.0	ft			
Access points per mile	2		2				
Median type	Undivided		Undivided				
Free-flow speed:	Base		Base				
FFS or BFFS	45.0	mph	45.0	mph			
Lane width adjustment, FLW	0.0	mph	0.0	mph			
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph			
Median type adjustment, FM	1.6	mph	1.6	mph			
Access points adjustment, FA	0.5	mph	0.5	mph			
Free-flow speed	42.7	mph	42.7	mph			
Direction	1		2				
Volume, V	1544	vph	1615	vph			
Peak-hour factor, PHF	0.93		0.94				
Peak 15-minute volume, v15	415		430				
Trucks and buses	1	용	1	8			
Recreational vehicles	0	용	0	%			
Terrain type	Grade		Grade				
Grade	6.00	용	-6.00	8			
Segment length	0.87	mi	0.87	mi			
Number of lanes	2		2				
Driver population adjustment, fP	1.00		1.00				
Trucks and buses PCE, ET	5.5		1.5				
Recreational vehicles PCE, ER	6.0		1.2				
Heavy vehicle adjustment, fHV	0.957		0.995				
Flow rate, vp	867	pcphpl	863	pcphpl			
	RESULTS_						

Direction		1		2			
Flow rate, vp		867	pcphpl	863	pcphpl		
Free-flow speed, FFS		42.7	mph	42.7	mph		
Avg. passenger-car travel speed	, S	45.0	mph	45.0	mph		
Level of service, LOS		C		C			
Density, D		19.3	pc/mi/ln	19.2	pc/mi/ln		
Bicycle Level of Service							
Posted speed limit, Sp		55		55			
Percent of segment with occupie	d						
on-highway parking		0		0			
Pavement rating, P		3		3			
Flow rate in outside lane, vOL		830.1		859.0			
Effective width of outside lane	, We	22.00		22.00			
Effective speed factor, St		4.79		4.79			
Bicycle LOS Score, BLOS		3.00		3.01			
Bicycle LOS		C		C			

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:								
Directi	onal Two-Lane	Highw	ay Se	egment i	Analysi	s		
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch S	SR 1 Ocean / CVR Unincorporate 2017 Seg 2 SB	coject .	erey	County				
	Inp	out Dat	a					
==) ft % 0 ft % 0 mi T ecific Grade % 00 mi %	t Truck Truck Truck c Recre	s and s cra rawl ation ssing		icles	0.92 4 0.0 0.0 0 100	% % mi/hr % % /mi	
Analysis direction volum Opposing direction volum								
	Average T	ravel	Speed	ii				
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. facto Grade adj. factor,(note- Directional flow rate,(r	-1) fg	1 HV 1 1	.0 .0 .000	d) pc/h		9.7 1.0 0.742 1.00 2155	o) pc/h	
Free-Flow Speed from Fie Field measured speed,(no Observed total demand,(no Estimated Free-Flow Speed Base free-flow speed,(no Adj. for lane and should Adj. for access point de	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(not	:e-3) f:	LS 1	- - 45.0 L.3	mi/h veh/h mi/h mi/h mi/h			
Free-flow speed, FFSd			3	39.0	mi/h			
Adjustment for no-passir Average travel speed, AT Percent Free Flow Speed,	rsd		6	2.3* 5.4 16.5	mi/h mi/h %			

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		Opposing 1.1 1.0 0.995 1.00	
Directional flow rate, (note-2) vi 1738 px Base percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	93.6 7.0	1607	pc/h
Level of Service and Other Performa	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, L	0.9 nu – 6.4 97.2	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane	·	
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed, L	d - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI	FSpl	0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1738.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.97
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

___Directional Two-Lane Highway Segment Analysis___ Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project PM

Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 2 SB

Input	Data

Highway class Class	2	Peak hour factor, PHF	0.95	
Shoulder width	5.0 ft	% Trucks and buses	2	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	0.9 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.90 mi	% No-passing zones	100	용
Up/down	-6.0 %	Access point density	19	/mi

Analysis direction volume, Vd 1488 veh/h Opposing direction volume, Vo 1590 veh/h

Average	Travel	Speed
---------	--------	-------

Direction	Analysis	(d)	Oppos	ing (o)
PCE for trucks, ET	1.0		9	. 7	
PCE for RVs, ER	1.0		1	. 0	
Heavy-vehicle adj. factor, (note-5) f	HV 1.00	0	0	.852	
Grade adj. factor,(note-1) fg	1.00		1	.00	
Directional flow rate,(note-2) vi	1566	pc/h	1	964	pc/h
Free-Flow Speed from Field Measureme	ent:				
Field measured speed,(note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (no	te-3) fLS	1.3	mi/h		
Adj. for access point density, (note-	-3) fA	4.8	mi/h		
Free-flow speed, FFSd		39.0	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		9.3	mi/h		
Percent Free Flow Speed, PFFS		23.8	용		

Percent Time	-Spent-Follow:	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(d) 1.0 1.0 1.000 1.000 1.000	Op c/h	pposing (1.1 1.0 0.998 1.00 1678	o) pc/h
Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		6.8 95.3 %	ırec	
Bever or service and	Other Periorma	ance meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		1339 38.0 1700	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		0.9 - - 9.3 95.3 F	mi mi mi mi/h
Average Travel Spe	ed with Pass:	ing Lane		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel speed		-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel s lane		-	mi
Average travel speed including passin Percent free flow speed including pas	sing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fo	llowing with I	Passing La	ane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing on percent time-spent-following,	-spent-follow: lane		-	mi
Percent time-spent-following including passing lane, PTSFpl			-	왕
Level of Service and Other Perf	ormance Measu	res with 1	Passing L	ane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl		veh-h	
Bicycle Le	vel of Service	≥		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1566.3
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.44
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Existing + Project Saturday Analysis Time Period Highway SR 1 From/To Ocean / CVR Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 2 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.94 Shoulder width 5.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Truck crawl speed Segment length 0.9 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.90 mi % No-passing zones 100 Up/down -6.0 용 Access point density /mi Analysis direction volume, Vd 1615 veh/h Opposing direction volume, Vo 1544 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 9.7 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.920 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1718 pc/h 1785 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 4.8 mi/h Free-flow speed, FFSd 39.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 9.5 mi/h

24.3

용

Percent Free Flow Speed, PFFS

Percent Time-	Spent-Follow:	ing			
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.0 1.0 1.000		Opp	1.1 1.0 0.999	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1.00 1718 pc e-4) BPTSFd		olo olo	1.00 1645	pc/h
Level of Service and O	ther Performa	ance Me	asur	es	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		F 1.01 387 1453 40.9 0 1700	ve ve ve	h-mi h-mi h-h h/h h/h	
Passing L	ane Analysis				
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl		Lu	0.9 - - 9.5 96.8 F	mi mi mi mi/h
Average Travel Spee	d with Pass:	ing Lan	e		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel speed	d, Lde		_	mi
<pre>length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl</pre>	rage travel : lane	speed,	Ld	-	mi
Average travel speed including passing Percent free flow speed including pass	lane, ATSpl ing lane, PFI	FSpl		0.0	ૄ
Percent Time-Spent-Fol	lowing with 1	Passing	Lan	ıe	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-followin	ng, Lde		-	mi
the passing lane for percent time- Adj. factor for the effect of passing on percent time-spent-following, f	spent-follow: lane				mi
Percent time-spent-following including passing lane, PTSFpl	-			_	%
Level of Service and Other Perfo	rmance Measu	res wit	h Pa	ssing	Lane
Level of service including passing lan Peak 15-min total travel time, TT15	e, LOSpl	A -	ve	h-h	
Bicycle Lev	el of Service	e			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1718.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.27
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project AM

Highway SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 NB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.80	
Shoulder width	6.0 ft	% Trucks and buses	3	8
Lane width	12.0 ft	% Trucks crawling	0.0	8
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	3.0 %	Access point density	0	/mi

Analysis direction volume, Vd 582 veh/h Opposing direction volume, Vo 676 veh/h

______Average Travel Speed__

Direction	Analysis	(d)	aq0	osing (o)
PCE for trucks, ET	1.8		-11	1.1	- ,
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV				0.997	
Grade adj. factor, (note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi					pc/h
Free-Flow Speed from Field Measurement	:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (note	-3) fLS	0.0	mi/h		
Adj. for access point density,(note-3)	fA	0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		30.3	mi/h		
Percent Free Flow Speed, PFFS		67.4	용		

Percent Time-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	ec/h	1.0 1.0 1.000 1.000 845	pc/h
Level of Service and Other Perform	ance Measu	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	175 v 1.8 v 1680 v 1567 v	reh-mi reh-mi reh-h reh/h reh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 30.3 81.1 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effection length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	tive d, Lde speed, Ld	-	mi mi %
Percent Time-Spent-Following with	Passing La	ne	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following the following the passing lane for percent time-spent-following factor for the effect of passing lane	ng, Lde length of	-	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	90
Level of Service and Other Performance Measu	res with F	assing La	ane
	A - v	reh-h	
Dic/cic Bever of Bervic			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	727.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.82
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:	Fax:				
Directional Two-Lane High	ghway	Segment	Analys	is	
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Existing + Project PM Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year 2017 Description Rio Ranch Seg 3 NB					
Input I	Data				
Shoulder width 6.0 ft % Tru Lane width 12.0 ft % Tru Segment length 0.3 mi Truck Terrain type Specific Grade % Rec Grade: Length 0.30 mi % No- Up/down 3.0 % Acces Analysis direction volume, Vd 858 ve	ucks a ucks c c craw creati -passi		icles	0.89 3 0.0 0.0 0.0 0	% % mi/hr % % /mi
Direction And PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	alysis 1.3 1.0 0.99 1.00	(d)	0p	posing 1.1 1.0 0.997 1.00 660	
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3 Adj. for access point density,(note-3) fi		- - 45.0 0.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 30.0 66.7	mi/h mi/h %		

Percent Time-Spent-Foll	lowing		
PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000		Opposing 1.0 1.0 1.000	(0)
Grade adjustment factor,(note-1) fg 0.92 Directional flow rate,(note-2) vi 1046 Base percent time-spent-following,(note-4) BPTSF Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h Fd 75.7 22.3 89.4	1.00 658 %	pc/h
Level of Service and Other Perfo	ormance Me	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.62 72 257 2.4 0 1567	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	sis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passi Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - - 30.0 89.4 E	mi mi mi mi/h
Average Travel Speed with Pa	assing Lan	ıe	
Downstream length of two-lane highway within eff length of passing lane for average travel sp Length of two-lane highway downstream of effecti	peed, Lde	-	mi
length of the passing lane for average trave Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATS	el speed,	Ld -	mi
Percent free flow speed including passing lane,		0.0	8
Percent Time-Spent-Following wit	h Passing	Lane	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follow Length of two-lane highway downstream of effecti	owing, Lde	-	mi
the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	ક
Level of Service and Other Performance Mea	asures wit	h Passing 1	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Serv	/ice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	964.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.96
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project Saturday

Highway SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 NB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.92	
Shoulder width	6.0 ft	% Trucks and buses	1	8
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	3.0 %	Access point density	0	/mi

Analysis direction volume, Vd $\,$ 811 $\,$ veh/h Opposing direction volume, Vo $\,$ 795 $\,$ veh/h $\,$

Average	Travel Speed	
Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.3	1.0
PCE for RVs. ER	1.0	1.0

PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor,(note-5) fHV 0.997 1.000 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate,(note-2) vi 884 pc/h 864 pc/h

Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed:	- -	mi/h veh/h
Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) fLS Adj. for access point density,(note-3) fA	45.0 0.0 0.0	mi/h mi/h mi/h
Free-flow speed, FFSd	45.0	mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* 29.1 64.7	mi/h mi/h %

Percent Time	-Spent-Followi	ng		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	0.92 956 po te-4) BPTSFd	:/h	1.0 1.0 1.000 1.00	o) pc/h
Level of Service and	Other Performa	ince Measi	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	VMT15 IT60	243 x 2.3 x 0 x 1567 x	yeh-mi yeh-mi yeh-h yeh/h yeh/h	
Passing	Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		0.3 - - 29.1 86.5 E	mi mi mi mi/h
Average Travel Spe	ed with Passi	ng Lane_		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl Average travel speed including passin Percent free flow speed including pas	within effect e travel speed of effective erage travel s lane g lane, ATSpl sing lane, PFF	rive d, Lde speed, Ld SSpl	- - - 0.0	mi mi %
Percent Time-Spent-Fo	llowing with E	Passing La	ane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing	spent-followir of effective -spent-followi	ng, Lde length of	-	mi mi
on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl			-	%
Level of Service and Other Perf	ormance Measur	es with I	assing L	ane
Level of service including passing la Peak 15-min total travel time, TT15 Bicycle Le	ne, LOSpl	- 7	reh-h	
Bicycle he	ACT OF DOTATOR			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	881.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.48
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fa	ax:			
Directional Two-Lane High	hway Segment Analysis			
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Existing + Project AM Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year 2017 Description Rio Ranch Seg 3 SB				
Input Da	ata			
Shoulder width 6.0 ft % Truck Lane width 12.0 ft % Truck Segment length 0.3 mi Truck Terrain type Specific Grade % Reco Grade: Length 0.30 mi % No-p Up/down -3.0 % Access	passing zones 100 % s point density 0 /mi			
Analysis direction volume, Vd 676 vel Opposing direction volume, Vo 582 vel				
Average Trave	l Speed			
Direction Anal PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	lysis(d) Opposing (o) 1.1 2.0 1.0 1.0 0.996 0.963 1.00 1.00 700 pc/h 623 pc/h			
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) Adj. for access point density,(note-3) fA				
Free-flow speed, FFSd	45.0 mi/h			
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* mi/h 32.4 mi/h 72.1 %			

Percent Time-Spent-Followi	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1 1 1 0	.0 .0 .000 .92
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	e/h 63.6 29.5 78.9	6 %	51 pc/h
Level of Service and Other Performa	ance Me	asures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.41 52 203 1.6 0 1700 1700	veh- veh- veh/ veh/ veh/	mi h h h
Passing Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0. Lu - 32 78 D	mi mi .4 mi/h
Average Travel Speed with Passi	ing Lan	e	
Downstream length of two-lane highway within effect length of passing lane for average travel speed		-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF	FSpl	- 0.	0 %
Percent Time-Spent-Following with I	Passing	Lane_	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	res wit	h Pass	ing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-	h
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	696.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.05
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project PM

Highway SR 1

From/To Carmel Valley Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 3 SB
_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.90	
Shoulder width	6.0 ft	% Trucks and buses	1	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	0	/mi

Analysis direction volume, Vd 586 veh/h Opposing direction volume, Vo 858 veh/h

_____Average Travel Speed__

Direction	Analysis	(d)	Opp	osing	(0)
PCE for trucks, ET	1.1			1.3	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.99	9		0.997	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	652	pc/h		956	pc/h
Free-Flow Speed from Field Measurement	:				
ield measured speed,(note-3) S FM		-	mi/h		
bserved total demand,(note-3) V		-	veh/h		
Stimated Free-Flow Speed:					
sase free-flow speed,(note-3) BFFS		45.0			
dj. for lane and shoulder width,(note-	-3) fLS	0.0	mi/h		
dj. for access point density,(note-3)	fA	0.0	mi/h		
ree-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
verage travel speed, ATSd		30.2	mi/h		
ercent Free Flow Speed, PFFS		67.2	용		

Percent Time-Spent-Follo	wing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h 65.6 22.6 74.3	1.0 1.0 1.000 0.92 1034	(o) pc/h
Level of Service and Other Perform	mance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 u - 30.2 74.3 D	mi mi mi mi/h
Average Travel Speed with Pas	sing Lane_		
Downstream length of two-lane highway within effe- length of passing lane for average travel spec Length of two-lane highway downstream of effectiv- length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSP Percent free flow speed including passing lane, P	ed, Lde e speed, Lo	- -	mi mi
Percent Time-Spent-Following with	Passing I	Lane	
Downstream length of two-lane highway within effe- of passing lane for percent time-spent-follow Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane	ctive leng ing, Lde e length o	gth - of	mi mi
on percent time-spent-following, fpl		-	
Percent time-spent-following including passing lane, PTSFpl		-	왕
Level of Service and Other Performance Meas	ures with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	651.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.32
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project Saturday Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.93 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 Access point density 0 /mi Analysis direction volume, Vd 795 veh/h Opposing direction volume, Vo 811 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.3 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 855 pc/h 875 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.3 mi/h Percent Free Flow Speed, PFFS 65.1 용

Percent Time-Spe	nt-Followi	.ng		
Direction Ana PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	lysis(d) 1.0 1.0 1.000		Opposing 1.0 1.0 1.000	
Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4 Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	855 po	72.8 22.0 83.2	946	pc/h
Level of Service and Othe	r Performa	nce Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT1 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		D 0.50 64 239 2.2 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane	Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of th Length of passing lane including tapers, Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl	lane, I	0.3 Eu – 29.3 83.2 D	mi mi mi mi/h
Average Travel Speed	with Passi	ng Lane	=	
Downstream length of two-lane highway wit length of passing lane for average tr Length of two-lane highway downstream of	avel speed		-	mi
length of the passing lane for average Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing la	e travel s e		ud - - -	mi
Percent free flow speed including passing			0.0	ક
Percent Time-Spent-Follow	ing with E	assing	Lane	
Downstream length of two-lane highway wit of passing lane for percent time-spen Length of two-lane highway downstream of	t-followir	ng, Lde	-	mi
the passing lane for percent time-spe Adj. factor for the effect of passing lan on percent time-spent-following, fpl	nt-followi			mi
Percent time-spent-following including passing lane, PTSFpl			_	%
Level of Service and Other Performa	nce Measur	es with	n Passing	Lane
Level of service including passing lane, Peak 15-min total travel time, TT15	LOSpl	A -	veh-h	
Bicycle Level	of Service			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	854.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.46
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

___Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co.

Date Performed 12/6/17

Analysis Time Period Existing + Project AM

Highway

SR 1

Ribera Rd / Rio Rd From/To

Jurisdiction Unincorporated Monterey County

Analysis Year Description Rio Ranch Seg 4 NB

Percent Free Flow Speed, PFFS

_____Input Data____

Highway	class Class	2		Peak hour factor, PHF	0.85	
Shoulder	width	6.0	ft	% Trucks and buses	1	용
Lane wio	lth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	-	용	Access point density	3	/mi

Analysis direction volume, Vd 334 veh/h Opposing direction volume, Vo 444 veh/h

_____Average Travel Speed__

Direction	Analysis	(d)	9990	osing (o)
PCE for trucks, ET	1.3	(-/	-11	1.2	,
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)				0.998	
Grade adj. factor, (note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	394	pc/h		523	pc/h
Free-Flow Speed from Field Measurem Field measured speed, (note-3) S FM	nent:	_	mi/h		
Observed total demand, (note-3) V Estimated Free-Flow Speed:		-	veh/h		
Base free-flow speed, (note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (n	note-3) fLS	0.0	mi/h		
Adj. for access point density,(note	e-3) fA	0.8	mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fn Average travel speed, ATSd	ıp	2.3*	mi/h mi/h		

78.7 %

Percent Time-Spent-Follow	ing		
Direction Analysis(d)		nnoging	(0)
PCE for trucks, ET Analysis(d) 1.1	O _j	1.0	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 0.999		1.000	
Grade adjustment factor,(note-1) fg 1.00	/1-	1.00	/1-
	c/h	522	pc/h
Base percent time-spent-following, (note-4) BPTSFd			
Adjustment for no-passing zones, fnp	39.9		
Percent time-spent-following, PTSFd	61.9 %		
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS	С		
Volume to capacity ratio, v/c	0.23		
Peak 15-min vehicle-miles of travel, VMT15		veh-mi	
Peak-hour vehicle-miles of travel, VMT60		ven mi	
Peak 15-min total travel time, TT15		ven-mi veh-h	
Capacity from ATS, CdATS		veh/h	
Capacity from PTSF, CdPTSF		veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt		0.3	mi
Length of two-lane highway upstream of the passing	lane. Lu	_	mi
Length of passing lane including tapers, Lpl		_	mi
Average travel speed, ATSd (from above)		34.8	mi/h
Percent time-spent-following, PTSFd (from above)		61.9	/
Level of service, LOSd (from above)		C	
never of service, hosa (from above)		C	
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effec	tive		
length of passing lane for average travel spee		_	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel		_	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		_	
Average travel speed including passing lane, ATSpl		_	
Percent free flow speed including passing lane, PF		0.0	8
reference free frow speed including passing fane, if	IDPI	0.0	•
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effec	tive leng	th	
of passing lane for percent time-spent-followi		_	mi
Length of two-lane highway downstream of effective		f	шт
the passing lane for percent time-spent-follow		_	mi
	Ing, Lu	_	шт
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			용
including passing lane, PTSFpl		-	6
Level of Service and Other Performance Measu	res with	Passing 1	Lane
Torol of gowing including pagging lar- 100-1	7		
Level of service including passing lane, LOSpl		rob_b	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	392.9
Effective width of outside lane, We	24.00
Iffective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.07
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project PM Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 90 Shoulder width 6.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 697 veh/h Opposing direction volume, Vo 527 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.997 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 777 pc/h 587 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 31.4 mi/h Percent Free Flow Speed, PFFS 70.9 용

Percent Time-	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.000 1.000	(Opposing 1.0 1.0 1.000	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		28.7	586 % %	pc/h
Level of Service and (Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMP Peak hour vehicle-miles of travel, VMP Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		D 0.46 58 209 1.8 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape: Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Evel of service, LOSd (from above)	rs, Lpl e)	·	0.3 u - - 31.4 82.0 D	mi mi mi mi/h
Average Travel Spec	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel speed	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	erage travel :		d - -	mi
Average travel speed including passing Percent free flow speed including pass			0.0	ફ
Percent Time-Spent-Fo	llowing with	Passing 1	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time. Adj. factor for the effect of passing	-spent-follow			mi
on percent time-spent-following, : Percent time-spent-following including passing lane, PTSFpl	fpl		-	8
Level of Service and Other Perfo	ormance Measu	res with	- Passing	-
Level of service including passing lapeak 15-min total travel time, TT15		A -	veh-h	
Bicycle Lev	vel of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	774.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.85
Bicycle LOS	C

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Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project Saturday

Highway SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 NB

_____Input Data_____

Highway class Class Shoulder width Lane width Segment length Terrain type Grade: Length	2 6.0 12.0 0.3 Level	ft ft mi mi	Peak hour factor, PHF % Trucks and buses % Trucks crawling Truck crawl speed % Recreational vehicles % No-passing zones	0.87 1 0.0 0.0 0	% % mi/hr %
Grade: Length Up/down	-	mi %	% No-passing zones Access point density	100	% /mi

Analysis direction volume, Vd 610 veh/h Opposing direction volume, Vo 703 veh/h

______Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) f Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	1.00	9		osing (c 1.1 1.0 0.999 1.00 809	pc/h
Free-Flow Speed from Field Measureme Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(no Adj. for access point density,(note-	te-3) fLS	- - 45.0 0.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 30.2 68.3	mi/h mi/h %		

Percent Time-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Passe percent time-spent-following,(note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h	poposing (1.0 1.0 1.000 1.000 808	o) pc/h
Level of Service and Other Perform	ance Meası	ıres	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	183 X 1.8 X 1698 X 1700 X	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 30.2 77.4 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effectength of passing lane for average travel spectength of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane	d, Lde	-	mi mi
on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		- 0.0	왕
Percent Time-Spent-Following with	Passing La	ane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following the spent of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl	ing, Ld	-	mi
Percent time-spent-following including passing lane, PTSFpl		-	왕
Level of Service and Other Performance Measu	res with I	Passing T	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A /	reh-h	
Did it belvie			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	701.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.36
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project AM Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 91 Shoulder width 6.0 ft % Trucks and buses 4 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 444 veh/h Opposing direction volume, Vo 334 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.3 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.988 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 492 pc/h 371 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 35.3 mi/h Percent Free Flow Speed, PFFS 79.7 용

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.00 1.000	(Opposing 1.1 1.0 0.990	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	488 p	41.4	369	pc/h
Level of Service and (Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		D 0.29 37 133 1.0 0 1693 1693	veh-mi veh-mi veh-h veh/h veh/h	
Passing I	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taped Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		0.3 - - 35.3 72.4 D	mi mi mi mi/h
Average Travel Spec	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	erage travel		d - -	mi
Average travel speed including passing Percent free flow speed including pass			0.0	%
Percent Time-Spent-Fo	llowing with	Passing 1	Lane	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	spent-followi	ng, Lde	-	mi
the passing lane for percent time. Adj. factor for the effect of passing	-spent-follow			mi
on percent time-spent-following, in Percent time-spent-following	fpl		-	
including passing lane, PTSFpl			- D'	8
Level of Service and Other Perfo			Passing	Lane
Level of service including passing lar Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Lev	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	487.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.87
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project PM

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 4 SB

Input	Data
-------	------

Highway class Class	2		Peak hour factor, PHF	0.93	
Shoulder width	6.0	ft	% Trucks and buses	0	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	-	8	Access point density	3	/mi

Analysis direction volume, Vd 527 veh/h Opposing direction volume, Vo 694 veh/h

_____Average Travel Speed__

Direction	Ana	lysis	(d)	Opp	osing (o)
PCE for trucks, ET		1.1			1.1	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	1.000)		1.000	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate, (note-2) vi		567	pc/h		746	pc/h
Free-Flow Speed from Field Measurem	ment:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width, (r	note-3)	fLS	0.0	mi/h		
Adj. for access point density, (note	e-3) fA		0.8	mi/h		
Free-flow speed, FFSd			44.3	mi/h		
Adjustment for no-passing zones, fr	np		2.3*	mi/h		
Average travel speed, ATSd			31.8	mi/h		
Percent Free Flow Speed, PFFS			71.8	용		

Percent Time-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Directional flow rate,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	Op C/h 58.5 % 29.9	1.0 1.0 1.0 1.000 1.000 746	pc/h
Percent time-spent-following, PTSFd	71.4 %		
Level of Service and Other Perform	ance Meas	ures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	158 1.4 1700 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, Lu	0.3 - - 31.8 71.4 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel spec Length of two-lane highway downstream of effective	tive d, Lde	-	mi
length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl		-	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI		- 0.0	8
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl		_	mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	Passing L	ane
Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	2		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	566.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.06
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project Saturday Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 97 Shoulder width 6.0 ft % Trucks and buses 0 용 Lane width 12.0 % Trucks crawling ft 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 703 veh/h Opposing direction volume, Vo 610 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 725 pc/h 629 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 0.8 mi/h Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 31.4 mi/h Percent Free Flow Speed, PFFS 71.1 용

Percent Time-Spent	-Following
PCE for trucks, ET 1 PCE for RVs, ER 1 Heavy-vehicle adjustment factor, fHV 1	sis(d) Opposing (o) .0 1.0 .0 1.0 .000 1.000
Base percent time-spent-following,(note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	29.4 80.5 %
Level of Service and Other	Performance Measures
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.43 54 veh-mi 211 veh-mi 1.7 veh-h 0 veh/h 1700 veh/h 1700 veh/h
Passing Lane A	nalysis
Total length of analysis segment, Lt Length of two-lane highway upstream of the p Length of passing lane including tapers, Lp Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from all Level of service, LOSd (from above)	l – mi 31.4 mi/h
Average Travel Speed wi	th Passing Lane
Downstream length of two-lane highway within length of passing lane for average trave Length of two-lane highway downstream of ef:	el speed, Lde - mi
length of the passing lane for average Adj. factor for the effect of passing lane on average speed, fpl	travel speed, Ld - mi -
Average travel speed including passing lane Percent free flow speed including passing la	
Percent Time-Spent-Following	g with Passing Lane
Downstream length of two-lane highway within of passing lane for percent time-spent-	following, Lde - mi
Length of two-lane highway downstream of ef- the passing lane for percent time-spent Adj. factor for the effect of passing lane	
on percent time-spent-following, fpl Percent time-spent-following	- - %
including passing lane, PTSFpl	•
Level of Service and Other Performance	
Level of service including passing lane, LO: Peak 15-min total travel time, TT15	Spl A - veh-h
Bicycle Level of	Service

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	724.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.18
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co.

Date Performed 12/6/17

Analysis Time Period Existing + Project AM

Carmel Valley Road Highway

From/To Schulte / Robinson Canyon

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB

_____Input Data____

Highway	class Class	2		Peak hour factor, PHF	0.91	
Shoulder	r width	6.0	ft	% Trucks and buses	8	용
Lane wid	dth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	1	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	26	/mi

Analysis direction volume, Vd 384 veh/h Opposing direction volume, Vo 850 veh/h

Average Trav	el Spe	ed			
Direction An	alysis	(d)	Oppo	osing (c)
PCE for trucks, ET	1.3			1.0	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.97	7		1.000	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate, (note-2) vi	432	pc/h		934	pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3 Adj. for access point density,(note-3) f		- 50.0 0.0 6.5	mi/h veh/h mi/h mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 30.6 70.3	mi/h mi/h %		

Percent Time-Spent-Follow	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h 51.6 % 23.8 59.0 %	1.0 1.0 1.000 1.000 934	pc/h
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	576 5.2 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - 30.6 59.0	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effection length of passing lane for average travel speet Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	d, Lde speed, Ld		mi mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		0.0	ક
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-followi Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	ing, Ld	-	mi
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	_	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	422.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.12
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Existing + Project PM Analysis Time Period Carmel Valley Road Highway From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 929 veh/h Opposing direction volume, Vo 457 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.2 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.984 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1010 pc/h 505 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.4 mi/h Percent Free Flow Speed, PFFS 67.7 용

Percent Time-S	pent-Followi	ing		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	nalysis(d) 1.0 1.0	Ο <u>τ</u>	1.0 1.0 1.000	0)
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd			1.00 497	pc/h
Level of Service and Ot	her Performa	ance Measi	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMP Peak-hour vehicle-miles of travel, VMT6 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	T15 0	1394 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing La	ne Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapers Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (fr Level of service, LOSd (from above)	, Lpl		1.5 - - 29.4 88.6 E	mi mi mi mi/h
Average Travel Speed	with Passi	ing Lane		
Downstream length of two-lane highway w length of passing lane for average Length of two-lane highway downstream o	travel speed		-	mi
length of the passing lane for aver Adj. factor for the effect of passing l on average speed, fpl Average travel speed including passing	age travel s ane lane, ATSpl		- -	
Percent free flow speed including passi	ng lane, PFI	Spl	0.0	ફ
Percent Time-Spent-Foll	owing with I	Passing La	ne	
Downstream length of two-lane highway w of passing lane for percent time-sp Length of two-lane highway downstream o	ent-followir	ng, Lde	-	mi
the passing lane for percent time-s Adj. factor for the effect of passing l on percent time-spent-following, fp	pent-followi ane			mi
Percent time-spent-following including passing lane, PTSFpl			_	9
Level of Service and Other Perfor	mance Measur	res with E	Passing I	ane
Level of service including passing lane Peak 15-min total travel time, TT15	, LOSpl		veh-h	
Bicycle Leve	l of Service	=		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1009.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.56
Bicycle LOS	E

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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project Saturday Highway Carmel Valley Road

Schulte / Robinson Canyon From/To

Segment length 1.5 mi Truck crawl speed 0.0 Terrain type Level % Recreational vehicles 1 Grade: Length - mi % No-passing zones 100 Up/down - % Access point density 26 Analysis direction volume, Vd 699 veh/h Opposing direction volume, Vo 569 veh/h Average Travel Speed Direction Analysis(d) Opposing (PCE for trucks, ET 1.1 1.1			I	nput Data		
Lane width 12.0 ft % Trucks crawling 0.0 Segment length 1.5 mi Truck crawl speed 0.0 Terrain type Level % Recreational vehicles 1 Grade: Length - mi % No-passing zones 100 Up/down - % Access point density 26 Analysis direction volume, Vd 699 veh/h Opposing direction volume, Vo 569 veh/h Average Travel Speed Direction Analysis(d) Opposing (PCE for trucks, ET	Highway class Clas	s 2		Peak hour factor, PHF	0.92	
Segment length 1.5 mi Truck crawl speed 0.0 Terrain type Level % Recreational vehicles 1 Grade: Length - mi % No-passing zones 100 Up/down - % Access point density 26 Analysis direction volume, Vd 699 veh/h Opposing direction volume, Vo 569 veh/h Average Travel Speed Direction Analysis(d) Opposing (PCE for trucks, ET	Shoulder width	6.0	ft	% Trucks and buses	8	%
Terrain type Level % Recreational vehicles 1 Grade: Length - mi % No-passing zones 100 Up/down - % Access point density 26 Analysis direction volume, Vd 699 veh/h Opposing direction volume, Vo 569 veh/h Average Travel Speed Direction Analysis(d) Opposing (PCE for trucks, ET 1.1 1.1	Lane width	12.0	ft	% Trucks crawling	0.0	8
State	Segment length	1.5	mi	Truck crawl speed	0.0	mi/hı
Up/down - % Access point density 26 Analysis direction volume, Vd 699 veh/h Opposing direction volume, Vo 569 veh/h Average Travel Speed Direction Analysis(d) Opposing (PCE for trucks, ET 1.1 1.1	errain type	Level		% Recreational vehicles	: 1	용
Analysis direction volume, Vd 699 veh/h Opposing direction volume, Vo 569 veh/h Average Travel Speed Direction Analysis(d) Opposing (PCE for trucks, ET 1.1 1.1	Frade: Length	-	mi	% No-passing zones	100	%
Opposing direction volume, Vo 569 veh/h Average Travel Speed	Up/down	-	8	Access point density	26	/mi
	Analysis direction	volume,	Vd 699	veh/h		
Direction Analysis(d) Opposing (PCE for trucks, ET 1.1 1.1	opposing direction	volume,	Vo 569	veh/h		
PCE for trucks, ET 1.1 1.1			_Average	Travel Speed		
	Direction			Analysis(d))pposing	(0)
PCE for RVs ER 1.0 1.0	CE for trucks, ET			1.1	1.1	
101 101 110, 11	PCE for RVs, ER			1.0	1.0	

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis 1.1 1.0 V 0.999 1.00 766	2	11	0sing (0 1.1 1.0 0.992 1.00 623	pc/h
Free-Flow Speed from Field Measuremen Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (not Adj. for access point density, (note-3)	e-3) fLS	- - 50.0 0.0 6.5	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 30.4 69.9	mi/h mi/h %		

Percent Time-Spent-Follo	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		Opposing 1.0 1.0 1.000	
Directional flow rate,(note-2) vi 760 Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h 65.7 28.5 81.4	618 %	pc/h
Level of Service and Other Perfor	mance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.45 285 1049 9.4 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 Lu - - 30.4 81.4 D	mi mi mi mi/h
Average Travel Speed with Pas	sing Lam	ne	
Downstream length of two-lane highway within effe length of passing lane for average travel spe Length of two-lane highway downstream of effectiv	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl		Ld -	mi
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P		- 0.0	8
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway downstream of effectiv	ing, Lde	e -	mi
the passing lane for percent time-spent-follo Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Meas	ures wit	th Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	759.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.42
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:		F	ax:				
Direc	tional Two-La	ane Hig	hway :	Segment	Analys	is	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch	JO Mott MacDoi 12/6/17 Existing + Carmel Val: Robinson C: Unincorpora Oct 2016	Projec ley Road anyon /	d Schul				
		Input D	ata				
Segment length I Terrain type I	.0 ft 2.0 ft .5 mi .evel mi . % .ume, Vd 850 .ume, Vo 384	% Tru % Truck % Rec: % No-; Acces ve:	cks ancks concerned to craw concerned to con	factor, nd buses rawling l speed onal veh ng zones nt densi	icles	0.82 8 0.0 0.0 1 100 26	% % mi/hr % % /mi
	Average	e Trave	l Spe	ed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fac Grade adj. factor,(not Directional flow rate,	e-1) fg		lysis 1.0 1.0 1.00 1.00	0		posing 1.2 1.0 0.984 1.00 476	
Free-Flow Speed from F Field measured speed, Observed total demand Estimated Free-Flow Sp Base free-flow speed, Adj. for lane and show Adj. for access point	note-3) S FM (note-3) V eed: note-3) BFFS alder width,(note-3)		- - 50.0 0.0 6.5	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd				43.5	mi/h		
Adjustment for no-pass Average travel speed, Percent Free Flow Spee	ATSd	np		2.3* 29.5 67.7	mi/h mi/h %		

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.00 1.000	Ο <u>τ</u>	pposing (1.0 1.0 1.000 1.000	0)
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1037 p te-4) BPTSFd		468	pc/h
Level of Service and (Other Perform	ance Meası	res	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMPeak-hour vehicle-miles of travel, VMPeak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		1275 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	reh-mi reh-mi reh-h reh/h reh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape: Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		1.5 - - 29.5 90.0 E	mi mi mi mi/h
Average Travel Spec	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	erage travel		-	mi
Average travel speed including passing Percent free flow speed including pass			0.0	8
Percent Time-Spent-Fo	llowing with	Passing La	ine	
Downstream length of two-lane highway of passing lane for percent time-	spent-followi:	ng, Lde	-	mi
Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing	-spent-follow		-	mi
on percent time-spent-following, : Percent time-spent-following			-	
including passing lane, PTSFpl			-	8
Level of Service and Other Perfo	ormance Measu	res with E	assing I	ane
Level of service including passing lar Peak 15-min total travel time, TT15	ne, LOSpl	A .	reh-h	
Bicycle Lev	vel of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1036.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.58
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project PM

Highway Carmel Valley Road

From/To Robinson Canyon / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 6 WB

		I	nput Data		
Highway class Class	2		Peak hour factor, PHF	0.82	
Shoulder width	6.0	ft	% Trucks and buses	8	용
Lane width	12.0	ft	% Trucks crawling	0.0	8
Segment length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	1	8
Grade: Length	_	mi	% No-passing zones	100	8
Up/down	-	용	Access point density	26	/mi

Analysis direction volume, Vd 457 veh/h Opposing direction volume, Vo 929 veh/h

Average	Travel	Speed	

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor, (note-5) f	HV 0.992	1.000
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	562 pc/h	1133 pc/h

Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed:	- -	mi/h veh/h
Base free-flow speed,(note-3) BFFS	50.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	6.5	mi/h
Free-flow speed, FFSd	43.5	mi/h
Adjustment for no-passing zones, fnp	2.3*	mi/h
Average travel speed, ATSd	28.0	mi/h
Percent Free Flow Speed, PFFS	64.5	%

Percent Time-Spent-Follow	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 557 Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	oc/h	Opposing 1.0 1.00 1.000 1.33)
Level of Service and Other Perform	mance Me	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	C 0.33 209 686 7.5 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis	5		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 Lu - 28.0 68.4 C	mi mi mi mi/h
Average Travel Speed with Pass	sing Lan	e	
Downstream length of two-lane highway within effective length of passing lane for average travel spectron length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSP Percent free flow speed including passing lane, Proceedings of the passing lane for average travel spectron of the passing lane for average travel spectron of the passing lane for average travel and passing lane for average travel spectron of the passing lane for average travel and passi	ed, Lde e speed, :	Ld - - -	mi mi %
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-follow. Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow. Adj. factor for the effect of passing lane	ing, Lde e length	- of	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ફ
Level of Service and Other Performance Measure	ures wit	h Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	557.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.26
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Existing + Project Saturday Analysis Time Period Highway Carmel Valley Road From/To Robinson Canyon / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 % Trucks crawling 0.0 ft Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 569 veh/h Opposing direction volume, Vo 699 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 699 pc/h 852 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.2 mi/h Percent Free Flow Speed, PFFS 67.0 용

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		Opposing 1.0 1.0 1.000 1.000	
Directional flow rate,(note-2) vi 694 p Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	65.5 25.5 76.9	852 %	pc/h
Level of Service and Other Perform	nance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.41 260 854 8.9 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis	S		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 au – 29.2 76.9 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effectength of passing lane for average travel spectength of two-lane highway downstream of effective	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl	speed, I	- -	
Percent free flow speed including passing lane, PF	FSpl	0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	693.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.37
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project AM

Carmel Valley Road Highway

From/To Rancho San Carlos / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB

____Input Data___

Highway	class	Class	2		P	eak hour factor, PHF	0.82	
Shoulder	r width		6.0	ft	용	Trucks and buses	8	용
Lane wid	dth		12.0	ft	용	Trucks crawling	0.0	용
Segment	length		2.4	mi	T	ruck crawl speed	0.0	mi/hr
Terrain	type		Specific	c Grade	왕	Recreational vehicles	1	용
Grade:	Length		0.25	mi	왕	No-passing zones	100	용
	Up/down	1	-3.0	용	Α	ccess point density	14	/mi

Analysis direction volume, Vd 538 veh/h Opposing direction volume, Vo 918 veh/h

Average Travel Speed

Average Travel Speed						
		_				
Direction	Ana	lysis	(d)	Oppo	osing (o)
PCE for trucks, ET		1.1			1.1	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	0.99	2		0.992	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		661	pc/h		1129	pc/h
Free-Flow Speed from Field Measurer	ment:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand,(note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			55.0	mi/h		
Adj. for lane and shoulder width, (r			0.0	mi/h		
Adj. for access point density, (note	e-3) fA		3.5	mi/h		
Free-flow speed, FFSd			51.5	mi/h		
Adjustment for no-passing zones, fr	np		1.8*	mi/h		
Average travel speed, ATSd			35.8	mi/h		
Percent Free Flow Speed, PFFS			69.5	용		

Percent Time-Spent-Following	ng		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	/h 68.0 % 18.4 74.4 %	posing (1.0 1.0 1.000 0.92 1217	o) pc/h
Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF	D 0.39 394 v 1291 v 11.0 v 1700 v 1700 v	eh-mi eh-mi eh-h eh/h eh/h eh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing : Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above) Average Travel Speed with Passin	lane, Lu	2.4 - - 35.8 74.4 D	mi mi mi mi/h
Downstream length of two-lane highway within effect: length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel speed Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFFS	ive , Lde peed, Ld Spl	- - 0.0	mi mi
Downstream length of two-lane highway within effects of passing lane for percent time-spent-following. Length of two-lane highway downstream of effective the passing lane for percent time-spent-following. Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl	ive lengt g, Lde length of	h -	mi mi %
Level of Service and Other Performance Measure Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - v	assing L eh-h	ane

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	656.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.34
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
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- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project PM Carmel Valley Road Highway From/To Rancho San Carlos / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down -3.0 Access point density /mi Analysis direction volume, Vd 997 veh/h Opposing direction volume, Vo 524 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.8 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.943 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1216 pc/h 678 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 35.0 mi/h Percent Free Flow Speed, PFFS 68.0 용

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.000 0.92	0)
Directional flow rate,(note-2) vi 1216 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd			pc/h
Level of Service and Other Performs	ance Meas	ures	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15	2393 20.9 0	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - - 35.0 91.7 E	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane_		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI		- -	
Percent Time-Spent-Following with I	Passing L	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	용
Level of Service and Other Performance Measur	res with	Passing I	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1215.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.66
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project Saturday

Highway Carmel Valley Road

From/To Rancho San Carlos / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB

______Input Data______

Highway class Class	2	Peak hour factor, PHF	0.82	
Shoulder width	6.0 ft	% Trucks and buses	8	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	1	용
Grade: Length	0.25 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	14	/mi

Analysis direction volume, Vd 621 veh/h Opposing direction volume, Vo 775 veh/h

Average Travel Speed						
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg	1.1 1.0 0.99 1.00	2		osing (c 1.1 1.0 0.992 1.00		
Directional flow rate,(note-2) vi Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM	763	pc/h	mi/h	953	pc/h	
Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS	`	55.0	veh/h mi/h			
Adj. for lane and shoulder width,(note-3 Adj. for access point density,(note-3) for access point density, for access point density densi		0.0 3.5 51.5	mi/h mi/h mi/h			
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		1.8* 36.4 70.6	mi/h mi/h mi/h			

Percent Time-Spent-Follow	ing		
Direction Analysis(d)		Opposing	(0)
PCE for trucks, ET 1.0		1.0	
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 1.00		0.92	
	c/h	1027	pc/h
Base percent time-spent-following, (note-4) BPTSFd		8	
Adjustment for no-passing zones, fnp	21.5	ે	
Percent time-spent-following, PTSFd	79.3	6	
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.45		
Peak 15-min vehicle-miles of travel, VMT15	454	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	1490	veh-mi	
Peak 15-min total travel time, TT15	12.5	veh-h	
Capacity from ATS, CdATS	1700	veh/h	
Capacity from PTSF, CdPTSF	1700	veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt		2.4	mi
Length of two-lane highway upstream of the passing	lane, L		mi.
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		36.4 79.3	mi/h
Percent time-spent-following, PTSFd (from above)			
Level of service, LOSd (from above)		D	
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effec	tive		
length of passing lane for average travel spee		_	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel		d -	mi
Adj. factor for the effect of passing lane	/ -	-	
on average speed, fpl		_	
Average travel speed including passing lane, ATSpl		_	
Percent free flow speed including passing lane, PF		0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effec		gth.	
of passing lane for percent time-spent-followi		-	mi
Length of two-lane highway downstream of effective			
the passing lane for percent time-spent-follow	ing, Ld	-	mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			0
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	. Passing	Lane
Loyal of garviga including pagging large 100ml	7\		
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Town 15 min cooks craves came, 1115			
Bicycle Level of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	757.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.42
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project AM Carmel Valley Road Highway From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0 77 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 918 veh/h Opposing direction volume, Vo 538 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1202 pc/h 704 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 34.9 mi/h Percent Free Flow Speed, PFFS 67.8 용

Percent Time-	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.0 0.92		1.0 1.0 1.000 1.00	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1296 p ce-4) BPTSFd		699	pc/h
Level of Service and (ther Perform	ance Meası	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	760	2203 T 20.5 T	veh-mi veh-mi veh-h veh/h veh/h	
Passing I	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl		2.4 - - 34.9 93.3 E	mi mi mi mi/h
Average Travel Spec	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	erage travel		-	mi
Average travel speed including passing Percent free flow speed including pass			0.0	왕
Percent Time-Spent-Fol	lowing with	Passing La	ane	
Downstream length of two-lane highway of passing lane for percent time-s	spent-followi	ng, Lde	-	mi
Length of two-lane highway downstream the passing lane for percent time- Adj. factor for the effect of passing	spent-follow		-	mi
on percent time-spent-following, f Percent time-spent-following			-	8
including passing lane, PTSFpl			_	•
Level of Service and Other Perfo			eassing l	ane
Level of service including passing lar Peak 15-min total travel time, TT15	ne, LOSpl	A .	reh-h	
Bicycle Lev	vel of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1192.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.65
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project PM

Carmel Valley Road Highway

From/To Schulte / Rancho San Carlos

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 7 WB

Input Data						
Highway class Class	: 2	Peak hour factor, PHF	0.77			
Shoulder width	6.0 ft	% Trucks and buses	8	용		
Lane width	12.0 ft	% Trucks crawling	0.0	용		
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr		
Terrain type	Specific Grade	% Recreational vehicles	1	용		
Grade: Length	0.25 mi	% No-passing zones	100	용		
Up/down	3.0 %	Access point density	14	/mi		

Analysis direction volume, Vd 524 veh/h Opposing direction volume, Vo 997 veh/h

Average Travel Speed

Average	IIavel	Spee	eu			
Direction	Anal	Lysis((d)	Oppo	osing (o)
PCE for trucks, ET		1.7			1.0	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor, (note-5)	fHV	0.946	5		1.000	
Grade adj. factor, (note-1) fg		1.00			1.00	
Directional flow rate, (note-2) vi		719	pc/h		1295	pc/h
Error Elaw Crond from Eigld Managemen	ont:					
Free-Flow Speed from Field Measurem	ent.			/ 1-		
Field measured speed, (note-3) S FM			_	mi/h		
Observed total demand, (note-3) V			_	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			55.0	mi/h		
Adj. for lane and shoulder width, (no			0.0	mi/h		
Adj. for access point density, (note	-3) fA		3.5	mi/h		
Free-flow speed, FFSd			51.5	mi/h		
				,		
Adjustment for no-passing zones, fn	p		1.8*	mi/h		
Average travel speed, ATSd			34.1	mi/h		
Percent Free Flow Speed, PFFS			66.2	용		
± :						

Percent Time-Spent-Foll	owing		
PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 0.92	pc/h Fd 72.4 15.6	Opposing 1.0 1.0 1.000 1.000 1295	(o) pc/h
Level of Service and Other Perfo	rmance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1686 1564 1564	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	;is		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passi Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 u - 34.1 78.1 D	mi mi mi mi/h
Average Travel Speed with Pa	assing Lane		
Downstream length of two-lane highway within eff length of passing lane for average travel sp Length of two-lane highway downstream of effecti length of the passing lane for average trave Adj. factor for the effect of passing lane	peed, Lde Lve		mi mi
on average speed, fpl Average travel speed including passing lane, ATS Percent free flow speed including passing lane,		- 0.0	%
Percent Time-Spent-Following wit	h Passing :	Lane	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follo Length of two-lane highway downstream of effecti	Tective lengowing, Lde	gth - of	mi
the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	owing, La	-	mi
including passing lane, PTSFpl		-	용
Level of Service and Other Performance Mea	sures with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Serv	/ice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	680.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.36
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project Saturday Carmel Valley Road Highway From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.94 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 775 veh/h Opposing direction volume, Vo 621 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.997 0.999 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 827 pc/h 661 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 38.2 mi/h Percent Free Flow Speed, PFFS 74.1 용

Percent Time-	-Spent-Follow	ing		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.0 1.0 1.0	C	1.0 1.0 1.00	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		c/h 72.0 % 25.3 86.6 %		pc/h
Level of Service and (other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VM7 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF	/MT15 C60	E 0.53 495 1860 13.0 0	veh-mi veh-mi veh-h veh/h veh/h	
Directional Capacity Passing I			veh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	the passing rs, Lpl	lane, Lu	2.4	mi mi mi mi/h
Average Travel Spec	ed with Pass	ing Lane_		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl Average travel speed including passing	erage travel lane	speed, Lo	l – – –	mi
Percent free flow speed including pass	sing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fol	llowing with	Passing I	ane	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	spent-followi	ng, Lde	-	mi
the passing lane for percent time- Adj. factor for the effect of passing on percent time-spent-following, f	spent-follow lane			mi
Percent time-spent-following including passing lane, PTSFpl	-6+		-	8
Level of Service and Other Perfo	ormance Measu	res with	Passing	Lane
Level of service including passing lar Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Lev	vel of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	824.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	2.49
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS____

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project AM Highway: Carmel Valley Road From/To:

Rio to Rancho San Carlos Jurisdiction:

Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft.	12.0	ft.
Access points per mile	8		4	= -
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph		mph
Lane width adjustment, FLW				mph
Lateral clearance adjustment, FLC		mph		mph
Median type adjustment, FM	0.0	mph	0.0	mph
	2.0	mph	1.0	mph
Free-flow speed		mph		mph
Tice Tion Speed	33.0		31.0	
	_VOLUME			
Direction	1		2	
Volume, V	697	vph	902	vph
Peak-hour factor, PHF	0.80	v Pii	0.87	VPII
•	218		259	
Trucks and buses	3	용	1	8
Recreational vehicles	0	96	0	\$ 8
Terrain type	Level	70	Level	70
Grade	0.00	ે	0.00	ş
Segment length	0.00	mi	0.00	mi
Number of lanes	2	шт	2	шт
Driver population adjustment, fP	_		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.995	
	442	1 1		
Flow rate, vp	442	pcphpl	520	pcphpl
	_RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 442 53.0 55.0 A	pcphpl mph mph pc/mi/ln	55.0 A	pcphpl mph mph pc/mi/ln
Bicycle L	evel of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	435.6		518.4	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.69		2.30	
Bicycle LOS	C		В	

Phone: E-mail: Fax:

____FREE-FLOW SPEED_

____OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project PM Highway: Carmel Valley Road

From/To: Carmel Valley Road
Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge		ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS		mph		mph
Lane width adjustment, FLW				mph
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.0	ngh	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	-
-		-		-
	_VOLUME			
Direction	1		2	
Volume, V	999	vph	678	vph
Peak-hour factor, PHF	0.88	-	0.93	-
Peak 15-minute volume, v15	284		182	
Trucks and buses	1	용	1	용
Recreational vehicles	0	용	0	%
Terrain type	Level		Level	
Grade	0.00	용	0.00	용
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	570	pcphpl	366	pcphpl
	RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 570 53.0 55.0 A 10.4	pcphpl mph mph pc/mi/ln	54.0 55.0 A	pcphpl mph mph pc/mi/ln
Bicycle	Level of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	567.6		364.5	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.34		2.12	
Bicycle LOS	В		В	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

_____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project Saturday

Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM		mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
-		_		_
	_VOLUME			
Direction	1		2	
Volume, V	818	vph	815	vph
Peak-hour factor, PHF	0.91	_	0.94	_
Peak 15-minute volume, v15	225		217	
reak is-minute volume, vis			21/	
Trucks and buses	1	용	1	%
		96 96		% %
Trucks and buses	1		1	
Trucks and buses Recreational vehicles	1		1 0	
Trucks and buses Recreational vehicles Terrain type	1 0 Level	%	1 0 Level	8
Trucks and buses Recreational vehicles Terrain type Grade	1 0 Level 0.00	%	1 0 Level 0.00	8
Trucks and buses Recreational vehicles Terrain type Grade Segment length	1 0 Level 0.00 0.00	%	1 0 Level 0.00 0.00	8
Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	1 0 Level 0.00 0.00	%	1 0 Level 0.00 0.00	8
Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	1 0 Level 0.00 0.00 2	%	1 0 Level 0.00 0.00 2	8
Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET	1 0 Level 0.00 0.00 2 1.00	%	1 0 Level 0.00 0.00 2 1.00	8
Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1 0 Level 0.00 0.00 2 1.00 1.5	%	1 0 Level 0.00 0.00 2 1.00 1.5 1.2	8
Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1 0 Level 0.00 0.00 2 1.00 1.5 1.2	% mi	1 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % mi

Direction Flow rate, vp	1 451	pcphpl	2 435	pcphpl
Free-flow speed, FFS	53.0	mph	54.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.2	pc/mi/ln	7.9	pc/mi/ln
Posted speed limit, Sp	Level of Se	ervice	55	
Percent of segment with occupied	_		_	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	449.5		433.5	
Effective width of outside lane, We	e 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.23		2.21	
Bicycle LOS	В		В	

Fax:

Phone: E-mail:

__OPERATIONAL ANALYSIS___

____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project AM
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed		mph		mph
	_VOLUME			
Direction	1		2	
Volume, V	993	vph	1192	vph
Peak-hour factor, PHF	0.86	-	0.68	-
Peak 15-minute volume, v15	289		438	
Trucks and buses	2	ક	2	%
Recreational vehicles	0	ક	0	%
Terrain type	Level		Level	
Grade	0.00	용	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
			1.2	
Recreational vehicles PCE, ER	1.2		1.2	
Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1.2 0.990		0.990	
the contract of the contract o		pcphpl	0.990	pcphpl
Heavy vehicle adjustment, fHV	0.990	pcphpl	0.990	pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 583 53.0 55.0 A 10.6	pcphpl mph mph pc/mi/ln	53.0 55.0 B	pcphpl mph mph pc/mi/ln	
Bicycle Level of Service					
Posted speed limit, Sp Percent of segment with occupied	55		55		
on-highway parking	0		0		
Pavement rating, P	3		3		
Flow rate in outside lane, vOL	577.3		876.5		
Effective width of outside lane, We	24.00		24.00		
Effective speed factor, St	4.79		4.79		
Bicycle LOS Score, BLOS	2.58		2.79		
Bicycle LOS	C		C		

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project PM Highway:

Carmel Valley Road From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW		mph		mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	mph
-		_		_
	_VOLUME			
Direction	_			
Direction	1		2	
Volume, V	1 1282	vph	973	vph
		vph	_	vph
Volume, V Peak-hour factor, PHF	1282	vph	973	vph
Volume, V Peak-hour factor, PHF	1282 0.95	vph	973 0.88	vph
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15	1282 0.95 337	-	973 0.88 276	-
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	1282 0.95 337 2	%	973 0.88 276	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	1282 0.95 337 2	%	973 0.88 276 1	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	1282 0.95 337 2 0 Level	୍ବ ୧୯ ୧୯	973 0.88 276 1 0 Level	- %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	1282 0.95 337 2 0 Level 0.00	ako ako ako	973 0.88 276 1 0 Level 0.00	2 8 8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	1282 0.95 337 2 0 Level 0.00 0.00	ako ako ako	973 0.88 276 1 0 Level 0.00 0.00	2 8 8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	1282 0.95 337 2 0 Level 0.00 0.00	ako ako ako	973 0.88 276 1 0 Level 0.00 0.00	2 8 8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	1282 0.95 337 2 0 Level 0.00 0.00 2	ako ako ako	973 0.88 276 1 0 Level 0.00 0.00 2	2 8 8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1282 0.95 337 2 0 Level 0.00 0.00 2 1.00	ako ako ako	973 0.88 276 1 0 Level 0.00 0.00 2 1.00	2 8 8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1282 0.95 337 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	ako ako ako	973 0.88 276 1 0 Level 0.00 0.00 2 1.00 1.5 1.2	2 8 8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1282 0.95 337 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % mi	973 0.88 276 1 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % % mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, Level of service, LOS Density, D	1 681 53.0 S 55.0 B 12.4	pcphpl mph mph pc/mi/ln	53.0 55.0 A	pcphpl mph mph pc/mi/ln
Bicyc	le Level of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	674.7		552.8	
Effective width of outside lane,	We 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.66		2.33	
Bicycle LOS	C		В	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project Saturday

Highway: Carmel Valley Road From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed		mph		mph
	_VOLUME			
Direction	1		2	
Volume, V	1030	vph	1028	vph
Peak-hour factor, PHF	0.96	-	0.94	-
Peak 15-minute volume, v15	268		273	
Trucks and buses	1	용	1	ક
Recreational vehicles	0	용	0	ક
Terrain type	Level		Level	
Grade	0.00	8	0.00	용
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	539	pcphpl	549	pcphpl
	RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 539 53.0 55.0 A 9.8	pcphpl mph mph pc/mi/ln	53.0 55.0 A	pcphpl mph mph pc/mi/ln
Bicycle L	evel of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	536.5		546.8	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.32		2.33	
Bicycle LOS	В		В	

Fax:

Phone: E-mail:

__OPERATIONAL ANALYSIS___

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project AM Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0			mph
Lateral clearance adjustment, FLC	0 0	mph	0 0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
_		_		_
	_VOLUME			
Direction	1		2	
Volume, V	1010	vph	976	vph
Peak-hour factor, PHF	0.86	-	0.76	-
Peak 15-minute volume, v15	294		321	
Trucks and buses	2	8	2	લ
				76
Recreational vehicles	0	용	0	8
Recreational vehicles Terrain type	0 Level		=	-
	-		0	-
Terrain type	Level	8	0 Level	8
Terrain type Grade	Level 0.00	8	0 Level 0.00	8
Terrain type Grade Segment length	Level 0.00 0.00 2	8	0 Level 0.00 0.00	8
Terrain type Grade Segment length Number of lanes	Level 0.00 0.00 2	8	0 Level 0.00 0.00	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	Level 0.00 0.00 2	8	0 Level 0.00 0.00 2	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	Level 0.00 0.00 2 1.00	8	0 Level 0.00 0.00 2 1.00	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	Level 0.00 0.00 2 1.00 1.5	8	0 Level 0.00 0.00 2 1.00 1.5 1.2	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	Level 0.00 0.00 2 1.00 1.5 1.2	% mi	0 Level 0.00 0.00 2 1.00 1.5 1.2	% % mi

Direction	1		2	
Flow rate, vp	593	pcphpl	648	pcphpl
Free-flow speed, FFS	55.0	mph	55.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		В	
Density, D	10.8	pc/mi/ln	11.8	pc/mi/ln
Bicycle	Level of Se	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied	55		33	
on-highway parking	0		0	
3 1 1 3	3		3	
Pavement rating, P	-		-	
Flow rate in outside lane, vOL	587.2		642.1	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.59		2.64	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project PM Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed		mph		mph
	_VOLUME			
Direction	1		2	
Volume, V	980	vph	849	vph
Peak-hour factor, PHF	0.95	-	0.90	-
Peak 15-minute volume, v15	258		236	
Trucks and buses	2	ક	2	ક
Recreational vehicles	0	ક	0	ક
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV			0.990	
heavy vehicle adjustment, inv	0.990		0.990	
Flow rate, vp	0.990 520	pcphpl		pcphpl
2 .		pcphpl		pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 520 55.0 55.0 A 9.5	pcphpl mph mph pc/mi/ln	55.0 A	pcphpl mph mph pc/mi/ln		
Bicycle Level of Service						
Posted speed limit, Sp Percent of segment with occupied	55		55			
on-highway parking	0		0			
Pavement rating, P	3		3			
Flow rate in outside lane, vOL	515.8		471.7			
Effective width of outside lane, W	e 24.00		24.00			
Effective speed factor, St	4.79		4.79			
Bicycle LOS Score, BLOS	2.53		2.48			
Bicycle LOS	C		В			

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Existing + Project Saturday

Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:	12.0	10	12.0	1.0
Right edge	6.0	ft	6.0	ft
Left edge		ft	6.0	ft
	12.0		12.0	
Access points per mile	0	10	0	10
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS		mnh	55.0	mph
Lane width adjustment, FLW			0.0	
Lateral clearance adjustment FLC	0.0	mph	0.0	mph
Median type adjustment EM	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55 0	mph	55.0	mph
riee-liow speed	55.0	шрп	33.0	шрп
	VOLUME			
7	1		0	
Direction	1	le	2	le
Volume, V	888 0.96	vph	802 0.98	vph
Peak-hour factor, PHF				
	231		205	0
Trucks and buses	2	8	2	8
	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP			1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
	0.990		0.990	
Flow rate, vp	467	pcphpl	413	pcphpl
	RESULTS			

Flow rate, vp Free-flow speed, FF: Avg. passenger-car Level of service, Louisity, D	travel speed, S	1 467 55.0 55.0 A 8.5	pcphpl mph mph pc/mi/ln	55.0 55.0 A	pcphpl mph mph pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit, Percent of segment	-	55		55	
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside	e lane, vOL	462.5		409.2	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fac	tor, St	4.79		4.79	
Bicycle LOS Score, 1	BLOS	2.47		2.41	
Bicycle LOS		В		В	

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co.

Date Performed 12/6/17

Analysis Time Period Existing + Project AM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Percent Free Flow Speed, PFFS

Description Rio Ranch Seg 13 NB

			I	nput Data		
77.2Na	-1 01	2		Darla have factor DIII	0.76	
	class Class	2		Peak hour factor, PHF	0.76	
Shoulder	r width	5.0	ft	% Trucks and buses	3	용
Lane wid	dth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Rolling		% Recreational vehicles	0	용
Grade:	Length	_	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	5	/mi

Analysis direction volume, Vd 297 veh/h Opposing direction volume, Vo 406 veh/h

 Average	Travel	Speed

Average	Travel	Spee	:a			
Direction	Analy	rsis(d)	gg()	osing (o)
PCE for trucks, ET	-	2.0		-11	1.8	- ,
PCE for RVs, ER		1.1			1.1	
· ·					0.977	
Heavy-vehicle adj. factor, (note-5)						
Grade adj. factor,(note-1) fg		.89			0.96	
Directional flow rate,(note-2) vi	4	152	pc/h		570	pc/h
Free-Flow Speed from Field Measurem Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (nadj. for access point density, (note-	ote-3) f	LS	- - 45.0 1.3	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd			42.5	mi/h		
Adjustment for no-passing zones, fn	р		2.3*	mi/h		
Average travel speed, ATSd	-		32.2	mi/h		

75.9 %

Percent Time	-Spent-Followi	ing		
51		•	. ,	,
Direction	Analysis(d)	Op	posing (o)
PCE for trucks, ET	1.6		1.2	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.982		0.994	
Grade adjustment factor, (note-1) fg	0.90		0.96	
Directional flow rate, (note-2) vi		c/h	560	pc/h
	_		500	PC/11
Base percent time-spent-following, (no	te-4) brisru			
Adjustment for no-passing zones, fnp		37.5		
Percent time-spent-following, PTSFd		65.0 %		
Level of Service and	Other Performa	ance Measu	res	
Level of service, LOS		С		
Volume to capacity ratio, v/c		0.26		
	rnem1 F			
Peak 15-min vehicle-miles of travel,			eh-mi	
Peak-hour vehicle-miles of travel, VM	T60	772 v	eh-mi	
Peak 15-min total travel time, TT15		7.9 v	eh-h	
Capacity from ATS, CdATS		1598 v	eh/h	
Capacity from PTSF, CdPTSF			eh/h	
Directional Capacity		1639 v	eh/h	
Passing	Lane Analysis_			
Total length of analysis segment, Lt			2.6	mi
		1 T		
Length of two-lane highway upstream o		lane, Lu		mi
Length of passing lane including tape			-	mi
Average travel speed, ATSd (from abov	e)		32.2	mi/h
Percent time-spent-following, PTSFd (from above)		65.0	
Level of service, LOSd (from above)			C	
never of pervice, nepa (from above)			Ü	
Average Travel Spe	ed with Passi	ing Lane		
Downstream length of two-lane highway	within effect	cive		
length of passing lane for averag	e travel speed	d. I.de	_	mi
Length of two-lane highway downstream		a, Duc		
length of the passing lane for av		speea, La	-	mi
Adj. factor for the effect of passing	lane			
on average speed, fpl			-	
Average travel speed including passin	g lane, ATSpl		-	
Percent free flow speed including pas			0.0	8
Percent Time-Spent-Fo	llowing with I	Passing La	ne	
Downstream length of two-lane highway	within effect	tive lengt	h	
of passing lane for percent time-	spent-followir	ng, Lde	_	mi
Length of two-lane highway downstream	of effective	length of		
the passing lane for percent time			_	mi
		ing, ba		шт
Adj. factor for the effect of passing				
on percent time-spent-following,	ipl		-	
Percent time-spent-following				
including passing lane, PTSFpl			-	8
Level of Service and Other Perf	ormance Measu	res with P	assing La	ane
Level of service including passing la	ne, LOSpl	A		
Peak 15-min total travel time, TT15		- v	eh-h	

______ Bicycle Level of Service ___

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	390.8
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.97
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:		Fax	:				
Direct	ional Two-Lane	e Highw	ay S	Segment	Analys	is	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch	JO Mott MacDonal 12/6/17 Existing + Pr SR 1 Highlands Dr Unincorporate 2017 Seg 13 NB	roject / Ribe	ra E				
	Ing	put Dat	a				
Segment length 2. Terrain type Sp Grade: Length 0.	0 ft 8 .0 ft 8 6 mi 9 ecific Grade 8 25 mi 8 0 % 7	% Truck % Truck Fruck c % Recre % No-pa Access	s ar s cr raw: atio ssir poir	factor, and buses rawling l speed conal veh and zones ant densi	icles	0.88 2 0.0 0.0 0 100 5	% % mi/hr % % /mi
	Average 1	Travel	Snee	ad.			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(or,(note-5) fF	Analy 1 1 HV 0	sis .5 .0 .99	(d) 1		posing (1.1 1.0 0.998 1.00 558	o) pc/h
Free-Flow Speed from Fi Field measured speed, (n Observed total demand, (Estimated Free-Flow Spe Base free-flow speed, (n Adj. for lane and shoul Adj. for access point of	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(not	te-3) f	LS	- - 45.0 1.3	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd				42.5	mi/h		
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	TSd			2.3* 29.9 70.4	mi/h mi/h %		

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	0.92		1.0 1.0 1.000 1.00	
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	-	c/h 68.2 % 28.2 85.0 %		pc/h
Level of Service and	Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Yeak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		1729 16.4 0 1564	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape: Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		2.6 - - 29.9 85.0 D	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane_		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel spee	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel		l – –	mi
Average travel speed including passing Percent free flow speed including passing passi			0.0	%
Percent Time-Spent-Fo	llowing with	Passing L	ane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-followi:	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing	-spent-follow lane		-	mi
on percent time-spent-following, : Percent time-spent-following including passing lane, PTSFpl	гЪт		-	%
Level of Service and Other Perf	ormance Measu	res with	Passing	Lane
Level of service including passing last Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	755.7
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.07
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Existing + Project Saturday

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 13 NB

_____Input Data_____

Highway class Class	3 2		Peak hour factor, PHF	0.95	
Shoulder width	5.0	ft	% Trucks and buses	1	8
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	5	/mi

Analysis direction volume, Vd 572 veh/h Opposing direction volume, Vo 667 veh/h

_____Average Travel Speed_

Ana	lysis	(d)	Opp	osing (0)
	1.7			1.6	
	1.1			1.1	
fHV	0.99	3		0.994	
	0.97			0.98	
	625	pc/h		721	pc/h
ment:					
		-	mi/h		
		-	veh/h		
		45.0	mi/h		
note-3)	fLS	1.3	mi/h		
e-3) fA		1.3	mi/h		
		42.5	mi/h		
np		2.3*	mi/h		
-		29.7	mi/h		
		70.0	8		
	fHV ment: note-3) e-3) fA	1.7 1.1 6HV 0.99 0.97 625 ment:	1.7 1.1 0.993 0.97 625 pc/h ment: - 45.0 note-3) fLS 1.3 e-3) fA 1.3 42.5 np 2.3* 29.7	1.7 1.1 6HV 0.993 0.97 625 pc/h ment: - mi/h - veh/h 1.3 mi/h 42.5 mi/h 42.5 mi/h mp 2.3* mi/h 29.7 mi/h	1.7 1.6 1.1 1.1 0.993 0.993 0.994 0.97 0.98 625 pc/h 721 ment: - mi/h - veh/h 45.0 mi/h note-3) fLS 1.3 mi/h e-3) fA 1.3 mi/h 42.5 mi/h np 2.3* mi/h 29.7 mi/h

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 0.97	Op c/h	posing 1.0 1.0 1.000 0.99 709	(o) pc/h
Adjustment for no-passing zones, fnp	30.0		
Percent time-spent-following, PTSFd	75.2 %		
Level of Service and Other Perform	ance Measu	res	
Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1487 v 13.2 v 1656 v 1683 v	reh-mi reh-mi reh-h reh/h reh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.6 - - 29.7 75.2 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effectength of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
<pre>length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl</pre>	speed, Ld	-	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		0.0	ફ
Percent Time-Spent-Following with	Passing La	ne	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-follows: Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane		-	mi
on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	res with F	assing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	- 7	reh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	602.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.74
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project AM Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 406 veh/h Opposing direction volume, Vo 297 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.9 2.1 PCE for RVs, ER 1.1 1.1 0.968 Heavy-vehicle adj. factor, (note-5) fHV 0.974 Grade adj. factor, (note-1) fg 0.92 0.85 Directional flow rate, (note-2) vi 492 pc/h 392 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 33.3 mi/h Percent Free Flow Speed, PFFS 78.4 용

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.4 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 0.988 Grade adjustment factor, (note-1) fg 0.92		1.6 1.0 0.982 0.86	2
Directional flow rate,(note-2) vi 485 posses percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	47.7 40.8	382 } }	pc/h
Level of Service and Other Perform	ance Meas	sures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1486 1486	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.6 1 - 33.3 70.5 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effec	tive		
length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl	speed, Lo	d - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF:		- 0.0	%
Percent Time-Spent-Following with	Passing I	Lane	
Downstream length of two-lane highway within effection of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow $\mbox{\sc Adj.}$ factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu:	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	441.3
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.03
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co.

Date Performed 12/6/17

Analysis Time Period Existing + Project PM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Percent Free Flow Speed, PFFS

Description Rio Ranch Seg 13 SB

_____Input Data____

Highway class Class	2		Peak hour factor, PHF	0.93	
Shoulder width	5.0	ft	% Trucks and buses	3	8
Lane width	12.0	ft	% Trucks crawling	0.0	8
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	5	/mi

Analysis direction volume, Vd 490 veh/h Opposing direction volume, Vo 665 veh/h

Average	Travel	Speed
---------	--------	-------

Average	Travel	Spee	ea			
Direction	Anal	lysis	(d)	qqO	osing (0)
PCE for trucks, ET		1.8			1.6	
PCE for RVs, ER		1.1			1.1	
Heavy-vehicle adj. factor,(note-5) f	HV	0.97			0.982	
Grade adj. factor,(note-1) fg		0.96			0.98	
Directional flow rate,(note-2) vi		562	pc/h		743	pc/h
Free-Flow Speed from Field Measureme	ent:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			_	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width, (no	te-3)	fLS	1.3	mi/h		
Adj. for access point density, (note-	3) fA		1.3	mi/h		
Free-flow speed, FFSd			42.5	mi/h		
Adjustment for no-passing zones, fnp)		2.3*	mi/h		
Average travel speed, ATSd			30.0	mi/h		

70.7 %

Percent Time-Spent-Follow	ing		
Direction Analysis(d)		pposing	(0)
PCE for trucks, ET 1.2		1.0	
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 0.994		1.000	
Grade adjustment factor, (note-1) fg 0.96		0.99	
	c/h	722	pc/h
Base percent time-spent-following, (note-4) BPTSFd			1/
Adjustment for no-passing zones, fnp	30.8		
Percent time-spent-following, PTSFd	70.1 %		
refeeled dime brone fortowing, ribra	, , , , ,		
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.32		
Peak 15-min vehicle-miles of travel, VMT15	342	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	1274	veh-mi	
Peak 15-min total travel time, TT15	11.4	veh-h	
Capacity from ATS, CdATS		veh/h	
Capacity from PTSF, CdPTSF		veh/h	
Directional Capacity		veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt		2.6	mi
Length of two-lane highway upstream of the passing	lane, Lu	-	mi
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		30.0	mi/h
Percent time-spent-following, PTSFd (from above)		70.1	
Level of service, LOSd (from above)		D	
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effec			
length of passing lane for average travel spee		-	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel	speed, Ld	-	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, ATSpl		-	
Percent free flow speed including passing lane, PF	'FSpl	0.0	용
Percent Time-Spent-Following with	Pagging L	ane	
Downstream length of two-lane highway within effec		th	
of passing lane for percent time-spent-followi	ng, Lde	-	mi
Length of two-lane highway downstream of effective	length o	£	
the passing lane for percent time-spent-follow	ing, Ld	_	mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		_	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with 1	Passing :	Lane
Tanal of annia including partial law 700 3	7		
Level of service including passing lane, LOSpl			
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp
Percent of segment with occupied on-highway parking
0
Pavement rating, P
Flow rate in outside lane, vOL
Effective width of outside lane, We
Effective speed factor, St
Bicycle LOS Score, BLOS
Bicycle LOS
C
C

Notes:

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Existing + Project Saturday Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Truck crawl speed Segment length 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 667 veh/h Opposing direction volume, Vo 572 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.6 1.7 PCE for RVs, ER 1.1 1.1 0.979 Heavy-vehicle adj. factor, (note-5) fHV 0.982 Grade adj. factor,(note-1) fg 0.98 0.97 753 Directional flow rate, (note-2) vi pc/h 655 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2 3 * mi/h Average travel speed, ATSd 29.2 mi/h Percent Free Flow Speed, PFFS 68.8 용

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 0.99	(Opposing 1.0 1.0 1.000 0.97	
Directional flow rate,(note-2) vi 732 pc Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	28.8	641 % %	pc/h
Level of Service and Other Performa	ance Mea	sures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	0 1666 1666	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.6 u - - 29.2 79.7 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel and factor for the effect of passing lane	speed, Lo	d -	mi
on average speed, fpl Average travel speed including passing lane, ATSpl		-	
Percent free flow speed including passing lane, PFI	FSpl	0.0	8
Percent Time-Spent-Following with I	Passing 1	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ફ
Level of Service and Other Performance Measur	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	725.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.28
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

____OPERATIONAL ANALYSIS__

_____FREE-FLOW SPEED__

Fax:

Phone: E-mail:

all:

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background AM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivided	1	Undivided	[
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
	_VOLUME			
Direction	1		2	
Volume, V	1356	vph	1690	vph
Peak-hour factor, PHF	0.91	-	0.91	-
	373		464	
Trucks and buses	2	용	3	용
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	용	-6.00	8
Segment length	0.73	mi	0.73	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.0		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.926		0.985	
Flow rate, vp	804	pcphpl	942	pcphpl
	_RESULTS			

Direction	1		2	
Flow rate, vp	804	pcphpl	942	pcphpl
Free-flow speed, FFS	43.0	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	В		C	
Density, D	17.9	pc/mi/ln	20.9	pc/mi/ln
Bicycle	Level of Se	rvice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	745.1		928.6	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.17		3.53	
Bicycle LOS	C		D	

Phone: E-mail:

____OPERATIONAL ANALYSIS______

FREE-FLOW SPEED

Fax:

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background PM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction 1 2 Lane width 12.0 ft 12.0 ft Lateral clearance: Right edge 5.0 ft 5.0 ft Left edge 6.0 ft ft 6.0 Total lateral clearance 11.0 ft 11.0 ft Access points per mile 1 2 Undivided Undivided Median type Free-flow speed: Base Base FFS or BFFS 45.0 mph 45.0 mph Lane width adjustment, FLW 0.0 0.0 mph mph Lateral clearance adjustment, FLC 0.2 0.2 mph mph Median type adjustment, FM 1.6 mph 1.6 mph Access points adjustment, FA 0.3 mph 0.5 mph mph Free-flow speed 43.0 42.7 mph _VOLUME_ Direction 1 2 Volume, V 1736 1590 vph vph Peak-hour factor, PHF 0.95 0.96 Peak 15-minute volume, v15 457 414 Trucks and buses 2 응 1 Recreational vehicles 0 왕 0 Terrain type Grade Grade 용 Grade 6.00 -6.00 9 Segment length 0.73 0.73 тi тi Number of lanes 2 Driver population adjustment, fP 1.00 1.00 Trucks and buses PCE, ET 5.0 1.5 Recreational vehicles PCE, ER 6.0 1.2 Heavy vehicle adjustment, fHV 0.926 0.995 Flow rate, vp 986 pcphpl 832 pcphpl RESULTS

Direction	1		2	
Flow rate, vp	986	pcphpl	832	pcphpl
Free-flow speed, FFS	43.	0 mph	42.7	mph
Avg. passenger-car travel speed,	S 45.	0 mph	45.0	mph
Level of service, LOS	C		C	
Density, D	21.	9 pc/mi/l	n 18.5	pc/mi/ln
Bicycl	le Level	of Service		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	913	. 7	828.1	
Effective width of outside lane,	We 22.	00	22.00	
Effective speed factor, St	4.7	9	4.79	
Bicycle LOS Score, BLOS	3.2	8	3.00	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS_____

FREE-FLOW SPEED

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background Saturday

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction 1 2 Lane width 12.0 ft 12.0 ft Lateral clearance: Right edge 5.0 ft 5.0 ft Left edge 6.0 ft ft 6.0 Total lateral clearance 11.0 ft 11.0 ft Access points per mile 1 2 Undivided Undivided Median type Free-flow speed: Base Base FFS or BFFS 45.0 mph 45.0 mph Lane width adjustment, FLW 0.0 0.0 mph mph Lateral clearance adjustment, FLC 0.2 0.2 mph mph Median type adjustment, FM 1.6 mph 1.6 mph Access points adjustment, FA 0.3 mph 0.5 mph mph Free-flow speed 43.0 42.7 mph _VOLUME_ Direction 1 2 Volume, V 1594 1854 vph vph Peak-hour factor, PHF 0.91 0.97 Peak 15-minute volume, v15 438 478 Trucks and buses 1 응 1 Recreational vehicles 0 왕 0 Terrain type Grade Grade 용 Grade 6.00 -6.00 9 Segment length 0.73 0.73 тi mi Number of lanes 2 2 Driver population adjustment, fP 1.00 1.00 Trucks and buses PCE, ET 5.0 1.5 Recreational vehicles PCE, ER 6.0 1.2 Heavy vehicle adjustment, fHV 0.962 0.995 Flow rate, vp 910 pcphpl 960 pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	910	pcphpl	960	pcphpl
Free-flow speed, FFS	43.0	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	20.2	pc/mi/ln	21.3	pc/mi/ln
Bicycle	Level of Se	ervice		
<u>-</u>				
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	875.8		955.7	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.02		3.07	
Bicycle LOS	C		C	

Phone: E-mail: Fax:

_____FREE-FLOW SPEED_

____OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background AM

SR 1 Highway:

From/To:

Ocean / Carmel Valley Rd Jurisdiction:

Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivided	ì	Undivided	[
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1 6	mph	1 6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	_VOLUME			
Direction	1		2	
Volume, V	1572	vph	1644	vph
Peak-hour factor, PHF	0.89	_	0.92	=
Peak 15-minute volume, v15	442		447	
Trucks and buses	3	%	4	8
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	%	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.3		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.887		0.980	
Flow rate, vp		pcphpl	911	pcphpl
	D.D.G.111 .D.G			
	_RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 995 42.7 45.0 C 22.1	mph	2 911 42.7 45.0 C 20.2	pcphpl mph mph pc/mi/ln
Bicycle	Level of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	883.1		893.5	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.51		3.79	
Bicycle LOS	D		D	

Phone: E-mail: Fax:

_____FREE-FLOW SPEED__

_____OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background PM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivid	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	VOLUME			
Direction	1		2	
Volume, V	1654	vph	1595	vph
Peak-hour factor, PHF	0.96		0.95	
Peak 15-minute volume, v15	431		420	
Trucks and buses	1	용	2	8
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	용	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.5		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.957		0.990	
Flow rate, vp	900	pcphpl	847	pcphpl
	RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S	1 900 42.7 45.0	pcphpl mph mph	2 847 42.7 45.0	pcphpl mph mph
Level of service, LOS Density, D	C 20.0	pc/mi/ln	C 18 8	pc/mi/ln
		F - / /		F - /
Bicycle	Level of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	861.5		839.5	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.02		3.23	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

_____FREE-FLOW SPEED__

____OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background Saturday

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivided	l	Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW				mph
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1 6	mph	1 6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
_		_		-
	_VOLUME			
Direction	1		2	
Volume, V	1594	vph	1701	vph
Peak-hour factor, PHF	0.93		0.94	
Peak 15-minute volume, v15	428		452	
Trucks and buses	1	용	1	용
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	용	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.5		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.957		0.995	
Flow rate, vp	895	pcphpl	909	pcphpl
	RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS	1 895 42.7 45.0	pcphpl mph mph	2 909 42.7 45.0	pcphpl mph mph
Density, D	19.9	pc/mi/ln	20.2	pc/mi/ln
Bicycle Posted speed limit, Sp	Level of Se	rvice	 55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	857.0		904.8	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.01		3.04	
Bicycle LOS	C		C	

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail: Fax:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald Date Performed 12/6/17

Analysis Time Period Background AM Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Analysis Year 2017
Description Rio Ranch Seg 2 SB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.92	
Shoulder width	5.0 ft	% Trucks and buses	4	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	0.9 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.90 mi	% No-passing zones	100	용
Up/down	-6.0 %	Access point density	19	/mi

Analysis direction volume, Vd 1644 veh/h Opposing direction volume, Vo 1572 veh/h

Average	Travel	Speed
---------	--------	-------

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fE Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	1.00	0		osing (9.7 1.0 0.742 1.00 2303	o) pc/h
Free-Flow Speed from Field Measurement Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (note Adj. for access point density, (note-3)	nt: ce-3) fLS	- - 45.0	mi/h veh/h mi/h mi/h mi/h		20,00
Free-flow speed, FFSd		39.0	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 4.9 12.6	mi/h mi/h %		

Percent Time-Spent-Follow	ing			
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		Opp	1.1 1.0 0.995 1.00	5
Directional flow rate,(note-2) vi 1787 posses percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		00 00	1717	pc/h
Level of Service and Other Perform	ance Me	easur	es	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	F 1.05 402 1480 81.8 0 1700 1700	ve ve ve	eh-mi eh-mi eh-h eh/h eh/h	
Passing Lane Analysis				
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		Lu	0.9 - - 4.9 97.4 F	mi mi mi mi/h
Average Travel Speed with Pass.	ing Lar	1e		
Downstream length of two-lane highway within effec	tive			
length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde			mi
length of the passing lame for average travel: Adj. factor for the effect of passing lame on average speed, fpl	speed,	Ld	-	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF			- 0.0	왕
Percent Time-Spent-Following with	Passing	g Lan	ie	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	9	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl				mi
Percent time-spent-following including passing lane, PTSFpl			_	8
Level of Service and Other Performance Measu:	res wit	h Pa	ssing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	ve	h-h	
Bicycle Level of Service	e			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1787.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.99
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background PM Highway SR 1 From/To Ocean / CVR Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 2 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 95 Shoulder width 5.0 ft % Trucks and buses 2 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.9 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.90 тi % No-passing zones 100 Up/down 6.0 Access point density 19 /mi Analysis direction volume, Vd 1595 veh/h Opposing direction volume, Vo 1654 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 9.7 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.852 1.000 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1971 pc/h 1741 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h mi/h Adj. for access point density, (note-3) fA 4.8 Free-flow speed, FFSd 39.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 7.8 mi/h

20.1

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Percent Free Flow Speed, PFFS

Percent Time-	Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.1 1.0 0.998	(Opposing 1.0 1.0 1.00	
Grade adjustment factor, (note-1) fg	1.00		1.00	,
Directional flow rate, (note-2) vi	1683 p	c/h	1741	pc/h
Base percent time-spent-following, (not			8	P 0 / 11
Adjustment for no-passing zones, fnp	c 1, 21101u	6.5	•	
Percent time-spent-following, PTSFd			ૄ	
Level of Service and O	then Denferm	anga Maa		
	cher Periorm	ance mea	sures	
Level of service, LOS		F		
Volume to capacity ratio, v/c		0.99		
Peak 15-min vehicle-miles of travel, V		378	veh-mi	
Peak-hour vehicle-miles of travel, VMT	60	1435	veh-mi	
Peak 15-min total travel time, TT15			veh-h	
Capacity from ATS, CdATS			veh/h	
Capacity from PTSF, CdPTSF		1696	veh/h	
Directional Capacity		1696	veh/h	
Passing L	ane Analysis			
	ane marybro			
Total length of analysis segment, Lt			0.9	mi
Length of two-lane highway upstream of		lane, L		mi
Length of passing lane including taper			-	mi
Average travel speed, ATSd (from above			7.8	mi/h
Percent time-spent-following, PTSFd (f	rom above)		96.3	
Level of service, LOSd (from above)			F	
Average Travel Spee	d with Pass	ing Lane		
	1.1.1			
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave	rage travel		d -	mi
Adj. factor for the effect of passing on average speed, fpl	Tane			
Average travel speed including passing	lana Amenl		_	
Percent free flow speed including passing			0.0	8
referred free from speed including pass	ing lane, Pr	rspi	0.0	70
Percent Time-Spent-Fol	lowing with	Passing 1	Lane	
Downstream length of two-lane highway	within effec	tive len	at.h	
of passing lane for percent time-s				mi
Length of two-lane highway downstream			of	1112
the passing lane for percent time-				mi
Adj. factor for the effect of passing		1119, Lu		
on percent time-spent-following, f			_	
Percent time-spent-following	Ьт			
including passing lane, PTSFpl			-	%
Level of Service and Other Perfo	rmance Measu	res with	Passing	Lane
			_	
Level of service including passing lan	e, LOSpI	A		
Peak 15-min total travel time, TT15		-	veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	
Percent of segment with occupied on-highway parki	ng 0
Pavement rating, P	3
Flow rate in outside lane, vOL	1678.9
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.47
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail: Fax:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background Saturday

Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 2 SB

Input	Data

Highway	class	Class	2		Рe	ak ho	ur fac	tor, PHF	0.94	
Shoulder	r width		5.0	ft	용	Truck	s and	buses	1	8
Lane wid	dth		12.0	ft	용	Truck	s crav	ling	0.0	용
Segment	length		0.9	mi	Tr	ruck c	rawl s	speed	0.0	mi/hr
Terrain	type		Specific	c Grade	용	Recrea	ationa	al vehicles	0	용
Grade:	Length		0.90	mi	용	No-pa	ssing	zones	100	용
	Up/down	1	-6.0	용	Ac	cess	point	density	19	/mi

Analysis direction volume, Vd 1701 veh/h Opposing direction volume, Vo 1594 veh/h

______Average Travel Speed_

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fE Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(d) 1.0 1.0 1.00 1.000 1.00 1810		sing (o) 9.7 1.0 0.920 1.00 1843 pc/h
Free-Flow Speed from Field Measurement Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (not Adj. for access point density, (note-3)	- - 45 :e-3) fLS 1.	mi/h veh/h .0 mi/h 3 mi/h 8 mi/h	
Free-flow speed, FFSd	39	.0 mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	8.	3* mi/h 3 mi/h .3 %	

Percent Time-Spent-Fo	llowing		
PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.00 Grade adjustment factor,(note-1) fg 1.00	pc/h	Opposing (o) pc/h
Level of Service and Other Per	formance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	49.0 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Anal	ysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pas Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from abov Level of service, LOSd (from above)		0.9 - 8.3 97.7	mi mi mi mi/h
Average Travel Speed with	Passing Lane		
Downstream length of two-lane highway within e length of passing lane for average travel Length of two-lane highway downstream of effect length of the passing lane for average travel. Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, A Percent free flow speed including passing lane	speed, Lde tive vel speed, L TSpl	.d - - -	mi mi %
Percent Time-Spent-Following w	ith Passing	Lane	
Downstream length of two-lane highway within e of passing lane for percent time-spent-fol Length of two-lane highway downstream of effec the passing lane for percent time-spent-fo	ffective len lowing, Lde tive length	gth - of	mi mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ફ
Level of Service and Other Performance M	easures with	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Se	rvice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1809.6
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.30
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:						
Directional Two-Lane Highway	Segment Analysis					
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Background AM Highway SR 1 From/To Rio Rd / Carmel Valle Jurisdiction Unincorporated Monter Analysis Year 2017 Description Rio Ranch Seg 3 NB	ey County					
Input Data_						
Highway class Class 2 Peak hour factor, PHF 0.80 Shoulder width 6.0 ft % Trucks and buses 3 % Lane width 12.0 ft % Trucks crawling 0.0 % Segment length 0.3 mi Truck crawl speed 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 % Grade: Length 0.30 mi % No-passing zones 100 % Up/down 3.0 % Access point density 0 /mi						
Analysis direction volume, Vd 582 veh/h Opposing direction volume, Vo 668 veh/h						
Average Travel Sp	peed					
Direction Analysi PCE for trucks, ET 1.8 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor,(note-5) fHV 0.9 Grade adj. factor,(note-1) fg 1.0 Directional flow rate,(note-2) vi 745	1.1 1.0 77 0.997					
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) fLS Adj. for access point density,(note-3) fA	- mi/h - veh/h 45.0 mi/h 0.0 mi/h 0.0 mi/h					
Free-flow speed, FFSd	45.0 mi/h					
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* mi/h 30.4 mi/h 67.6 %					

Percent Time-	Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.000	(Opposing 1.0 1.0 1.000	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	-	24.5	835 %	pc/h
Level of Service and O	ther Perform	ance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	60	1678 1567	veh-mi veh-mi veh-h veh/h veh/h	
Passing L	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl)		0.3 - 30.4 81.3 D	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	rage travel		d -	mi
Average travel speed including passing Percent free flow speed including pass			- 0.0	9
Percent Time-Spent-Fol	lowing with	Passing 1	Lane	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-followi:	ng, Lde	-	mi
the passing lane for percent time-Adj. factor for the effect of passing	spent-follow lane		-	mi
on percent time-spent-following, f Percent time-spent-following including passing lane, PTSFpl	ĎΤ		-	%
Level of Service and Other Perfo	rmance Measu	res with	Passing	Lane
Level of service including passing lan Peak 15-min total travel time, TT15	e, LOSpl		veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	727.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.82
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Background PM

Highway SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 NB

_____Input Data_____

Highway	class	Class	2		Peak hour factor, PHF 0.	. 89	
Shoulder	width		6.0	ft	% Trucks and buses 3	5	8
Lane wio	lth		12.0	ft	% Trucks crawling 0.	. 0	8
Segment	length		0.3	mi	Truck crawl speed 0.	. 0 r	mi/hr
Terrain	type		Specific	c Grade	% Recreational vehicles 0	5	કે
Grade:	Length		0.30	mi	% No-passing zones 10	0 (કે
	Up/down	ı	3.0	용	Access point density 0		/mi

Analysis direction volume, Vd 844 veh/h Opposing direction volume, Vo 563 veh/h

_____Average Travel Speed_

Direction	Analysis(d)		11 3			
PCE for trucks, ET		1.3			1.1	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fl	IV	0.992	2		0.997	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		956	pc/h		634	pc/h
Free-Flow Speed from Field Measuremer	ıt:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width, (not	te-3)	fLS	0.0	mi/h		
Adj. for access point density, (note-3	3) fA		0.0	mi/h		
Free-flow speed, FFSd			45.0	mi/h		
Adjustment for no-passing zones, fnp			2.3*	mi/h		
Average travel speed, ATSd			30.4	mi/h		
Percent Free Flow Speed, PFFS			67.5	용		

Percent Time	-Spent-Followi	ng		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-1) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	0.92 1029 po te-4) BPTSFd	:/h	1.0 1.0 1.000 1.00	o) pc/h
Level of Service and	Other Performa	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	IT60	253 2.3 0 1567	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	ers, Lpl ve)		0.3 - - 30.4 89.6 E	mi mi mi mi/h
Average Travel Spe	ed with Passi	ng Lane_		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl Average travel speed including passing Percent free flow speed including passing	within effect ge travel speed n of effective verage travel s g lane ng lane, ATSpl ssing lane, PFF	rive d, Lde speed, Ld Spl	- - - 0.0	mi mi
Percent Time-Spent-Fo	llowing with E	assing L	ane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing	spent-followir of effective -spent-followi	ng, Lde length o	- £	mi mi
on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl			-	8
Level of Service and Other Perf	ormance Measur	es with	Passing L	ane
Level of service including passing la Peak 15-min total travel time, TT15	ane, LOSpl	-	veh-h	
broycie Le	ACT OF DETAILS			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	948.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.96
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background Saturday Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 Access point density 0 /mi Analysis direction volume, Vd 789 veh/h Opposing direction volume, Vo 758 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.4 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.996 Grade adj. factor, (note-1) fg 1.00 1.00 858 Directional flow rate, (note-2) vi pc/h 827 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.6 mi/h Percent Free Flow Speed, PFFS 65.8 용

Percent Time-Spent-Foll	owing		
Direction Analysis (d PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 1.00		Opposing 1.0 1.0 1.000	(0)
	pc/h d 72.4 22.7 83.5	894	pc/h
Level of Service and Other Perfo	rmance M	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.50 64 237 2.2 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	is		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passi Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - 29.6 83.5 D	mi mi mi mi/h
Average Travel Speed with Pa	ssing La	ne	
Downstream length of two-lane highway within eff length of passing lane for average travel sp Length of two-lane highway downstream of effecti	eed, Lde	-	mi
length of the passing lane for average trave Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATS	l speed,	Ld - - -	mi
Percent free flow speed including passing lane,		0.0	8
Percent Time-Spent-Following wit	h Passin	g Lane	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follo Length of two-lane highway downstream of effecti	wing, Ld	e -	mi
the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Mea	sures wi	th Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Serv	ice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	857.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.46
Bicycle LOS	В

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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Background AM

Highway SR 1

From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 SB

______Input Data______

Highway	class	Class	2		Р	eak hour factor, PHF	0.97	
Shoulder	width		6.0	ft	왕	Trucks and buses	4	용
Lane wio	lth		12.0	ft	왕	Trucks crawling	0.0	용
Segment	length		0.3	mi	T:	ruck crawl speed	0.0	mi/hr
Terrain	type		Specific	c Grade	용	Recreational vehicles	0	용
Grade:	Length		0.30	mi	용	No-passing zones	100	용
	Up/down	1	-3.0	용	A	ccess point density	0	/mi

Analysis direction volume, Vd $\,$ 668 $\,$ veh/h Opposing direction volume, Vo $\,$ 582 $\,$ veh/h

______Average Travel Speed__

Direction	Analysis	(A)	Onn	osing	(0)
PCE for trucks, ET	1.1	(α)	OPP	2.0	(0)
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) ff	IV 0.99	6		0.963	
	1.00			1.00	
Directional flow rate, (note-2) vi	691	pc/h	L	623	pc/h
Free-Flow Speed from Field Measuremen	ıt:				
Field measured speed,(note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (not			mi/h		
Adj. for access point density, (note-3	B) fA	0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		32.5	mi/h		
Percent Free Flow Speed, PFFS		72.2	용		

Percent Time-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h	1.0 1.0 1.000 0.92 651	pc/h
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	200 1.6 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, Lu	0.3 - 32.5 78.5	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effectiength of passing lane for average travel spee Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, PF Percent free flow speed including passing lane, PF	tive d, Lde speed, Ld	-	mi mi %
Percent Time-Spent-Following with	Passing La	ane	
Downstream length of two-lane highway within effection of passing lane for percent time-spent-following the control of two-lane highway downstream of effective the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane	ng, Lde length o	-	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	용
Level of Service and Other Performance Measu	res with 1	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bio/ bive beive			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	688.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.04
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background PM Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.90 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 용 Access point density 0 /mi Analysis direction volume, Vd 563 veh/h Opposing direction volume, Vo 844 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.3 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.999 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 626 pc/h 941 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 30.5 mi/h Percent Free Flow Speed, PFFS 67.9 용

Percent Time-	Spent-Follow	ing			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.000		Opp	0sing 1.0 1.0 1.000	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		c/h 63.9 23.3 72.8	olo	1017	pc/h
Level of Service and C	ther Perform	ance Me	asur	es	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		D 0.37 47 169 1.5 1700 1700	ve ve ve	h-mi h-mi h-h h/h h/h h/h	
Passing I	ane Analysis				
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl		Lu	0.3 - - 30.5 72.8 D	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lan	e		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel speed	d, Lde		_	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	rage travel :		Ld	-	mi
Average travel speed including passing Percent free flow speed including pass	lane, ATSpl ing lane, PF	FSpl		- 0.0	8
Percent Time-Spent-Fol	lowing with	Passing	Lan	.e	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-following	ng, Lde		-	mi
the passing lane for percent time- Adj. factor for the effect of passing on percent time-spent-following, f	spent-follow				mi
Percent time-spent-following including passing lane, PTSFpl	-			_,	8
Level of Service and Other Perfo	rmance Measu	res wit	h Pa	ssing	Lane
Level of service including passing lar Peak 15-min total travel time, TT15	e, LOSpl	A -	ve	h-h	
Bicycle Lev	rel of Servic	e			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	625.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.30
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background Saturday

Highway SR 1

From/To Carmel Valley Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 SB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.93	
Shoulder width	6.0 ft	% Trucks and buses	1	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	0	/mi

Analysis direction volume, Vd 758 veh/h Opposing direction volume, Vo 789 veh/h

_____Average Travel Speed__

Direction	Ana	lysis	(d)	qqO	osing (d	o)
PCE for trucks, ET		1.1			1.4	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	0.99	9		0.996	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		816	pc/h		852	pc/h
Free-Flow Speed from Field Measurem	ent:					
Field measured speed,(note-3) S FM			-	mi/h		
Observed total demand,(note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width,(n	ote-3)	fLS	0.0	mi/h		
Adj. for access point density,(note	-3) fA		0.0	mi/h		
Free-flow speed, FFSd			45.0	mi/h		
Adjustment for no-passing zones, fn	р		2.3*	mi/h		
Average travel speed, ATSd			29.8	mi/h		
Percent Free Flow Speed, PFFS			66.1	용		

Percent Time-Spent-Follow:	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h 70.9 23.0 81.7	Opposing 1.0 1.0 1.000 0.92 920 %	
Level of Service and Other Performa	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.48 61 227 2.0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, L	0.3 - - 29.8 81.7 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane	2	
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travels Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFD	tive d, Lde speed, L	-	mi mi
Percent Time-Spent-Following with 1	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective the passing lane for percent time-spent-following Land for the effect of passing lane	ng, Lde length	- of	mi mi
on percent time-spent-following, fpl		-	
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	815.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.44
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
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- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background AM Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.85 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 333 veh/h Opposing direction volume, Vo 449 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.2 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.997 0.998 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 393 pc/h 529 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 34.8 mi/h

78.6

용

Percent Free Flow Speed, PFFS

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.1 1.0 0.999 1.00		Opposing 1.0 1.0 1.00	
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		c/h 44.3 39.7 61.2	528 %	pc/h
Level of Service and	Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		C 0.23 29 100 0.8 1697 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		0.3 - - 34.8 61.2 C	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane	<u></u>	
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel speed	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel : lane	speed, I	ud - -	mi
Average travel speed including passin Percent free flow speed including pas			0.0	ફ
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing	-spent-follow			mi
on percent time-spent-following, Percent time-spent-following			-	
including passing lane, PTSFpl				%
Level of Service and Other Perf	ormance Measu	res with	n Passing	Lane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	391.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.06
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Background PM

Highway SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 4 NB

		:	Input Data		
Highway class Class	2		Peak hour factor, PHF	0.90	
Shoulder width	6.0	ft	% Trucks and buses	3	용
Lane width	12.0	ft	% Trucks crawling	0.0	8
Segment length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	8
Grade: Length	-	mi	% No-passing zones	100	8
Up/down	-	ક	Access point density	3	/mi

Analysis direction volume, Vd 695 veh/h Opposing direction volume, Vo 521 veh/h

Average Travel	Speed
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Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fR Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(1.1 1.0 HV 0.997 1.00 775			sing (c 1.1 1.0 0.997 1.00 581	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	ce-3) fLS	- - 45.0 0.0 0.8	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 31.4 71.0	mi/h mi/h %		

Percent Time	-Spent-Followi	ng		
51			. ,	,
Direction	Analysis(d)	Opi	posing (c)
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor, (note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	772 pc	/h	579	pc/h
Base percent time-spent-following, (no	te-4) BPTSFd	66.1 %		_
Adjustment for no-passing zones, fnp		28.9		
Percent time-spent-following, PTSFd		82.6 %		
Level of Service and	Other Performa	nce Measui	res	
Level of service, LOS		D		
Volume to capacity ratio, v/c		0.45		
Peak 15-min vehicle-miles of travel,			eh-mi	
Peak-hour vehicle-miles of travel, VM			eh-mi	
Peak 15-min total travel time, TT15		1.8 ve	eh-h	
Capacity from ATS, CdATS		0 ve	eh/h	
Capacity from PTSF, CdPTSF		1700 ve	eh/h	
Directional Capacity		1700 ve	eh/h	
Passing	Lane Analysis_			
Total length of analysis segment, Lt			0.3	mi
Length of two-lane highway upstream o	f the pagging	lano Iu		mi
		Talle, Lu	_	mi
Length of passing lane including tape				
Average travel speed, ATSd (from abov			31.4	mi/h
Percent time-spent-following, PTSFd (from above)		82.6	
Level of service, LOSd (from above)			D	
Average Travel Spe	ed with Passi	ng Lane		
Downstream length of two-lane highway	within effect	ive		
length of passing lane for averag			_	mi
Length of two-lane highway downstream		, Lac		
length of the passing lane for av		naad td		mi
Adj. factor for the effect of passing		реец, па	_	шт
on average speed, fpl			_	
Average travel speed including passin	g lane. ATSpl		_	
Percent free flow speed including pas			0.0	%
referre free from speed incruding pas	bing rane, iii	OP I	0.0	•
Percent Time-Spent-Fo	llowing with P	assing Lar	1e	
Downstream length of two-lane highway			1	
of passing lane for percent time-	spent-following	g, Lde	-	mi
Length of two-lane highway downstream	of effective	length of		
the passing lane for percent time	-spent-followi	ng, Ld	_	mi
Adj. factor for the effect of passing	lane			
on percent time-spent-following,	fpl		_	
Percent time-spent-following				
including passing lane, PTSFpl				왕
Level of Service and Other Perf	ormance Measur	es with D:	assing Te	ne
Bever or Bervice and Other Perr	ormance measur	CD WICH PO	TOSTING DO	.110
Level of service including passing la	ne, LOSpl	A		
Peak 15-min total travel time, TT15		- ve	eh-h	

___ Bicycle Level of Service __

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	772.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.85
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background Saturday Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.87 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 % Trucks crawling ft 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 601 veh/h Opposing direction volume, Vo 692 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.999 0.999 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 691 pc/h 796 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 30.4 mi/h Percent Free Flow Speed, PFFS 68.7 용

Percent Time-Spent-Fo	llowing		
Direction Analysis PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.00 Grade adjustment factor,(note-1) fg 1.00		Opposing 1.0 1.0 1.000	
	pc/h SFd 65.0 ⁹ 26.7	795	pc/h
Level of Service and Other Per	formance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.41 52 180 1.7 1698 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Anal	ysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pas Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from abov Level of service, LOSd (from above)		0.3 - - 30.4 77.4	mi mi mi mi/h
Average Travel Speed with	Passing Lane		
Downstream length of two-lane highway within e length of passing lane for average travel Length of two-lane highway downstream of effec	speed, Lde	-	mi
length of the passing lane for average tra Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, A	vel speed, Lo TSpl	- -	mi
Percent free flow speed including passing lane	, PFFSpl	0.0	8
Percent Time-Spent-Following w	ith Passing l	Lane	
Downstream length of two-lane highway within e of passing lane for percent time-spent-fol Length of two-lane highway downstream of effec	lowing, Lde	-	mi
the passing lane for percent time-spent-fo Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		_	8
Level of Service and Other Performance M	easures with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Se	rvice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	690.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.35
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background AM

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 SB

_____Input Data_____

Highway class Class	2		Peak hour factor, PHF	0.91	
Shoulder width	6.0	ft	% Trucks and buses	4	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 449 veh/h Opposing direction volume, Vo 333 veh/h

______Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) ff Grade adj. factor,(note-1) fg	Analysis 1.2 1.0 W 0.99	2	Opp	osing (1.3 1.0 0.988 1.00	0)
Directional flow rate, (note-2) vi			L	370	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-2)	ce-3) fLS	- - 45.0 0.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 35.2 79.6	mi/h mi/h %		

Percent Time-Spent-Foll	owing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4) BPTSF Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h d 49.1 41.2	0pposing 1.1 1.0 0.996 1.00 367	pc/h
Level of Service and Other Perfo	rmance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1.1 0 1693 1693	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	is		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passi Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 u - 35.2 72.7 D	mi mi mi mi/h
Average Travel Speed with Pa	ssing Lane		
Downstream length of two-lane highway within eff length of passing lane for average travel sp Length of two-lane highway downstream of effecti length of the passing lane for average trave	eed, Lde ve		mi mi
Adj. factor for the effect of passing lane on average speed, fpl		_	
Average travel speed including passing lane, ATS Percent free flow speed including passing lane,		- 0.0	8
Percent Time-Spent-Following wit	h Passing	Lane	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follo Length of two-lane highway downstream of effecti	wing, Lde	-	mi
the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane on percent time-spent-following, fpl		-	mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Mea	sures with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Serv	ice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	493.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.87
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background PM Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 93 Shoulder width 6.0 ft % Trucks and buses 0 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 521 veh/h Opposing direction volume, Vo 695 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 560 pc/h 747 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 31.8 mi/h

71.9

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follows	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.000 1.00	
Directional flow rate,(note-2) vi 560 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	58.1 30.0	747 % %	pc/h
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.33 42 156 1.3 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 u - 31.8 71.0 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl	speed, L	- -	
Percent free flow speed including passing lane, PF	FSpl	0.0	ક
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	res with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	560.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.05
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

___Directional Two-Lane Highway Segment Analysis_____

Phone: E-Mail:

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Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background Saturday

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 SB

_____Input Data_____

Highway	class Class	2		Peak hour factor, PHF	0.97	
Shoulder	r width	6.0	ft	% Trucks and buses	0	용
Lane wid	dth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	_	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 692 veh/h Opposing direction volume, Vo 601 veh/h

Average	Travel	Speed
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Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1)	Analysis 1.1 1.0 V 1.00 1.00	0	Opp	osing 1.1 1.0 1.000	
Directional flow rate,(note-2) vi	713	pc/h	L	620	pc/h
Free-Flow Speed from Field Measuremen Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	e-3) fLS	- - 45.0 0.0 0.8	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 31.6 71.4	mi/h mi/h %		

Percent Time-Spent-Follow	ving		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	oc/h	1.0 1.0 1.000 1.000 620	(o)
Level of Service and Other Perform	nance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	208 1.7 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis	·		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 31.6 79.4 D	mi mi mi mi/h
Average Travel Speed with Pass	sing Lane_		
Downstream length of two-lane highway within effection length of passing lane for average travel spectives. Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	ed, Lde		mi mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		0.0	%
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following the spent of two-lane highway downstream of effective transfer of the spent of the	ing, Lde e length o	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	ing, Ld	-	mi
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	ires with	Passing '	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Did to be vie			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	713.4
Effective width of outside lane, We	24.00
Iffective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.18
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background AM Carmel Valley Road Highway From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 91 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 429 veh/h Opposing direction volume, Vo 883 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.984 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 479 pc/h 970 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 30.0 mi/h

68.9

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 1.00		Opposing 1.0 1.0 1.000	
Directional flow rate, (note-2) vi 471 p Base percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		970	pc/h
Level of Service and Other Perform	nance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	C 0.28 177 644 5.9 1700 1700		
Passing Lane Analysis	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 Lu - - 30.0 62.4 C	mi mi mi mi/h
Average Travel Speed with Pass	ing La	ne	
Downstream length of two-lane highway within effectength of passing lane for average travel spectength of two-lane highway downstream of effective	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		0.0	8
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Ld	e -	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res wi	th Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	471.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.18
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background PM

Highway Carmel Valley Road From/To

Schulte / Robinson Canyon Jurisdiction

Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 6 EB

Percent Free Flow Speed, PFFS

			Input Data		
Highway class Class Shoulder width Lane width Segment length Terrain type Grade: Length Up/down	2 6.0 12.0 1.5 Level	ft ft mi mi %	Peak hour factor, PHF % Trucks and buses % Trucks crawling Truck crawl speed % Recreational vehicles % No-passing zones Access point density	0.92 8 0.0 0.0 1 100 26	% % mi/hr % % /mi

Analysis direction volume, Vd 970 veh/h Opposing direction volume, Vo 509 veh/h

		_	_
7.Δ	rerage	Travel	Speed

Average Tra	veı Spe	:ea			
Direction A	nalysis	(d)	Opp	osing (o)
PCE for trucks, ET	1.0			1.1	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV	1.00	0		0.992	
Grade adj. factor,(note-1) fg	1.00	ı		1.00	
Directional flow rate, (note-2) vi	1054	pc/h		558	pc/h
Free-Flow Speed from Field Measurement:					
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		50.0	mi/h		
Adj. for lane and shoulder width, (note-	3) fLS	0.0	mi/h		
Adj. for access point density, (note-3)	fA	6.5	mi/h		
Free-flow speed, FFSd		43.5	mi/h		
rice rich speed, ribu		10.0	/ 11		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		28.7	mi/h		

66.0 %

Percent Time-Spent-Folic	owing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 1.00		0pposing 1.0 1.0 1.000	
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	21.5 89.2 %	ī	pc/h
Level of Service and Other Perfor	rmance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	13.8 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
	LS		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passir Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - - 28.7 89.2 E	mi mi mi mi/h
Average Travel Speed with Pas	ssing Lane_		
Downstream length of two-lane highway within effe		_	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane		l –	mi
on average speed, fpl Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, F		- - 0.0	8
Percent Time-Spent-Following with	n Passing I	ane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow	ving, Lde	-	mi
Length of two-lane highway downstream of effective the passing lane for percent time-spent-followadj, factor for the effect of passing lane		of -	mi
on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Meas	sures with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servi	ice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1054.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.58
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Background Saturday Analysis Time Period Carmel Valley Road Highway From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 729 veh/h Opposing direction volume, Vo 604 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 799 pc/h 662 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.9 mi/h

68.6

용

Percent Free Flow Speed, PFFS

Percent Time-Spent-Follows	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.000 1.00	
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	c/h 67.1 27.2 82.0	657 \$	pc/h
Level of Service and Other Performa	ance Meas	sures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - 29.9 82.0 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane_		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl	speed, Lo	d - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI		0.0	%
Percent Time-Spent-Following with	Passing I	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	792.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.44
Bicycle LOS	D

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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
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- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background AM Carmel Valley Road Highway

From/To Robinson Canyon / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB

Input Data

Highway	class Class	2		Peak hour factor, PHF	0.82	
Shoulder	width	6.0	ft	% Trucks and buses	8	8
Lane wid	th	12.0	ft	% Trucks crawling	0.0	8
Segment :	length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain t	type	Level		% Recreational vehicles	1	용
Grade: 1	Length	-	mi	% No-passing zones	100	용
τ	Up/down	-	용	Access point density	26	/mi

Analysis direction volume, Vd 883 veh/h Opposing direction volume, Vo 429 veh/h

Average	Travel	Speed
---------	--------	-------

Average Trav	el Spe	ed			
Direction An PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	alysis 1.0 1.0 1.00 1.00	0		osing (0 1.2 1.0 0.984 1.00 532	pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3 Adj. for access point density,(note-3) f		- 50.0 0.0 6.5	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 28.7 66.0	mi/h mi/h %		

Percent Time-Spent-Follow	ing		
		Opposins	(0)
		Opposing 1.0	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 1.00		1.00	
Directional flow rate, (note-2) vi 1077 p		523	pc/h
Base percent time-spent-following, (note-4) BPTSFd		용	
Adjustment for no-passing zones, fnp	20.9		
Percent time-spent-following, PTSFd	90.6	8	
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS	E		
Volume to capacity ratio, v/c	0.63		
Peak 15-min vehicle-miles of travel, VMT15	404	veh-mi	
		veh-mi	
Peak-hour vehicle-miles of travel, VMT60	14.1	veh-h	
Peak 15-min total travel time, TT15			
Capacity from ATS, CdATS	0	veh/h	
Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh/h veh/h	
Directional Capacity	1/00	veii/ii	
Passing Lane Analysis			
Total length of analysis segment, Lt		1.5	mi
Length of two-lane highway upstream of the passing	lane I		mi
Length of passing lane including tapers, Lpl	idiic, b	_	mi
Average travel speed, ATSd (from above)		28.7	mi/h
Percent time-spent-following, PTSFd (from above)		90.6	1111/11
Level of service, LOSd (from above)		E	
never of service, host (from above)		E	
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effec	tive		
length of passing lane for average travel spee		_	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel		.d -	mi
Adj. factor for the effect of passing lane	вреса, в	· · ·	
on average speed, fpl			
Average travel speed including passing lane, ATSpl			
Percent free flow speed including passing lane, PF		0.0	8
reitent free from speed including passing fame, Fr	rspi	0.0	70
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effec	tive len	.ath	
of passing lane for percent time-spent-followi:		_	mi
Length of two-lane highway downstream of effective		of	
the passing lane for percent time-spent-follow			mi
	ing, ia		шт
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			%
including passing lane, PTSFpl		-	6
Level of Service and Other Performance Measu	res with	Passing 1	Lane
Torol of gowing including pagging lar- 100-1	70		
Level of service including passing lane, LOSpl		moh h	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1076.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.60
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Background PM Analysis Time Period Carmel Valley Road Highway From/To Robinson Canyon / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 509 veh/h Opposing direction volume, Vo 970 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 626 pc/h 1183 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 27.2 mi/h Percent Free Flow Speed, PFFS 62.4 용

Percent Time-Spent-Followi	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1. 1. 1.	0 0 000 000
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	2/h 66.3 18.6 72.7	* %	.83 pc/h
Level of Service and Other Performs	ance Me	asures_	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.37 233 764 8.6 1700 1700	veh-n veh-h veh/h veh/h	ni 1 1
Passing Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 Lu – 27. 72. D	mi mi 2 mi/h
Average Travel Speed with Passi	ing Lan	e	
Downstream length of two-lane highway within effect	ive		
length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF	FSpl	0.0) %
Percent Time-Spent-Following with I	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-followi Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res wit	h Passi	ng Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	1
Bicycle Level of Service	≘		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	620.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.32
Bicycle LOS	D
Bicycle Los	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background Saturday Highway Carmel Valley Road

From/To Robinson Canyon / Schulte
Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 6 WB

Input	Data

Highway class Class	2		Peak hour factor, PHF	0.82	
Shoulder width	6.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	1	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	26	/mi

Analysis direction volume, Vd $\,$ 604 $\,$ veh/h Opposing direction volume, Vo $\,$ 729 $\,$ veh/h

___Average Travel Speed_

: iiave.	r phe	=u			
	-				
Ana	lysis	(d)	Oppo	osing (o)
	1.1			1.0	
	1.0			1.0	
fHV	0.99	2		1.000	
	1.00			1.00	
	743	pc/h		889	pc/h
nent:					
		-	mi/h		
		-	veh/h		
		50.0	mi/h		
note-3)	fLS	0.0	mi/h		
e-3) fA		6.5	mi/h		
		43.5	mi/h		
ıp		2.3*	mi/h		
		28.5	mi/h		
		65.6	용		
	Ana: fHV ment: note-3) e-3) fA	Analysis 1.1 1.0 fHV 0.99 1.00 743 ment:	1.1 1.0 0.992 1.00 743 pc/h ment: - 50.0 note-3) fLS 0.0 e-3) fA 6.5 43.5 mp 2.3* 28.5	Analysis(d) Opportunity of the content of the conte	Analysis(d) Opposing (o

Percent Time-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	67.9 24.3	Dpposing (1.0 1.00 1.000 889	o) pc/h
Level of Service and Other Perform	ance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	9.7 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - - 28.5 78.9 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effective length of passing lane for average travel specting length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	d, Lde		mi mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		- 0.0	8
Percent Time-Spent-Following with	Passing I	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followith Length of two-lane highway downstream of effective	tive leng	gth -	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl		-	mi
Percent time-spent-following including passing lane, PTSFpl		-	용
Level of Service and Other Performance Measu	res with	Passing I	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	736.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.40
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background AM Carmel Valley Road Highway From/To Rancho San Carlos / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down -3.0 용 Access point density /mi Analysis direction volume, Vd 654 veh/h Opposing direction volume, Vo 950 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 804 Directional flow rate, (note-2) vi pc/h 1168 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 34.4 mi/h Percent Free Flow Speed, PFFS 66.8 용

Percent Time-Spent-Fo	llowing		
PCE for trucks, ET 1.0	(d)	Opposing 1.0 1.0	(0)
PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg 1.00		1.000	
Base percent time-spent-following,(note-4) BPT		1259 %	pc/h
Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	16.7 80.7	8	
Level of Service and Other Per	formance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.47 479 1570 13.9 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Anal	ysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pas Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from abov Level of service, LOSd (from above)		2.4 u - 34.4 80.7	mi mi mi mi/h
Average Travel Speed with	Passing Lane		
Downstream length of two-lane highway within e length of passing lane for average travel Length of two-lane highway downstream of effec	speed, Lde	-	mi
length of the passing lane for average tra Adj. factor for the effect of passing lane on average speed, fpl		d -	mi
Average travel speed including passing lane, A Percent free flow speed including passing lane		0.0	%
Percent Time-Spent-Following w	ith Passing	Lane	
Downstream length of two-lane highway within e of passing lane for percent time-spent-fol Length of two-lane highway downstream of effec	lowing, Lde	-	mi
the passing lane for percent time-spent-fo Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance M	easures with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Se	rvice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	797.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.44
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Mott MacDonald Agency/Co. Date Performed

12/6/17

Analysis Time Period Background PM

Carmel Valley Road Highway From/To

Rancho San Carlos / Schulte Unincorporated Monterey County

Jurisdiction

Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB

_____Input Data____

Highway	class	Class	2		Р	eak hour factor, PHF	0.82	
Shoulder	r width		6.0	ft	용	Trucks and buses	8	8
Lane wid	dth		12.0	ft	용	Trucks crawling	0.0	8
Segment	length		2.4	mi	T	ruck crawl speed	0.0	mi/hr
Terrain	type		Specific	c Grade	용	Recreational vehicles	1	용
Grade:	Length		0.25	mi	용	No-passing zones	100	용
	Up/dowr	n	-3.0	용	Αd	cess point density	1 4	/mi

Analysis direction volume, Vd 999 veh/h Opposing direction volume, Vo 621 veh/h

Average Travel Speed

Average	e irave.	T Phe	zu -			
		-				
Direction	Ana	lysis	(d)	Oppo	sing (o)
PCE for trucks, ET		1.0			1.5	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	1.00)		0.964	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		1218	pc/h		786	pc/h
Free-Flow Speed from Field Measurer	ment:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			55.0	mi/h		
Adj. for lane and shoulder width,(0.0	mi/h		
Adj. for access point density, (note	e-3) fA		3.5	mi/h		
Free-flow speed, FFSd			51.5	mi/h		
Adjustment for no-passing zones, fr	np		1.8*	mi/h		
Average travel speed, ATSd			34.1	mi/h		
Percent Free Flow Speed, PFFS			66.3	8		

Percent Time-Spent-Follow	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	C/h 81.2 % 16.4 91.0 %	1.0 1.0 1.000 0.92 823	o) pc/h
Level of Service and Other Perform	ance Meas	ures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	2398 21.4 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - - 34.1 91.0 E	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effection length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel adj. factor for the effect of passing lane on average speed, fpl	d, Lde speed, Ld	- -	mi mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF:		0.0	%
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl	ing, Ld	-	mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	Passing I	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1218.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.66
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background Saturday Carmel Valley Road Highway From/To Rancho San Carlos / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down -3.0 용 Access point density /mi Analysis direction volume, Vd 782 veh/h Opposing direction volume, Vo 764 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 954 pc/h 939 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 35.0 mi/h Percent Free Flow Speed, PFFS 68.0 용

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0		Opposing 1.0	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 1.00		0.92	
	c/h	1013	pc/h
Base percent time-spent-following, (note-4) BPTSFd		용	
Adjustment for no-passing zones, fnp	19.3		
Percent time-spent-following, PTSFd	85.9	8	
Level of Service and Other Perform	ance Me	asures	
Level of service, LOS	Er.		
Volume to capacity ratio, v/c	E 0.56		
Peak 15-min vehicle-miles of travel, VMT15	572	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	1877	veh-mi	
Peak 15-min total travel time, TT15	16.3	veh-h	
Capacity from ATS, CdATS	1700	veh/h	
Capacity from PTSF, CdPTSF	1700	veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt		2.4	mi
Length of two-lane highway upstream of the passing	lane,	Lu -	mi
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		35.0	mi/h
Percent time-spent-following, PTSFd (from above)		85.9	
Level of service, LOSd (from above)		E	
Average Travel Speed with Pass	ing Lan	e	
Downstream length of two-lane highway within effec			
length of passing lane for average travel spee		-	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel	speed,	Ld -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, ATSpl		-	
Percent free flow speed including passing lane, PF	FSpI	0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two leng highway within offi-	+1 1-	na+h	
Downstream length of two-lane highway within effect			m d
of passing lane for percent time-spent-followi			mi
Length of two-lane highway downstream of effective			m d
the passing lane for percent time-spent-follow	тиу, ьа	_	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl		_	
Percent time-spent-following		_	
including passing lane, PTSFpl			%
Level of Service and Other Performance Measu	res wit	h Passing	Lane
Level of service including passing lane, LOSpl	A	rrob '-	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	953.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.53
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background AM

Highway Carmel Valley Road
From/To Schulte / Rancho Sa

From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 7 WB

	Dat.a	

Highway	class	Class	2		Peak hour factor, PHF	0.77	
Shoulder	r width		6.0	ft	% Trucks and buses	8	용
Lane wio	dth		12.0	ft	% Trucks crawling	0.0	8
Segment	length		2.4	mi	Truck crawl speed	0.0	mi/hr
Terrain	type		Specific	c Grade	% Recreational vehicles	1	용
Grade:	Length		0.25	mi	% No-passing zones	100	용
	Up/dowr	1	3.0	용	Access point density	14	/mi

Analysis direction volume, Vd 950 veh/h Opposing direction volume, Vo 654 veh/h

___Average Travel Speed_

Direction	Analysis	(4)	 ∩nn	osing	(0)
	1.1	(α)	Opp	1.1	(0)
PCE for trucks, ET					
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV				0.992	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	1244	pc/h		856	pc/h
Free-Flow Speed from Field Measurement	:				
Field measured speed, (note-3) S FM		_	mi/h		
Observed total demand, (note-3) V		_	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		55.0	mi/h		
Adj. for lane and shoulder width, (note-					
Adj. for access point density, (note-3)			mi/h		
Adj. for access point density, (note-3)	LA	3.3	1111/11		
Free-flow speed, FFSd		51.5	mi/h		
Adjustment for no-passing zones, fnp		1.8*	mi/h		
Average travel speed, ATSd		33.4			
Percent Free Flow Speed, PFFS		64.9	%		
rettent rice riow speed, Prrs		04.9	70		

Percent Time	e-Spent-Follow	ving		
Direction	Analysis(d)	(Opposina	(0)
PCE for trucks, ET	1.0		1.0	(-)
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000)
Grade adjustment factor,(note-1) fg	0.92		1.00	
Directional flow rate,(note-2) vi		oc/h	849	pc/h
Base percent time-spent-following, (no	ote-4) BPTSFd		8	
Adjustment for no-passing zones, fnp		15.1	_	
Percent time-spent-following, PTSFd		93.3	8	
Level of Service and	Other Perform	nance Meas	sures	
Level of service, LOS		Е		
Volume to capacity ratio, v/c		0.79		
Peak 15-min vehicle-miles of travel,	VMT15	740	veh-mi	
Peak-hour vehicle-miles of travel, VI		2280	ven mi	
Peak 15-min total travel time, TT15	1100	22.2	veh-h	
Capacity from ATS, CdATS		0	veh/h	
Capacity from PTSF, CdPTSF		1564	veh/h	
Directional Capacity		1564	veh/h	
Passing	Lane Analysis	5		
Total length of analysis segment, Lt			2.4	mi
Length of two-lane highway upstream	of the passing	ງ lane, Lາ	u –	mi
Length of passing lane including tape			-	mi
Average travel speed, ATSd (from above			33.4	mi/h
Percent time-spent-following, PTSFd	(from above)		93.3	
Level of service, LOSd (from above)			E	
Average Travel Spo	eed with Pass	sing Lane		
Downstream length of two leng highway	i+bin offor	. +		
Downstream length of two-lane highway				
length of passing lane for average			-	mi
Length of two-lane highway downstream length of the passing lane for a			a _	mi
Adj. factor for the effect of passing		speed, Lo	.a –	шт
on average speed, fpl	, ranc		_	
Average travel speed including passing	ng lane. ATSpl		_	
Percent free flow speed including par			0.0	8
Percent Time-Spent-Fo	ollowing with	Passing 1	Lane	
Downstream length of two-lane highway			gth	
of passing lane for percent time	-spent-followi	lng, Lde	-	mi
Length of two-lane highway downstream			of	
the passing lane for percent time	e-spent-follow	ving, Ld	-	mi
Adj. factor for the effect of passing	-			
on percent time-spent-following,	fpl		-	
Percent time-spent-following				
including passing lane, PTSFpl			-	왕
Level of Service and Other Per	formance Measu	res with	Passing	Lane
Level of service including passing la	ane LOSpl	A		
Peak 15-min total travel time, TT15	ите, поврт	_	veh-h	
D' 1. T				

___ Bicycle Level of Service __

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1233.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.66
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Background PM Analysis Time Period Carmel Valley Road Highway From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0 77 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 621 veh/h Opposing direction volume, Vo 999 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.977 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 825 pc/h 1297 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 33.2 mi/h Percent Free Flow Speed, PFFS 64.5 용

Percent Time	-Spent-Follow	ing		
Direction	Analysis(d)	Oı	pposina	(0)
PCE for trucks, ET	1.0	-,	1.0	/
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor, (note-1) fg	0.92		1.00	
Directional flow rate, (note-2) vi	877 p	c/h	1297	pc/h
Base percent time-spent-following, (no				1, -,
Adjustment for no-passing zones, fnp	,	15.1		
Percent time-spent-following, PTSFd		83.3 %		
Level of Service and	Other Perform	ance Meas	ures	
		_		
Level of service, LOS		D		
Volume to capacity ratio, v/c		0.52		
Peak 15-min vehicle-miles of travel,			veh-mi	
Peak-hour vehicle-miles of travel, VM	T60		veh-mi	
Peak 15-min total travel time, TT15			veh-h	
Capacity from ATS, CdATS			veh/h	
Capacity from PTSF, CdPTSF		1564	veh/h	
Directional Capacity		1564	veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt			2.4	mi
Length of two-lane highway upstream o	f the measing	lana I.		mi
Length of two-lane highway upstream of Length of passing lane including tape		Talle, Lu	-	mi
			33.2	mi/h
Average travel speed, ATSd (from abov			83.3	1111 / 11
Percent time-spent-following, PTSFd (IIOM above)		03.3 D	
Level of service, LOSd (from above)			ט	
Average Travel Spe	ed with Pass	ing Lane_		
Downstream length of two-lane highway	within effec	tive		
length of passing lane for averag			_	mi
Length of two-lane highway downstream				
length of the passing lane for av			_	mi
Adj. factor for the effect of passing		вреса, да		шт
on average speed, fpl	Tunc		_	
Average travel speed including passin	a lane ATCnl		_	
Percent free flow speed including passing			0.0	8
Percent Time-Spent-Fo	llowing with	Passing La	ane	
Downstream length of two-lane highway	within effec	tive lengt	th	
of passing lane for percent time-				mi
Length of two-lane highway downstream	-			
the passing lane for percent time			_	mi
Adj. factor for the effect of passing		J		
on percent time-spent-following,			_	
Percent time-spent-following				
including passing lane, PTSFpl			-	ક
Level of Service and Other Perf	ormance Measu	res with	Passing 1	Lane
Level of service including passing la	ne, LOSpl			
Peak 15-min total travel time, TT15		-	veh-h	
Ricycle Le	vel of Servic	e		
Bicycle He	· CT OT DCT VIC	~		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	806.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.45
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_Directional Two-Lane Highway Segment Analysis___

Analyst

Up/down

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background Saturday Carmel Valley Road Highway

From/To Schulte / Rancho San Carlos

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 7 WB

Highway class Class	2	Peak hour factor, PHF	0.94	
Shoulder width	6.0 ft	% Trucks and buses	1	용
Lane width	12.0 ft	% Trucks crawling	0.0	8
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	1	8
Grade: Length	0.25 mi	% No-passing zones	100	8

Access point density

/mi

Input Data

3.0 Analysis direction volume, Vd 764 veh/h Opposing direction volume, Vo 782 veh/h

Av	erage	Travel	Speed
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Average Tr	avel Spe	ed			
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV	Analysis 1.3 1.0 0.99 1.00	7	Oppo	osing (0 1.1 1.0 0.999 1.00	o)
Directional flow rate,(note-2) vi	815	pc/h		833	pc/h
Free-Flow Speed from Field Measurement Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note Adj. for access point density,(note-3)	-3) fLS	- 55.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		51.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		1.8* 36.9 71.7	mi/h mi/h %		

Percent Time-Spent-I	Following	
PCE for trucks, ET PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg 0.9	0 1.0 000 1.000 92 1.00 3 pc/h 832 p	oc/h
Level of Service and Other Pe	erformance Measures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.52 488 veh-mi 1834 veh-mi 13.2 veh-h 1697 veh/h 1564 veh/h 1564 veh/h	
Passing Lane And	alysis	
Total length of analysis segment, Lt Length of two-lane highway upstream of the pa Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	- mi 36.9 mi	=
Average Travel Speed with	h Dassing Lane	
Downstream length of two-lane highway within length of passing lane for average trave. Length of two-lane highway downstream of effect length of the passing lane for average the Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, Percent free flow speed including passing lane.	effective cl speed, Lde - mi ective ravel speed, Ld - mi - ATSpl -	
Percent Time-Spent-Following	with Passing Lane	
Downstream length of two-lane highway within of passing lane for percent time-spent-for Length of two-lane highway downstream of effor the passing lane for percent time-spent-	ollowing, Lde - mi ective length of	
Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl	%	
Level of Service and Other Performance	measures with Passing Lane	=
Level of service including passing lane, LOSP Peak 15-min total travel time, TT15	pl A - veh-h	
Bicycle Level of S	Service	

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	812.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	2.48
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for $v>200\ veh/h$.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background AM Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

FREE	FREE-FLOW SPEED						
Direction	1		2				
Lane width	12.0	ft	12.0	ft			
Lateral clearance:							
Right edge	6.0	ft	6.0	ft			
Left edge	6.0	ft	6.0	ft			
Total lateral clearance	12.0	ft	12.0	ft			
Access points per mile	8		4				
Median type	Divided		Divided				
Free-flow speed:	Base		Base				
FFS or BFFS	55.0	mph	55.0	mph			
Lane width adjustment, FLW	0.0	mph	0.0	mph			
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph			
Median type adjustment, FM	0.0	mph	0.0	mph			
Access points adjustment, FA	2.0	mph	1.0	mph			
Free-flow speed	53.0	mph		mph			
	_VOLUME						
Direction	1		2				
Volume, V	751	vph	973	vph			
Peak-hour factor, PHF	0.80	· L	0.87				
Peak 15-minute volume, v15	235		280				
Trucks and buses	3	8	1	8			
Recreational vehicles	0	8	0	8			
Terrain type	Level		Level				
Grade	0.00	8	0.00	8			
Segment length	0.00	mi	0.00	mi			
Number of lanes	2		2				
Driver population adjustment, fP	1.00		1.00				
Trucks and buses PCE, ET	1.5		1.5				
Recreational vehicles PCE, ER	1.2		1.2				
Heavy vehicle adjustment, fHV			0.995				
Flow rate, vp	476	pcphpl		pcphpl			
	_RESULTS						

Direction	1		2	
Flow rate, vp	476	pcphpl	561	pcphpl
Free-flow speed, FFS	53.0	mph	54.0	mph
Avg. passenger-car travel speed	l, S 55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.7	pc/mi/ln	10.2	pc/mi/ln
Bicy	cle Level of Se	rvice		
Posted speed limit, Sp	55		55	
Percent of segment with occupie	ed			
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	469.4		559.2	
Effective width of outside lane	e, We 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.73		2.34	
Bicycle LOS	C		В	

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background PM Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction 1								
Lane width	F	FREE-FLOW SPEED						
Lateral clearance: Right edge	Direction	1		2				
Right edge			ft	12.0	ft			
Left edge								
Left edge	Right edge	6.0	ft	6.0	ft			
Total lateral clearance		6.0	ft	6.0	ft			
Median type Divided Divided Free-flow speed: Base Base FFS or BFFS 55.0 mph 55.0 mph Lane width adjustment, FLW 0.0 mph 0.0 mph Lateral clearance adjustment, FLC 0.0 mph 0.0 mph Median type adjustment, FM 0.0 mph 0.0 mph Meak adjustment type adjustment, FM 0.88 0.93 0.93 0.93 Mecreational vehicles 0 % 0 % 0 % Terrain type adjustment, FM	Total lateral clearance	12.0	ft	12.0	ft			
Free-flow speed: FFS or BFFS	Access points per mile	8		4				
Free-flow speed: Base Base Base FFS or BFFS 55.0 mph 55.0 mph Lane width adjustment, FLW 0.0 mph 0.0 mph Lateral clearance adjustment, FLC 0.0 mph 0.0 mph Median type adjustment, FM 0.0 mph 0.0 mph Access points adjustment, FA 2.0 mph 1.0 mph Free-flow speed 53.0 mph 1.0 mph Free-flow speed 53.0 mph 54.0 mph VOLUME	Median type	Divided		Divided				
FFS or BFFS		Base		Base				
Lane width adjustment, FLW 0.0 mph 0.0 mph Lateral clearance adjustment, FLC 0.0 mph 0.0 mph Median type adjustment, FM 0.0 mph 0.0 mph Access points adjustment, FA 2.0 mph 1.0 mph Free-flow speed 53.0 mph 54.0 mph 55.0 mph 54.0 mph 54.0 mph 55.0 mph 54.0 mph 55.0		55.0	mph	55.0	mph			
Lateral clearance adjustment, FLC 0.0 mph 0.0 mph Median type adjustment, FM 0.0 mph 0.0 mph 1.0 mph Access points adjustment, FA 2.0 mph 1.0 mph 54.0 mph 5	Lane width adjustment, FLW	0.0	mph	0.0	mph			
Median type adjustment, FM 0.0 mph 0.0 mph Access points adjustment, FA 2.0 mph 1.0 mph Free-flow speed 53.0 mph 54.0 mph VOLUME	Lateral clearance adjustment, FL	C 0.0		0.0				
Sand	Median type adjustment, FM	0.0		0.0				
VOLUME	Access points adjustment, FA	2.0	mph	1.0	mph			
Direction 1	Free-flow speed	53.0	mph	54.0	mph			
Direction								
Volume, V 1076 vph 742 vph Peak-hour factor, PHF 0.88 0.93 Peak 15-minute volume, v15 306 199 Trucks and buses 1 % Recreational vehicles 0 % Grade 0.00 % Segment length 0.00 % Number of lanes 2 2 Driver population adjustment, fP 1.00 1.00 Trucks and buses PCE, ET 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995		VOLUME						
Peak-hour factor, PHF 0.88 0.93 Peak 15-minute volume, v15 306 199 Trucks and buses 1	Direction	1		2				
Peak 15-minute volume, v15 306 199 Trucks and buses 1 % 1 % 1 % Recreational vehicles 0 % 0 % 0 % Terrain type Level Level Grade 0.00 % 0.00 % 0.00 % Segment length 0.00 mi 0.00 mi Number of lanes 2 2 Driver population adjustment, fP 1.00 1.00 1.00 Trucks and buses PCE, ET 1.5 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Volume, V	1076	vph	742	vph			
Trucks and buses 1 % 1 % Recreational vehicles 0 % 0 % Terrain type Level Level Condo % Grade 0.00 % 0.00 % Segment length 0.00 mi 0.00 mi Number of lanes 2 2 2 Driver population adjustment, fP 1.00 1.00 1.00 Trucks and buses PCE, ET 1.5 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Peak-hour factor, PHF	0.88		0.93				
Recreational vehicles 0 % 0 % Terrain type Level Level Company 0.00 % 0.00 % Segment length 0.00 mi 0.00 mi 0.00 mi Number of lanes 2 2 2 2 2 2 1.00 1.00 1.00 1.00 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.2 <td< td=""><td>Peak 15-minute volume, v15</td><td>306</td><td></td><td>199</td><td></td></td<>	Peak 15-minute volume, v15	306		199				
Terrain type	Trucks and buses	1	용	1	8			
Grade 0.00 % 0.00 % Segment length 0.00 mi 0.00 mi Number of lanes 2 2 2 Driver population adjustment, fP 1.00 1.00 Trucks and buses PCE, ET 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Recreational vehicles	0	왕	0	8			
Segment length 0.00 mi 0.00 mi Number of lanes 2 2 2 Driver population adjustment, fP 1.00 1.00 Trucks and buses PCE, ET 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Terrain type	Level		Level				
Number of lanes 2 2 Driver population adjustment, fP 1.00 1.00 Trucks and buses PCE, ET 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Grade	0.00	용	0.00	8			
Driver population adjustment, fP 1.00 1.00 Trucks and buses PCE, ET 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Segment length	0.00	mi	0.00	mi			
Trucks and buses PCE, ET 1.5 1.5 Recreational vehicles PCE, ER 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Number of lanes	2		2				
Recreational vehicles PCE, ER 1.2 1.2 Heavy vehicle adjustment, fHV 0.995 0.995	Driver population adjustment, fP	1.00		1.00				
Heavy vehicle adjustment, fHV 0.995 0.995	Trucks and buses PCE, ET	1.5		1.5				
	Recreational vehicles PCE, ER	1.2		1.2				
Flow rate, vp 614 pcphpl 400 pcphpl	Heavy vehicle adjustment, fHV	0.995		0.995				
	Flow rate, vp	614	pcphpl	400	pcphpl			
RESULTS		RESILTS						

Direction	1		2	
Flow rate, vp	614	pcphpl	400	pcphpl
Free-flow speed, FFS	53.0	mph	54.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	В		A	
Density, D	11.2	pc/mi/ln	7.3	pc/mi/ln
Bicycle	Level of Se	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	611.4		398.9	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.38		2.17	
Bicycle LOS	В		В	

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

_OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald Date:

12/6/17

Analysis Period: Background Saturday Highway: Carmel Valley Road From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

מס	EE-FLOW SPEI	P.D.		
FR	EE-FLOW SPE	5D		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	VOLUME			
Direction	1		2	
Volume, V	878	vph	854	vph
Peak-hour factor, PHF	0.91		0.94	· <u>+</u>
Peak 15-minute volume, v15	241		227	
Trucks and buses	1	용	1	%
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	484	pcphpl	456	pcphpl
	RESULTS_			

Dia	rection	1		2	
Flow rate, vp		484	pcphpl	456	pcphpl
Free-flow speed, FFS		53.0	mph	54.0	mph
Avg. passenger-car tra	avel speed, S	55.0	mph	55.0	mph
Level of service, LOS		A		A	
Density, D		8.8	pc/mi/ln	8.3	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit, Sp	•	55		55	
Percent of segment wit	th occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside	lane, vOL	482.4		454.3	
Effective width of out	tside lane, We	24.00		24.00	
Effective speed factor	r, St	4.79		4.79	
Bicycle LOS Score, BLO	OS	2.26		2.23	
Bicycle LOS		В		В	

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background AM
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	6.0	ft	6.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	12.0	ft	12.0	ft	
Access points per mile	8		8		
Median type	Divided		Divided		
Free-flow speed:	Base		Base		
FFS or BFFS	55.0	mph	55.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph	
Median type adjustment, FM	0.0	mph	0.0	mph	
Access points adjustment, FA	2.0	mph	2.0	mph	
Free-flow speed		mph		mph	
	VOLUME				
Direction	1		2		
Volume, V	1055	vph	1324	vph	
Peak-hour factor, PHF	0.86	-	0.68	-	
Peak 15-minute volume, v15	307		487		
Trucks and buses	2	용	2	용	
Recreational vehicles	0	용	0	용	
Terrain type	Level		Level		
Grade	0.00	용	0.00	용	
Segment length	0.00	mi	0.00	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	1.5		1.5		
Recreational vehicles PCE, ER	1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.990		
Flow rate, vp	619	pcphpl	983	pcphpl	
	RESULTS				

	Direction	1		2	
Flow rate, vp		619	pcphpl	983	pcphpl
Free-flow speed, F	FS	53.0	mph	53.0	mph
Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Level of service,	LOS	В		В	
Density, D		11.3	pc/mi/ln	17.9	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit	, Sp	55		55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsi	de lane, vOL	613.4		973.5	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fa	ctor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	2.61		2.85	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background PM
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED						
Direction	1		2			
Lane width	12.0	ft	12.0	ft		
Lateral clearance:						
Right edge	6.0	ft	6.0	ft		
Left edge	6.0	ft	6.0	ft		
Total lateral clearance	12.0	ft	12.0	ft		
Access points per mile	8		8			
Median type	Divided		Divided			
Free-flow speed:	Base		Base			
FFS or BFFS	55.0	mph	55.0	mph		
Lane width adjustment, FLW	0.0		0.0	mph		
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph		
Median type adjustment, FM		mph		mph		
Access points adjustment, FA	2.0	mph	2.0	mph		
Free-flow speed	53.0	mph	53.0	mph		
	VOLUME					
Direction	1		2			
Volume, V	1419	vph	1062	vph		
Peak-hour factor, PHF	0.95		0.88			
Peak 15-minute volume, v15	373		302			
Trucks and buses	2	용	1	8		
Recreational vehicles	0	용	0	용		
Terrain type	Level		Level			
Grade	0.00	용	0.00	%		
Segment length	0.00	mi	0.00	mi		
Number of lanes	2		2			
Driver population adjustment, fP	1.00		1.00			
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicles PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.990		0.995			
Flow rate, vp	754	pcphpl	606	pcphpl		
	RESULTS					

	Direction	1		2	
Flow rate, vp		754	pcphpl	606	pcphpl
Free-flow speed, FF	S	53.0	mph	53.0	mph
Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Level of service, L	os	В		В	
Density, D		13.7	pc/mi/ln	11.0+	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit,	Sp	55		55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsid	e lane, vOL	746.8		603.4	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fac	tor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	2.71		2.37	
Bicycle LOS		C		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background Saturday
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED						
Direction	1		2			
Lane width	12.0	ft	12.0	ft		
Lateral clearance:						
Right edge	6.0	ft	6.0	ft		
Left edge	6.0	ft	6.0	ft		
Total lateral clearance	12.0	ft	12.0	ft		
Access points per mile	8		8			
Median type	Divided		Divided			
Free-flow speed:	Base		Base			
FFS or BFFS	55.0	mph	55.0	mph		
Lane width adjustment, FLW	0.0	mph	0.0	mph		
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph		
Median type adjustment, FM	0.0	mph	0.0	mph		
Access points adjustment, FA	2.0	mph	2.0	mph		
Free-flow speed	53.0	mph	53.0	mph		
	VOLUME					
Direction	1		2			
Volume, V	1143	vph	1084	vph		
Peak-hour factor, PHF	0.96		0.94			
Peak 15-minute volume, v15	298		288			
Trucks and buses	1	8	1	8		
Recreational vehicles	0	8	0	8		
Terrain type	Level		Level			
Grade	0.00	8	0.00	8		
Segment length	0.00	mi	0.00	mi		
Number of lanes	2		2			
Driver population adjustment, fP	1.00		1.00			
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicles PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.995		0.995			
Flow rate, vp	598	pcphpl	579	pcphpl		
	RESULTS					

	Direction	1		2	
Flow rate, vp		598	pcphpl	579	pcphpl
Free-flow speed, FF	S	53.0	mph	53.0	mph
Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Level of service, L	os	A		A	
Density, D		10.9	pc/mi/ln	10.5	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit,	Sp	55		55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsid	e lane, vOL	595.3		576.6	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fac	tor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	2.37		2.35	
Bicycle LOS		В		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background AM
Highway: Carmel Valley Road
From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FF	FREE-FLOW SPEED							
Direction	1		2					
Lane width	12.0	ft	12.0	ft				
Lateral clearance:								
Right edge	6.0	ft	6.0	ft				
Left edge	6.0	ft	6.0	ft				
Total lateral clearance	12.0	ft	12.0	ft				
Access points per mile	0		0					
Median type	Divided		Divided					
Free-flow speed:	Base		Base					
FFS or BFFS	55.0	mph	55.0	mph				
Lane width adjustment, FLW	0.0	mph	0.0	mph				
Lateral clearance adjustment, FLO	0.0	mph	0.0	mph				
Median type adjustment, FM	0.0	mph	0.0	mph				
Access points adjustment, FA	0.0	mph	0.0	mph				
Free-flow speed	55.0	mph	55.0	mph				
	VOLUME							
Direction	1		2					
Volume, V	1067	vph	1082	vph				
Peak-hour factor, PHF	0.86	- 1	0.76	· <u>+</u>				
Peak 15-minute volume, v15	310		356					
Trucks and buses	2	용	2	%				
Recreational vehicles	0	용	0	8				
Terrain type	Level		Level					
Grade	0.00	용	0.00	8				
Segment length	0.00	mi	0.00	mi				
Number of lanes	2		2					
Driver population adjustment, fP	1.00		1.00					
Trucks and buses PCE, ET	1.5		1.5					
Recreational vehicles PCE, ER	1.2		1.2					
Heavy vehicle adjustment, fHV	0.990		0.990					
Flow rate, vp	626	pcphpl	718	pcphpl				
	RESULTS							

1		2	
626	pcphpl	718	pcphpl
55.0	mph	55.0	mph
55.0	mph	55.0	mph
В		В	
11.4	pc/mi/ln	13.1	pc/mi/ln
evel of Se	rvice		
55		55	
0		0	
3		3	
620.3		711.8	
24.00		24.00	
4.79		4.79	
2.62		2.69	
C		C	
	626 55.0 55.0 B 11.4 evel of Se 55 0 3 620.3 24.00 4.79 2.62	626 pcphpl 55.0 mph 55.0 mph B 11.4 pc/mi/ln evel of Service	626 pcphpl 718 55.0 mph 55.0 55.0 mph 55.0 B B 11.4 pc/mi/ln 13.1 evel of Service 55 55 0 0 0 3 3 3 620.3 711.8 24.00 24.00 4.79 4.79 2.62 2.69

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background PM
Highway: Carmel Valley Road
From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	6.0	ft	6.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	12.0	ft	12.0	ft	
Access points per mile	0		0		
Median type	Divided		Divided		
Free-flow speed:	Base		Base		
FFS or BFFS	55.0	mph	55.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC		mph	0.0	mph	
Median type adjustment, FM	0.0	mph	0.0	mph	
Access points adjustment, FA	0.0	mph	0.0	mph	
Free-flow speed		mph	55.0	mph	
	_VOLUME				
Direction	1		2		
Volume, V	1122	vph	940	vph	
Peak-hour factor, PHF	0.95	-	0.90	-	
Peak 15-minute volume, v15	295		261		
Trucks and buses	2	용	2	8	
Recreational vehicles	0	용	0	8	
Terrain type	Level		Level		
Grade	0.00	용	0.00	8	
Segment length	0.00	mi	0.00	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	1.5		1.5		
Recreational vehicles PCE, ER	1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.990		
Flow rate, vp	596	pcphpl	527	pcphpl	
	_RESULTS				

Direc	tion	1		2	
Flow rate, vp		596	pcphpl	527	pcphpl
Free-flow speed, FFS		55.0	mph	55.0	mph
Avg. passenger-car trave	l speed, S	55.0	mph	55.0	mph
Level of service, LOS		A		A	
Density, D		10.8	pc/mi/ln	9.6	pc/mi/ln
	Bicycle I	evel of Se	rvice		
Posted speed limit, Sp		55		55	
Percent of segment with	occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside lan	e, vOL	590.5		522.2	
Effective width of outsi	de lane, We	24.00		24.00	
Effective speed factor,	St	4.79		4.79	
Bicycle LOS Score, BLOS		2.59		2.53	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background Saturday
Highway: Carmel Valley Road
From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE	-FLOW SPEE	D		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0		6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1022	vph	886	vph
Peak-hour factor, PHF	0.96		0.98	
Peak 15-minute volume, v15	266		226	
Trucks and buses	2	용	2	8
Recreational vehicles	0	8	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	용
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	537	pcphpl	456	pcphpl
	_RESULTS			

Direction	1		2	
Flow rate, vp	537	pcphpl	456	pcphpl
Free-flow speed, FFS	55.0	mph	55.0	mph
Avg. passenger-car travel speed,	S 55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.8	pc/mi/ln	8.3	pc/mi/ln
Bicyc	le Level of S	Service		
Posted speed limit, Sp	55		55	
Percent of segment with occupied	l			
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	532.3		452.0	
Effective width of outside lane,	We 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.54		2.46	
Bicycle LOS	C		В	

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:						
Direct	ional Two-La	ne Highwa	y Segment	Analys	is	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch	SR 1 Highlands D Unincorpora 2017 Seg 13 NB	AM Or / Riber ated Monte	erey Count	÷У		
		input Data	·			
Lane width 12 Segment length 2	0 ft 2.0 ft .6 mi blling mi %	% Trucks % Truck cr % Recrea % No-pas Access r		es J l ehicles	100	% mi/hr % % /mi
	Average	Travel S	Speed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,	e-1) fg	1. fHV 0.	sis(d) 0 1 971 89 52 pc		posing 1.8 1.1 0.977 0.96 568	7
Free-Flow Speed from F: Field measured speed, (1) Observed total demand, Estimated Free-Flow Spe Base free-flow speed, (1) for lane and shouly hadj. for access point of Free-flow speed, FFSd Adjustment for no-pass:	note-3) S FM (note-3) V eed: note-3) BFFS lder width,(n density,(note	note-3) fI e-3) fA	45.0 45.0 3.8 1.3 1.3 42.5	mi/h veh/h mi/h mi/h mi/h mi/h		
Average travel speed, A Percent Free Flow Speed	ATSd	.ħ	32.2 75.9	mi/h %		

Percent Time-Spent-Foll	owing		
PCE for trucks, ET 1.6)	Opposing 1.2	(0)
PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg 0.90		1.0 0.994 0.96	
Directional flow rate,(note-2) vi 442 Base percent time-spent-following,(note-4) BPTSF Adjustment for no-passing zones, fnp		558 %	pc/h
Percent time-spent-following, PTSFd	65.1	8	
Level of Service and Other Perfo		easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	C 0.26 254 772 7.9 1598 1639	veh/h	
Passing Lane Analys	is		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passi Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.6 Lu - - 32.2 65.1 C	mi mi mi mi/h
Average Travel Speed with Pa	ssing La	ne	
Downstream length of two-lane highway within eff length of passing lane for average travel sp Length of two-lane highway downstream of effecti	eed, Lde	-	mi
length of two-lame highway downstream of effects length of the passing lane for average trave Adj. factor for the effect of passing lane on average speed, fpl		Ld -	mi
Average travel speed including passing lane, ATS Percent free flow speed including passing lane,		-	96
Percent Time-Spent-Following wit	h Passin	g Lane	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follo Length of two-lane highway downstream of effecti	wing, Ld	e -	mi
the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ક
Level of Service and Other Performance Mea	sures wi	th Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Serv	ice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	390.8
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.97
Bicycle LOS	C.

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO
Agency/Co. Mott MacDonald
Date Performed 12/6/17

Analysis Time Period Background PM

Highway SR 1

From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 13 NB

_____Input Data______Highway class Class 2 Peak hour factor, PHF 0.88

Shoulder width 5.0 ft % Trucks and buses 2 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed mi/hr 2.6 шi 0.0 Terrain type Rolling % Recreational vehicles 0 용 Grade: Length mi % No-passing zones 100 Up/down 용 Access point density 5 /mi

Analysis direction volume, Vd 664 veh/h Opposing direction volume, Vo 485 veh/h

______Average Travel Speed__

Direction	Analysis(d)		Opposing (c)
PCE for trucks, ET	1.5		1.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fH	V 0.990		0.986	
Grade adj. factor,(note-1) fg	0.99		0.96	
Directional flow rate,(note-2) vi	770	pc/h	582	pc/h
Free-Flow Speed from Field Measuremen	t.:			

Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.7 mi/h Percent Free Flow Speed, PFFS 69.9 용

Percent Time-Spent-Fol	llowing		
PCE for trucks, ET PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi 755 Base percent time-spent-following, (note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h SFd 64.8 % 29.4 81.6 %	1.2 1.0 0.996 0.97 570	(o) pc/h
Level of Service and Other Perf Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.44 490 1726 16.5 0 1642	veh-mi veh-mi veh-h veh/h veh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the pass Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above Level of service, LOSd (from above)	e)	29.7 81.6 D	mi mi mi mi/h
Downstream length of two-lane highway within ef length of passing lane for average travel sength of two-lane highway downstream of effect length of the passing lane for average travel sength of the passing lane for average travel. Factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, AT Percent free flow speed including passing lane,	ffective speed, Lde cive vel speed, Ld TSpl , PFFSpl	- - - 0.0	mi mi
Downstream length of two-lane highway within ef of passing lane for percent time-spent-foll Length of two-lane highway downstream of effect the passing lane for percent time-spent-fol Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl	ffective lengt lowing, Lde Live length of	th -	mi mi
Level of Service and Other Performance Me Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15 Bicycle Level of Ser	A 	Passing 1	Lane

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	754.5
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.07
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background Saturday Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.95 Shoulder width 5.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 % No-passing zones Grade: Length шi 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 564 veh/h Opposing direction volume, Vo 657 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.7 1.6 PCE for RVs, ER 1.1 1.1 0.994 Heavy-vehicle adj. factor, (note-5) fHV 0.993 Grade adj. factor, (note-1) fg 0.97 0.98 Directional flow rate, (note-2) vi 616 pc/h 710 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h mi/h Adj. for access point density, (note-3) fA 1.3 Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.9 mi/h Percent Free Flow Speed, PFFS 70.3 용

Percent Time-Spent-Follow	wing		
Direction Analysis(d) PCE for trucks, ET 1.2 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 0.998		1.0 1.0 1.000	(0)
Grade adjustment factor,(note-1) fg 0.97 Directional flow rate,(note-2) vi 613 N Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		0.99 699 %	pc/h
Level of Service and Other Perform	nance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.36 386 1466 12.9 1656 1683 1683		
Passing Lane Analysis	5		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.6 Lu - - 29.9 74.6 D	mi mi mi mi/h
Average Travel Speed with Pass	sing Lar	ne	
Downstream length of two-lane highway within effective length of passing lane for average travel spectength of two-lane highway downstream of effective	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSP Percent free flow speed including passing lane, PR		0.0	8
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-follows. Length of two-lane highway downstream of effective	ing, Lde	e –	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	ક
Level of Service and Other Performance Measu	ıres wit	ch Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	593.7
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.74
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Background AM

Highway SR 1

From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 13 SB

			input bata			_
Highway class Clas	s 2		Peak hour factor, PHF	0.92		
Shoulder width	5.0	ft	% Trucks and buses	3	8	
Lane width	12.0	ft	% Trucks crawling	0.0	8	
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr	

Input Data

Segment length 2.6 ml Truck crawl speed 0.0 ml/n:
Terrain type Rolling % Recreational vehicles 0 %
Grade: Length - mi % No-passing zones 100 %
Up/down - % Access point density 5 /mi

Analysis direction volume, Vd 405 veh/h Opposing direction volume, Vo 297 veh/h

______Average Travel Speed

Average	iravei	. Spe	eu e			
		-				
Direction	Anal	ysis	(d)	Oppo	sing (o)
PCE for trucks, ET		1.9			2.1	
PCE for RVs, ER		1.1			1.1	
Heavy-vehicle adj. factor,(note-5)	fHV	0.97	1		0.968	
Grade adj. factor,(note-1) fg		0.92			0.85	
Directional flow rate,(note-2) vi		491	pc/h		392	pc/h
Free-Flow Speed from Field Measurem	ent:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width, (n	ote-3)	fLS	1.3	mi/h		
Adj. for access point density, (note	-3) fA		1.3	mi/h		
Free-flow speed, FFSd			42.5	mi/h		
Adjustment for no-passing zones, fn	.p		2.3*	mi/h		
Average travel speed, ATSd			33.3	mi/h		
Percent Free Flow Speed, PFFS			78.4	8		

Percent Time-Spent-Follow:	ing		
Base percent time-spent-following,(note-4) BPTSFd	c/h		o) pc/h
Level of Service and Other Performa	ance Meas	sures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1053 8.6 0 1486 1486	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.6 1 - 33.3 70.6 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane_		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFR	cive d, Lde speed, Ld	- 1 - - -	mi mi %
Percent Time-Spent-Following with I	Dagging T	ano	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective the passing lane for percent time-spent-following Adj. factor for the effect of passing lane	ive leng ng, Lde length o	gth - of	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFplLevel of Service and Other Performance Measur	res with	- Passing L	ş
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	440.2
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.03
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:							
Directional	Two-Lane	e High	way S	Segment .	Analys	is	
Directional Two-Lane Highway Segment Analysis							
	Inp	put Da	ta				
Segment length 2.6 Terrain type Rolling	ft 9 ft 9 mi 9 mi 9 %	% Truc % Truc Fruck % Recr % No-p Access veh	ks ar ks cr crawl eatic assir poir /h	Eactor, nd buses rawling L speed onal veh ng zones nt densi	icles	0.93 3 0.0 0.0 0 100 5	% % mi/hr % % /mi
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(n Grade adj. factor,(note-1) f Directional flow rate,(note-	g	Anal HV	ysis 1.8 1.1 0.97	(d)		posing (1.6 1.1 0.982 0.98 742	o) pc/h
Free-Flow Speed from Field M Field measured speed, (note-3 Observed total demand, (note- Estimated Free-Flow Speed: Base free-flow speed, (note-3 Adj. for lane and shoulder w Adj. for access point densit) S FM 3) V) BFFS idth,(not	te-3)	fLS	- - 45.0 1.3	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd Adjustment for no-passing zo Average travel speed, ATSd Percent Free Flow Speed, PFF	_			42.5 2.3* 30.0 70.7	mi/h mi/h mi/h %		

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.2 1.0 0.994	C	pposing 1.0 1.0 1.00	
Grade adjustment factor, (note-1) fg	0.96		0.99	
Directional flow rate, (note-2) vi	546 p	c/h	721	pc/h
Base percent time-spent-following, (no				<u>r</u> , - ,
Adjustment for no-passing zones, fnp	,	30.9		
Percent time-spent-following, PTSFd		70.0 %		
Level of Service and	Other Perform	ance Meas	ures	
	001101 101101		u1 05	
Level of service, LOS		C		
Volume to capacity ratio, v/c		0.32		
Peak 15-min vehicle-miles of travel,			veh-mi	
Peak-hour vehicle-miles of travel, VM	F60		veh-mi	
Peak 15-min total travel time, TT15			veh-h	
Capacity from ATS, CdATS			veh/h	
Capacity from PTSF, CdPTSF			veh/h	
Directional Capacity		1683	veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt			2.6	mi
Length of two-lane highway upstream of	f the passing	lane, Lu	. –	mi
Length of passing lane including tape:	rs, Lpl		-	mi
Average travel speed, ATSd (from above	e)		30.0	mi/h
Percent time-spent-following, PTSFd (from above)		70.0	
Level of service, LOSd (from above)			C	
Average Travel Spe	ed with Pagg	ing Lane		
nverage fraver bpe	ca with labb	ing banc_		
Downstream length of two-lane highway	within effec	tive		
length of passing lane for average Length of two-lane highway downstream			-	mi
length of the passing lane for average. Adj. factor for the effect of passing		speed, Ld	. –	mi
on average speed, fpl	-		_	
Average travel speed including passing	lane. ATSpl		_	
Percent free flow speed including pass			0.0	%
	. J ,			
Percent Time-Spent-Fo	llowing with	Passing L	ane	
Downstream length of two-lane highway	within effec	tive leng	th	
of passing lane for percent time-			_	mi
Length of two-lane highway downstream			f	шт
the passing lane for percent time				mi
Adj. factor for the effect of passing		тиу, ши		ш±
on percent time-spent-following,				
	гЪт		-	
Percent time-spent-following including passing lane, PTSFpl			-	8
Level of Service and Other Perfo	ormande Mood.	res with	Daggin~	Lane
bever or service and other Peri	Jimance Measu	res Mirth	rassing	лане
Level of service including passing la	ne, LOSpl	A		
Peak 15-min total travel time, TT15	,		veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	521.5
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.11
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background Saturday

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 13 SB

Input	Data

			_				
Highway	class	Class	2		Peak hour factor, PHF	0.92	
Shoulder	width		5.0	ft	% Trucks and buses	3	용
Lane wio	lth		12.0	ft	% Trucks crawling	0.0	용
Segment	length		2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain	type		Rolling		% Recreational vehicles	0	용
Grade:	Length		-	mi	% No-passing zones	100	용
	Up/down	1	-	용	Access point density	5	/mi

Analysis direction volume, Vd 657 veh/h Opposing direction volume, Vo 564 veh/h

___Average Travel Speed_

Direction	λna	veie	(d)	Opp.	osing (o	
PCE for trucks, ET	Alia	1.6	(4)	OPP	1.7	,
·						
PCE for RVs, ER		1.1			1.1	
Heavy-vehicle adj. factor,(note-5)					0.979	
Grade adj. factor,(note-1) fg		0.98			0.97	
Directional flow rate,(note-2) vi		742	pc/h		646	pc/h
Free-Flow Speed from Field Measurem	nent:					
Field measured speed, (note-3) S FM			_	mi/h		
Observed total demand (note-3) V			_	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width, (r.	note-3)	fLS	1 3	mi/h		
Adj. for access point density, (note						
Adj. 101 access point density, (note	2 3 / IA		1.5	1111/11		
Free-flow speed, FFSd			42.5	mi/h		
Adjustment for no-passing zones, fr	ın		2.3*	mi/h		
Average travel speed, ATSd	-12		29.4			
Percent Free Flow Speed, PFFS			69.2	6		

Percent Time-Spent-Follow	wing		
			, ,
Direction Analysis(d)	(Opposing	(0)
PCE for trucks, ET 1.0		1.0	
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 0.99		0.97	
	pc/h	632	pc/h
Base percent time-spent-following,(note-4) BPTSFd		용	
Adjustment for no-passing zones, fnp	29.4		
Percent time-spent-following, PTSFd	80.0	8	
Level of Service and Other Perform	mance Meas	sures	
Level of service, LOS	D		
	D 0.42		
Volume to capacity ratio, v/c			
Peak 15-min vehicle-miles of travel, VMT15	464	veh-mi	
Peak-hour vehicle-miles of travel, VMT60		veh-mi	
Peak 15-min total travel time, TT15		veh-h	
Capacity from ATS, CdATS	0	veh/h	
Capacity from PTSF, CdPTSF	1666	veh/h	
Directional Capacity	1666	veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt		2.6	mi
Length of two-lane highway upstream of the passing	a lane T		mi
Length of passing lane including tapers, Lpl	g rane, n	_	mi
Average travel speed, ATSd (from above)		29.4	mi/h
Percent time-spent-following, PTSFd (from above)		80.0	1111 / 11
Level of service, LOSd (from above)		D	
Level of Service, Losd (from above)		D	
Average Travel Speed with Pas	sing Lane		
Downstream length of two-lane highway within effe	ctive		
length of passing lane for average travel spe-		_	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel		d -	mi
Adj. factor for the effect of passing lane	bpcca, E	u.	III I
on average speed, fpl			
Average travel speed including passing lane, ATSp.	1		
Percent free flow speed including passing lane, Pi		0.0	8
reitent free from speed including passing fane, r	rrspi	0.0	•
Percent Time-Spent-Following with	Passing 1	Lane	
Downstream length of two-lane highway within effection	ctive len	at.h	
of passing lane for percent time-spent-follow.		_	mi
Length of two-lane highway downstream of effective		of	шт
the passing lane for percent time-spent-follow			mi
	wing, na		шт
Adj. factor for the effect of passing lane on percent time-spent-following, fpl			
		-	
Percent time-spent-following including passing lane, PTSFpl		_	8
including passing lane, risrpi			Ü
Level of Service and Other Performance Meas	ures with	Passing 1	Lane
Level of service including passing lane, LOSpl	Δ		
Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	714.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.27
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for $v>200\ veh/h$.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail:

Fax:

___OPERATIONAL ANALYSIS____

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project AM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	5.0	ft	5.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	11.0	ft	11.0	ft	
Access points per mile	1		2		
Median type	Undivid	ed	Undivide	ed	
Free-flow speed:	Base		Base		
FFS or BFFS	45.0	mph	45.0	mph	
Lane width adjustment, FLW	0.0		0.0	mph	
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph	
Median type adjustment, FM	1.6	mph	1.6	mph	
Access points adjustment, FA	0.3	mph	0.5	mph	
Free-flow speed	43.0	mph		mph	
	VOLUME				
Direction	1		2		
Volume, V	1359	vph	1695	vph	
Peak-hour factor, PHF	0.91		0.91		
Peak 15-minute volume, v15	373		466		
Trucks and buses	2	용	3	8	
Recreational vehicles	0	8	0	8	
Terrain type	Grade		Grade		
Grade	6.00	용	-6.00	8	
Segment length	0.73	mi	0.73	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	5.0		1.5		
Recreational vehicles PCE, ER	6.0		1.2		
Heavy vehicle adjustment, fHV	0.926		0.985		
Flow rate, vp	806	pcphpl	945	pcphpl	
	RESULTS_				

Direction	1		2	
Flow rate, vp	806	pcphpl	945	pcphpl
Free-flow speed, FFS	43.0	mph	42.7	mph
Avg. passenger-car travel speed, S	S 45.0	mph	45.0	mph
Level of service, LOS	В		C	
Density, D	17.9	pc/mi/ln	21.0	pc/mi/ln
Bicycle	e Level of S	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	746.7		931.3	
Effective width of outside lane, W	We 22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.17		3.54	
Bicycle LOS	C		D	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project PM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FRE	E-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivid	ed	Undivid	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
	VOLUME			
Direction	1		2	
Volume, V	1751	vph	1603	vph
Peak-hour factor, PHF	0.95	=	0.96	_
Peak 15-minute volume, v15	461		417	
Trucks and buses	2	용	1	8
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	용	-6.00	8
Segment length	0.73	mi	0.73	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.0		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.926		0.995	
Flow rate, vp	995	pcphpl	839	pcphpl
	RESULTS_			

	Direction	1		2	
Flow rate, vp		995	pcphpl	839	pcphpl
Free-flow speed, FF	rs	43.0	mph	42.7	mph
Avg. passenger-car	travel speed, S	45.0	mph	45.0	mph
Level of service, I	JOS	C		C	
Density, D		22.1	pc/mi/ln	18.6	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit,	Sp	55		55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsid	le lane, vOL	921.6		834.9	
Effective width of	outside lane, We	22.00		22.00	
Effective speed fac	ctor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	3.28		3.00	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

_OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project Saturday

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FRE	E-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:	12.0	I C	12.0	1.0
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1	I C	2	IC
Median type	Undivid	ьd	Undivide	ad
Free-flow speed:	Base	ca	Base	-u
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
riee-liow speed	43.0	шрп	42.7	шрп
	VOLUME			
Direction	1		2	
Volume, V	1615	vph	1873	vph
Peak-hour factor, PHF	0.91	v pii	0.97	V PII
Peak 15-minute volume, v15	444		483	
Trucks and buses	1	8	1	8
Recreational vehicles	0	8	0	8
Terrain type	Grade	•	Grade	•
Grade	6.00	8	-6.00	8
Segment length	0.73	mi	0.73	mi
Number of lanes	2	2	2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.0		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.962		0.995	
Flow rate, vp	922	pcphpl	970	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	922	pcphpl	970	pcphpl
Free-flow speed, FFS	43.0	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	20.5	pc/mi/ln	21.6	pc/mi/ln
Bicycle	e Level of S	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	887.4		965.5	
Effective width of outside lane, W	Te 22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.03		3.07	
Bicycle LOS	C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project AM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE	E-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivid	ed	Undivid	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	VOLUME			
Direction	1		2	
Volume, V	1577	vph	1652	vph
Peak-hour factor, PHF	0.89		0.92	
Peak 15-minute volume, v15	443		449	
Trucks and buses	3	용	4	8
Recreational vehicles	0	용	0	왕
Terrain type	Grade		Grade	
Grade	6.00	용	-6.00	왕
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.3		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.887		0.980	
Flow rate, vp	998	pcphpl	915	pcphpl
	RESULTS_			

Direction	1		2	
Flow rate, vp	998	pcphpl	915	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	22.2	pc/mi/ln	20.3	pc/mi/ln
Bicycle I	Level of Se	rvice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	886.0		897.8	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.51		3.79	
Bicycle LOS	D		D	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project PM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREI	E-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivid	ed	Undivid	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	VOLUME			
Direction	1		2	
Volume, V	1681	vph	1617	vph
Peak-hour factor, PHF	0.96	=	0.95	_
Peak 15-minute volume, v15	438		426	
Trucks and buses	1	ક	2	%
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	용	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.5		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.957		0.990	
Flow rate, vp	914	pcphpl	859	pcphpl
	RESULTS_			

Direct	ion	1		2			
Flow rate, vp		914	pcphpl	859	pcphpl		
Free-flow speed, FFS		42.7	mph	42.7	mph		
Avg. passenger-car travel	speed, S	45.0	mph	45.0	mph		
Level of service, LOS		C		C			
Density, D		20.3	pc/mi/ln	19.1	pc/mi/ln		
Bicycle Level of Service							
Posted speed limit, Sp		55		55			
Percent of segment with o	cupied						
on-highway parking		0		0			
Pavement rating, P		3		3			
Flow rate in outside lane	, vOL	875.5		851.1			
Effective width of outside	e lane, We	22.00		22.00			
Effective speed factor, St	3	4.79		4.79			
Bicycle LOS Score, BLOS		3.02		3.24			
Bicycle LOS		C		C			

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project Saturday

Highway: SR 1

From/To: Ocean / Carmel Valley Rd Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FD	EE ELOW CDE	ED.		
FR	EE-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivide	ed	Undivid	led
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	VOLUME			
Direction	1		2	
Volume, V	1631	vph	1736	vph
Peak-hour factor, PHF	0.93		0.94	
Peak 15-minute volume, v15	438		462	
Trucks and buses	1	용	1	ક
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	용	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.5		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.957		0.995	
Flow rate, vp	916	pcphpl	928	pcphpl
	RESULTS_			

Direction		1		2	
Flow rate, vp		916	pcphpl	928	pcphpl
Free-flow speed, FFS		42.7	mph	42.7	mph
Avg. passenger-car travel speed	l, S	45.0	mph	45.0	mph
Level of service, LOS		C		C	
Density, D		20.4	pc/mi/ln	20.6	pc/mi/ln
	_				
Bicy	rcle Le	evel of Se	rvice		
Posted speed limit, Sp		55		55	
Percent of segment with occupie	ed	33		33	
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside lane, vOL		876.9		923.4	
Effective width of outside lane	e, We	22.00		22.00	
Effective speed factor, St		4.79		4.79	
Bicycle LOS Score, BLOS		3.02		3.05	
Bicycle LOS		C		C	

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:		Fa	ıx:				
Directi	ional Two-Lan	ne High	way S	Segment A	Analysi	.s	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch S	SR 1 Ocean / CVR Unincorporat 2017 Seg 2 SB	· Proje	nterey				
	In	iput Da	ıta				
	oft 0 ft 0 mi ecific Grade 00 mi .0 %	% Truck % Recr % No-r Access	eks ar eks cr crawl reation assir poir	actor, I ad buses rawling speed onal vehing zones at densit	icles	0.92 4 0.0 0.0 0 100	% % mi/hr % % /mi
	Average	Travel	Snee	h.d			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor Grade adj. factor, (note- Directional flow rate, (r	or,(note-5) f -1) fg	Anal HV	ysis(1.0 1.0 1.000	(d)		posing (9.7 1.0 0.742 1.00 2310	o) pc/h
Free-Flow Speed from Fie Field measured speed, (no Observed total demand, (r Estimated Free-Flow Speed Base free-flow speed, (no Adj. for lane and should Adj. for access point de Free-Flow speed FFSd	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(no	ote-3)	fLS	- - 45.0 1.3 4.8	mi/h veh/h mi/h mi/h mi/h mi/h		
Free-flow speed, FFSd Adjustment for no-passir Average travel speed, AT Percent Free Flow Speed	rsd			2.3* 4.8 12.3	mi/h mi/h mi/h %		

Percent Time-Spent-Following	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1. 1. 0.	.1 .0 .995 .00
Directional flow rate,(note-2) vi 1796 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		17 %	722 pc/h
Level of Service and Other Performa	ance Me	asures_	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	F 1.06 404 1487 84.4 0 1700	veh-m veh-h veh/h veh/h	ni 1 1
Passing Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.9 Lu - 4.8 97. F	mi mi 3 mi/h
Average Travel Speed with Passi	ing Lan	.e	
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF	FSpl	0.0) %
Percent Time-Spent-Following with I	assing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follows Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res wit	h Passi	ing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	1
Bicycle Level of Service	≥		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1795.7
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.99
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project PM

Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 2 SB

Input Data

	Highway	class Class	2		Peak hour factor, PHF	0.95	
	Shoulder	width	5.0	ft	% Trucks and buses	2	8
	Lane wid	lth	12.0	ft	% Trucks crawling	0.0	8
	Segment	length	0.9	mi	Truck crawl speed	0.0	mi/hr
	Terrain	type	Specific	c Grade	% Recreational vehicles	0	8
	Grade:	Length	0.90	mi	% No-passing zones	100	8
		Up/down	6.0	용	Access point density	19	/mi

Analysis direction volume, Vd 1617 veh/h Opposing direction volume, Vo 1681 veh/h

Average	Travel	Speed
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Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fE Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(9.7 1.0 IV 0.852 1.00 1998			sing (1.0 1.0 1.000 1.000	o) pc/h
Free-Flow Speed from Field Measurement Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (note Adj. for access point density, (note-3)	et:	- - 45.0	mi/h veh/h mi/h mi/h mi/h		F 0, 12
Free-flow speed, FFSd		39.0	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 7.4 19.0	mi/h mi/h %		

Percent Time-Spent-Follo	wing		
Direction Analysis(d) PCE for trucks, ET 1.1 PCE for RVs, ER 1.0		Opposing 1.0 1.0	(0)
Heavy-vehicle adjustment factor, fHV 0.998 Grade adjustment factor,(note-1) fg 1.00	pc/h 93.3 6.5 96.5	1.000 1.00 1769 %	pc/h
Level of Service and Other Perfor	mance Me	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	F 1.00 383 1455 51.6 1448 1696 1696	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.9 Lu - 7.4 96.5 F	mi mi mi mi/h
Average Travel Speed with Pas	sing Lan	e	
Downstream length of two-lane highway within effe length of passing lane for average travel spe		_	mi
Length of two-lane highway downstream of effectiv length of the passing lane for average travel	e		mi
Adj. factor for the effect of passing lane on average speed, fpl	1		
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P		0.0	%
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway downstream of effectiv	ing, Lde	_	mi
the passing lane for percent time-spent-follo Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Meas	ures wit	h Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1702.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.48
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project Saturday Highway SR 1 From/To Ocean / CVR Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 2 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.94 Shoulder width 5.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Truck crawl speed Segment length 0.9 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.90 mi % No-passing zones 100 Up/down -6.0 용 Access point density /mi Analysis direction volume, Vd 1736 veh/h Opposing direction volume, Vo 1631 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 9.7 1.0 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.920 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1847 pc/h 1886 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 4.8 mi/h Free-flow speed, FFSd 39.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 7.7 mi/h

19.7

용

Percent Free Flow Speed, PFFS

Percent Time-Spent-Following	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.1 1.0 0.999 1.00	
Directional flow rate,(note-2) vi 1847 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	94.4 6.7	1737 %	pc/h
Level of Service and Other Performa	ance Mea	sures	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15		veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.9 u - 7.7 97.9 F	mi mi mi mi/h
Average Travel Speed with Passi	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of two-take highway downstream of effective length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed, Lo	d - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF		0.0	8
Percent Time-Spent-Following with H	Passing 1	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-followi Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res with	Passing :	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1846.8
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.31
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project AM

Highway SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 3 NB

				I1	nput Data			
		_						
Highway	class	Class	2		Peak hour factor, PHF	0.80		
Shoulder	width		6.0	ft	% Trucks and buses	3	용	
Lane wio	lth		12.0	ft	% Trucks crawling	0.0	8	
Segment	length		0.3	mi	Truck crawl speed	0.0	mi/hr	
Terrain	type		Specific	c Grade	% Recreational vehicles	0	8	
Grade:	Length		0.30	mi	% No-passing zones	100	8	
	wob/qu	1	3.0	8	Access point density	0	/mi	

Analysis direction volume, Vd 587 veh/h Opposing direction volume, Vo 676 veh/h

 Average	Travel	Speea

Direction	Analysis	(d)	ogg0	osing (c	,)
PCE for trucks, ET	1.8	,,	-11	1.1	•
PCE for RVs. ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV 0.97	8		0.997	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate, (note-2) vi	750	pc/h		848	pc/h
Free-Flow Speed from Field Measurem	nent:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (n	ote-3) fLS	0.0	mi/h		
Adj. for access point density, (note	-3) fA	0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fr	ıp	2.3*	mi/h		
Average travel speed, ATSd		30.3	mi/h		
Percent Free Flow Speed, PFFS		67.3	용		

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0		pposing 1.0 1.0	(0)
PCE for RVs, ER Heavy-vehicle adjustment factor, fHV 1.00		1.000	
Grade adjustment factor,(note-1) fg 0.92		1.00	
	c/h 69.6 %	845	pc/h
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	24.2		
Percent time-spent-following, PTSFd	81.3 %		
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.47		
Peak 15-min vehicle-miles of travel, VMT15		veh-mi	
Peak-hour vehicle-miles of travel, VMT60		veh-mi	
Peak 15-min total travel time, TT15		veh-h	
Capacity from ATS, CdATS		veh/h	
Capacity from PTSF, CdPTSF Directional Capacity		veh/h veh/h	
Passing Lane Analysis		,	
Total length of analysis segment, Lt		0.3	mi
Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl	lane, Lu	_	mi mi
Average travel speed, ATSd (from above)		30.3	mi/h
Percent time-spent-following, PTSFd (from above)		81.3	
Level of service, LOSd (from above)		D	
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effec	tive		
length of passing lane for average travel spee Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane		_	mi
on average speed, fpl		-	
Average travel speed including passing lane, ATSpl		-	%
Percent free flow speed including passing lane, PF	rspi	0.0	6
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effec		th	
of passing lane for percent time-spent-followi		-	mi
Length of two-lane highway downstream of effective		f	
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane	ing, La	-	mi
on percent time-spent-following, fpl		_	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	Passing :	Lane
Level of service including passing lane, LOSpl	Δ		
Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	733.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.83
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project PM Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.89 Shoulder width 6.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 тi % No-passing zones 100 Up/down 3.0 Access point density 0 /mi Analysis direction volume, Vd 871 veh/h Opposing direction volume, Vo 586 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 987 pc/h 660 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.9 mi/h Percent Free Flow Speed, PFFS 66.5 용

Percent Time-Spent-Followi	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 0.92		1.0 1.0 1.000 1.00	
Directional flow rate,(note-2) vi 1061 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		658	pc/h
Level of Service and Other Performs	ance Meas	ures	
Peak 15-min total travel time, TT15	261 2.4 0	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 29.9 89.7 E	mi mi mi mi/h
Average Travel Speed with Passi	ing Lane_		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl		- -	
Percent free flow speed including passing lane, PFF	FSpl	0.0	8
Percent Time-Spent-Following with I	Passing L	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	_	mi
the passing lane for percent time-spent-follows Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res with	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	978.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.97
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project Saturday

Highway SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 3 NB

Input Data				
Highway class Class	2	Peak hour factor, PHF	0.92	
Shoulder width	6.0 ft	% Trucks and buses	1 %	
Lane width	12.0 ft	% Trucks crawling	0.0 %	
Segment length	0.3 mi	Truck crawl speed	0.0 m	i/hr

Specific Grade % Recreational vehicles 0 Terrain type Grade: Length 0.30 mi % No-passing zones -3.0 Access point density /mi Up/down 용

Analysis direction volume, Vd 827 veh/h Opposing direction volume, Vo 795

_____Average Travel Speed_

Direction A	nalysis(d	1)	Opposing (0)
PCE for trucks, ET	1.0		1.4	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	1.000		0.996	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	899	pc/h	868	pc/h
Free-Flow Speed from Field Measurement:		_	.: /1 <u>-</u>	

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	0.0	mi/h
Free-flow speed, FFSd	45.0	mi/h
Adjustment for no-passing zones, fnp	2.3*	mi/h
Average travel speed, ATSd	29.0	mi/h
Percent Free Flow Speed, PFFS	64.4	용

Percent Time-Spent-Foli	lowing		
PCE for trucks, ET PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h Fd 74.3 21.3 84.7	1.0 1.0 1.000 0.92 937	(0) pc/h
Level of Service and Other Perfo	ormance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	31S		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pass: Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above Level of service, LOSd (from above)		0.3 nu - 29.0 84.7	mi mi mi mi/h
Average Travel Speed with Pa	assing Lane		
Downstream length of two-lane highway within eff length of passing lane for average travel spaces. Length of two-lane highway downstream of effect: length of the passing lane for average travel. Adj. factor for the effect of passing lane on average speed, fpl. Average travel speed including passing lane, ATS. Percent free flow speed including passing lane,	peed, Lde ive el speed, L Spl	-	mi mi %
Percent Time-Spent-Following wit Downstream length of two-lane highway within effor percent time-spent-following the passing lane for percent time-spent-following with the passing wi	fective len	gth	mi
Length of two-lane highway downstream of effect: the passing lane for percent time-spent-fol: Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ફ
Level of Service and Other Performance Mea	asures with	Passing 1	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Serv	∧rce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	898.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.49
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: Directional Two-Lane Highwa	
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Background + Project Highway SR 1 From/To Carmel Valley Rd / F Jurisdiction Unincorporated Monte Analysis Year 2017 Description Rio Ranch Seg 3 SB	: AM Rio Rd
Input Data	·
Shoulder width 6.0 ft % Trucks Lane width 12.0 ft % Trucks Segment length 0.3 mi Truck cr Terrain type Specific Grade % Recrea Grade: Length 0.30 mi % No-pas Up/down -3.0 % Access p	ssing zones 100 % point density 0 /mi
Analysis direction volume, Vd 676 veh/h Opposing direction volume, Vo 587 veh/h	
Average Travel S	Speed
PCE for trucks, ET 1. PCE for RVs, ER 1. Heavy-vehicle adj. factor,(note-5) fHV 0. Grade adj. factor,(note-1) fg 1.	
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) fA Adj. for access point density,(note-3) fA	- mi/h - veh/h 45.0 mi/h .S 0.0 mi/h 0.0 mi/h
Free-flow speed, FFSd	45.0 mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* mi/h 32.4 mi/h 72.0 %

Percent Time-Spe	ent-Followi	ing		
Direction And PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	alysis(d) 1.0 1.0 1.000		Opposing 1.0 1.0 1.00	0
Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4 Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	697 pc		656	
Level of Service and Othe	er Performa	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT1 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		D 0.41 52 203 1.6 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane	Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of th Length of passing lane including tapers, Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl		0.3 Lu - - 32.4 78.4 D	mi mi mi mi/h
Average Travel Speed	with Passi	ing Lane	=	
Downstream length of two-lane highway wit length of passing lane for average tr Length of two-lane highway downstream of	avel speed		-	mi
length of the passing lane for average Adj. factor for the effect of passing lar on average speed, fpl	ge travel s ne		Ld -	mi
Average travel speed including passing la Percent free flow speed including passing			0.0	8
Percent Time-Spent-Follow	ving with E	Passing	Lane	
Downstream length of two-lane highway wit of passing lane for percent time-sper Length of two-lane highway downstream of	nt-followin	ng, Lde	-	mi
the passing lane for percent time-spe Adj. factor for the effect of passing lar on percent time-spent-following, fpl	ent-followi			mi
Percent time-spent-following including passing lane, PTSFpl				%
Level of Service and Other Performa	ınce Measuı	res with	n Passing	Lane
Level of service including passing lane, Peak 15-min total travel time, TT15			veh-h	
Bicycle Level	of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	696.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.05
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project PM

Highway SR 1

From/To Carmel Valley Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 SB

______Input Data______

Highway class Class	2	Peak hour factor, PHF	0.90	
Shoulder width	6.0 ft	% Trucks and buses	1	용
Lane width	12.0 ft	% Trucks crawling	0.0	8
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	8
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	0	/mi

Analysis direction volume, Vd 586 veh/h Opposing direction volume, Vo 871 veh/h

______Average Travel Speed__

Direction	Analysis	(4)	Opp	osing (o	\
PCE for trucks, ET	1.1	(u)	ОРР	1.3	,
PCE for RVs. ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)				0.997	
Grade adj. factor,(note-1) fq	1.00			1.00	
					/1-
Directional flow rate,(note-2) vi	652	pc/h	Į.	971	pc/h
Free-Flow Speed from Field Measurer	man+:				
Field measured speed, (note-3) S FM		_	mi/h		
Observed total demand, (note-3) V		_	veh/h		
Estimated Free-Flow Speed:			V C11 / 11		
Base free-flow speed, (note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (note-3) fLS	0.0	mi/h		
Adj. for access point density, (note		0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fi	np	2.3*	mi/h		
Average travel speed, ATSd		30.1	mi/h		
Percent Free Flow Speed, PFFS		66.9	용		

Percent Time-Spent-Follow	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h 65.6 22.3 74.1	Opposing (1.0 1.0 1.00 0.92 1050 %	pc/h
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing bane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 u - 30.1 74.1 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effecting length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	tive d, Lde speed, L FSpl	- d - - - 0.0	mi mi %
Downstream length of two-lane highway within effec of passing lane for percent time-spent-follow: Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane	ng, Lde length	of	mi mi
on percent time-spent-following, fpl		-	
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	u		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	651.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.32
Bicycle LOS	В

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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project Saturday Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.93 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 Access point density 0 /mi Analysis direction volume, Vd 795 veh/h Opposing direction volume, Vo 827 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.3 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 855 pc/h 892 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.1 mi/h Percent Free Flow Speed, PFFS 64.8 용

Percent Time-Spent-Follow	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		Opposing 1.0 1.0 1.000	(0)
Directional flow rate,(note-2) vi 855 pase percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		964	pc/h
Level of Service and Other Perform	mance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.50 64 239 2.2 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - - 29.1 83.0 D	mi mi mi mi/h
Average Travel Speed with Pass	sing Lar	ne	
Downstream length of two-lane highway within effe- length of passing lane for average travel spe- Length of two-lane highway downstream of effectiv.	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P		0.0	8
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-follow Length of two-lane highway downstream of effective.	ing, Lde	e -	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		_	용
Level of Service and Other Performance Meas	ures wit	th Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	854.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.46
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project AM

Highway SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 NB

_____Input Data_____

Highway	class Class	2		Peak hour factor, PHF	0.85	
Shoulder	r width	6.0	ft	% Trucks and buses	1	용
Lane wid	dth	12.0	ft	% Trucks crawling	0.0	8
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 338 veh/h Opposing direction volume, Vo 451 veh/h

______Average Travel Speed_

Ana	lysis	(d)	Opposing (o)		
	1.3			1.2	
	1.0			1.0	
fHV	0.99	7		0.998	
	1.00			1.00	
	399	pc/h		532	pc/h
ment:					
		-	mi/h		
		-	veh/h		
		45.0	mi/h		
note-3)	fLS	0.0	mi/h		
e-3) fA		0.8	mi/h		
		44.3	mi/h		
np		2.3*	mi/h		
-		34.7	mi/h		
		78.5	용		
	fHV ment: note-3) e-3) fA	1.3 1.0 6HV 0.99' 1.00 399 ment:	1.3 1.0 0.997 1.00 399 pc/h ment: - 45.0 note-3) fLS 0.0 e-3) fA 0.8 44.3 np 2.3* 34.7	1.3 1.0 1.0 0.997 1.00 399 pc/h ment: - mi/h - veh/h 1.00 0.8 mi/h 0.8 mi/h 44.3 mi/h 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.3 1.0 1.0 1.0 0.997 0.998 1.00 399 pc/h 532 ment: - mi/h - veh/h - veh/h 45.0 mi/h 0.8 mi/h 0.8 mi/h 44.3 mi/h 1.2 1.0 0.998 1.00 532

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.1 1.0 0.999	(1.0 1.0 1.000	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		39.6	1.00 531	pc/h
Level of Service and	Other Perform	ance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		C 0.23 30 101 0.9 1697 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)	lane, Lu	0.3 - - 34.7 61.6 C	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel spee of effective	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl Average travel speed including passin	lane		1 - - -	mi
Percent free flow speed including pas			0.0	%
Percent Time-Spent-Fo	llowing with	Passing 1	Lane	
Downstream length of two-lane highway of passing lane for percent time-	spent-followi	ng, Lde	-	mi
Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing on percent time-spent-following, Percent time-spent-following	-spent-follow lane		-	mi
including passing lane, PTSFpl			-	8
Level of Service and Other Perf	ormance Measu	res with	Passing	Lane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
D. 1. T.				

______ Bicycle Level of Service ___

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	397.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.07
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project PM Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 90 Shoulder width 6.0 ft % Trucks and buses 3 용 Lane width 12.0 % Trucks crawling 0.0 ft Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length шi 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 709 veh/h Opposing direction volume, Vo 535 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.997 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 790 Directional flow rate, (note-2) vi pc/h 596 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 31.2 mi/h Percent Free Flow Speed, PFFS 70.5 용

Percent Time-Sper	nt-Followin	ıg		
Direction Ana. PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	lysis(d) 1.0 1.0 1.000	Or	pposing 1.0 1.0 1.000	
	788 pc/) BPTSFd 6 2		594	pc/h
Level of Service and Othe	r Performan	nce Measi	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT1 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	5 5 2 1 0	0.46 59 v 213 v 1.9 v	veh-mi veh-mi veh-h veh/h veh/h veh/h	
Passing Lane	Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the Length of passing lane including tapers, in Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl	lane, Lu	0.3 - - 31.2 83.0 D	mi mi mi mi/h
Average Travel Speed	with Passir	ng Lane		
Downstream length of two-lane highway with length of passing lane for average tracking the length of two-lane highway downstream of	avel speed,		-	mi
length of the passing lane for average Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane	e travel sp e	peed, Ld	- - -	mi
Percent free flow speed including passing		Spl	0.0	8
Percent Time-Spent-Follow	ing with Pa	assing La	ne	
Downstream length of two-lane highway with of passing lane for percent time-spen Length of two-lane highway downstream of	t-following	g, Lde	-	mi
the passing lane for percent time-spectod. Adj. factor for the effect of passing land on percent time-spent-following, fpl	nt-followin			mi
Percent time-spent-following including passing lane, PTSFpl			-	%
Level of Service and Other Performa	nce Measure	es with I	assing	Lane
Level of service including passing lane, Peak 15-min total travel time, TT15	LOSpl A		reh-h	
Bicycle Level	of Service			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	787.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.86
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project Saturday

Highway SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 4 NB

			_Input Data		
Highway class Class			Peak hour factor, PHF	0.87	
Shoulder width	6.0	ft	% Trucks and buses	1	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	8
Grade: Length	-	mi	% No-passing zones	100	8
Up/down	-	%	Access point density	3	/mi

Analysis direction volume, Vd 625 veh/h Opposing direction volume, Vo 711 veh/h

Average	Travel	Speed	 	
				, ,

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(d) 1.1 1.0 IV 0.999 1.00 719 pc/H	Opposing (o) 1.1 1.0 0.999 1.00 818 pc/h
Free-Flow Speed from Field Measuremen Field measured speed, (note-3) S FM	ıt: -	mi/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	0.8	mi/h
Free-flow speed, FFSd	44.3	mi/h
Adjustment for no-passing zones, fnp	2.3*	mi/h
Average travel speed, ATSd	30.0	mi/h
Percent Free Flow Speed, PFFS	67.8	%

Percent Time-	-Spent-Follow	ing		
Direction	Analysis(d)	(pposing	(0)
PCE for trucks, ET	1.0	`	1.0	(- /
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000)
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi		c/h	817	pc/h
Base percent time-spent-following, (not	te-4) BPTSFd		ż.	
Adjustment for no-passing zones, fnp		26.0		
Percent time-spent-following, PTSFd		78.2	Š	
Level of Service and (Other Perform	ance Meas	sures	
Level of service, LOS		D		
Volume to capacity ratio, v/c		0.42		
Peak 15-min vehicle-miles of travel,	лмт15	54	veh-mi	
Peak-hour vehicle-miles of travel, VM		188	veh-mi	
Peak 15-min total travel time, TT15		1.8	veh-h	
Capacity from ATS, CdATS		1698	veh/h	
Capacity from PTSF, CdPTSF		1700	veh/h	
Directional Capacity		1700	veh/h	
Passing l	ane Analysis			
Total length of analysis segment, Lt			0.3	mi
Length of two-lane highway upstream of	the passing	lane, Lu	ı –	mi
Length of passing lane including taper	rs, Lpl		-	mi
Average travel speed, ATSd (from above	≘)		30.0	mi/h
Percent time-spent-following, PTSFd (from above)		78.2	
Level of service, LOSd (from above)			D	
Average Travel Spec	ed with Pass	ing Lane_		
Downstream length of two-lane highway				
length of passing lane for average			=	mi
Length of two-lane highway downstream				
length of the passing lane for ave Adj. factor for the effect of passing		speed, Lo	i –	mi
on average speed, fpl			-	
Average travel speed including passing	g lane, ATSpl		-	
Percent free flow speed including pass	sing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fo	llowing with	Passing I	Lane	
	1.1.1		. 1.	
Downstream length of two-lane highway			gth	
of passing lane for percent time-s			-	mi
Length of two-lane highway downstream)İ	2
the passing lane for percent time-		ing, La	-	mi
Adj. factor for the effect of passing				
on percent time-spent-following, t	Ът		-	
Percent time-spent-following including passing lane, PTSFpl			-	%
Level of Service and Other Perfo	ormance Meagu	res with	Dagging	I.ane
Bever or bervice and other refr	Jimanice measu	TCD WICH	1 4551119	Dane
Level of service including passing lar	ne, LOSpl	A		
Peak 15-min total travel time, TT15		-	veh-h	
P! 1. T.				

__ Bicycle Level of Service __

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	718.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.37
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project AM Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 91 Shoulder width 6.0 ft % Trucks and buses 4 용 Lane width 12.0 % Trucks crawling ft 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 451 veh/h Opposing direction volume, Vo 338 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.3 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.988 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 500 pc/h 376 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 35.2 mi/h

79.4

용

Percent Free Flow Speed, PFFS

Percent Time-S	Spent-Follow	ing		
Direction PCE for trucks, ET	nalysis(d)	(Opposing 1.1	(0)
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		0.996	
Grade adjustment factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi		c/h	373	pc/h
Base percent time-spent-following, (note			}	P0/11
Adjustment for no-passing zones, fnp	. 1, 511514	41.1	•	
Percent time-spent-following, PTSFd			è	
Level of Service and Ot	her Perform	ance Meas	sures	
Level of service, LOS		D		
Volume to capacity ratio, v/c	rm 1 F	0.29	. 1.	
Peak 15-min vehicle-miles of travel, VM		37	veh-mi	
Peak-hour vehicle-miles of travel, VMT6	U	135	veh-mi	
Peak 15-min total travel time, TT15		1.1	veh-h	
Capacity from ATS, CdATS		0	veh/h	
Capacity from PTSF, CdPTSF		1693	veh/h	
Directional Capacity		1693	veh/h	
Passing La	ne Analysis			
Total length of analysis segment, Lt			0.3	mi
	the measing	lana Ti		mi
Length of two-lane highway upstream of Length of passing lane including tapers		Talle, Li		mi
Average travel speed, ATSd (from above)			35.2	mi/h
Percent time-spent-following, PTSFd (fr			72.6	шт/п
Level of service, LOSd (from above)	Olli above)		72.0 D	
level of service, losa (from above)			D	
Average Travel Speed	l with Pass	ing Lane		
Downstream length of two-lane highway w	ithin effec	tive		
length of passing lane for average	travel spee	d, Lde	-	mi
Length of two-lane highway downstream of				
length of the passing lane for aver			d -	mi
Adj. factor for the effect of passing l	ane	_		
on average speed, fpl			-	
Average travel speed including passing	lane, ATSpl		-	
Percent free flow speed including passi			0.0	용
Percent Time-Spent-Foll	owing with	Dagging 1	.ane	
	_	_		
Downstream length of two-lane highway w				
of passing lane for percent time-sp				mi
Length of two-lane highway downstream of				
the passing lane for percent time-s		ing, Ld	-	mi
Adj. factor for the effect of passing l				
on percent time-spent-following, fr	ΣŢ		-	
Percent time-spent-following				
including passing lane, PTSFpl			-	8
Level of Service and Other Perfor	mance Measu	res with	Passing	Lane
Level of service including passing lane	e. LOSpl	Α		
Peak 15-min total travel time, TT15	., поры	_	veh-h	
rear 15 min cocar craver crac, 1115			, 511 11	
Bicycle Leve	el of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	495.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.88
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

___Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project PM

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year Description Rio Ranch Seg 4 SB

Percent Free Flow Speed, PFFS

_____Input Data____

Highway	class Class	s 2		Peak hour factor, PHF	0.93	
Shoulder	width	6.0	ft	% Trucks and buses	0	8
Lane wio	lth	12.0	ft	% Trucks crawling	0.0	8
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 535 veh/h Opposing direction volume, Vo 709 veh/h

Average	Travel	Speed
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Direction	Analys	is(d)	Opp	osing (d)
PCE for trucks, ET	1		OPP	1.1	,
PCE for RVs, ER		0		1.0	
Heavy-vehicle adj. factor,(note-5)				1.000	
Grade adj. factor, (note-1) fg		00		1.00	
Directional flow rate,(note-2) vi	57	5 pc/	h	762	pc/h
Free-Flow Speed from Field Measurer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(1) Adj. for access point density,(note	note-3) fI	- - 45.0 .s 0.0 0.8	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, for Average travel speed, ATSd	np	2.3* 31.6	mi/h mi/h		

71.4 %

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 575 p Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h	pposing (1.0 1.0 1.000 1.000 762	o) pc/h
Level of Service and Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	161 1.4 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 31.6 71.7 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane_		
Downstream length of two-lane highway within effecting length of passing lane for average travel specting length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	d, Lde speed, Ld	- -	mi mi %
Percent Time-Spent-Following with	Passing La	ane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane	ng, Lde length o:	_ £	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	90
Level of Service and Other Performance Measu	res with 1	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	575.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.07
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project Saturday Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 97 Shoulder width 6.0 ft % Trucks and buses 0 용 Lane width 12.0 % Trucks crawling ft 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 711 veh/h Opposing direction volume, Vo 625 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 733 pc/h 644 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 31.3 mi/h

70.7

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Percent Free Flow Speed, PFFS

Percent Time-Spent	-Following		
PCE for trucks, ET 1 PCE for RVs, ER 1 Heavy-vehicle adjustment factor, fHV 1	sis(d) .0 .0 .000	1.0 1.0 1.000	(0)
	.00 33 pc/h BPTSFd 65.4 28.8 80.7	1.00644	pc/h
Level of Service and Other	Performance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.43 55 213 1.8 0 1700		
Passing Lane A	nalysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the Length of passing lane including tapers, Lp Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from a Level of service, LOSd (from above)	1	0.3 Lu - - 31.3 80.7 D	mi mi mi mi/h
Average Travel Speed wi	th Passing Lar	ıe	
Downstream length of two-lane highway within length of passing lane for average trave Length of two-lane highway downstream of ef	el speed, Lde	-	mi
length of the passing lane for average Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane	travel speed,	Ld - - -	mi
Percent free flow speed including passing l	ane, PFFSpl	0.0	8
Percent Time-Spent-Followin	g with Passing	Jane	
Downstream length of two-lane highway withi of passing lane for percent time-spent- Length of two-lane highway downstream of ef	following, Lde	-	mi
the passing lane for percent time-spent Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-following, Ld	l – –	mi
Percent time-spent-following including passing lane, PTSFpl		_	%
Level of Service and Other Performanc	e Measures wit	h Passing	Lane
Level of service including passing lane, LC Peak 15-min total travel time, TT15	Spl A	veh-h	
Bicycle Level of	Service		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	733.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.19
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Highway Carmel Valley Road

From/To Schulte / Robinson Canyon

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB

Input Data

Highway class Class 2 Peak hour factor, PHF 0.91
Shoulder width 6.0 ft % Trucks and buses 8 %

Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed mi/hr 1.5 шi 0.0 Terrain type Level % Recreational vehicles 1 용 Grade: Length mi % No-passing zones 100 Up/down 용 Access point density /mi

Analysis direction volume, Vd 433 veh/h Opposing direction volume, Vo 890 veh/h

______Average Travel Speed_

Direction	Analy	ysis(d)		Opposing (d	o)
PCE for trucks, ET	-	1.2		1.0	
PCE for RVs, ER	-	1.0		1.0	
Heavy-vehicle adj. factor,(note-5)	fHV (0.984		1.000	
Grade adj. factor,(note-1) fg	-	1.00		1.00	
Directional flow rate,(note-2) vi	4	484	pc/h	978	pc/h

Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA mi/h 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.9 mi/h Percent Free Flow Speed, PFFS 68.6 용

rerectie fille	DPCHC LOTION			
Direction	Analysis(d)	Op		0)
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor, (note-1) fg	1.00	/3	1.00	
Directional flow rate, (note-2) vi		oc/h	978	pc/h
Base percent time-spent-following, (not	:e-4) BPTSFa			
Adjustment for no-passing zones, fnp		22.9		
Percent time-spent-following, PTSFd		63.1 %		
Level of Service and (ther Perform)	ance Measu	res	
Level of service, LOS		С		
Volume to capacity ratio, v/c		0.28		
Peak 15-min vehicle-miles of travel, V	/MT15	178 v	reh-mi	
Peak-hour vehicle-miles of travel, VM			reh-mi	
Peak 15-min total travel time, TT15			reh-h	
Capacity from ATS, CdATS			eh/h	
Capacity from PTSF, CdPTSF			eh/h	
Directional Capacity			reh/h	
Passing 1	Lane Analysis			
	-			
Total length of analysis segment, Lt			1.5	mi
Length of two-lane highway upstream of		lane, Lu	-	mi
Length of passing lane including tapes			-	mi
Average travel speed, ATSd (from above			29.9	mi/h
Percent time-spent-following, PTSFd (from above)		63.1	
Level of service, LOSd (from above)			C	
Average Travel Spee	ed with Pass	ing Lane		
D				
Downstream length of two-lane highway				
length of passing lane for average			-	mi
Length of two-lane highway downstream				
length of the passing lane for ave		speea, La	-	mi
Adj. factor for the effect of passing	lane			
on average speed, fpl			-	
Average travel speed including passing			-	•
Percent free flow speed including pass	ing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fo	llowing with	Passing La	.ne	
Downstream length of two-lane highway	within effor	tive lengt	h	
			11	mi
of passing lane for percent time-s			-	шт
Length of two-lane highway downstream				m.i
the passing lane for percent time-		ring, La	-	mi
Adj. factor for the effect of passing				
on percent time-spent-following, i	.b.		-	
Percent time-spent-following including passing lane, PTSFpl			_	용
including passing lane, Pisrpi			=	70
Level of Service and Other Perfo	ormance Measu	res with P	assing I	ane
Level of service including passing lar	ne. LOSpl	A		
Peak 15-min total travel time, TT15	, LOUP1		reh-h	
		·		
Bicycle Lev	vel of Servic	:e		

Dorgont Time-Spont-Following

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	475.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.18
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:	Fa	ax:				
Directional Tw	wo-Lane High	nway Se	egment	Analys	is	
Date Performed 12/6/1' Analysis Time Period Backgro Highway Carmel From/To Schulte	ound + Proje Valley Road e / Robinson rporated Mon 16	i n Canyo				
	Input Da	ata				
Analysis direction volume, Vd Opposing direction volume, Vo	t % Truck t % Truck i Truck % Reci i % No-1 Access 991 vel 528 vel	cks and cks crawl crawl reation passing point 1/h	speed nal veh g zones densi	icles	100	% mi/hr % % /mi
Ave	erage Travel	L Speed	i			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note Grade adj. factor,(note-1) fg Directional flow rate,(note-2)	e-5) fHV	1.00			posing 1.1 1.0 0.992 1.00 579	
Free-Flow Speed from Field Meas Field measured speed,(note-3) \$			_	mi/h		
Observed total demand,(note-3) Estimated Free-Flow Speed: Base free-flow speed,(note-3) I Adj. for lane and shoulder widt	V BFFS th,(note-3)	fLS (- 50.0 0.0 5.5	<pre>veh/h mi/h mi/h mi/h</pre>		
Observed total demand, (note-3) Estimated Free-Flow Speed: Base free-flow speed, (note-3) I Adj. for lane and shoulder widt Adj. for access point density, Free-flow speed, FFSd	V BFFS th,(note-3)	fLS (0.0	mi/h mi/h		

65.2 %

Percent Free Flow Speed, PFFS

Percent Time-	Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER	Analysis(d) 1.0 1.0	C	pposing 1.0 1.0	(0)
Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	1.000		1.000	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp	1077 p e-4) BPTSFd		574	pc/h
Percent time-spent-following, PTSFd		90.5 %		
Level of Service and O	ther Periorm	ance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		14.3 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing L	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl)		1.5 - - 28.3 90.5 E	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lane_		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	rage travel		l –	mi
Average travel speed including passing Percent free flow speed including pass			- 0.0	%
Percent Time-Spent-Fol	lowing with	Passing I	ane	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-followi	ng, Lde	-	mi
the passing lane for percent time- Adj. factor for the effect of passing	spent-follow lane			mi
on percent time-spent-following, f Percent time-spent-following including passing lane, PTSFpl	bī		-	ે
Level of Service and Other Perfo	rmance Measu	res with	Passing :	Lane
Level of service including passing lan Peak 15-min total travel time, TT15	e, LOSpl		veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1077.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.60
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project Saturday

Highway Carmel Valley Road

From/To Schulte / Robinson Canyon

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 6 EB

Analysis direction volume, Vd 757 veh/h Opposing direction volume, Vo 635 veh/h

Avera	ge	Travel	Speed_

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fl Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis 1.1 1.0 HV 0.999 1.00 829	2		osing (o 1.1 1.0 0.992 1.00 696) pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) for access point density,(note-3)	te-3) fLS	- - 50.0 0.0 6.5	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 29.4 67.5	mi/h mi/h %		

Percent Time-Spent-	Following		
		posing (0)
PCE for trucks, ET 1.		1.0	
PCE for RVs, ER 1.		1.0	
	000	1.000	
Grade adjustment factor, (note-1) fg 1.		1.00	(2)
Directional flow rate, (note-2) vi 82	-	690	pc/h
Base percent time-spent-following, (note-4) B			
Adjustment for no-passing zones, fnp	26.2 83.1 %		
Percent time-spent-following, PTSFd	83.1 %		
Level of Service and Other P	erformance Measu	ıres	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.48		
Peak 15-min vehicle-miles of travel, VMT15		reh-mi	
Peak-hour vehicle-miles of travel, VMT60		reh-mi	
Peak 15-min total travel time, TT15		reh-h	
Capacity from ATS, CdATS	v 0	reh/h	
Capacity from PTSF, CdPTSF		reh/h	
Directional Capacity	1700 v	reh/h	
Passing Lane An	alysis		
Total length of analysis segment, Lt		1.5	mi
Length of two-lane highway upstream of the p			mi
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		29.4	mi/h
Percent time-spent-following, PTSFd (from ab	ove)	83.1	
Level of service, LOSd (from above)		D	
Average Travel Speed wit	h Passing Lane		
Downstream length of two-lane highway within	effective		
length of passing lane for average trave		_	mi
Length of two-lane highway downstream of eff			
length of the passing lane for average t		_	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		_	
Average travel speed including passing lane,	ATSpl	_	
Percent free flow speed including passing la		0.0	왕
Percent Time-Spent-Following	with Passing La	ne	
Downstream length of two-lane highway within	effective lengt	h	
of passing lane for percent time-spent-f	ollowing, Lde	_	mi
Length of two-lane highway downstream of eff	ective length of	:	
the passing lane for percent time-spent-	following, Ld	-	mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
Level of Service and Other Performance	Measures with F	assing I	ane
Torrel of goverige including magain- 1 TOS	m] 7		
Level of service including passing lane, LOS Peak 15-min total travel time, TT15		reh-h	
rean 13 min cotal clavel cime, 1115	- \	C11-11	
Bicycle Level of	Service		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	822.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.46
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:	Fax:				
Directional Two-Lane Hi	ghway	Segment	Analys	is	
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Background + Pro Highway Carmel Valley Ro From/To Robinson Canyon Jurisdiction Unincorporated M Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB	ad / Schu ontere	lte			
Input	рага				
Shoulder width 6.0 ft % Tr Lane width 12.0 ft % Tr Segment length 1.5 mi Truc Terrain type Specific Grade % Re Grade: Length 0.25 mi % No Up/down 3.0 % Acce	ucks a ucks c k craw creati -passi		icles	0.82 8 0.0 0.0 1 100 26	% mi/hr % % /mi
	en/n eh/h				
Average Trav	el Spe	ed			
	alysis 1.1 1.0 0.99 1.00	(d) 2		posing (1.2 1.0 0.984 1.00 536	
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3 Adj. for access point density,(note-3) f		- 50.0 0.0 6.5	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 28.6 65.6	mi/h mi/h %		

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.000		1.0 1.0 1.00	
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1180 po te-4) BPTSFd		528 %	pc/h
Level of Service and	Other Perform	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	T60	0 1564	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		1.5 Lu – 28.6 92.4 E	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane	e	
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel speed	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel :		Ld - -	mi
Average travel speed including passin Percent free flow speed including pas			0.0	ફ
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing	-spent-follow lane			mi
on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl	fpl		-	%
Level of Service and Other Perf	ormance Measu	res with	h Passing	Lane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1085.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.60
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project PM

Highway Carmel Valley Road
From/To Robinson Canyon / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB

_____Input Data_____

Highway	class Class	2		Peak hour factor, PHF	0.82	
Shoulder	r width	6.0	ft	% Trucks and buses	8	용
Lane wid	lth	12.0	ft	% Trucks crawling	0.0	8
Segment	length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	1	용
Grade:	Length	_	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	26	/mi

Analysis direction volume, Vd 528 veh/h Opposing direction volume, Vo 991 veh/h

_____Average Travel Speed__

Direction	Analysis	(d)	0pp	osing (o)
PCE for trucks, ET	1.1			1.0	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV 0.99	2		1.000	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate (note-2) vi				1209	na/h
Directional flow rate, (note-2) Vi	649	pc/h	Į.	1209	pc/h
Free-Flow Speed from Field Measurem	nent:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		50.0	mi/h		
Adj. for lane and shoulder width, (r.	ote-3) fls	0.0	mi/h		
Adj. for access point density, (note		6.5	mi/h		
Adj. for access point density, (note	-3/ IA	0.5	1111/11		
D 61 1		40 5	1.71		
Free-flow speed, FFSd		43.5	mi/h		
			1. (2		
Adjustment for no-passing zones, fr	ıp	2.3*	mi/h		
Average travel speed, ATSd		26.8	mi/h		
Percent Free Flow Speed, PFFS		61.6	용		

Percent Time-Spent-Foll	owing		
Direction Analysis(d		Opposing	(0)
PCE for trucks, ET 1.0	,	1.0	(- /
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor, (note-1) fg 1.00		1.00	
	pc/h	1209	pc/h
Base percent time-spent-following, (note-4) BPTSF		%	P0/11
Adjustment for no-passing zones, fnp	18.0		
Percent time-spent-following, PTSFd	73.7	ક	
refeele time spelle following, fibra	, , ,	·	
Level of Service and Other Perfo	rmance Me	asures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.38		
Peak 15-min vehicle-miles of travel, VMT15	241	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	792	veh-mi	
Peak 15-min total travel time, TT15	9.0	veh-h	
Capacity from ATS, CdATS	1700	veh/h	
Capacity from PTSF, CdPTSF	1700	veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analys	is		
Total length of analysis segment, Lt	_	1.5	mi
Length of two-lane highway upstream of the passi	ng lane,		mi
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		26.8	mi/h
Percent time-spent-following, PTSFd (from above)		73.7	
Level of service, LOSd (from above)		D	
Average Travel Speed with Pa	ssing Lan	.e	
Downstream length of two-lane highway within eff	ogtivo		
length of passing lane for average travel sp			mi
		_	шт
Length of two-lane highway downstream of effecti length of the passing lane for average trave		τa	mi
	ı speed,	<u>ца</u> –	шт
Adj. factor for the effect of passing lane			
on average speed, fpl	1	-	
Average travel speed including passing lane, ATS		0.0	용
Percent free flow speed including passing lane,	PFFSPI	0.0	70
Percent Time-Spent-Following wit	h Passing	Lane	
Downstream length of two-lane highway within eff	ective le	ngth	
of passing lane for percent time-spent-follo			mi
Length of two-lane highway downstream of effecti			
the passing lane for percent time-spent-foll			mi
Adj. factor for the effect of passing lane	caring, na		
on percent time-spent-following, fpl			
Percent time-spent-following			
including passing lane, PTSFpl		_	%
		_	
Level of Service and Other Performance Mea	sures wit	h Passing	Lane
Level of service including passing lane, LOSpl	А		
Peak 15-min total travel time, TT15	_	veh-h	
		, 	
Bicycle Level of Serv	ice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	643.9
Effective width of outside lane, We	24.00
Iffective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.33
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project Saturday Carmel Valley Road Highway From/To Robinson Canyon / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 % Trucks crawling 0.0 ft Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 635 veh/h Opposing direction volume, Vo 757 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 781 pc/h 923 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 28.0 mi/h

64.3

용

Percent Free Flow Speed, PFFS

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00	OI	1.0 1.0 1.000 1.00	0)
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	69.3 % 23.1 79.8 %	923	pc/h
Level of Service and Other Performs	ance Meası	ures	
Peak 15-min total travel time, TT15	953 10.4 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - - 28.0 79.8 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl		- -	
Percent free flow speed including passing lane, PFI	:SpI	0.0	*
Percent Time-Spent-Following with I	Passing La	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	_	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	res with 1	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	774.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.43
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Highway Carmel Valley Road

From/To Rancho San Carlos / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB

_____Input Data_____

Highway	class	Class	2		Р	eak hour fact	tor, PHF	0.82	
Shoulder	r width		6.0	ft	왕	Trucks and l	buses	8	용
Lane wio	dth		12.0	ft	왕	Trucks craw	ling	0.0	용
Segment	length		2.4	mi	T	ruck crawl sp	peed	0.0	mi/hr
Terrain	type		Specific	c Grade	용	Recreationa:	l vehicles	1	용
Grade:	Length		0.25	mi	용	No-passing :	zones	100	용
	Up/dowr	ı	-3.0	용	А	ccess point o	densitv	14	/mi

Analysis direction volume, Vd 659 veh/h Opposing direction volume, Vo 959 veh/h

Average Trave	el Spe	ed			
Direction Ana PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg	1.1 1.1 1.0 0.99 1.00	(d) 2	0pp	osing (1.1 1.0 0.992 1.00	
Directional flow rate,(note-2) vi	810	pc/h		1179	pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) Adj. for access point density,(note-3) FA			mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		51.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		1.8* 34.3 66.5	mi/h mi/h %		

Percent Time-Spent-Follow	ving		
Direction Analysis(d)		Opposing	(0)
PCE for trucks, ET 1.0		1.0	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
		0.92	
	- /1-		/1-
	oc/h	1271	pc/h
Base percent time-spent-following, (note-4) BPTSFd		8	
Adjustment for no-passing zones, fnp	16.5	•	
Percent time-spent-following, PTSFd	80.8	8	
Level of Service and Other Perform	nance Mea	asures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.47		
Peak 15-min vehicle-miles of travel, VMT15	482	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	1582	veh-mi	
	14.1	veh-h	
Peak 15-min total travel time, TT15			
Capacity from ATS, CdATS	1700	veh/h	
Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh/h veh/h	
Directional Capacity	1700	Ve11/11	
Passing Lane Analysis	S		
Total length of analysis segment, Lt		2.4	mi
Length of two-lane highway upstream of the passing	r lane. I	Im -	mi
Length of passing lane including tapers, Lpl	, 14110, 1	_	mi
Average travel speed, ATSd (from above)		34.3	mi/h
Percent time-spent-following, PTSFd (from above)		80.8	1111/11
Level of service, LOSd (from above)		D D	
never of service, hosa (from above)		D	
Average Travel Speed with Pass	sing Lane	a	
Downstream length of two-lane highway within effect	tive		
length of passing lane for average travel spee		_	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel		г.d –	mi
Adj. factor for the effect of passing lane	bpcca, i	DQ.	
on average speed, fpl			
Average travel speed including passing lane, ATSpl			
Percent free flow speed including passing lane, PF		0.0	8
rescent free flow speed including passing same, Fr	rapı	0.0	70
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect	tive le	nat.h	
of passing lane for percent time-spent-followi			mi
Length of two-lane highway downstream of effective			шт
the passing lane for percent time-spent-follow			mi
	ving, La	-	шт
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	n Passing J	Lane
T1 -5i i1-dinin- 1 100 1	7		
Level of service including passing lane, LOSpl	A		
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	16		
bicycle bevel of Service			

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	803.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.45
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: F-Mail:	Fax:
Directional Two-Lane High	ghway Segment Analysis
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Background + Project Highway Carmel Valley Ros From/To Rancho San Carlos Jurisdiction Unincorporated Moto Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB	ad s / Schulte
Input I	Data
Shoulder width 6.0 ft % Tru Lane width 12.0 ft % Tru Segment length 2.4 mi Truck Terrain type Specific Grade % Rec Grade: Length 0.25 mi % No- Up/down -3.0 % Acces Analysis direction volume, Vd 1026 ve	hour factor, PHF 0.82 ucks and buses 8 % ucks crawling 0.0 % k crawl speed 0.0 mi/hr creational vehicles 1 % -passing zones 100 % ss point density 14 /mi eh/h
	eh/h
Average Trave	el Speed
Direction And PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	alysis(d) Opposing (o) 1.0 1.4 1.0 1.0 1.000 0.973 1.00 1.00 1251 pc/h 808 pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) Adj. for access point density,(note-3) fa	
Free-flow speed, FFSd	51.5 mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.8* mi/h 33.7 mi/h 65.5 %

Percent Time-Spent-Following				
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg	Analysis(d) 1.0 1.0 1.000		Opposing 1.0 1.0 1.000	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1251 po e-4) BPTSFd	82.4 15.8	855 %	pc/h
Level of Service and C	ther Performa	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	60	E 0.74 751 2462 22.3 0 1700	veh/h veh/h	
Passing I	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl		2.4 u - 33.7 91.8 E	mi mi mi mi/h
Average Travel Spec	d with Pass:	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel speed	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	rage travel :		d - -	mi
Average travel speed including passing Percent free flow speed including pass	lane, ATSpling lane, PF	FSpl	- 0.0	9
Percent Time-Spent-Fol				
Downstream length of two-lane highway of passing lane for percent time-s	pent-following	ng, Lde	-	mi
Length of two-lane highway downstream the passing lane for percent time- Adj. factor for the effect of passing on percent time-spent-following, f	spent-follow:			mi
Percent time-spent-following including passing lane, PTSFpl	r -		_	8
Level of Service and Other Perfo	rmance Measu	res with	Passing	Lane
Level of service including passing lar Peak 15-min total travel time, TT15	e, LOSpl		veh-h	
Bicycle Lev	el of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1251.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.67
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project Saturday

Highway Carmel Valley Road

From/To Rancho San Carlos / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.82	
Shoulder width	6.0 ft	% Trucks and buses	8	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	1	용
Grade: Length	0.25 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	14	/mi

Analysis direction volume, Vd 818 veh/h Opposing direction volume, Vo 804 veh/h

_____Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1) fg	Analysis(d) 1.0 1.0 V 1.000 1.00	Opposing (o) 1.1 1.0 0.992 1.00
Directional flow rate, (note-2) vi	998 pc/h	988 pc/h
Free-Flow Speed from Field Measurement Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) for access point density,(note-3)	- - 55.0 e-3) fLS 0.0	mi/h
Free-flow speed, FFSd	51.5	mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.8* 34.3 66.6	mi/h mi/h %

Percent Time-Spent-Follo	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000		Opposing 1.0 1.0 1.000	(0)
Grade adjustment factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 998 Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h 78.8 17.8 87.4	0.92 1066 %	pc/h
Level of Service and Other Perfor	mance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.59 599 1963 17.5 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	S		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - - 34.3 87.4 E	mi mi mi mi/h
Average Travel Speed with Pas	sing Lane	≥	
Downstream length of two-lane highway within effe	ctive		
length of passing lane for average travel spe Length of two-lane highway downstream of effectiv	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl		Ld -	mi
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P		- 0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway downstream of effectiv	ing, Lde	_	mi
the passing lane for percent time-spent-follo Adj. factor for the effect of passing lane $$			mi
on percent time-spent-following, fpl Percent time-spent-following		_	
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Meas	ures with	n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	997.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.56
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project AM Carmel Valley Road Highway From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0 77 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 959 veh/h Opposing direction volume, Vo 659 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1255 pc/h 856 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 33.3 mi/h Percent Free Flow Speed, PFFS 64.7 용

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.00 0.92	Oj	pposing 1.0 1.0 1.000	(0)
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1354 p te-4) BPTSFd		856	pc/h
Level of Service and	Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VMPeak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	T60	2302 22.4 0	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape: Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		2.4 - - 33.3 93.4 E	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane_		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel spee	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel		-	mi
Average travel speed including passing Percent free flow speed including pass			0.0	용
Percent Time-Spent-Fo	llowing with	Passing La	ane	
Downstream length of two-lane highway of passing lane for percent time-	spent-followi:	ng, Lde	-	mi
Length of two-lane highway downstream the passing lane for percent time Adj. factor for the effect of passing	-spent-follow		Ē -	mi
on percent time-spent-following, Percent time-spent-following			-	
including passing lane, PTSFpl			_	8
Level of Service and Other Perf	ormance Measu	res with 1	Passing 1	Lane
Level of service including passing lampeak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1245.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.67
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project PM

Highway Carmel Valley Road
From/To Schulte / Rancho San Carlos

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.77	
Shoulder width	6.0 ft	% Trucks and buses	8	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	1	용
Grade: Length	0.25 mi	% No-passing zones	100	용
Up/down	3.0 %	Access point density	14	/mi

Analysis direction volume, Vd $\,$ 645 $\,$ veh/h Opposing direction volume, Vo $\,$ 1026 $\,$ veh/h

_____Average Travel Speed____

Direction	Analysis	(d)	Onn	osing	(0)
PCE for trucks, ET	1.2	(4)	OPP	1.0	(0)
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) ff				1.000	
-	1.00			1.00	
Directional flow rate, (note-2) vi	853			1332	pc/h
Free-Flow Speed from Field Measuremen	ıt:				
Field measured speed,(note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		55.0	mi/h		
Adj. for lane and shoulder width, (not	e-3) fLS	0.0	mi/h		
Adj. for access point density, (note-3	B) fA	3.5	mi/h		
Free-flow speed, FFSd		51.5	mi/h		
Adjustment for no-passing zones, fnp		1.8*	mi/h		
Average travel speed, ATSd		32.7	mi/h		
Percent Free Flow Speed, PFFS		63.6	용		

Percent Time-Spent-Foll	owing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV PCI for RVs, ER Heavy-vehicle adjustment for no-passing zones, fnp PCI for RVs, ER PCI for RVs, ER Heavy-vehicle adjustment for no-passing zones, fnp PCI for RVs, ER PCI for RVs, ET Loop 1.0 PCI for RVs, ER Loop 1.0 PC	pc/h	Opposing 1.0 1.00 1.000 1.332 %	
Level of Service and Other Perfo	rmance Me	asures	
Level of service, LOS Jolume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.54 503 1548 15.4 1686 1564	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	sis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passi Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 Lu - 32.7 84.4 D	mi mi mi mi/h
Average Travel Speed with Pa	assing Lan	e	
Downstream length of two-lane highway within eff length of passing lane for average travel sp Length of two-lane highway downstream of effecti length of the passing lane for average trave Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATS Percent free flow speed including passing lane,	ective peed, Lde ve el speed, :	-	mi mi
Percent Time-Spent-Following wit	h Passing	Lane	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follo Length of two-lane highway downstream of effecti	wing, Lde ve length	of	mi
the passing lane for percent time-spent-foll Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	owing, Ld	-	mi
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Mea	sures wit	h Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Serv	rice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	837.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.47
Bicycle LOS	D

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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project Saturday Carmel Valley Road Highway From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.94 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 804 veh/h Opposing direction volume, Vo 818 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.998 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 857 pc/h 870 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 36.3 mi/h Percent Free Flow Speed, PFFS 70.5 용

Percent Time-Sper	nt-Followi	ng		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	lysis(d) 1.0 1.0	(1.0 1.0 1.000	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd			1.00 870 %	pc/h
Level of Service and Other	r Performa	nce Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	5	E 0.55 513 1930 14.1 1697 1564	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane	Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the Length of passing lane including tapers, I Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lp1	lane, Lu	2.4 - - 36.3 85.7 E	mi mi mi mi/h
Average Travel Speed v	vith Passi	ng Lane_		
Downstream length of two-lane highway with length of passing lane for average tra Length of two-lane highway downstream of e	avel speed		-	mi
length of the passing lane for average Adj. factor for the effect of passing lane on average speed, fpl	e travel s		d - -	mi
Average travel speed including passing lar Percent free flow speed including passing			0.0	8
Percent Time-Spent-Follow	ing with Pa	assing I	Lane	
Downstream length of two-lane highway with of passing lane for percent time-spent Length of two-lane highway downstream of e	-following	g, Lde	-	mi
the passing lane for percent time-sper Adj. factor for the effect of passing lane on percent time-spent-following, fpl	nt-followi			mi
Percent time-spent-following including passing lane, PTSFpl			_	8
Level of Service and Other Performan	nce Measur	es with	Passing	Lane
Level of service including passing lane, I Peak 15-min total travel time, TTI5	LOSpl	A -	veh-h	
Bicycle Level of	of Service			

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	855.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	2.51
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 4. For the analysis direction only.
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- * These items have been entered or edited to override calculated value

Phone: E-mail: Fax:

_____FREE-FLOW SPEED__

____OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project AM Highway: Carmel Valley Road From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW		mph		mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed			54.0	mph
	_VOLUME			
Direction	1		2	
Volume, V	757	vph	983	vph
Peak-hour factor, PHF	0.80		0.87	· <u>+</u>
	237		282	
Trucks and buses	3	용	1	8
Recreational vehicles	0	용	0	ક
Terrain type	Level		Level	
Grade	0.00	용	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.995	
Flow rate, vp	480	pcphpl	567	pcphpl
	RESULTS			
	_v₽9∩⊓19			

Direction	1		2	
Flow rate, vp	480	pcphpl	567	pcphpl
Free-flow speed, FFS	53.0	mph	54.0	mph
Avg. passenger-car travel spe	ed, S 55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	8.7	pc/mi/ln	10.3	pc/mi/ln
Bi	cycle Level (of Service		
Posted speed limit, Sp	55		55	
Percent of segment with occup	ied			
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vO	L 473.	L	564.9	
Effective width of outside la	ne, We 24.00)	24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.73		2.34	
Bicycle LOS	C		В	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project PM Highway: Carmel Valley Road From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1107	vph	770	vph
Peak-hour factor, PHF	0.88		0.93	
Peak 15-minute volume, v15	314	_	207	_
Trucks and buses	1	8	1	8
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	8	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP			1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER			1.2	
Heavy vehicle adjustment, fHV			0.995	
Flow rate, vp	632	pcphpl	416	pcphpl
	_RESULTS			

Direction		1		2	
Flow rate, vp		632	pcphpl	416	pcphpl
Free-flow speed, FFS		53.0	mph	54.0	mph
Avg. passenger-car travel speed,	S	55.0	mph	55.0	mph
Level of service, LOS		В	_	A	=
Density, D		11.5	pc/mi/ln	7.6	pc/mi/ln
Bicyc	le Le	evel of Ser	rvice		
Posted speed limit, Sp		55		55	
Percent of segment with occupied					
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside lane, vOL		629.0		414.0	
Effective width of outside lane,	We	24.00		24.00	
Effective speed factor, St		4.79		4.79	
Bicycle LOS Score, BLOS		2.40		2.18	
Bicycle LOS		В		В	

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____OPERATIONAL ANALYSIS___

____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project Saturday

Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge		ft	6.0	ft
2	12.0	ft.	12.0	ft.
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS		nah	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.0	ngh	0.0	mph
Median type adjustment, FM	0.0	ngh	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	ngh	54.0	mph
		-		-
	VOLUME			
Direction	1		2	
Volume, V	918	vph	901	vph
	0.91	- 1	0.94	
· ·	252		240	
Trucks and buses	1	%	1	8
Recreational vehicles	0	8	0	8
Terrain type	Level		Level	
Grade	0.00	8	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
	0.995		0.995	
Flow rate, vp	506	pcphpl	481	pcphpl

Direct Flow rate, vp Free-flow speed, FFS Avg. passenger-car trave Level of service, LOS Density, D	ction el speed, S	1 506 53.0 55.0 A 9.2	pcphpl mph mph pc/mi/ln	54.0 55.0 A	pcphpl mph mph pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit, Sp Percent of segment with	occupied	55		55	
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside las	ne, vOL	504.4		479.3	
Effective width of outs:				24.00	
Effective speed factor,	St	4.79		4.79	
Bicycle LOS Score, BLOS		2.28		2.26	
Bicycle LOS		В		В	

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____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project AM
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge		ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW				mph
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	_
-		-		-
	_VOLUME			
Direction	1		2	
Volume, V	1063	vph	1335	vph
Peak-hour factor, PHF	0.86	-	0.68	-
Peak 15-minute volume, v15	309		491	
Trucks and buses	2	왕	2	%
Recreational vehicles	0	•	_	
	U	용	0	용
Terrain type	Level	*	0 Level	%
	-	96	-	ુ જ
Terrain type	Level	•	Level	
Terrain type Grade	Level 0.00	8	Level 0.00	8
Terrain type Grade Segment length	Level 0.00 0.00 2	8	Level 0.00 0.00	8
Terrain type Grade Segment length Number of lanes	Level 0.00 0.00 2	8	Level 0.00 0.00	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	Level 0.00 0.00 2	8	Level 0.00 0.00 2 1.00	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET	Level 0.00 0.00 2 1.00 1.5	8	Level 0.00 0.00 2 1.00	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	Level 0.00 0.00 2 1.00 1.5	8	Level 0.00 0.00 2 1.00 1.5 1.2	8
Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	Level 0.00 0.00 2 1.00 1.5 1.2	% mi	Level 0.00 0.00 2 1.00 1.5 1.2	% mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 624 53.0 55.0 B 11.3	pcphpl mph mph pc/mi/ln	55.0 C	pcphpl mph mph pc/mi/ln
Bicycle	Level of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	618.0		981.6	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.62		2.85	
Bicycle LOS	C		C	

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____FREE-FLOW SPEED__

__OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald Date:

12/6/17

Analysis Period: Background + Project PM Carmel Valley Road

Highway: From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	mph
	_VOLUME			
Direction	1		2	
7				
Volume, V	1458	vph	1097	vph
Volume, V Peak-hour factor, PHF	1458 0.95	vph	1097 0.88	vph
		vph		vph
Peak-hour factor, PHF	0.95	vph %	0.88	vph %
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	0.95 384	-	0.88 312	-
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	0.95 384 2	8	0.88 312 1	8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	0.95 384 2 0	8	0.88 312 1 0	8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	0.95 384 2 0 Level	્રે જે જે	0.88 312 1 0 Level	े १ १
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	0.95 384 2 0 Level 0.00	00 00 00 00	0.88 312 1 0 Level 0.00	े १८ १८
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	0.95 384 2 0 Level 0.00 0.00	00 00 00 00	0.88 312 1 0 Level 0.00 0.00	े १८ १८
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	0.95 384 2 0 Level 0.00 0.00	00 00 00 00	0.88 312 1 0 Level 0.00 0.00	े १८ १८
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	0.95 384 2 0 Level 0.00 0.00 2	00 00 00 00	0.88 312 1 0 Level 0.00 0.00 2	े १८ १८
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.95 384 2 0 Level 0.00 0.00 2 1.00	00 00 00 00	0.88 312 1 0 Level 0.00 0.00 2 1.00	े १८ १८
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.95 384 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	00 00 00 00	0.88 312 1 0 Level 0.00 0.00 2 1.00 1.5 1.2 0.995	े १८ १८
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	0.95 384 2 0 Level 0.00 0.00 2 1.00 1.5 1.2 0.990	% % mi	0.88 312 1 0 Level 0.00 0.00 2 1.00 1.5 1.2 0.995	e e mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 775 53.0 55.0 B 14.1	pcphpl mph mph pc/mi/ln	В	pcphpl mph mph pc/mi/ln
Bicycle I	Level of Se	rvice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	767.4		623.3	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.73		2.39	
Bicycle LOS	C		В	

Fax:

Phone: E-mail:

__OPERATIONAL ANALYSIS__

___FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project Saturday

Highway: Carmel Valley Road

From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	mph
	_VOLUME			
Direction	1		2	
Volume, V	1195	vph	1142	vph
Peak-hour factor, PHF	0.96		0.94	
Peak 15-minute volume, v15	311		304	
Trucks and buses	1	8	1	%
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	625	pcphpl	610	pcphpl
	_RESULTS			

Direction	1		2	
Flow rate, vp	625	pcphpl	610	pcphpl
Free-flow speed, FFS	53.0	mph	53.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	В		В	
Density, D	11.4	pc/mi/ln	11.1	pc/mi/ln
Bicycle	Level of Se	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied	55		33	
2	0		0	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	622.4		607.4	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.39		2.38	
Bicycle LOS	В		В	

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Phone: E-mail:

____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project AM Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	_VOLUME			
Direction	1		2	
Volume, V	1067	vph	1082	vph
Peak-hour factor, PHF	0.86		0.76	
Peak 15-minute volume, v15	310		356	
Trucks and buses	2	8	2	%
Recreational vehicles	0	용	0	용
Terrain type	Level		Level	
Grade	0.00	용	0.00	용
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	626	pcphpl	718	pcphpl
	_RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, Level of service, LOS Density, D	1 626 55.0 S 55.0 B 11.4	pcphpl mph mph pc/mi/ln	55.0 55.0 B	pcphpl mph mph pc/mi/ln
Bicycl	e Level of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	620.3		711.8	
Effective width of outside lane,	We 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.62		2.69	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

__OPERATIONAL ANALYSIS___

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project PM Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed		mph		mph
	_VOLUME			
Direction	1		2	
Volume, V	1122	vph	940	vph
Peak-hour factor, PHF	0.95		0.90	
Peak 15-minute volume, v15	295		261	
Trucks and buses	2	용	2	%
Recreational vehicles	0	8	0	%
Terrain type	Level		Level	
Grade	0.00	8	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
-1				
Flow rate, vp	596	pcphpl	527	pcphpl
Flow rate, vp	596 RESULTS	pcphpl	527	pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 596 55.0 55.0 A	pcphpl mph mph pc/mi/ln	55.0 55.0 A	pcphpl mph mph pc/mi/ln
Bicycle :	Level of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	590.5		522.2	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.59		2.53	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Background + Project Saturday

Highway: Carmel Valley Road

From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge		ft	6.0	ft
2	12.0	ft.	12.0	ft.
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS		mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
		-		-
	VOLUME			
Direction	1		2	
Volume, V	1022	vph	886	vph
Peak-hour factor, PHF	0.96		0.98	
Peak 15-minute volume, v15	266		226	
Trucks and buses	2	8	2	8
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
± ±				
Grade	0.00	용	0.00	8
Grade Segment length	0.00	% mi	0.00	% mi
		-		•
Segment length	0.00	-	0.00	•
Segment length Number of lanes	0.00	-	0.00	•
Segment length Number of lanes Driver population adjustment, fP	0.00 2 1.00	-	0.00 2 1.00	•
Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.00 2 1.00 1.5	-	0.00 2 1.00 1.5	•
Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.00 2 1.00 1.5	-	0.00 2 1.00 1.5 1.2	•
Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	0.00 2 1.00 1.5 1.2	mi	0.00 2 1.00 1.5 1.2	mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS	1 537 55.0 55.0	pcphpl mph mph		pcphpl mph mph
Density, D	9.8	pc/mi/ln	8.3	pc/mi/ln
	Level of Se	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied	0		0	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	532.3		452.0	
Effective width of outside lane, We	e 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.54		2.46	
Bicycle LOS	C		В	

Phone: Fax: E-Mail:

_Directional Two-Lane Highway Segment Analysis__

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project AM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Percent Free Flow Speed, PFFS

Description Rio Ranch Seg 13 NB

		I	nput Data		
Highway class Class Shoulder width Lane width Segment length Terrain type Grade: Length Up/down	2 5.0 12.0 2.6 Rolling	ft ft mi mi	Peak hour factor, PHF % Trucks and buses % Trucks crawling Truck crawl speed % Recreational vehicles % No-passing zones Access point density	0.76 3 0.0 0.0 0	% % mi/hr % %

Analysis direction volume, Vd 297 veh/h Opposing direction volume, Vo 405 veh/h

Average	Travel	Speed	
Direction	7207	raia (d)	Opposing (a)

Direction	Analysis(u)	Opposing (o)
PCE for trucks, ET	2.0	1.8
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor, (note-	5) fHV 0.971	0.977
Grade adj. factor,(note-1) fg	0.89	0.96
Directional flow rate, (note-2) v	i 452 pc/l	h 568 pc/h

75.9

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	1.3	mi/h
Adj. for access point density,(note-3) fA	1.3	mi/h
Free-flow speed, FFSd	42.5	mi/h
Adjustment for no resains sense for	2.3*	mi/h
Adjustment for no-passing zones, fnp		
Average travel speed, ATSd	32.2	mi/h

Percent fille	-spent-rollow	1119		
Direction	Analysis(d)	OI	pposing (0)
PCE for trucks, ET	1.6		1.2	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.982		0.994	
Grade adjustment factor, (note-1) fg	0.90		0.96	
Directional flow rate, (note-2) vi	442 p	c/h	558	pc/h
Base percent time-spent-following, (no	_			F - /
Adjustment for no-passing zones, fnp	cc i, biibia	37.5		
Percent time-spent-following, PTSFd		65.1 %		
Level of Service and	Other Perform	ance Meası	ıres	
Lovel of gowrige LOC		С		
Level of service, LOS				
Volume to capacity ratio, v/c		0.26		
Peak 15-min vehicle-miles of travel,			veh-mi	
Peak-hour vehicle-miles of travel, VM	T60		veh-mi	
Peak 15-min total travel time, TT15		7.9	veh-h	
Capacity from ATS, CdATS		1598 1	veh/h	
Capacity from PTSF, CdPTSF		1639 1	veh/h	
Directional Capacity			veh/h	
111111111111111111111111111111111111111				
Passing	Lane Analysis			
Total length of analysis segment, Lt			2.6	mi
Length of two-lane highway upstream o	f the pagging	lano Iu		mi
		Talle, Lu	_	mi
Length of passing lane including tape			32.2	mi/h
Average travel speed, ATSd (from abov				m1/II
Percent time-spent-following, PTSFd (irom above)		65.1	
Level of service, LOSd (from above)			C	
Average Travel Spe	ed with Pass	ing Lane		
Downstream length of two-lane highway				
length of passing lane for averag			-	mi
Length of two-lane highway downstream	of effective			
length of the passing lane for av Adj. factor for the effect of passing		speed, Ld	-	mi
on average speed, fpl			_	
Average travel speed including passin	g lane. ATSpl		_	
Percent free flow speed including pas			0.0	%
Percent Time-Spent-Fo	llowing with	Passing La	ane	
Downstream length of two-lane highway	within effec	tive lengt	:h	
of passing lane for percent time-			_	mi
Length of two-lane highway downstream			F	
the passing lane for percent time			_	mi
		Ing, bu	_	шт
Adj. factor for the effect of passing				
on percent time-spent-following,	ipl		-	
Percent time-spent-following				
including passing lane, PTSFpl			-	왕
Level of Service and Other Perf	ormance Measu	res with 1	Passing I	ane
Level of service including passing la	ne, LOSpl			
Peak 15-min total travel time, TT15		- 7	veh-h	
Bicycle Le	vel of Servic	e		

__Percent Time-Spent-Following__

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	390.8
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.97
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project PM Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.88 Shoulder width 5.0 ft % Trucks and buses 2 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 676 veh/h Opposing direction volume, Vo 498 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.5 1.7 PCE for RVs, ER 1.1 1.1 0.986 Heavy-vehicle adj. factor, (note-5) fHV 0.990 Grade adj. factor, (note-1) fg 0.99 0.96 Directional flow rate, (note-2) vi 784 pc/h 598 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.4 mi/h Percent Free Flow Speed, PFFS 69.3 용

Percent Time-	Spent-Follow	ing		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.0 1.0 1.000	(1.2 1.0 0.99	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp		c/h 65.5 28.8	0.97 586 %	pc/h
Percent time-spent-following, PTSFd			8	
Level of Service and O	ther Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	60	D 0.45 499 1758 17.0 0 1642 1642	veh-mi veh-mi veh-h veh/h veh/h	
Passing L	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl)		2.6 u - 29.4 81.8 D	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing	rage travel		d -	mi
on average speed, fpl Average travel speed including passing Percent free flow speed including pass			- 0.0	8
Percent Time-Spent-Fol	lowing with	Passing 1	Lane	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-followi	ng, Lde	-	mi
the passing lane for percent time- Adj. factor for the effect of passing	spent-follow lane			mi
on percent time-spent-following, f Percent time-spent-following including passing lane, PTSFpl	pl		-	90
Level of Service and Other Perfo	rmance Measu	res with	Passing	
Level of service including passing lan Peak 15-min total travel time, TT15	e, LOSpl	A -	veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	768.2
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.08
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

___Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project Saturday

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 13 NB

_____Input Data____

Highway	class	Class	2		Peak hour factor, PHF	0.95	
Shoulder	width		5.0	ft	% Trucks and buses	1	용
Lane wio	lth		12.0	ft	% Trucks crawling	0.0	용
Segment	length		2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain	type		Rolling		% Recreational vehicles	0	용
Grade:	Length		_	mi	% No-passing zones	100	용
	Up/down	n	-	용	Access point density	5	/mi

Analysis direction volume, Vd 583 veh/h Opposing direction volume, Vo 675 veh/h

Average	Travel	Speed
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Average Trav	rel Spe	ed			
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg	1.7 1.1	3	Oppo	osing (d 1.6 1.1 0.994 0.98))
Directional flow rate,(note-2) vi	637	pc/h		729	pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3 Adj. for access point density,(note-3) f			mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		42.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 29.5 69.6	mi/h mi/h %		

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 0.97 Directional flow rate,(note-2) vi 633 point of 633	c/h	Opposing 1.0 1.0 1.000 0.99 718 %	
Level of Service and Other Performa	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1656 1683 1683	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, I	2.6 - - 29.5 75.1 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane	e	
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel stadj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFR	tive d, Lde speed, I	-	mi mi
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective the passing lane for percent time-spent-following factor for the effect of passing lane on percent time-spent-following, fpl	tive len ng, Lde length	ngth - of	mi mi
Percent time-spent-following			
including passing lane, PTSFpl		-	ક
Level of Service and Other Performance Measur	res with	n Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Hevel Of Service			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	613.7
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.75
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project AM Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 408 veh/h Opposing direction volume, Vo 301 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.9 2.1 PCE for RVs, ER 1.1 1.1 0.968 Heavy-vehicle adj. factor, (note-5) fHV 0.974 Grade adj. factor, (note-1) fg 0.92 0.85 Directional flow rate, (note-2) vi 495 pc/h 398 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 33.2 mi/h Percent Free Flow Speed, PFFS 78.3 용

Percent Time-Spent-Fol	lowing		
Direction Analysis(c	d)	Opposing	(0)
PCE for trucks, ET 1.4	ω,	1.6	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 0.988		0.982	
Grade adjustment factor,(note-1) fg 0.93		0.86	
Directional flow rate, (note-2) vi 483	pc/h	387	pc/h
Base percent time-spent-following, (note-4) BPTSI	Fd 47.4	용	
Adjustment for no-passing zones, fnp	40.9		
Percent time-spent-following, PTSFd	70.1	8	
Level of Service and Other Perfo	ormance M	easures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.28	, .	
Peak 15-min vehicle-miles of travel, VMT15	288	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	1061	veh-mi	
Peak 15-min total travel time, TT15	8.7	veh-h	
Capacity from ATS, CdATS	0	veh/h	
Capacity from PTSF, CdPTSF Directional Capacity	1486 1486		
Directional Capacity	1400	A C11 / 11	
Passing Lane Analys	sis		
Total length of analysis segment, Lt		2.6	mi
Length of two-lane highway upstream of the pass:	ing lane.		mi
Length of passing lane including tapers, Lpl	ing ranc,	_	mi
Average travel speed, ATSd (from above)		33.2	mi/h
Percent time-spent-following, PTSFd (from above)	70.1	
Level of service, LOSd (from above)		D	
Average Travel Speed with Pa	assing La	ne	
Downstream length of two-lane highway within eff	fective		
length of passing lane for average travel sp	peed, Lde	-	mi
Length of two-lane highway downstream of effect:			
length of the passing lane for average trave	el speed,	Ld -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, ATS			_
Percent free flow speed including passing lane,	PFFSpl	0.0	%
Percent Time-Spent-Following wit	th Passin	g Lane	
Downstroam longth of two-land highway within aft	foativo 1	onath	
Downstream length of two-lane highway within eff of passing lane for percent time-spent-follo			mi
Length of two-lane highway downstream of effect:			шт
the passing lane for percent time-spent-foll			mi
Adj. factor for the effect of passing lane	LOWING, D	~	шт
on percent time-spent-following, fpl		_	
Percent time-spent-following			
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Mea	asures wi	th Passing	Lane
T1 -6i i1ii 1 T00 1	7		
Level of service including passing lane, LOSpl	А	rrah h	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Serv	vice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	443.5
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.03
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Background + Project PM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Percent Free Flow Speed, PFFS

Description Rio Ranch Seg 13 SB

____Input Data__

Highway class Class	2		Peak hour factor, PHF	0.93	
Shoulder width	5.0	ft	% Trucks and buses	3	8
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	용
Grade: Length	_	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	5	/mi

Analysis direction volume, Vd 498 veh/h Opposing direction volume, Vo 676 veh/h

Average	Travel	Speed
---------	--------	-------

Average i.	raver spe	eu			
Direction	Analysis	(d)	Opp	osing (c	o)
PCE for trucks, ET	1.8			1.5	
PCE for RVs, ER	1.1			1.1	
Heavy-vehicle adj. factor, (note-5) fH	V 0.97	7		0.985	
Grade adj. factor,(note-1) fg	0.96	;		0.98	
Directional flow rate,(note-2) vi	571	pc/h		753	pc/h
Free-Flow Speed from Field Measuremen	t:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (not	e-3) fLS	1.3	mi/h		
Adj. for access point density,(note-3) fA	1.3	mi/h		
Free-flow speed, FFSd		42.5	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		29.9	mi/h		

70.4 %

Percent Time-Spent-Follow:	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h 57.8 % 30.2 70.9 %	1.0 1.0 1.000 0.99 734	(o) pc/h
Level of Service and Other Performa	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1295 11.6 1641 1683 1683	veh-mi veh-mi veh-h veh/h veh/h	
rassing bane analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.6 - - 29.9 70.9 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel: Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI	tive d, Lde speed, Ld	- 1 - - - 0.0	mi mi
	_		
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective the passing lane for percent time-spent-following	ng, Lde length c	- of	mi mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ક
Level of Service and Other Performance Measu	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
bicycle bever of Service			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	535.5
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.13
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Background + Project Saturday Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 675 veh/h Opposing direction volume, Vo 583 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.5 1.7 1.1 PCE for RVs, ER 1.1 0.979 Heavy-vehicle adj. factor, (note-5) fHV 0.985 Grade adj. factor, (note-1) fg 0.98 0.97 Directional flow rate, (note-2) vi 760 pc/h 667 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.1 mi/h Percent Free Flow Speed, PFFS 68.5 용

Percent Time	-Spent-Follow	ing		
Direction	Analysis(d)		Opposing	(0)
PCE for trucks, ET	1.0		1.0	(0)
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor, (note-1) fg	0.99		0.98	
Directional flow rate, (note-2) vi	741 p	c/h	647	pc/h
Base percent time-spent-following, (no			8	
Adjustment for no-passing zones, fnp		28.5		
Percent time-spent-following, PTSFd		80.7	왕	
Level of Service and (Other Perform	ance Mea	sures	
Level of service, LOS		D		
Volume to capacity ratio, v/c		0.44		
Peak 15-min vehicle-miles of travel,		477	veh-mi	
Peak-hour vehicle-miles of travel, VM	F60	1755	veh-mi	
Peak 15-min total travel time, TT15		16.4	veh-h	
Capacity from ATS, CdATS		0	veh/h	
Capacity from PTSF, CdPTSF		1666 1666	veh/h	
Directional Capacity		1000	veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt			2.6	mi
Length of two-lane highway upstream of	f the nagging	lane L		mi
Length of passing lane including tape:		Tane, b	_	mi
Average travel speed, ATSd (from above			29.1	mi/h
Percent time-spent-following, PTSFd (:			80.7	/ 11
Level of service, LOSd (from above)	above,		D	
Average Travel Spec	ed with Dagg	ing Lane		
Mverage flaver bpe	ca with rabb	ing banc,		
Downstream length of two-lane highway	within effec	tive		
length of passing lane for average	e travel spee	d, Lde	-	mi
Length of two-lane highway downstream	of effective			
length of the passing lane for ave	erage travel	speed, L	d -	mi
Adj. factor for the effect of passing	lane			
on average speed, fpl			-	
Average travel speed including passing			-	
Percent free flow speed including pass	sing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway			gth	
of passing lane for percent time-			-	mi
Length of two-lane highway downstream				
the passing lane for percent time		ing, Ld	-	mi
Adj. factor for the effect of passing				
on percent time-spent-following,	rbī		_	
Percent time-spent-following including passing lane, PTSFpl			_	8
Level of Service and Other Perfo	ormance Measu	res with	Passing	Lane
Level of service including passing lan	ne, LOSpl	A		
Peak 15-min total travel time, TT15		-	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	733.7
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.29
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17 Analysis Period: Cumulative AM

SR 1 Highway:

From/To:

Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW				
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
	_VOLUME			
Direction	1		2	
	1			
Volume, V	1453	vph	1840	vph
		vph	_	vph
Volume, V	1453	vph	1840	vph
Volume, V Peak-hour factor, PHF	1453 0.91	vph %	1840 0.91	vph %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15	1453 0.91 399	-	1840 0.91 505	-
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	1453 0.91 399 2	%	1840 0.91 505	9
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	1453 0.91 399 2	%	1840 0.91 505 3	9
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	1453 0.91 399 2 0 Grade	90 90	1840 0.91 505 3 0 Grade	* %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	1453 0.91 399 2 0 Grade 6.00	٠ ٥ ٥ ٥	1840 0.91 505 3 0 Grade -6.00	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	1453 0.91 399 2 0 Grade 6.00 0.73	٠ ٥ ٥ ٥	1840 0.91 505 3 0 Grade -6.00 0.73	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	1453 0.91 399 2 0 Grade 6.00 0.73	٠ ٥ ٥ ٥	1840 0.91 505 3 0 Grade -6.00 0.73	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	1453 0.91 399 2 0 Grade 6.00 0.73 2 1.00 5.0	٠ ٥ ٥ ٥	1840 0.91 505 3 0 Grade -6.00 0.73 2	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1453 0.91 399 2 0 Grade 6.00 0.73 2 1.00 5.0	٠ ٥ ٥ ٥	1840 0.91 505 3 0 Grade -6.00 0.73 2 1.00	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1453 0.91 399 2 0 Grade 6.00 0.73 2 1.00 5.0 6.0	٠ ٥ ٥ ٥	1840 0.91 505 3 0 Grade -6.00 0.73 2 1.00 1.5 1.2	- % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1453 0.91 399 2 0 Grade 6.00 0.73 2 1.00 5.0 6.0	* * * mi	1840 0.91 505 3 0 Grade -6.00 0.73 2 1.00 1.5 1.2	% % % mi

Direc	tion	1		2	
Flow rate, vp		862	pcphpl	1026	pcphpl
Free-flow speed, FFS		43.0	mph	42.7	mph
Avg. passenger-car trave	el speed, S	45.0	mph	45.0	mph
Level of service, LOS		C		C	
Density, D		19.2	pc/mi/ln	22.8	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit, Sp		55		55	
Percent of segment with	occupied				
on-highway parking	-	0		0	
Pavement rating, P		3		3	
Flow rate in outside lar	ie, vOL	798.4		1011.0	
Effective width of outsi	de lane, We	22.00		22.00	
Effective speed factor,	St	4.79		4.79	
Bicycle LOS Score, BLOS		3.21		3.58	
Bicycle LOS		C		D	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17
Analysis Period: Cumulative PM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivid	ed	Undivid	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
-		=		=
	VOLUME			
Direction	1		2	
Volume, V	1933	vph	1743	vph
Peak-hour factor, PHF	0.95	-	0.96	-
Peak 15-minute volume, v15	509		454	
Trucks and buses	2	ક	1	%
Recreational vehicles	0	ક	0	%
Terrain type	Grade		Grade	
Grade	6.00	ક	-6.00	%
Segment length	0.73	mi	0.73	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.0		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.926		0.995	
Flow rate, vp	1098	pcphpl	912	pcphpl
	RESULTS			

Direction	1	, ,	2	
Flow rate, vp	1098		912	pcphpl
Free-flow speed, FFS	43.0	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	24.4	pc/mi/ln	20.3	pc/mi/ln
Bicycle	Level of S	Service		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	1017.4		907.8	
Effective width of outside lane, We	e 22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.33		3.04	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

_OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative Saturday

SR 1 Highway:

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	1		2	
Median type	Undivided	1	Undivided	i
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW		mph		mph
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.3	mph	0.5	mph
Free-flow speed	43.0	mph	42.7	mph
<u>-</u>		_		=
	_VOLUME			
Direction	1		2	
Volume, V	1805	vph	2023	vph
Peak-hour factor, PHF	0.91	=	0.97	=
Peak 15-minute volume, v15	496		521	
Trucks and buses	1	용	1	ક
Recreational vehicles	0	용	0	ક
Terrain type	Grade		Grade	
Grade	6.00	8	-6.00	8
Segment length	0.73	mi	0.73	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.0		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.962		0.995	
Flow rate, vp	1031	pcphpl	1047	pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 1031 43.0 45.0 C	pcphpl mph mph pc/mi/ln	42.7 45.0 C	pcphpl mph mph pc/mi/ln
Bicycle I	Level of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	991.8		1042.8	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.09		3.11	
Bicycle LOS	C		C	

Phone: E-mail:

___OPERATIONAL ANALYSIS_____

____FREE-FLOW SPEED_

Fax:

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17
Analysis Period: Cumulative AM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	_VOLUME			
Direction	1		2	
Volume, V	1679	vph	1799	vph
Peak-hour factor, PHF	0.89		0.92	
Peak 15-minute volume, v15	472	_	489	_
Trucks and buses	3	8	4	8
Recreational vehicles	0	용	0	8
Terrain type	Grade		Grade	
Grade	6.00	8 .	-6.00	8
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP			1.00	
Trucks and buses PCE, ET	5.3		1.5	
Recreational vehicles PCE, ER			1.2	
Heavy vehicle adjustment, fHV			0.980	
Flow rate, vp	1063	pcphpl	997	pcphpl
	RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 1063 42.7 45.0 C 23.6	pcphpl mph mph pc/mi/ln	42.7 45.0 C	pcphpl mph mph pc/mi/ln
Bicycle I	evel of Se	rvice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	943.3		977.7	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.54		3.83	
Bicycle LOS	D		D	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17
Analysis Period: Cumulative PM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW				
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.2	mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
	VOLUME			
Direction	1		2	
Volume, V	1871	vph	1759	vph
Peak-hour factor, PHF	0.96	-	0.95	-
Peak 15-minute volume, v15	487		463	
Trucks and buses	1	용	2	용
Recreational vehicles	0	8	0	용
Terrain type	Grade		Grade	
Grade	6.00	8	-6.00	%
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1 00		1.00	
Diiver populacion adjustment, ir	1.00			
Trucks and buses PCE, ET	5.5		1.5	
	5.5		1.5 1.2	
Trucks and buses PCE, ET Recreational vehicles PCE, ER	5.5			
Trucks and buses PCE, ET Recreational vehicles PCE, ER	5.5 6.0	pcphpl	1.2 0.990	pcphpl
Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	5.5 6.0 0.957	pcphpl	1.2 0.990	pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 1018 42.7 45.0 C	T - T T	2 935 42.7 45.0 C 20.8	pcphpl mph mph pc/mi/ln
Bicycle I	evel of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	974.5		925.8	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.08		3.28	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative Saturday

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	5.0	ft	5.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	11.0	ft	11.0	ft
Access points per mile	2		2	
Median type	Undivide	ed	Undivide	ed
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	nch	0.0	mph
Lateral clearance adjustment, FLC	0.2	mph mph	0.2	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	42.7	mph	42.7	mph
-		_		-
	_VOLUME			
Direction	1		2	
Volume, V	1812	vph	1881	vph
Peak-hour factor, PHF	0.93	=	0.94	_
Peak 15-minute volume, v15	487		500	
Trucks and buses	1	ક	1	8
Recreational vehicles	0	ક	0	8
Terrain type	Grade		Grade	
Grade	6.00	8	-6.00	%
Segment length	0.87	mi	0.87	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	5.5		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.957		0.995	
Flow rate, vp	1018	pcphpl	1005	pcphpl
	RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 1018 42.7 45.0 C	pcphpl mph mph pc/mi/ln	42.7 45.0 C	pcphpl mph mph pc/mi/ln
Bicycle I	Level of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	974.2		1000.5	
Effective width of outside lane, We	22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.08		3.09	
Bicycle LOS	C		C	

Phone: E-Mail: Fax:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO Agency/Co. Mott MacDonald

 $\begin{array}{lll} {\tt Date\ Performed} & & 12/6/17 \\ {\tt Analysis\ Time\ Period} & & {\tt Cumulative\ AM} \end{array}$

Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 2 SB

_____Input Data_____

Highway	class	Class	2		eak hour factor	r, PHF	0.92	
Shoulder	r width		5.0	ft	Trucks and bus	ses	4	용
Lane wio	dth		12.0	ft	Trucks crawli	ng	0.0	용
Segment	length		0.9	mi	ruck crawl spe	ed	0.0	mi/hr
Terrain	type		Specific	c Grade	Recreational '	vehicles	0	용
Grade:	Length		0.90	mi	No-passing zon	nes	100	용
	Up/down	1	-6.0	용	access point der	nsity	19	/mi

Analysis direction volume, Vd 1799 veh/h Opposing direction volume, Vo 1679 veh/h

Average	Travel	Speed
---------	--------	-------

Direction	Analysis	(d)	0ppo	sing (o)
PCE for trucks, ET	1.0			9.7	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV 1.00	0		0.742	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	1955	pc/h		2460	pc/h
Free-Flow Speed from Field Measurem	nent:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (n	note-3) fLS	1.3	mi/h		
Adj. for access point density, (note	e-3) fA	4.8	mi/h		
Free-flow speed, FFSd		39.0	mi/h		
Adjustment for no-passing zones, fr	np	2.3*	mi/h		
Average travel speed, ATSd		2.4	mi/h		
Percent Free Flow Speed, PFFS		6.1	용		

Percent Time-Spent-Foll	owing		
Direction Analysis(d	.)		(0)
PCE for trucks, ET 1.0		1.1	
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		0.995	
Grade adjustment factor, (note-1) fg 1.00		1.00	
	pc/h	1834	pc/h
Base percent time-spent-following, (note-4) BPTSF		%	P 0 / 11
Adjustment for no-passing zones, fnp	6.8	•	
Percent time-spent-following, PTSFd	98.7	8	
Level of Service and Other Perfo	rmance Me	asures	
Level of service, LOS	F		
Volume to capacity ratio, v/c	1.15	, ,	
Peak 15-min vehicle-miles of travel, VMT15	440	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	1619	veh-mi	
Peak 15-min total travel time, TT15	184.1	veh-h	
Capacity from ATS, CdATS	0	veh/h	
Capacity from PTSF, CdPTSF	1700	veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analys	18		
Total length of analysis segment, Lt		0.9	mi
Length of two-lane highway upstream of the passi	ng lano		mi
	ng rane,		mi
Length of passing lane including tapers, Lpl			
Average travel speed, ATSd (from above)		2.4	mi/h
Percent time-spent-following, PTSFd (from above)		98.7	
Level of service, LOSd (from above)		F	
Average Travel Speed with Pa	ssing Lan	ıe	
Downstream length of two-lane highway within eff			
length of passing lane for average travel sp		-	mi
Length of two-lane highway downstream of effecti	ve		
length of the passing lane for average trave	l speed,	Ld -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		_	
Average travel speed including passing lane, ATS	nl	_	
Percent free flow speed including passing lane,		0.0	8
Teleche liee lien speed including publing lane,	111061	0.0	•
Percent Time-Spent-Following wit	h Passing	Lane	
Downstream length of two-lane highway within eff	ective lo	nath	
of passing lane for percent time-spent-follo			mi
Length of two-lane highway downstream of effecti			
the passing lane for percent time-spent-foll	owing, Ld	l –	mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
			_
Level of Service and Other Performance Mea	sures wit	h Passing	Lane
Toyol of goryigo including pagging land TOCal	70		
Level of service including passing lane, LOSpl	A	la 1:	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Serv	ice		

osted speed limit, Sp	45
ercent of segment with occupied on-highway parking	0
avement rating, P	3
low rate in outside lane, vOL	1955.
ffective width of outside lane, We	22.00
ffective speed factor, St	4.42
sicycle LOS Score, BLOS	4.03
sicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative PM Highway SR 1 From/To Ocean / CVR Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 2 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 95 Shoulder width 5.0 ft % Trucks and buses 2 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.9 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.90 тi % No-passing zones 100 Up/down 6.0 Access point density 19 /mi Analysis direction volume, Vd 1759 veh/h Opposing direction volume, Vo 1871 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 9.7 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.852 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 2173 pc/h 1969 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 4.8 mi/h Free-flow speed, FFSd 39.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 4.5 mi/h

11.6

용

Percent Free Flow Speed, PFFS

Percent Time-	Spent-Follow	ing			
PCE for trucks, ET PCE for RVs, ER	Analysis(d) 1.1 1.0		0pj	1.0 1.0	
Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg	0.998 1.00			1.000	J
Directional flow rate, (note-1) vi	1856 p	a/h		1969	pc/h
Base percent time-spent-following, (not			용	1000	PC/II
Adjustment for no-passing zones, fnp	0 1/ 211014	6.7	Ü		
Percent time-spent-following, PTSFd		97.8	%		
Level of Service and O	ther Perform	ance Me	asu	res	
		_			
Level of service, LOS Volume to capacity ratio, v/c		F 1.09			
Peak 15-min vehicle-miles of travel, V	MT 1 E	417	7.7.	eh-mi	
Peak-hour vehicle-miles of travel, VMT		1583		eh-mi	
Peak 15-min total travel time, TT15	00	92.5		eh-h	
Capacity from ATS, CdATS		1448		eh/h	
Capacity from PTSF, CdPTSF		1696		eh/h	
Directional Capacity		1696		eh/h	
				,	
Passing L	ane Analysis				
Total length of analysis segment, Lt				0.9	mi
Length of two-lane highway upstream of	the nassing	lane	T.11		mi
Length of passing lane including taper		Tane,	ши	_	mi
Average travel speed, ATSd (from above				4.5	mi/h
Percent time-spent-following, PTSFd (f				97.8	1111/11
Level of service, LOSd (from above)	IOM above,			57.0 F	
never of service, host (from above)				r	
Average Travel Spee	d with Pass	ing Lan	ıe		
Downstream length of two-lane highway	within effect	tive			
length of passing lane for average				_	mi
Length of two-lane highway downstream					шт
length of the passing lane for ave			ъd	_	mi
Adj. factor for the effect of passing		opeca,	Lu		
on average speed, fpl				_	
Average travel speed including passing	lane ATSpl			_	
Percent free flow speed including pass	ing lane, PF	FSpl		0.0	8
5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5				
Percent Time-Spent-Fol	lowing with	Passing	La	ne	
Downstream length of two-lane highway	within effec	tive le	ngtl	h	
of passing lane for percent time-s					mi
Length of two-lane highway downstream					
the passing lane for percent time-					mi
Adj. factor for the effect of passing	-				
on percent time-spent-following, f				-	
Percent time-spent-following	-				
including passing lane, PTSFpl				-	%
Level of Service and Other Perfo	rmance Measu	res wit	h Pa	assing	Lane
Level of service including passing lan	e, LOSpl	A			
Peak 15-min total travel time, TT15		-	V	eh-h	
Bicycle Lev	el of Servic	e			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1851.6
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.52
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

___Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative Saturday

Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 2 SB

Input :	Data

Highway	class	Class	2		Pea	ak hour fa	ctor, PHF	0.94	
Shoulder	r width		5.0	ft	%]	Trucks and	buses	1	용
Lane wid	dth		12.0	ft	%]	Trucks crav	wling	0.0	%
Segment	length		0.9	mi	Tru	ck crawl :	speed	0.0	mi/hr
Terrain	type		Specific	c Grade	% F	Recreation	al vehicles	0	용
Grade:	Length		0.90	mi	% I	No-passing	zones	100	용
	Up/down	ı	-6.0	용	Acc	cess point	density	19	/mi

Analysis direction volume, Vd 1881 veh/h Opposing direction volume, Vo 1812 veh/h

_____Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fl Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(d) 1.0 1.0 HV 1.000 1.00 2001 pc/	Opposing (o) 9.7 1.0 0.920 1.00 h 2095 pc/h
Free-Flow Speed from Field Measurement Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) for access point density,(note-3)	- - 45.0 te-3) fLS 1.3	mi/h veh/h mi/h mi/h mi/h
Free-flow speed, FFSd	39.0	mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* 4.9 12.5	mi/h mi/h %

Percent Time-Spent-Follow	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h 95.4 6.5 98.7	Opposing 1.1 1.0 0.999 1.00 1930 %	(o) pc/h
Level of Service and Other Perform	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	F 1.18 450 1693 92.5 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
rassing bane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, I	0.9 Lu – 4.9 98.7	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane	<u> </u>	
Downstream length of two-lane highway within effec length of passing lane for average travel spee. Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	tive d, Lde speed, I	-	mi mi %
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-followingth of two-lane highway downstream of effective the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane	ng, Lde length	- of	mi mi
on percent time-spent-following, fpl		-	
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
bioyet bever of betvie			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	2001.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.35
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative AM Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.80 Shoulder width 6.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 тi % No-passing zones 100 Up/down 3.0 Access point density 0 /mi Analysis direction volume, Vd 664 veh/h Opposing direction volume, Vo 809 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.4 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.987 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 841 pc/h 1011 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 28.3 mi/h Percent Free Flow Speed, PFFS 63.0 용

Percent Time-Spe	ent-Following_		
Direction And PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	1.0 1.0 1.0 1.000	Opposin 1.0 1.0 1.0	00
Directional flow rate,(note-2) vi Base percent time-spent-following,(note-Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	900 pc/h	101 8 % 5	
Level of Service and Other	er Performance	Measures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT: Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	199 2.2 168 156	veh-mi veh-mi veh-h 6 veh/h	
Passing Lane	Analysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the Length of passing lane including tapers, Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl	- 28.3	
Average Travel Speed	with Passing	Lane	
Downstream length of two-lane highway will length of passing lane for average to Length of two-lane highway downstream of	avel speed, L		mi
length of the passing lane for average Adj. factor for the effect of passing land on average speed, fpl	ge travel spee	d, Ld - -	mi
Average travel speed including passing la Percent free flow speed including passing		0.0	8
Percent Time-Spent-Follow	ing with Pass	ing Lane	
Downstream length of two-lane highway wit of passing lane for percent time-sper Length of two-lane highway downstream of	t-following,	Lde -	mi
the passing lane for percent time-spe Adj. factor for the effect of passing lan	ent-following,		mi
on percent time-spent-following, fpl Percent time-spent-following		-	8
including passing lane, PTSFplLevel of Service and Other Performa	ınce Measures	with Passin	
Level of service including passing lane, Peak 15-min total travel time, TT15		veh-h	J 20110
Bicycle Level	of Service		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	830.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.89
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Cumulative PM

Highway SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 NB

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.89	
Shoulder width	6.0 ft	% Trucks and buses	3	8
Lane width	12.0 ft	% Trucks crawling	0.0	8
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	3.0 %	Access point density	0	/mi

Analysis direction volume, Vd $\,$ 1044 $\,$ veh/h Opposing direction volume, Vo $\,$ 716 $\,$ veh/h

_____Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(1.3 1.0 V 0.992 1.00 1182	2		sing (1.1 1.0 0.997 1.00 807	o) pc/h
Free-Flow Speed from Field Measuremen Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	e-3) fLS	- - 45.0 0.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 27.3 60.6	mi/h mi/h %		

Percent Time-Spent-Follow	/ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 0.92 Directional flow rate,(note-2) vi 1272 passes percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	Opc/h 82.4 % 16.5	pposing 1.0 1.0 1.000 1.000	
Percent time-spent-following, PTSFd	92.5 %		
Level of Service and Other Perform	nance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	313 3.2 0 1567	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 27.3 92.5 E	mi mi mi mi/h
Average Travel Speed with Pass	sing Lane_		
Downstream length of two-lane highway within effective length of passing lane for average travel spectrospective two-lane highway downstream of effective length of two-lane highway within effective length of two-lane highway downstream of two-lane of two-lane highway down	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl		- - -	mi
Percent free flow speed including passing lane, PF		0.0	용
Percent Time-Spent-Following with	Passing L	ane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-followi Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane $$		-	mi
on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	용
Level of Service and Other Performance Measu	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	_ ,	veh-h	
Bicycle Level of Service	e		

osted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
low rate in outside lane, vOL	1173
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.06
Bicycle LOS	C

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.

0

- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative Saturday Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 Access point density 0 /mi Analysis direction volume, Vd 989 veh/h Opposing direction volume, Vo 911 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.3 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1075 pc/h 993 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 26.7 mi/h Percent Free Flow Speed, PFFS 59.2 용

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	1.00		1.0 1.0 1.000 0.92	
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	1075 p ce-4) BPTSFd		1074	pc/h
Level of Service and (Other Perform	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		297 3.0 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing I	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taped Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		0.3 - - 26.7 89.1 E	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane_		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel spee	d, Lde	-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl	erage travel		-	mi
Average travel speed including passing Percent free flow speed including pass			0.0	ફ
Percent Time-Spent-Fo	llowing with	Passing L	ane	
Downstream length of two-lane highway of passing lane for percent time-s	spent-followi:	ng, Lde	_	mi
Length of two-lane highway downstream the passing lane for percent time- Adj. factor for the effect of passing	-spent-follow		-	mi
on percent time-spent-following, in Percent time-spent-following including passing lane, PTSFpl	fpl		_	96
Level of Service and Other Perfo	ormance Measu	res with	Passing T	lane
Level of service including passing lar Peak 15-min total travel time, TT15		A	veh-h	
Bicycle Lev	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1075.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.58
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Cumulative AM

Highway SR 1

From/To Carmel Valley Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 3 SB

_____Input Data_____

Highway	class	Class	2		Р	eak hour factor, PHF	0.97	
Shoulder	r width		6.0	ft	용	Trucks and buses	4	용
Lane wio	dth		12.0	ft	용	Trucks crawling	0.0	용
Segment	length		0.3	mi	T	ruck crawl speed	0.0	mi/hr
Terrain	type		Specific	c Grade	왕	Recreational vehicles	0	용
Grade:	Length		0.30	mi	왕	No-passing zones	100	용
	Up/down	1	-3.0	용	Α	ccess point density	0	/mi

Analysis direction volume, Vd 809 veh/h Opposing direction volume, Vo 664 veh/h

______Average Travel Speed___

Direction	Analysis	(A)	Opp	osing (o)
PCE for trucks, ET	1.1	(4)	OPP	1.9	,
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)				0.966	
Grade adj. factor,(note-1) fq	1.00			1.00	
Directional flow rate, (note-2) vi	837			709	pc/h
Free-Flow Speed from Field Measurem	nent:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (r	note-3) fLS	0.0	mi/h		
Adj. for access point density, (note	e-3) fA	0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fr	np	2.3*	mi/h		
Average travel speed, ATSd		30.7	mi/h		
Percent Free Flow Speed, PFFS		68.2	용		

Percent Time-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Reavy-vehicle adjustment factor, fHV Parade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Rase percent time-spent-following, (note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h	Opposing 1.0 1.00 0.92 742	
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.49 63 243 2.1 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, I	0.3 - - 30.7 84.0 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane	2	
Cownstream length of two-lane highway within effections length of passing lane for average travel spectrospectrum of two-lane highway downstream of effective length of the passing lane for average travel and factor for the effect of passing lane on average speed, fpl average travel speed including passing lane, PF Percent free flow speed including passing lane, PF	tive d, Lde speed, L	-	mi mi
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following the follow the passing lane for percent time-spent-follow adj. factor for the effect of passing lane	ng, Lde length	- of	mi mi
on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	res with	n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	834.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.14
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Cumulative PM Analysis Time Period Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.90 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 용 Access point density 0 /mi Analysis direction volume, Vd 716 veh/h Opposing direction volume, Vo 1044 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.3 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.999 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 796 Directional flow rate, (note-2) vi pc/h 1163 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 27.5 mi/h Percent Free Flow Speed, PFFS 61.1 용

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.00 0.92	0
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	74.1 16.8 80.6	1258 %	pc/h
Level of Service and Other Performa	ance Mea	asures	
Peak 15-min total travel time, TT15	D 0.47 60 215 2.2 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - - 27.5 80.6 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane	e	
Downstream length of two-lane highway within effect	tive		
length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde		mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed, I	Ld - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI	FSpl	0.0	8
Percent Time-Spent-Following with I	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	96
Level of Service and Other Performance Measur	res with	n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	795.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.42
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative Saturday

Highway SR 1

From/To Carmel Valley Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Up/down

Description Rio Ranch Seg 3 SB

Highway class Class	2	Peak hour factor, PHF	0.93	
Shoulder width	6.0 ft	% Trucks and buses	1	8
Lane width	12.0 ft	% Trucks crawling	0.0	8
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.30 mi	% No-passing zones	100	용

Access point density

0

/mi

Input Data

Analysis direction volume, Vd 911 veh/h Opposing direction volume, Vo 989 veh/h

-3.0

_Average Travel Speed

Average	TIAVET SPE	=u			
Direction	Analysis	(d)	Oppo	osing (o)
PCE for trucks, ET	1.0			1.3	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV 1.000)		0.997	
Grade adj. factor, (note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi				1067	pc/h
Free-Flow Speed from Field Measurem	ent:				
Field measured speed, (note-3) S FM		_	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (n	ote-3) fLS	0.0	mi/h		
Adj. for access point density, (note		0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fn	q	2.3*	mi/h		
Average travel speed, ATSd		26.8	mi/h		
Percent Free Flow Speed, PFFS		59.6	용		

Percent Time-Spent-Follow	ving		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV PCI for RVs, ER PCI fo	oc/h	Opposing 1.0 1.0 1.000 0.92 1153	
Level of Service and Other Perform	nance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.58 73 273 2.7 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	g lane, 1	0.3 Lu – 26.8 86.8 E	mi mi mi mi/h
Average Travel Speed with Pass	sing Lane	e	
Downstream length of two-lane highway within effective length of passing lane for average travel speed. Length of two-lane highway downstream of effective length of the passing lane for average travel adj. factor for the effect of passing lane on average speed, fpl average travel speed including passing lane, ATSpl average travel speed including passing lane, PF	ctive ed, Lde e speed, l	-	mi mi
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-following the control of two-lane highway downstream of effective the control of two-lane highway downstream of the control of two-lane highway within effect of two-lane highway downstream of effect of two-lane highway downstream of effect of two-lane highway within h	ng, Lde e length	of	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	ving, La	-	mi
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	res witl	h Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servic	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	979.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.53
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative AM Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.85 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 398 veh/h Opposing direction volume, Vo 592 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.998 0.999 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 469 pc/h 697 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 32.9 mi/h

74.4

용

Percent Free Flow Speed, PFFS

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	1.00		1.0 1.0 1.00	
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		c/h 52.0 32.9 65.2		pc/h
Level of Service and	Other Perform	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		C 0.28 35 119 1.1 1698 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)	•	0.3 Lu – 32.9 65.2 C	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lan	e	
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel speed	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel :		Ld - -	mi
Average travel speed including passin Percent free flow speed including pas			0.0	8
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing	-spent-follow lane			mi
on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl	тЪт		-	ફ
Level of Service and Other Perf	ormance Measu	res witl	h Passing	Lane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	468.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.15
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Cumulative PM

Highway SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 NB

_____Input Data_____

Highway class Class	2		Peak hour factor, PHF	0.90	
Shoulder width	6.0	ft	% Trucks and buses	3	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	3	/mi

Analysis direction volume, Vd 889 veh/h Opposing direction volume, Vo 658 veh/h

_____Average Travel Speed_

Direction	Ana	lysis	(d)	0pp	osing (d	o)
PCE for trucks, ET		1.0			1.1	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	1.00	0		0.997	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		988	pc/h		733	pc/h
Free-Flow Speed from Field Measure	ment:					
Field measured speed,(note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width,(note-3)	fLS	0.0	mi/h		
Adj. for access point density,(not	e-3) fA		0.8	mi/h		
Free-flow speed, FFSd			44.3	mi/h		
Adjustment for no-passing zones, f	np		2.3*	mi/h		
Average travel speed, ATSd			28.6	mi/h		
Percent Free Flow Speed, PFFS			64.6	용		

Percent Time-Spent-Follows	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi PANalysis(d) 1.00 1.00 1.00 988 po	Op c/h	posing 1.0 1.0 1.000 1.000 731	(o)
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	22.3 88.2 %		
Level of Service and Other Performa	ance Measu	ıres	
Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	267 v 2.6 v 0 v 1700 v 1700 v	reh-mi reh-mi reh-h reh/h reh/h reh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 28.6 88.2 E	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect		-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl	speed, Ld	_	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI		- 0.0	%
Percent Time-Spent-Following with I	Passing La	ne	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl		-	mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res with F	assing 1	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	- 7	reh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	987.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.98
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative Saturday Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.87 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length шi 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 797 veh/h Opposing direction volume, Vo 830 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.0 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 916 pc/h 954 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 27.4 mi/h Percent Free Flow Speed, PFFS 62.0 용

Percent Time-	Spent-Follow	ing			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	Analysis(d) 1.0 1.0 1.0		Opp	posing 1.0 1.0	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	e-4) BPTSFd	c/h 74.8 20.8 85.0	010 010	1.00 954	pc/h
Level of Service and O	ther Perform	ance Me	asuı	ces	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	°60	D 0.54 69 239 2.5 1700 1700	Ve Ve	eh-mi eh-mi eh-h eh/h eh/h	
Passing L	ane Analysis				
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl			0.3 - - 27.4 85.0 D	mi mi mi mi/h
Average Travel Spee	d with Pass	ing Lan	e		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	travel speed	d, Lde		-	mi
<pre>length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl</pre>	rage travel : lane	speed,	Ld	-	mi
Average travel speed including passing Percent free flow speed including pass	lane, ATSpl sing lane, PF	FSpl		0.0	8
Percent Time-Spent-Fol	lowing with	Passing	Lar	1e	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream	pent-following	ng, Lde		-	mi
the passing lane for percent time- Adj. factor for the effect of passing on percent time-spent-following, f	spent-follow				mi
Percent time-spent-following including passing lane, PTSFpl	=			_	%
Level of Service and Other Perfo	rmance Measu	res wit	h Pa	assing	Lane
Level of service including passing lan Peak 15-min total travel time, TT15	e, LOSpl	A -	ve	eh-h	
Bicycle Lev	rel of Servic	e			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	916.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.50
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald Date Performed 12/6/17

Analysis Time Period Cumulative AM

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 SB

______Input Data_____

Highway	class Clas	s 2		Peak hour factor, PHF	0.91	
Shoulde	r width	6.0	ft	% Trucks and buses	4	용
Lane wid	lth	12.0	ft	% Trucks crawling	0.0	8
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 592 veh/h Opposing direction volume, Vo 398 veh/h

_____Average Travel Speed____

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fE Grade adj. factor,(note-1) fg	Analysis 1.1 1.0 IV 0.99 1.00	6	Opp	osing 1.3 1.0 0.988 1.00	(0)
Directional flow rate,(note-2) vi	653		ı	443	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	e-3) fLS	- - 45.0 0.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 33.4 75.6	mi/h mi/h %		

Percent Time-Spent-Followi	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Parade adjustment factor, (note-1) fg Prictional flow rate, (note-2) vi Passe percent time-spent-following, (note-4) Parade adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h 58.9 34.6	Opposing 1.0 1.0 1.000 1.000 437	(o) pc/h
Level of Service and Other Performa	ance Mea	sures	
Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.38 49 178 1.5 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, L	0.3 u - - 33.4 79.6 D	mi mi mi mi/h
Average Travel Speed with Passi	ing Lane		
Cownstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel states and in factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF	cive d, Lde speed, Lo	-	mi mi
Percent Time-Spent-Following with F	Passing 1	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following the passing the pas	ive leng ng, Lde length	gth -	mi mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	5, =		
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	es with	Passing	Lane
Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	650.5
Effective width of outside lane, We	24.00
Iffective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.01
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative PM Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 93 Shoulder width 6.0 ft % Trucks and buses 0 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 658 veh/h Opposing direction volume, Vo 889 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 708 pc/h 956 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.0 mi/h

65.6

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follo	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1. 1. 1.	0 0 000 00
Directional flow rate,(note-2) vi 708 Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h 67.2 23.3 77.1		66 pc/h
Level of Service and Other Perfor	mance Me	asures_	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.42 53 197 1.8 1700 1700	veh-m veh-m veh-h veh/h veh/h	ni 1 1
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - - 29. 77. D	mi mi 0 mi/h
Average Travel Speed with Pas	sing Lan	e	
Downstream length of two-lane highway within effe length of passing lane for average travel spe Length of two-lane highway downstream of effectiv	ed, Lde	-	mi
<pre>length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl</pre>	speed,	Ld -	mi
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P		0.0) %
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway downstream of effectiv	ing, Lde	-	mi
the passing lane for percent time-spent-follo Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Meas	ures wit	h Passi	ng Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	1
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	707.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.17
Bicycle LOS	В

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative Saturday

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 4 SB

Input Data					
Highway class Class Shoulder width Lane width Segment length	6.0 12.0 0.3	ft ft mi	Peak hour factor, PHF % Trucks and buses % Trucks crawling Truck crawl speed	0.97 0 0.0 0.0	% % mi/hr
Terrain type Grade: Length Up/down	Level - -	mi %	% Recreational vehicles% No-passing zonesAccess point density	0 100 3	% % /mi

Analysis direction volume, Vd 830 veh/h Opposing direction volume, Vo 797 veh/h

Av	erage	Travel	Speed

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1) fq	Analysis(d 1.0 1.0 V 1.000 1.00) Opp	osing (0) 1.1 1.0 1.000	
Directional flow rate,(note-2) vi	856	pc/h	822 pc/	/h
Free-Flow Speed from Field Measuremen Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	4: e-3) fLS 0	mi/h veh/h 5.0 mi/h .0 mi/h .8 mi/h		
Free-flow speed, FFSd	4	4.3 mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2	.3* mi/h 8.9 mi/h 5.4 %		

Percent Time-Spe	nt-Following		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4 Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	23.9 83.5 %	1.0 1.0 1.000 1.000 822	pc/h
Level of Service and Othe	r Performance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT1 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	249 2.2 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane	Analysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the Length of passing lane including tapers, Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl	0.3 1 - 28.9 83.5 D	mi mi mi mi/h
Average Travel Speed	with Passing Lane_		
Downstream length of two-lane highway wit length of passing lane for average tr Length of two-lane highway downstream of length of the passing lane for average Adj. factor for the effect of passing lan on average speed, fpl Average travel speed including passing land Percent free flow speed including passing	cavel speed, Lde effective ge travel speed, Ld ne, ATSpl	1 - - -	mi mi
Percent Time-Spent-Follow	ving with Passing I	_ane	
Downstream length of two-lane highway wit of passing lane for percent time-sper Length of two-lane highway downstream of the passing lane for percent time-spe Adj. factor for the effect of passing lan	thin effective leng nt-following, Lde effective length o ent-following, Ld	gth - of	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performa	nce Measures with	Passing 1	Lane
Level of service including passing lane, Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level	of Service		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	855.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.27
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative AM Carmel Valley Road Highway From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 91 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 457 veh/h Opposing direction volume, Vo 912 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.984 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 510 pc/h 1002 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.5 mi/h

67.7

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follows	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.0000 Grade adjustment factor,(note-1) fg 1.00	Op	pposing (1.0 1.0 1.000 1.000	0)
Directional flow rate,(note-2) vi 502 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	57.2 % 22.5 64.7 %	1002	pc/h
Level of Service and Other Performa	ance Meası	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	686 N 6.4 N 1700 N	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 - - 29.5 64.7 C	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl		-	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI		0.0	왕
Percent Time-Spent-Following with	Passing La	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following	ng, Lde	_	mi
Length of two-lane highway downstream of effective the passing lane for percent time-spent-follows Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		_	용
Level of Service and Other Performance Measur	res with I	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	502.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.21
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative PM

Highway Carmel Valley Road From/To

Schulte / Robinson Canyon Unincorporated Monterey County Jurisdiction

Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB

Percent Free Flow Speed, PFFS

Input Data

Highway class Class	2	Peak hour factor, PHF	0.92	
Shoulder width	6.0 ft	% Trucks and buses	8	용
Lane width	12.0 ft	% Trucks crawling	0.0	%
Segment length	1.5 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level	% Recreational vehicles	1	용
Grade: Length	- mi	% No-passing zones	100	%
Up/down	- %	Access point density	26	/mi

Analysis direction volume, Vd 1007 veh/h Opposing direction volume, Vo 545 veh/h

Average	Trattal	Snaad

Direction	Analysis	(d)	qqO	osing (c))
PCE for trucks, ET	1.0			1.1	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor, (note-5) fH	V 1.00	0		0.992	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	1095	pc/h		597	pc/h
Free-Flow Speed from Field Measuremen	t:				
Field measured speed, (note-3) S FM		_	mi/h		
Observed total demand,(note-3) V Estimated Free-Flow Speed:		-	veh/h		
Base free-flow speed,(note-3) BFFS		50.0	mi/h		
Adj. for lane and shoulder width, (not	e-3) fLS	0.0	mi/h		
Adj. for access point density, (note-3) fA	6.5	mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		28.1	mi/h		

64.5 %

Percent Time-Spent-Follo	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.000 Directional flow rate,(note-2) vi 1095 Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h	Opposing 1.0 1.0 1.000 592	
Level of Service and Other Perfor	mance Me	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.64 410 1511 14.6 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	.s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 Lu - 28.1 90.5	mi mi mi mi/h
Average Travel Speed with Pas	sing Lan	e	
Downstream length of two-lane highway within effection length of passing lane for average travel specified by two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSP Percent free flow speed including passing lane, Percent flow speed flo	eed, Lde re speed,	Ld - - -	mi mi %
Percent Time-Spent-Following with	. Passing	Lane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway downstream of effectiv the passing lane for percent time-spent-follo	ective le ving, Lde ve length	ngth - of	mi mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl	,willg, La	- -	8
Level of Service and Other Performance Meas	ures wit	h Passing 1	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Servi	.ce		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1094.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.60
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Cumulative Saturday Analysis Time Period Carmel Valley Road Highway From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 763 veh/h Opposing direction volume, Vo 638 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.981 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 845 pc/h 699 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 29.2 mi/h Percent Free Flow Speed, PFFS 67.2 용

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER	Analysis(d) 1.0 1.0	С	1.0 1.0	
Heavy-vehicle adjustment factor, fHV			1.000	J
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi	0.92 901 p	c/h	1.00 693	pc/h
Base percent time-spent-following, (no	-			pc/II
Adjustment for no-passing zones, fnp	00 1, 511514	24.8		
Percent time-spent-following, PTSFd		86.5 %		
Level of Service and	Other Perform	ance Meas	ures	
7 1. 5		_		
Level of service, LOS		E 0.53		
Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel,	VMT 1 E		veh-mi	
Peak-hour vehicle-miles of travel, VM			ven-mi	
Peak 15-min total travel time, TT15	100		veh-h	
Capacity from ATS, CdATS			veh/h	
Capacity from PTSF, CdPTSF			veh/h	
Directional Capacity		1564	veh/h	
Passing	Lane Analysis			
-	-			
Total length of analysis segment, Lt	c		1.5	mi.
Length of two-lane highway upstream o		lane, Lu		mi
Length of passing lane including tape			-	mi
Average travel speed, ATSd (from abov			29.2 86.5	mi/h
Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	irom above)		86.5 E	
Level of service, Losd (from above)			E	
Average Travel Spe	ed with Pass	ing Lane_		
Downstream length of two-lane highway	within effec	tive		
length of passing lane for averag Length of two-lane highway downstream			-	mi
length of the passing lane for av Adj. factor for the effect of passing		speed, Ld	l –	mi
on average speed, fpl			_	
Average travel speed including passin	g lane, ATSpl		-	
Percent free flow speed including pas	sing lane, PF	FSpl	0.0	8
Percent Time-Spent-Fo	llowing with	Passing L	ane	
Downstroom longth of two-lars highway	within offer	timo lono	r+ h	
Downstream length of two-lane highway of passing lane for percent time-			-	mi
Length of two-lane highway downstream				mı
the passing lane for percent time				mi
Adj. factor for the effect of passing		тину, ши		III I
on percent time-spent-following,			_	
Percent time-spent-following				
including passing lane, PTSFpl			-	%
Level of Service and Other Perf	ormance Measu	res with	Passing	Lane
Lovel of gervice including receive le	no IOSpl	7		
Level of service including passing la Peak 15-min total travel time, TT15	пе, повът	A -	veh-h	
- 1 min cood craver crac, 1115				
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	829.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.46
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

__Directional Two-Lane Highway Segment Analysis____

Analyst Agency/Co.

Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative AM

Carmel Valley Road

Highway From/To

Jurisdiction

Robinson Canyon / Schulte

Unincorporated Monterey County

Analysis Year

Oct 2016

Description Rio Ranch Seg 6 WB

Percent Free Flow Speed, PFFS

	Da	
np		

Highway class Class	2		Peak hour factor, PHF	0.82	
Shoulder width	6.0	ft	% Trucks and buses	8	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	1	용
Grade: Length	-	mi	% No-passing zones	100	용
Up/down	_	용	Access point density	26	/mi

Analysis direction volume, Vd 912 Opposing direction volume, Vo 457 veh/h

Average Trave	l Spe	ed			
Direction Ana	lvsis	(d)	Opp.	osing (d)
PCE for trucks, ET	1.0	(4)	OPP	1.1	, ,
·					
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV	1.00	0		0.992	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	1112	pc/h		562	pc/h
Free-Flow Speed from Field Measurement:					
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		_	veh/h		
Estimated Free-Flow Speed:			V C117 11		
Base free-flow speed, (note-3) BFFS		50.0	mi/h		
Adj. for lane and shoulder width, (note-3)	fLS	0.0	mi/h		
Adj. for access point density, (note-3) fA		6.5	mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		28.2	mi/h		

64.9 %

Percent Time-Spent-Follow	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0		1.0 1.0	(0)
Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 1112 y Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	20.2	1.000 1.00 557 %	pc/h
Level of Service and Other Perform	mance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	14.8 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 u - 28.2 91.1 E	mi mi mi mi/h
Average Travel Speed with Pas	sing Lane		
Downstream length of two-lane highway within effections are length of passing lane for average travel specific terms.	ed, Lde	-	mi
<pre>Length of two-lane highway downstream of effectiv- length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl</pre>		d -	mi
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P.		0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effe- of passing lane for percent time-spent-follow Length of two-lane highway downstream of effectiv.	ing, Lde	_	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl		-	mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Meas	ures with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	_	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1112.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.61
Ricycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis___ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative PM Carmel Valley Road Highway From/To Robinson Canyon / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 % Trucks crawling 0.0 ft Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 545 veh/h Opposing direction volume, Vo 1007 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 670 pc/h 1228 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h

26.5

60.9

mi/h

용

Average travel speed, ATSd

Percent Free Flow Speed, PFFS

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000		1.0 1.0 1.000	
Grade adjustment factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 665 p Base percent time-spent-following,(note-4) BPTSFd	c/h 68 8	1.00 1228 %	pc/h
Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	17.5	왕	
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.39 249 818 9.4 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis		, 222, 22	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		1.5 u - - 26.5 74.9 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effec length of passing lane for average travel spee Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl		d -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	FSpl	- 0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effec of passing lane for percent time-spent-follow: Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane $$			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	664.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.35
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative Saturday Highway Carmel Valley Road

From/To Robinson Canyon / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 6 WB

Highway	class 0	Class	2		Peak hour factor, PHF	0.82	
Shoulder	r width		6.0	ft	% Trucks and buses	8	용
Lane wid	dth		12.0	ft	% Trucks crawling	0.0	용
Segment	length		1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain	type		Level		% Recreational vehicles	1	용
Grade:	Length		-	mi	% No-passing zones	100	용
	Up/down		_	용	Access point density	26	/mi

Analysis direction volume, Vd $\,$ 638 $\,$ veh/h Opposing direction volume, Vo $\,$ 763 $\,$ veh/h

______Average Travel Speed__

Direction	Analysis	(4)	Opp	osing (o)
PCE for trucks, ET	1.1	(u)	ОРР	1.0	,
PCE for RVs. ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5)				1.000	
Grade adj. factor, (note-1) fg	1.00			1.00	
Directional flow rate (note-2) vi				930	pc/h
Biledelonal Plow Pade, (Mode P, VI	, 0 1	P0/1		,,,,	P 0 / 11
Free-Flow Speed from Field Measurem	ent:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		50.0	mi/h		
Adj. for lane and shoulder width, (no	ote-3) fLS	0.0	mi/h		
Adj. for access point density, (note-	-3) fA	6.5	mi/h		
Free-flow speed, FFSd		43.5	mi/h		
Adjustment for no-passing zones, fn	ō	2.3*	mi/h		
Average travel speed, ATSd		27.9			
Percent Free Flow Speed, PFFS		64.1	용		

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00	Op c/h	posing 1.0 1.0 1.000 1.000	(o) pc/h
Level of Service and Other Perform	ance Measu	res	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	957 v 10.5 v 1700 v 1700 v 1700 v	eh-mi eh-mi eh-h eh/h eh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, Lu	1.5 - - 27.9 80.4 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel: Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF:	d, Lde speed, Ld	- - - - 0.0	mi mi %
Percent Time-Spent-Following with	Passing La	ne	
Downstream length of two-lane highway within effection of passing lane for percent time-spent-follow. Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow. Adj. factor for the effect of passing lane	ng, Lde length of	-	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	ફ
Level of Service and Other Performance Measu:	res with P	assing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		eh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	778.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.43
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Cumulative AM Analysis Time Period Carmel Valley Road Highway From/To Rancho San Carlos / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down -3.0 용 Access point density /mi Analysis direction volume, Vd 685 veh/h Opposing direction volume, Vo 979 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 842 pc/h 1204 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 33.8 mi/h

65.7

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Percent Free Flow Speed, PFFS

Percent Time-Spe	nt-Following	
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV		0
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4 Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	835 pc/h 12	92 198 pc/h
Level of Service and Othe	r Performance Measures_	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT1 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.49 5 501 veh-n 1644 veh-n 14.8 veh-l 1700 veh/l 1700 veh/l 1700 veh/l	ni 1 1 1
Passing Lane	Analysis	
Total length of analysis segment, Lt Length of two-lane highway upstream of th Length of passing lane including tapers, Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl - 33.	mi mi 8 mi/h
Average Travel Speed	with Passing Lane	
Downstream length of two-lane highway wit length of passing lane for average tr Length of two-lane highway downstream of	avel speed, Lde -	mi
length of the passing lane for averag Adj. factor for the effect of passing lan on average speed, fpl	e travel speed, Ld - e -	mi
Average travel speed including passing la Percent free flow speed including passing) %
Percent Time-Spent-Follow	ing with Passing Lane	
Downstream length of two-lane highway wit of passing lane for percent time-spen Length of two-lane highway downstream of	t-following, Lde -	mi
the passing lane for percent time-spe Adj. factor for the effect of passing lan	nt-following, Ld -	mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl	-	ક
Level of Service and Other Performa	nce Measures with Passi	
Level of service including passing lane, Peak 15-min total travel time, TT15		
Bicycle Level	of Service	

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	835.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.47
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis______

Analyst JC

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Cumulative PM
Highway Carmel Valley Road

From/To Rancho San Carlos / Schulte
Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 7 EB

		_		
Highway class Class	2	Peak hour factor, PHF	0.82	
Shoulder width	6.0 ft	% Trucks and buses	8	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	1	용
Grade: Length	0.25 mi	% No-passing zones	100	용
Up/down	-3.0 %	Access point density	14	/mi

____Input Data____

Analysis direction volume, Vd 1036 veh/h Opposing direction volume, Vo 657 veh/h

______Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fl Grade adj. factor,(note-1) fg	Analysis(c 1.0 1.0 1.0 HV 1.000			sing (o 1.3 1.0 0.977 1.00)
Directional flow rate, (note-2) vi				820	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) for access point density,(note-3)	: te-3) fLS (- 55.0 0.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd	į	51.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	3		mi/h mi/h %		

Percent Time-Spent-Foll	owing		
Direction Analysis(d	.)		(0)
PCE for trucks, ET 1.0		1.0	
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 1.00		0.92	
	pc/h	871	pc/h
Base percent time-spent-following, (note-4) BPTSF		8	
Adjustment for no-passing zones, fnp	15.6		
Percent time-spent-following, PTSFd	91.8	&	
Level of Service and Other Perfo	rmance Me	asures	
Level of service, LOS	E		
Volume to capacity ratio, v/c	0.74		
Peak 15-min vehicle-miles of travel, VMT15	758	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	2486	veh-mi	
Peak 15-min total travel time, TT15	22.6	veh-h	
	0		
Capacity from ATS, CdATS Capacity from PTSF, CdPTSF	1700	veh/h	
Directional Capacity	1700	veh/h veh/h	
Directional Capacity	1700	V C11 / 11	
Passing Lane Analys	is		
Total length of analysis segment, Lt		2.4	mi
Length of two-lane highway upstream of the passi	ng lane,	Lu -	mi
Length of passing lane including tapers, Lpl	,	_	mi
Average travel speed, ATSd (from above)		33.5	mi/h
Percent time-spent-following, PTSFd (from above)		91.8	
Level of service, LOSd (from above)		E	
Average Travel Speed with Pa	ssing Lan	e	
Downstream length of two-lane highway within eff			
length of passing lane for average travel sp		-	mi
Length of two-lane highway downstream of effective	ve		
length of the passing lane for average trave	l speed,	Ld -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, ATS	pl	-	
Percent free flow speed including passing lane,	PFFSpl	0.0	왕
Percent Time-Spent-Following wit	h Passing	Lane	
Downstream length of two-lane highway within eff			
of passing lane for percent time-spent-follo			mi
Length of two-lane highway downstream of effecti			
the passing lane for percent time-spent-foll	owing, Ld	-	mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			_
including passing lane, PTSFpl		_	8
Level of Service and Other Performance Mea	sures wit	h Passing	Lane
Tanal of association including partial 1 or 700 l	7		
Level of service including passing lane, LOSpl	A	veh-h	
Peak 15-min total travel time, TT15	-	veii-ii	
Bicycle Level of Serv	ice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1263.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.68
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative Saturday Carmel Valley Road Highway From/To Rancho San Carlos / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down -3.0 Access point density /mi Analysis direction volume, Vd 818 veh/h Opposing direction volume, Vo 800 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.1 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 998 pc/h 983 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 34.3 mi/h Percent Free Flow Speed, PFFS 66.7 용

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	1.00		1.0 1.0 1.0	000
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	te-4) BPTSFd	c/h 78.8 17.9 87.5	106 %	0 pc/h
Level of Service and	Other Perform	ance Me	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		E 0.59 599 1963 17.4 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)	·	2.4 Lu - - 34.3 87.5	
Average Travel Spe	ed with Pass	ing Lan	e	
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel speed	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel : lane	speed,	Ld -	mi
Average travel speed including passin Percent free flow speed including pas			0.0	ક
Percent Time-Spent-Fo	llowing with	Passing	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing	-spent-follow			mi
on percent time-spent-following, Percent time-spent-following			-	
including passing lane, PTSFpl			-	8
Level of Service and Other Perf	ormance Measu	res wit	h Passin	g Lane
Level of service including passing la Peak 15-min total travel time, TT15	ne, LOSpl	A -	veh-h	
Bicycle Le	vel of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	997.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.56
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

_____Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald
Date Performed 12/6/17
Analysis Time Period Cumulative AM
Highway Carmel Valley Road

From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB

_____Input Data_____

Highway	class	Class	2		Pe	eak hour factor, PHF	0.77	
Shoulder	width		6.0	ft	용	Trucks and buses	8	%
Lane wio	lth		12.0	ft	용	Trucks crawling	0.0	%
Segment	length		2.4	mi	Tr	ruck crawl speed	0.0	mi/hr
Terrain	type		Specific	c Grade	용	Recreational vehicles	1	용
Grade:	Length		0.25	mi	용	No-passing zones	100	용
	Up/down	1	3.0	용	Αc	cess point density	14	/mi

Analysis direction volume, Vd 979 veh/h Opposing direction volume, Vo 685 veh/h

___Average Travel Speed_

Direction	nalveie	(d)		osing	(0)
PCE for trucks, ET	1.1	(u)		1.0	(0)
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV				1.000	
Grade adj. factor,(note-1) fg					
Directional flow rate,(note-2) vi	1282	pc/h		890	pc/h
Free-Flow Speed from Field Measurement:					
Field measured speed,(note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		55.0	mi/h		
Adj. for lane and shoulder width, (note-	3) fLS	0.0	mi/h		
Adj. for access point density, (note-3)	fA	3.5	mi/h		
Free-flow speed, FFSd		51.5	mi/h		
<u>.</u> .					
Adjustment for no-passing zones, fnp		1.8*	mi/h		
Average travel speed, ATSd		32.8			
Percent Free Flow Speed, PFFS		63.8	8		
rereeme rree rrem speed, rrib		00.0			

Percent Time	e-Spent-Follow:	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-1) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	0.92 1382 po	e/h	1.0 1.0 1.000 1.00	o) pc/h
Level of Service and	Other Performa	ance Meası	ıres	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VP Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	4T60	2350 v 23.2 v 0 v 1564 v	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape Average travel speed, ATSd (from above Percent time-spent-following, PTSFd Level of service, LOSd (from above)	ers, Lpl /e)		2.4 - - 32.8 93.8 E	mi mi mi mi/h
Average Travel Spe	eed with Pass:	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream length of the passing lane for average for the effect of passing on average speed, fpl Average travel speed including passing the passing speed including passing the passing speed travel speed including passing the passing speed travel speed including passing the passing speed travel speed including passing the pa	y within effect ge travel speed a of effective verage travel s g lane	cive d, Lde speed, Ld	- - -	mi mi
Percent free flow speed including pas	ssing lane, PFI	FSpl	0.0	8
Percent Time-Spent-Fo	ollowing with I	Passing La	ne	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstrear the passing lane for percent time	-spent-followin n of effective	ng, Lde length of	-	mi mi
Adj. factor for the effect of passing on percent time-spent-following, Percent time-spent-following	g lane	3,	-	
including passing lane, PTSFpl			-	8
Level of Service and Other Peri	formance Measu	res with E	assing L	ane
Level of service including passing la Peak 15-min total travel time, TT15	_	- 7	reh-h	
Bicycle Le	evel of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1271.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.68
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative PM Carmel Valley Road Highway From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0 77 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 657 veh/h Opposing direction volume, Vo 1036 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.2 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.985 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 866 pc/h 1345 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 32.5 mi/h Percent Free Flow Speed, PFFS 63.2 용

Percent Time-Spent-Followi	.ng		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0	(1.0 1.0	0)
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 0.92 Directional flow rate,(note-2) vi 927 pc	ı/h	1.00 1345	pc/h
Base percent time-spent-following, (note-4) BPTSFd		1343	pc/II
	14.1		
Percent time-spent-following, PTSFd	84.9	ે	
Level of Service and Other Performa	nce Meas	sures	
T 1	_		
Level of service, LOS Volume to capacity ratio, v/c	D 0.55		
	512	veh-mi	
	1577	veh-mi	
	15.7	veh-h	
	1686	veh/h	
Capacity from PTSF, CdPTSF	1564	veh/h	
Directional Capacity	1564	veh/h	
Passing Lane Analysis_			
matal launth of auclinia assument. It		2 4	
Total length of analysis segment, Lt	lana I	2.4	mi mi
Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl	Talle, Li	u –	mi
Average travel speed, ATSd (from above)		32.5	mi/h
Percent time-spent-following, PTSFd (from above)		84.9	
Level of service, LOSd (from above)		D	
Average Travel Speed with Passi	ng Lane		
Downstream length of two-lane highway within effect			
length of passing lane for average travel speed	l, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel s	nood t	a	m.1
Adj. factor for the effect of passing lane	греец, п	ı –	mi
on average speed, fpl		_	
Average travel speed including passing lane, ATSpl		_	
Percent free flow speed including passing lane, PFF		0.0	ક
Percent Time-Spent-Following with F	assing l	Lane	
Downstream length of two-lane highway within effect		gth	
of passing lane for percent time-spent-followir		-	mi
Length of two-lane highway downstream of effective			
the passing lane for percent time-spent-following	ng, Ld	-	mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl Percent time-spent-following		-	
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	es with	Passing I	ane
Towal of goweigo includingincluding	7.		
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	·		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	853.2
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.48
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative Saturday

Highway Carmel Valley Road

From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Description Rio Ranch Seg 7 WB

		Input	Data_				
Highway class	Class 2	Peak	hour	factor,	PHF	0.94	

Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length 2.4 mi Truck crawl speed mi/hr 0.0 Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Access point density Up/down 3.0 용 /mi

Analysis direction volume, Vd $\,$ 800 $\,$ veh/h Opposing direction volume, Vo $\,$ 818 $\,$ veh/h $\,$

____Average Travel Speed_

Direction	Ana	lysis	(d)	0pp	osing (0)
PCE for trucks, ET		1.2			1.0	
PCE for RVs, ER		1.0			1.0	
Heavy-vehicle adj. factor,(note-5)	fHV	0.99	3		1.000	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		853	pc/h		870	pc/h
Free-Flow Speed from Field Measurem	ent:					
Field measured speed,(note-3) S FM			-	mi/h		
Observed total demand,(note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			55.0			
Adj. for lane and shoulder width,(n	ote-3)	fLS	0.0	mi/h		
Adj. for access point density,(note	-3) fA		3.5	mi/h		
Free-flow speed, FFSd			51.5	mi/h		
Adjustment for no-passing zones, fn	p		1.8*	mi/h		
Average travel speed, ATSd			36.3	mi/h		
Percent Free Flow Speed, PFFS			70.5	용		

Percent Time-Spent-Follows	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0		posing 1.0	(0)
Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 0.92 Directional flow rate,(note-2) vi 925 pc	e/h	1.000 1.00 870	pc/h
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	74.1 % 22.1 85.5 %		
Level of Service and Other Performs	ance Measu	res	
Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1920 v 14.1 v 1697 v 1564 v 1564 v	eh-mi eh-mi eh-h eh/h eh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - - 36.3 85.5 E	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed, Ld	-	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF	FSpl	0.0	%
Percent Time-Spent-Following with I	Passing La	ne	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl	ing, Ld	_	mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	res with P	assing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		eh-h	
Bicycle Level of Service	≥		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	851.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	2.51
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for $v>200\ veh/h$.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative AM Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FR	EE-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	VOLUME			
Direction	1		2	
Volume, V	781	vph	1001	vph
Peak-hour factor, PHF	0.80	=	0.87	=
Peak 15-minute volume, v15	244		288	
Trucks and buses	3	용	1	8
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.995	
Flow rate, vp	495	pcphpl	578	pcphpl
	RESULTS_			

	Direction	1		2	
Flow rate, vp		495	pcphpl	578	pcphpl
Free-flow speed, FF	S	53.0	mph	54.0	mph
Avg. passenger-car	travel speed, S	55.0	mph	55.0	mph
Level of service, L	OS	A		A	
Density, D		9.0	pc/mi/ln	10.5	pc/mi/ln
	Ricycle L	evel of Se	rvice		
	Bicycle D	ever or be.			
Posted speed limit,	Sp	55		55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsid	e lane, vOL	488.1		575.3	
Effective width of	•	24.00		24.00	
Effective speed fac		4.79		4.79	
Bicycle LOS Score,	BLOS	2.75		2.35	
Bicycle LOS		C		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17 Analysis Period: Cumulative PM

Highway: Carmel Valley Road From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

	FREE-FLOW SPEE	D		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:	12.0	20	12.0	
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8	20	4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, F		mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1111	vph	777	vph
Peak-hour factor, PHF	0.88		0.93	
Peak 15-minute volume, v15	316		209	
Trucks and buses	1	8	1	8
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	용
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, f	P 1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	634	pcphpl	419	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	634	pcphpl	419	pcphpl
Free-flow speed, FFS	53.0	mph	54.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	В		A	
Density, D	11.5	pc/mi/ln	7.6	pc/mi/ln
Bicycle :	Level of Se	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	631.3		417.7	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.40		2.19	
Bicycle LOS	В		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

_OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative Saturday Highway: Carmel Valley Road From/To: Rio to Rancho San Carlos

Jurisdiction: Uninc Analysis Year: 2017 Unincorporated Monterey County

FREI	E-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	VOLUME			
Direction	1		2	
Volume, V	912	vph	889	vph
Peak-hour factor, PHF	0.91		0.94	
Peak 15-minute volume, v15	251		236	
Trucks and buses	1	8	1	8
Recreational vehicles	0	8	0	8
Terrain type	Level		Level	
Grade	0.00	8	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	503	pcphpl	475	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	503	pcphpl	475	pcphpl
Free-flow speed, FFS	53.0	mph	54.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	9.1	pc/mi/ln	8.6	pc/mi/ln
P. 1.				
Bicycle	Level of S	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	501.1		472.9	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.28		2.25	
Bicycle LOS	В		В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO
Agency/Co: Mott MacDonald
Date: 12/6/17
Analysis Period: Cumulative AM
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FRE	E-FLOW SPEE	D		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1085	vph	1352	vph
Peak-hour factor, PHF	0.86		0.68	
Peak 15-minute volume, v15	315		497	
Trucks and buses	2	용	2	용
Recreational vehicles	0	용	0	용
Terrain type	Level		Level	
Grade	0.00	용	0.00	용
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV			0.990	
Flow rate, vp	637	pcphpl	1004	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	637	pcphpl	1004	pcphpl
Free-flow speed, FFS	53.0	mph	53.0	mph
Avg. passenger-car travel speed,	S 55.0	mph	55.0	mph
Level of service, LOS	В		C	
Density, D	11.6	pc/mi/ln	18.3	pc/mi/ln
Bicycle	e Level of S	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	630.8		994.1	
Effective width of outside lane, N	We 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.63		2.86	
Bicycle LOS	C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO
Agency/Co: Mott MacDonald
Date: 12/6/17
Analysis Period: Cumulative PM
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED					
Direction	1		2		
Lane width	12.0	ft	12.0	ft	
Lateral clearance:					
Right edge	6.0	ft	6.0	ft	
Left edge	6.0	ft	6.0	ft	
Total lateral clearance	12.0	ft	12.0	ft	
Access points per mile	8		8		
Median type	Divided		Divided		
Free-flow speed:	Base		Base		
FFS or BFFS	55.0	mph	55.0	mph	
Lane width adjustment, FLW	0.0	mph	0.0	mph	
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph	
Median type adjustment, FM	0.0	mph	0.0	mph	
Access points adjustment, FA	2.0	mph	2.0	mph	
Free-flow speed	53.0	mph	53.0	mph	
	VOLUME				
Direction	1		2		
Volume, V	1454	vph	1097	vph	
Peak-hour factor, PHF	0.95	-	0.88	-	
Peak 15-minute volume, v15	383		312		
Trucks and buses	2	용	1	ક	
Recreational vehicles	0	용	0	ક	
Terrain type	Level		Level		
Grade	0.00	용	0.00	ક	
Segment length	0.00	mi	0.00	mi	
Number of lanes	2		2		
Driver population adjustment, fP	1.00		1.00		
Trucks and buses PCE, ET	1.5		1.5		
Recreational vehicles PCE, ER	1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.995		
Flow rate, vp	772	pcphpl	626	pcphpl	
	RESULTS				

Direction	1		2	
Flow rate, vp	772	pcphpl	626	pcphpl
Free-flow speed, FFS	53.0	mph	53.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	В		В	
Density, D	14.0	pc/mi/ln	11.4	pc/mi/ln
Bicycle I	Level of Se	rvice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	765.3		623.3	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.73		2.39	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

_OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald Date:

12/6/17

Analysis Period: Cumulative Saturday Highway: Carmel Valley Road From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE	-FLOW SPEE	D		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0		6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1177	vph	1119	vph
Peak-hour factor, PHF	0.96		0.94	
Peak 15-minute volume, v15	307		298	
Trucks and buses	1	용	1	용
Recreational vehicles	0	용	0	용
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	616	pcphpl	598	pcphpl
	RESULTS			

Direction		1		2	
Flow rate, vp	61	L6	pcphpl	598	pcphpl
Free-flow speed, FFS	53	3.0	mph	53.0	mph
Avg. passenger-car travel speed	, S 5	5.0	mph	55.0	mph
Level of service, LOS	В			A	
Density, D	1:	L.2	pc/mi/ln	10.9	pc/mi/ln
Bicy	cle Leve	el of Se	rvice		
Posted speed limit, Sp	5!	5		55	
Percent of segment with occupie	d				
on-highway parking	0			0	
Pavement rating, P	3			3	
Flow rate in outside lane, vOL	63	L3.0		595.2	
Effective width of outside lane	, We 24	1.00		24.00	
Effective speed factor, St	4	. 79		4.79	
Bicycle LOS Score, BLOS	2	. 38		2.37	
Bicycle LOS	В			В	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald Date: 12/6/17
Analysis Period: Cumulative AM

Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

PDI	EE-FLOW SPE	r D		
f Kf	FF-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1082	vph	1108	vph
Peak-hour factor, PHF	0.86		0.76	· <u>-</u>
Peak 15-minute volume, v15	315		364	
Trucks and buses	2	용	2	8
Recreational vehicles	0	용	0	%
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	635	pcphpl	736	pcphpl
	RESULTS_			

Direction		1		2	
Flow rate, vp		635	pcphpl	736	pcphpl
Free-flow speed, FFS		55.0	mph	55.0	mph
Avg. passenger-car travel speed,	, S	55.0	mph	55.0	mph
Level of service, LOS		В		В	
Density, D		11.5	pc/mi/ln	13.4	pc/mi/ln
Bicyc	cle Le	evel of Se	rvice		
Posted speed limit, Sp		55		55	
Percent of segment with occupied	f				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside lane, vOL		629.1		728.9	
Effective width of outside lane,	, We	24.00		24.00	
Effective speed factor, St		4.79		4.79	
Bicycle LOS Score, BLOS		2.63		2.70	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald
Date: 12/6/17
Analysis Period: Cumulative PM
Highway: Carmel Valley Road
From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

	-FLOW SPEE	D		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0		6.0	
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM		mph		mph
Access points adjustment, FA		mph		mph
Free-flow speed			55.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1154	vph	960	vph
Peak-hour factor, PHF	0.95	=	0.90	=
Peak 15-minute volume, v15	304		267	
Trucks and buses	2	ક	2	ક
Recreational vehicles	0	ક	0	ક
Terrain type	Level		Level	
Grade	0.00	용	0.00	ક
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	613	pcphpl	538	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	613	pcphpl	538	pcphpl
Free-flow speed, FFS	55.0	mph	55.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	В		A	
Density, D	11.1	pc/mi/ln	9.8	pc/mi/ln
Bicycle L	evel of Se	rvice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	607.4		533.3	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.61		2.54	
Bicycle LOS	C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative Saturday Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREI	E-FLOW SPE	ED		
Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1052	vph	907	vph
Peak-hour factor, PHF	0.96		0.98	
Peak 15-minute volume, v15	274		231	
Trucks and buses	2	8	2	8
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	8	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
Flow rate, vp	553	pcphpl	467	pcphpl
	RESULTS			

Direction	1		2	
Flow rate, vp	553	pcphpl	467	pcphpl
Free-flow speed, FFS	55.0	mph	55.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	A		A	
Density, D	10.1	pc/mi/ln	8.5	pc/mi/ln
Bicycle	e Level of S	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	547.9		462.8	
Effective width of outside lane, W	We 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.56		2.47	
Bicycle LOS	C		В	

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:							
Direc	tional Two-La	ane Hig	hway	Segment	Analys	is	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch	SR 1 Highlands I Unincorpora 2017 Seg 13 NB	AM Or / Rii	ntere				
	I	Input D	ata				
Lane width 1 Segment length 2	.0 ft 2.0 ft .6 mi olling mi %	% Truck % Truck % Rec: % No-	cks a cks c craw reati passi	factor, nd buses rawling l speed onal veh ng zones nt densi	icles	0.76 3 0.0 0.0 0 100 5	% % mi/hr % % /mi
Opposing direction vol			h/h				
	Average	e Trave	l Spe	ed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fac Grade adj. factor,(not Directional flow rate,	e-1) fg		0.94	7		posing 1.6 1.1 0.982 0.98 749	(o) pc/h
Free-Flow Speed from F Field measured speed,(Observed total demand, Estimated Free-Flow Sp Base free-flow speed,(Adj. for lane and show Adj. for access point	note-3) S FM (note-3) V eed: note-3) BFFS lder width,(r	note-3)		- - 45.0 1.3	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd				42.5	mi/h		
Adjustment for no-pass Average travel speed, Percent Free Flow Spee	ATSd	ıp		2.3* 30.3 71.4	mi/h mi/h %		

Percent Time-	Spent-Follow	ing		
Direction	Analysis(d)		Opposing	(0)
PCE for trucks, ET	1.4		1.0	(- /
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.988		1.000	
Grade adjustment factor, (note-1) fg	0.95		0.99	
Directional flow rate, (note-2) vi	507 p	c/h	728	pc/h
Base percent time-spent-following, (not			용	_
Adjustment for no-passing zones, fnp		31.0		
Percent time-spent-following, PTSFd		67.6	8	
Level of Service and O	ther Perform	ance Mea	asures	
		_		
Level of service, LOS		C		
Volume to capacity ratio, v/c		0.30		
Peak 15-min vehicle-miles of travel, V		310	veh-mi	
Peak-hour vehicle-miles of travel, VMT	60	941	veh-mi	
Peak 15-min total travel time, TT15		10.2	veh-h	
Capacity from ATS, CdATS		1641	veh/h	
Capacity from PTSF, CdPTSF		1683	veh/h	
Directional Capacity		1683	veh/h	
Passing L	ane Analysis			
matal launth of analysis arm to the			2.6	:
Total length of analysis segment, Lt			2.6	mi
Length of two-lane highway upstream of		lane, I		mi
Length of passing lane including taper			-	mi
Average travel speed, ATSd (from above			30.3	mi/h
Percent time-spent-following, PTSFd (f	rom above)		67.6 C	
Level of service, LOSd (from above)			C	
Average Travel Spee	d with Pass	ing Lane	=	
Downstream length of two-lane highway	within effec	tivo		
length of passing lane for average			_	mi
Length of two-lane highway downstream				шт
length of the passing lane for ave			.d -	mi
Adj. factor for the effect of passing		speed, I	Ju -	шт
on average speed, fpl	Tane		_	
Average travel speed including passing	lane ATSnl		_	
Percent free flow speed including passing			0.0	8
referre free from speed including pass	ing ranc, ir	IDPI	0.0	0
Percent Time-Spent-Fol	lowing with	Passing	Lane	
Downstream length of two-lane highway	within effec	tive ler	nath	
of passing lane for percent time-s				mi
Length of two-lane highway downstream				
the passing lane for percent time-				mi
Adj. factor for the effect of passing				
on percent time-spent-following, f			_	
Percent time-spent-following	P +			
including passing lane, PTSFpl			-	8
Level of Service and Other Perfo	rmance Measu	res with	n Passing	Lane
		_		
Level of service including passing lan	e, LOSpl	A	. 1 2	
Peak 15-min total travel time, TT15		-	veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	476.3
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.07
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Cumulative PM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 13 NB

Input Data								
				- 11				
Highway	class Class	2		Peak hour factor, PHF	0.88			
Shoulder	r width	5.0	ft	% Trucks and buses	2	용		
Lane wid	dth	12.0	ft	% Trucks crawling	0.0	용		
Segment	length	2.6	mi	Truck crawl speed	0.0	mi/hr		
Terrain	type	Rolling		% Recreational vehicles	0	8		
Grade:	Length	-	mi	% No-passing zones	100	8		
	Up/down	_	8	Access point density	5	/mi		

Analysis direction volume, Vd 859 veh/h Opposing direction volume, Vo 622 veh/h

Average	Travel	Speed
---------	--------	-------

Average Trav	el Spe	ed			
Direction An PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg	1.3 1.1	4		osing (c 1.6 1.1 0.988 0.98))
Directional flow rate,(note-2) vi	982	pc/h		730	pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3 Adj. for access point density,(note-3) f			mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		42.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 26.9 63.3	mi/h mi/h %		

Percent Time-Spent-Follows	ing		
Percent time-spent-following, PTSFd	2/h 74.9 % 22.7 88.0 %	1.0 1.0 1.000 0.99 714	o) pc/h
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15	E 0.57 634 v 2233 v 23.6 v 0 1683 v 1683 v	reh-mi reh-mi reh-h reh/h reh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		- 26.9 88.0 E	mi mi mi mi/h
Average Travel Speed with Passi Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF Percent Time-Spent-Following with F	cive d, Lde speed, Ld	- - - 0.0	mi mi
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following the two-lane highway downstream of effective the passing lane for percent time-spent-following Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl Level of Service and Other Performance Measure	cive lengt ng, Lde length of ing, Ld		mi mi %
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - v	reh-h	-

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	976.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.20
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 4. For the analysis direction only.
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- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative Saturday Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.95 Shoulder width 5.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 % No-passing zones Grade: Length шi 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 760 veh/h Opposing direction volume, Vo 795 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.4 1.4 PCE for RVs, ER 1.1 1.1 0.996 Heavy-vehicle adj. factor, (note-5) fHV 0.996 Grade adj. factor,(note-1) fg 0.99 0.99 Directional flow rate, (note-2) vi 811 pc/h 849 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h mi/h Adj. for access point density, (note-3) fA 1.3 Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 27.3 mi/h Percent Free Flow Speed, PFFS 64.2 용

Percent Time-Spent-Follow	ing		
Direction Analysis(d)		Opposina	(0)
PCE for trucks, ET 1.0		1.0	(-)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 1.00		1.00	
Directional flow rate, (note-2) vi 800 p	c/h	837	pc/h
Base percent time-spent-following,(note-4) BPTSFd	69.8	ક	
Adjustment for no-passing zones, fnp	24.6		
Percent time-spent-following, PTSFd	81.8	8	
Level of Service and Other Perform	ance Me	asures	
I 1 - 5 100	Б		
Level of service, LOS	D 0.47		
Volume to capacity ratio, v/c	520		
Peak 15-min vehicle-miles of travel, VMT15	1976	veh-mi veh-mi	
Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15	19.1	veh-h	
Capacity from ATS, CdATS	1676	veh/h	
Capacity from PTSF, CdPTSF	1700	ven/n veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analysis	'		
Total length of analysis segment, Lt		2.6	mi
Length of two-lane highway upstream of the passing	lane,	Lu -	mi
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		27.3	mi/h
Percent time-spent-following, PTSFd (from above)		81.8	
Level of service, LOSd (from above)		D	
Average Travel Speed with Pass	ing Lan	e	
Downstream length of two-lane highway within effect			
length of passing lane for average travel spee		-	mi
Length of two-lane highway downstream of effective			
length of the passing lane for average travel	speed,	Ld -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, ATSpl		-	0
Percent free flow speed including passing lane, PF	FSpI	0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect	tive lo	nath	
of passing lane for percent time-spent-followi			mi
Length of two-lane highway downstream of effective			шт
the passing lane for percent time-spent-follow			mi
Adj. factor for the effect of passing lane	1119, Du		111.±
on percent time-spent-following, fpl		_	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res wit	h Passing	Lane
Tanal of annia including partial law 700 l	7		
Level of service including passing lane, LOSpl	A	veh-h	
Peak 15-min total travel time, TT15	-	ve11-11	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	800.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.89
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

_Directional Two-Lane Highway Segment Analysis___

Phone:

E-Mail:

Average travel speed, ATSd

Percent Free Flow Speed, PFFS

Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative AM Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 SB Input Data Peak hour factor, PHF Highway class Class 2 0.92 Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed mi/hr 2.6 шi 0.0 Terrain type Rolling % Recreational vehicles 0 용 Grade: Length mi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 548 veh/h Opposing direction volume, Vo 362 veh/h __Average Travel Speed_ Opposing (o) Direction Analysis(d) PCE for trucks, ET 1.7 2.0 PCE for RVs, ER 1.1 1.1 0.971 Heavy-vehicle adj. factor, (note-5) fHV 0.979 Grade adj. factor, (note-1) fg 0.97 0.90 Directional flow rate, (note-2) vi 627 pc/h 450 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS 45.0 mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h

31.8

74.9

mi/h

용

Percent Time-	Spent-Followi	ng		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	0.97 618 pc e-4) BPTSFd	e/h	pposing 1.6 1.0 0.982 0.90 445	
Level of Service and C			ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	MT15 60	D 0.36 387 1425 12.2 0 1562 1562	veh-mi veh-mi veh-h veh/h veh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	the passing s, Lpl	lane, Lu	2.6 - - 31.8 77.0 D	mi mi mi mi/h
Average Travel Spee	d with Passi	.ng Lane_		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl Average travel speed including passing Percent free flow speed including pass	e travel speed of effective erage travel s lane	l, Lde speed, Ld	-	mi mi %
Percent Time-Spent-Fol				
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream the passing lane for percent time-Adj. factor for the effect of passing	within effect pent-followin of effective spent-followi	ive lenging, Lde length o	th - f	mi mi
on percent time-spent-following, f Percent time-spent-following including passing lane, PTSFpl	pl		-	ક
Level of Service and Other Perfo	rmance Measur	es with	Passing :	Lane
Level of service including passing lam Peak 15-min total travel time, TT15	e, LOSpl		veh-h	
Bicycle Lev	el of Service	·		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	595.7
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.18
Bicycle LOS	C

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HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative PM Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 93 Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 % No-passing zones Grade: Length шi 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 622 veh/h Opposing direction volume, Vo 859 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.6 1.3 1.1 PCE for RVs, ER 1.1 0.991 Heavy-vehicle adj. factor, (note-5) fHV 0.982 Grade adj. factor, (note-1) fg 0.98 1.00 Directional flow rate, (note-2) vi 695 pc/h 932 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h mi/h Adj. for access point density, (note-3) fA 1.3 Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 27.5 mi/h Percent Free Flow Speed, PFFS 64.8 용

Percent Time-	Spent-Follow	ing		
Direction PCE for trucks, ET	Analysis(d)	C	Opposing 1.0	(0)
PCE for RVs, ER	1.0		1.0	
	1.000		1.000	
Heavy-vehicle adjustment factor, fHV				
Grade adjustment factor, (note-1) fg	0.98	/1-	1.00	/1-
Directional flow rate, (note-2) vi	682 p		924	pc/h
Base percent time-spent-following, (not	e-4) BPTSFd		5	
Adjustment for no-passing zones, fnp		24.1		
Percent time-spent-following, PTSFd		75.7	š	
Level of Service and C	ther Perform	ance Meas	sures	
		-		
Level of service, LOS		D		
Volume to capacity ratio, v/c		0.40		
Peak 15-min vehicle-miles of travel, V		435	veh-mi	
Peak-hour vehicle-miles of travel, VMT	760	1617	veh-mi	
Peak 15-min total travel time, TT15		15.8	veh-h	
Capacity from ATS, CdATS		1685	veh/h	
Capacity from PTSF, CdPTSF		1700	veh/h	
Directional Capacity		1700	veh/h	
Passing I	ane Analysis			
Total length of analysis segment, Lt			2.6	mi
Length of two-lane highway upstream of		lane, Lu	1 -	mi
Length of passing lane including taper			-	mi
Average travel speed, ATSd (from above			27.5	mi/h
Percent time-spent-following, PTSFd (f	rom above)		75.7	
Level of service, LOSd (from above)			D	
Average Travel Spee	ed with Pass	ing Lane_		
Downstream length of two-lane highway				
length of passing lane for average	travel spee	d, Lde	-	mi
Length of two-lane highway downstream	of effective			
length of the passing lane for ave	rage travel	speed, Lo	i -	mi
Adj. factor for the effect of passing	lane			
on average speed, fpl			-	
Average travel speed including passing	lane, ATSpl		-	
Percent free flow speed including pass			0.0	8
Davisont Mine Court Del	1	D! T		
Percent Time-Spent-Fol	_	_		
Downstream length of two-lane highway				
of passing lane for percent time-s				mi
Length of two-lane highway downstream				
the passing lane for percent time-		ing, Ld	-	mi
Adj. factor for the effect of passing	lane			
on percent time-spent-following, f	pl		-	
Percent time-spent-following				
including passing lane, PTSFpl			-	%
Level of Service and Other Perfo	rmance Measu	res with	Passing	Lane
Torrel of gomerica including non-in-	0.007	70		
Level of service including passing lar	ie, LOSPI	А	rrob 1-	
Peak 15-min total travel time, TT15		-	veh-h	
Bicycle Lev	el of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	668.8
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.24
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 4. For the analysis direction only.
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Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative Saturday

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 13 SB

		Input Data	
Highway class	Class 2	Peak hour factor, PHF 0.92	

Shoulder width 5.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length 2.6 Truck crawl speed 0.0 mi/hr mi Terrain type Rolling % Recreational vehicles 0 용 Grade: Length mi % No-passing zones 100 Access point density Up/down 왕 5 /mi

Analysis direction volume, Vd 795 veh/h Opposing direction volume, Vo 760 veh/h

_____Average Travel Speed_

Direction			(d)	0pp	osing (0)
PCE for trucks, ET		1.3			1.4	
PCE for RVs, ER		1.1			1.1	
Heavy-vehicle adj. factor,(note-5) i	EHV	0.99	1		0.988	
Grade adj. factor,(note-1) fg		1.00			0.99	
Directional flow rate,(note-2) vi		872	pc/h		845	pc/h
Free-Flow Speed from Field Measureme	ent:					
Field measured speed,(note-3) S FM			-	mi/h		
Observed total demand,(note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed,(note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width,(no	ote-3)	fLS	1.3	mi/h		
Adj. for access point density,(note-	-3) fA		1.3	mi/h		
Free-flow speed, FFSd			42.5	mi/h		
Adjustment for no-passing zones, fnp	9		2.3*	mi/h		
Average travel speed, ATSd			26.8	mi/h		
Percent Free Flow Speed, PFFS			63.2	용		

Percent Time-Spent-Follow	ing		
Direction Analysis(d)			(0)
PCE for trucks, ET 1.0		1.0	
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 1.000		1.000	
Grade adjustment factor,(note-1) fg 1.00		1.00	
	c/h	826	pc/h
Base percent time-spent-following, (note-4) BPTSFd	72.1	8	
Adjustment for no-passing zones, fnp	23.7		
Percent time-spent-following, PTSFd	84.2	8	
Level of Service and Other Perform	ance Mea	sures	
Level of service, LOS	D		
Volume to capacity ratio, v/c	0.51		
Peak 15-min vehicle-miles of travel, VMT15	562	veh-mi	
Peak-hour vehicle-miles of travel, VMT60	2067	veh-mi	
Peak 15-min total travel time, TT15	20.9	veh-h	
Capacity from ATS, CdATS	0	veh/h	
Capacity from PTSF, CdPTSF	1700	veh/h	
Directional Capacity	1700	veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt		2.6	mi
Length of two-lane highway upstream of the passing	lane. I		mi
Length of passing lane including tapers, Lpl		_	mi
Average travel speed, ATSd (from above)		26.8	mi/h
Percent time-spent-following, PTSFd (from above)		84.2	1111 / 11
Level of service, LOSd (from above)		D	
Level of Service, Losd (from above)		D	
Average Travel Speed with Pass	ing Lane	·	
Downstream length of two-lane highway within effect	tive		
length of passing lane for average travel spee		_	mi
Length of two-lane highway downstream of effective			шт
		a	m 4
length of the passing lane for average travel	speed, L	a -	mi
Adj. factor for the effect of passing lane			
on average speed, fpl		-	
Average travel speed including passing lane, ATSpl		-	•
Percent free flow speed including passing lane, PF	FSpl	0.0	૪
Percent Time-Spent-Following with	Passing	Lane	
D		. 1:	
Downstream length of two-lane highway within effect		19 [1]	
of passing lane for percent time-spent-followi		=	mi
Length of two-lane highway downstream of effective			
the passing lane for percent time-spent-follow	ing, Ld	-	mi
Adj. factor for the effect of passing lane			
on percent time-spent-following, fpl		-	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res with	Passing	Lane
Level of service including passing lane, LOSpl	A	. 1. 1.	
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service			
Bicycle Level of Service	E		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	864.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.37
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
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- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail:

Fax:

__OPERATIONAL ANALYSIS_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project AM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

FREE-FLOW SPEED							
Direction	1		2				
Lane width	12.0	ft	12.0	ft			
Lateral clearance:							
Right edge	5.0	ft	5.0	ft			
Left edge	6.0	ft	6.0	ft			
Total lateral clearance	11.0	ft	11.0	ft			
Access points per mile	1		2				
Median type	Undivided		Undivided				
Free-flow speed:	Base	Base Bas		<u>.</u>			
FFS or BFFS	45.0	mph	45.0	mph			
Lane width adjustment, FLW	0.0	mph	0.0	mph			
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph			
Median type adjustment, FM	1.6	mph	1.6	mph			
Access points adjustment, FA	0.3	mph	0.5	mph			
Free-flow speed	43.0	mph		mph			
VOLUME							
Direction	1		2				
Volume, V	1456	vph	1845	vph			
Peak-hour factor, PHF	0.91	-	0.91	-			
Peak 15-minute volume, v15	400		507				
Trucks and buses	2	용	3	8			
Recreational vehicles	0	용	0	ક			
Terrain type	Grade		Grade				
Grade	6.00	8	-6.00	용			
Segment length	0.73	mi	0.73	mi			
Number of lanes	2		2				
Driver population adjustment, fP	1.00		1.00				
Trucks and buses PCE, ET	5.0		1.5				
	6.0		1.2				
Heavy vehicle adjustment, fHV	0.926		0.985				
Flow rate, vp	863	pcphpl	1028	pcphpl			
RESULTS							

	Direction	1		2		
Flow rate, vp		863	pcphpl	1028	pcphpl	
Free-flow speed, FF	S	43.0	mph	42.7	mph	
Avg. passenger-car	travel speed, S	45.0	mph	45.0	mph	
Level of service, L	os	C		C		
Density, D		19.2	pc/mi/ln	22.8	pc/mi/ln	
	Bicycle L	evel of Se	rvice			
Posted speed limit,	Sp		55			
Percent of segment	with occupied					
on-highway parking		0		0		
Pavement rating, P		3		3		
Flow rate in outsid	e lane, vOL	800.0		1013.7		
Effective width of	outside lane, We	22.00		22.00		
Effective speed fac	tor, St	4.79		4.79		
Bicycle LOS Score,	BLOS	3.21		3.58		
Bicycle LOS		C		D		

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project PM

Highway: SR 1

From/To: Carpenter / Ocean

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 1

FREE-FLOW SPEED							
Direction	1		2				
Lane width	12.0	ft	12.0	ft			
Lateral clearance:							
Right edge	5.0	ft	5.0	ft			
Left edge	6.0	ft	6.0	ft			
Total lateral clearance	11.0	ft	11.0	ft			
Access points per mile	1		2				
Median type	Undivid	ed	Undivid	ed			
Free-flow speed:	Base		Base				
FFS or BFFS	45.0	mph	45.0	mph			
Lane width adjustment, FLW	0.0	mph	0.0	mph			
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph			
Median type adjustment, FM	1.6	mph	1.6	mph			
Access points adjustment, FA	0.3	mph	0.5	mph			
Free-flow speed	43.0	mph	42.7	mph			
	VOLUME						
Direction	1		2				
Volume, V	1948	vph	1756	vph			
Peak-hour factor, PHF	0.95	=	0.96	_			
Peak 15-minute volume, v15	513		457				
Trucks and buses	2	ક	1	8			
Recreational vehicles	0	용	0	8			
Terrain type	Grade		Grade				
Grade	6.00	용	-6.00	8			
Segment length	0.73	mi	0.73	mi			
Number of lanes	2		2				
Driver population adjustment, fP	1.00		1.00				
Trucks and buses PCE, ET	5.0		1.5				
Recreational vehicles PCE, ER	6.0		1.2				
Heavy vehicle adjustment, fHV	0.926		0.995				
Flow rate, vp	1107	pcphpl	919	pcphpl			
	RESULTS_						

	Direction	1		2	
Flow rate, vp		1107	pcphpl	919	pcphpl
Free-flow speed, FF	'S	43.0	mph	42.7	mph
Avg. passenger-car	travel speed, S	45.0	mph	45.0	mph
Level of service, L	OS	C		C	
Density, D		24.6	pc/mi/ln	20.4	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit,	Sp			55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsid	le lane, vOL	1025.3		914.6	
Effective width of	outside lane, We	22.00		22.00	
Effective speed fac	tor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	3.33		3.05	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

____OPERATIONAL ANALYSIS___

Analyst: JO

Mott MacDonald Agency/Co:

Date: 12/6/17

Analysis Period: Cumulative + Project Saturday

Highway: SR 1

From/To: Carpenter / Ocean

Analysis Year: 2017

Carpencer / Ocean
Unincorporated Monterey County

Project ID: Rio Ranch Seg 1

FREE-FLOW SPEED								
Direction	1		2					
Lane width	12.0	ft.	12.0	ft.				
Lateral clearance:								
Right edge	5.0	ft	5.0	ft				
Left edge	6.0	ft	6.0	ft				
Total lateral clearance	11.0	ft	11.0	ft				
Access points per mile	1		2					
Median type	Undivide	ed	Undivid	.ed				
Free-flow speed:	Base		Base					
FFS or BFFS	45.0	mph	45.0	mph				
Lane width adjustment, FLW	0.0	mph	0.0	mph				
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph				
Median type adjustment, FM	1.6	mph	1.6	mph				
Access points adjustment, FA	0.3	mph	0.5	mph				
Free-flow speed	43.0	mph	42.7	mph				
	VOLUME							
Direction	1		2					
Volume, V	1826	vph	2042	vph				
Peak-hour factor, PHF	0.91		0.97					
Peak 15-minute volume, v15	502		526					
Trucks and buses	1	용	1	8				
Recreational vehicles	0	용	0	8				
Terrain type	Grade		Grade					
Grade	6.00	용	-6.00	8				
Segment length	0.73	mi	0.73	mi				
Number of lanes	2		2					
Driver population adjustment, fP	1.00		1.00					
Trucks and buses PCE, ET	5.0		1.5					
Recreational vehicles PCE, ER	6.0		1.2					
Heavy vehicle adjustment, fHV	0.962		0.995					
Flow rate, vp	1043	pcphpl	1057	pcphpl				
	RESULTS							

1	Direction	1		2	
Flow rate, vp		1043	pcphpl	1057	pcphpl
Free-flow speed, FF:	S	43.0	mph	42.7	mph
Avg. passenger-car	travel speed, S	45.0	mph	45.0	mph
Level of service, Lo	OS	C		C	
Density, D		23.2	pc/mi/ln	23.5	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit,	Sp			55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside	e lane, vOL	1003.3		1052.6	
Effective width of	outside lane, We	22.00		22.00	
Effective speed fact	tor, St	4.79		4.79	
Bicycle LOS Score, I	BLOS	3.09		3.12	
Bicycle LOS		C		C	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project AM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

FREE-FLOW SPEED						
Direction	1		2			
Lane width	12.0	ft	12.0	ft		
Lateral clearance:						
Right edge	5.0	ft	5.0	ft		
Left edge	6.0	ft	6.0	ft		
Total lateral clearance	11.0	ft	11.0	ft		
Access points per mile	2		2			
Median type	Undivid	ed	Undivid	ed		
Free-flow speed:	Base		Base			
FFS or BFFS	45.0	mph	45.0	mph		
Lane width adjustment, FLW	0.0	mph	0.0	mph		
Lateral clearance adjustment, FLC	0.2		0.2	mph		
Median type adjustment, FM	1.6	mph	1.6	mph		
Access points adjustment, FA	0.5	mph	0.5	mph		
Free-flow speed	42.7	mph	42.7	mph		
	_VOLUME					
Direction	1		2			
Volume, V	1684	vph	1807	vph		
Peak-hour factor, PHF	0.89	-	0.92	-		
Peak 15-minute volume, v15	473		491			
Trucks and buses	3	용	4	ક		
Recreational vehicles	0	용	0	ક		
Terrain type	Grade		Grade			
Grade	6.00	용	-6.00	ક		
Segment length	0.87	mi	0.87	mi		
Number of lanes	2		2			
Driver population adjustment, fP	1.00		1.00			
Trucks and buses PCE, ET	5.3		1.5			
Recreational vehicles PCE, ER	6.0		1.2			
Heavy vehicle adjustment, fHV	0.887		0.980			
Flow rate, vp	1066	pcphpl	1001	pcphpl		
	RESULTS					

	Direction	1		2	
Flow rate, vp		1066	pcphpl	1001	pcphpl
Free-flow speed, FF	S	42.7	mph	42.7	mph
Avg. passenger-car	travel speed, S	45.0	mph	45.0	mph
Level of service, L	OS	C		C	
Density, D		23.7	pc/mi/ln	22.2	pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit,	Sp			55	
Percent of segment	with occupied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsid	e lane, vOL	946.1		982.1	
Effective width of	outside lane, We	22.00		22.00	
Effective speed fac	tor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	3.54		3.83	
Bicycle LOS		D		D	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

____OPERATIONAL ANALYSIS___

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project PM

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Uninc Analysis Year: 2017 Unincorporated Monterey County

Project ID: Rio Ranch Seg 2 NB

FREE-FLOW SPEED						
Direction	1		2			
Lane width	12.0	ft	12.0	ft		
Lateral clearance:						
Right edge	5.0	ft	5.0	ft		
Left edge	6.0	ft	6.0	ft		
Total lateral clearance	11.0	ft	11.0	ft		
Access points per mile	2		2			
Median type	Undivid	ed	Undivid	ed		
Free-flow speed:	Base		Base			
FFS or BFFS	45.0	mph	45.0	mph		
Lane width adjustment, FLW	0.0	mph	0.0	mph		
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph		
Median type adjustment, FM	1.6	mph	1.6	mph		
Access points adjustment, FA	0.5	mph	0.5	mph		
Free-flow speed	42.7	mph	42.7	mph		
	VOLUME					
Direction	1		2			
Volume, V	1898	vph	1781	vph		
Peak-hour factor, PHF	0.96		0.95			
Peak 15-minute volume, v15	494		469			
Trucks and buses	1	%	2	8		
Recreational vehicles	0	용	0	왕		
Terrain type	Grade		Grade			
Grade	6.00	%	-6.00	8		
Segment length	0.87	mi	0.87	mi		
Number of lanes	2		2			
Driver population adjustment, fP	1.00		1.00			
Trucks and buses PCE, ET	5.5		1.5			
Recreational vehicles PCE, ER	6.0		1.2			
Heavy vehicle adjustment, fHV	0.957		0.990			
Flow rate, vp	1033	pcphpl	946	pcphpl		
	RESULTS_					

Direction	1		2	
Flow rate, vp	1033	pcphpl	946	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed, S	45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	23.0	pc/mi/ln	21.0	pc/mi/ln
Bicycle :	Level of Se	ervice		
Posted speed limit, Sp			55	
Percent of segment with occupied				
on-highway parking	0		0	
on-highway parking Pavement rating, P	0 3		0	
5 1 1 5	-		-	
Pavement rating, P	3 988.5		3	
Pavement rating, P Flow rate in outside lane, vOL	3 988.5		3 937.4	
Pavement rating, P Flow rate in outside lane, vOL Effective width of outside lane, We	3 988.5 22.00		3 937.4 22.00	

HCS 2010: Multilane Highways Release 6.70

Phone: E-mail: Fax:

__OPERATIONAL ANALYSIS__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project Saturday

Highway: SR 1

From/To: Ocean / Carmel Valley Rd

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 2 NB

FREE-FLOW SPEED						
Direction	1		2			
Lane width	12.0	ft	12.0	ft		
Lateral clearance:						
Right edge	5.0	ft	5.0	ft		
Left edge	6.0	ft	6.0	ft		
Total lateral clearance	11.0	ft	11.0	ft		
Access points per mile	2		2			
Median type	Undivid	ed	Undivid	ed		
Free-flow speed:	Base		Base			
FFS or BFFS			45.0	mph		
Lane width adjustment, FLW	0.0	mph	0.0	mph		
Lateral clearance adjustment, FLC	0.2	mph	0.2	mph		
Median type adjustment, FM	1.6	mph	1.6	mph		
Access points adjustment, FA	0.5	mph	0.5	mph		
Free-flow speed	42.7	mph		mph		
	VOLUME					
Direction	1		2			
Volume, V	1849	vph	1916	vph		
Peak-hour factor, PHF	0.93		0.94			
Peak 15-minute volume, v15	497		510			
Trucks and buses	1	용	1	8		
Recreational vehicles	0	용	0	8		
Terrain type	Grade		Grade			
Grade	6.00	용	-6.00	8		
Segment length	0.87	mi	0.87	mi		
Number of lanes	2		2			
Driver population adjustment, fP	1.00		1.00			
Trucks and buses PCE, ET	5.5		1.5			
Recreational vehicles PCE, ER	6.0		1.2			
Heavy vehicle adjustment, fHV	0.957		0.995			
Flow rate, vp	1038	pcphpl	1024	pcphpl		
	RESULTS_					

Direction	1		2	
Flow rate, vp	1038	pcphpl	1024	pcphpl
Free-flow speed, FFS	42.7	mph	42.7	mph
Avg. passenger-car travel speed,	S 45.0	mph	45.0	mph
Level of service, LOS	C		C	
Density, D	23.1	pc/mi/ln	22.8	pc/mi/ln
Bicycl	e Level of S	Service		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	994.1		1019.1	
Effective width of outside lane,	We 22.00		22.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	3.09		3.10	
Bicycle LOS	C		C	

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:		F	ax:				
Direct	ional Two-La	ne Higl	nway S	Segment 2	Analysi	is	
Analyst Agency/Co. Date Performed Analysis Time Period Highway From/To Jurisdiction Analysis Year Description Rio Ranch	SR 1 Ocean / CVR Unincorpora 2017 Seg 2 SB	+ Proje	nterey				
	I	nput Da	ata				
Segment length 0. Terrain type Sp Grade: Length 0. Up/down -6 Analysis direction volu	0 ft .0 ft 9 mi ecific Grade 90 mi .0 %	% Truck % Truck % Reco % No-1 Access vel	cks ar cks cr crawl ceation passir poir	actor, had buses rawling speed onal vehing zones at densit	icles	0.92 4 0.0 0.0 0.100	% % mi/hr % % /mi
Opposing direction volu	me, Vo 1684	vel	ı/h				
	Average	Trave	l Spee	ed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. fact Grade adj. factor,(note Directional flow rate,(-1) fg	fHV	lysis(1.0 1.0 1.000 1.000)		9.7 1.0 0.742 1.00 2467	o) pc/h
Free-Flow Speed from Fi Field measured speed,(n Observed total demand,(Estimated Free-Flow Spe Base free-flow speed,(n Adj. for lane and shoul Adj. for access point d Free-flow speed, FFSd	ote-3) S FM note-3) V ed: ote-3) BFFS der width,(no	ote-3)	fLS	45.0 1.3 4.8	mi/h veh/h mi/h mi/h mi/h mi/h		
Adjustment for no-passi Average travel speed, A Percent Free Flow Speed	TSd	р		2.3* 2.3 5.8	mi/h mi/h %		

Percent Time-Spent-Followi	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.1 1.0 0.99 1.00	5
Directional flow rate,(note-2) vi 1964 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		1839 %	pc/h
Level of Service and Other Performa	ance Me	asures	
Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.9 Lu - 2.3 98.7	mi mi mi mi/h
Average Travel Speed with Passi	ing Lan	e	
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s $\mbox{Adj.}$ factor for the effect of passing lane	speed,	Ld -	mi
on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF	FSpl	- 0.0	%
Percent Time-Spent-Following with F	assing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following	ng, Lde	-	mi
Length of two-lane highway downstream of effective the passing lane for percent time-spent-following Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res wit	h Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1964.1
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	4.03
Bicycle LOS	D

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: E-Mail: Fax:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project PM

Highway SR 1

From/To Ocean / CVR

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 2 SB

______Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.95	
Shoulder width	5.0 ft	% Trucks and buses	2	용
Lane width	12.0 ft	% Trucks crawling	0.0	용
Segment length	0.9 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.90 mi	% No-passing zones	100	용
Up/down	6.0 %	Access point density	19	/mi

Analysis direction volume, Vd 1781 veh/h Opposing direction volume, Vo 1898 veh/h

Average	Travel	Speed
---------	--------	-------

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fE Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	1.00	Opposing 1.0 1.0 1.00 1.000 1.000)
Free-Flow Speed from Field Measuremen Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	45.0 45.1 1.3	mi/h	
Free-flow speed, FFSd	39.0	mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	2.3* 4.1 10.5	mi/h mi/h %	

Percent Time-Spent-Fol:	lowing		
Direction PCE for trucks, ET PCE for RVs, ER P	pc/h	Opposing 1.0 1.0 1.000 1.000 1.998	
Level of Service and Other Perfo	ormance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	F 1.11 422 1603 103.6 1448 1696 1696	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analys	sis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pass: Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above Level of service, LOSd (from above)	_	0.9 - - 4.1 98.0 F	mi mi mi mi/h
Average Travel Speed with Do	agging Lane	2	
Average Travel Speed with Parameter Downstream length of two-lane highway within efficient of passing lane for average travel spaces of two-lane highway downstream of effect. Length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATS percent free flow speed including passing lane,	fective peed, Lde ive el speed, I Spl	-	mi mi
Percent Time-Spent-Following wi	th Passing	Lane	
Downstream length of two-lane highway within ef: of passing lane for percent time-spent-foll Length of two-lane highway downstream of effect the passing lane for percent time-spent-fol	owing, Lde ive length	of	mi mi
the passing lane for percent time-spent-for. Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	iowing, La	-	шт
including passing lane, PTSFpl		-	왕
Level of Service and Other Performance Mea			Lane
Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Serv	vice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1874
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.53
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Cumulative + Project Saturday Analysis Time Period Highway SR 1 From/To Ocean / CVR Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 2 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.94 Shoulder width 5.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Truck crawl speed Segment length 0.9 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.90 mi % No-passing zones 100 Up/down -6.0 용 Access point density /mi Analysis direction volume, Vd 1916 veh/h Opposing direction volume, Vo 1849 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 9.7 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.920 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 2038 pc/h 2138 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 4.8 mi/h Free-flow speed, FFSd 39.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 4.2 mi/h

10.9

용

Percent Free Flow Speed, PFFS

Percent Time-S	pent-Follow	ing		
Direction A PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	nalysis(d) 1.0 1.0 1.000 1.000	,	Opposing 1.1 1.0 0.999	
Directional flow rate,(note-2) vi Base percent time-spent-following,(note Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	2038 p	95.6 6.5	1969 %	pc/h
Level of Service and Ot	her Perform	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VM Peak-hour vehicle-miles of travel, VMT6 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		F 1.20 459 1724 108.1 0 1700	veh/h veh/h	
Passing La	ne Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapers Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (fr Level of service, LOSd (from above)	, Lpl		0.9 u - - 4.2 98.9 F	mi mi mi mi/h
Average Travel Speed	with Pass	ing Lane		
Downstream length of two-lane highway w length of passing lane for average Length of two-lane highway downstream o	travel spee	d, Lde	-	mi
length of the passing lane for aver Adj. factor for the effect of passing l on average speed, fpl	age travel		d - -	mi
Average travel speed including passing Percent free flow speed including passi			0.0	%
Percent Time-Spent-Foll	owing with	Passing :	Lane	
Downstream length of two-lane highway w of passing lane for percent time-sp	ent-followi:	ng, Lde	-	mi
Length of two-lane highway downstream o the passing lane for percent time-s Adj. factor for the effect of passing l	pent-follow			mi
on percent time-spent-following, fp Percent time-spent-following			-	
including passing lane, PTSFpl			-	%
Level of Service and Other Perfor	mance Measu	res with	Passing	Lane
Level of service including passing lane Peak 15-min total travel time, TT15	, LOSpl	A -	veh-h	
Bicycle Leve	l of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	2038.3
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.36
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

____Directional Two-Lane Highway Segment Analysis______

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project AM

Highway

SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year Description Rio Ranch Seg 3 NB

Percent Free Flow Speed, PFFS

_____Input Data_____

Highway class Class	2	Peak hour factor, PHF	0.80	
Shoulder width	6.0 ft	% Trucks and buses	3	8
Lane width	12.0 ft	% Trucks crawling	0.0	8
Segment length	0.3 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	0	용
Grade: Length	0.30 mi	% No-passing zones	100	용
Up/down	3.0 %	Access point density	0	/mi

Analysis direction volume, Vd 669 veh/h Opposing direction volume, Vo 817 veh/h

_____Average Travel Speed_____

Direction	Analysis	(d)	0pp	osing (o)
PCE for trucks, ET	1.4			1.0	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor, (note-5) fl	HV 0.98	8		1.000	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	846	pc/h		1021	pc/h
Free-Flow Speed from Field Measuremen	nt:				
Field measured speed, (note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed, (note-3) BFFS		45.0	mi/h		
Adj. for lane and shoulder width, (not	te-3) fLS	0.0	mi/h		
Adj. for access point density, (note-	3) fA	0.0	mi/h		
Free-flow speed, FFSd		45.0	mi/h		
Adjustment for no-passing zones, fnp		2.3*	mi/h		
Average travel speed, ATSd		28.2	mi/h		

62.7 %

Percent Time-Spent-Fo	ollowing
PCE for trucks, ET PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg 0.92	1.00
Directional flow rate,(note-2) vi 907 Base percent time-spent-following,(note-4) BPT Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFdLevel of Service and Other Per	19.2 84.7 %
	Tormance measures
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.53 63 veh-mi 201 veh-mi 2.2 veh-h 1686 veh/h 1567 veh/h 1567 veh/h
Passing Lane Anal	lysis
Total length of analysis segment, Lt Length of two-lane highway upstream of the pas Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from abov Level of service, LOSd (from above)	- mi 28.2 mi/h
Average Travel Speed with	Passing Lane
Downstream length of two-lane highway within e	
length of passing lane for average travel Length of two-lane highway downstream of effec	speed, Lde - mi
<pre>length of the passing lane for average tra Adj. factor for the effect of passing lane on average speed, fpl</pre>	avel speed, Ld - mi
Average travel speed including passing lane, A Percent free flow speed including passing lane	
Percent Time-Spent-Following w	with Passing Lane
Downstream length of two-lane highway within e of passing lane for percent time-spent-fol	llowing, Lde - mi
Length of two-lane highway downstream of effec the passing lane for percent time-spent-fo Adj. factor for the effect of passing lane	
on percent time-spent-following, fpl Percent time-spent-following	=
including passing lane, PTSFpl	- %
Level of Service and Other Performance M	Measures with Passing Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A veh-h
Bicycle Level of Se	ervice

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	836.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.89
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Cumulative + Project PM Analysis Time Period Highway SR 1 From/To Rio Rd / Carmel Valley Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.89 Shoulder width 6.0 ft % Trucks and buses 3 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down 3.0 Access point density 0 /mi Analysis direction volume, Vd 1071 veh/h Opposing direction volume, Vo 739 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1213 pc/h 833 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 26.8 mi/h Percent Free Flow Speed, PFFS 59.6 용

Percent Time-S	pent-Follow	ing		
PCE for trucks, ET PCE for RVs, ER	nalysis(d) 1.0 1.0 1.000		Opposing 1.0 1.0 1.000	(0)
Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	0.92		1.000	
Directional flow rate,(note-2) vi Base percent time-spent-following,(note Adjustment for no-passing zones, fnp	1305 p -4) BPTSFd		830	pc/h
Percent time-spent-following, PTSFd		93.1	%	
Level of Service and Ot	her Perform	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VM		E 0.77 90	veh-mi	
Peak-hour vehicle-miles of travel, VMT6 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS	0	321 3.4 0	veh-mi veh-h veh/h	
Capacity from PTSF, CdPTSF Directional Capacity		1567 1567	veh/h veh/h	
Passing La	ne Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapers Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (fr Level of service, LOSd (from above)	, Lpl		0.3 Lu - 26.8 93.1 E	mi mi mi mi/h
Average Travel Speed	with Pass	ing Lane	e	
Downstream length of two-lane highway w length of passing lane for average Length of two-lane highway downstream o	travel spee	d, Lde	-	mi
length of the passing lame for aver Adj. factor for the effect of passing l on average speed, fpl	age travel		Ld -	mi
Average travel speed including passing Percent free flow speed including passi			0.0	ે
Percent Time-Spent-Foll	owing with	Passing	Lane	
Downstream length of two-lane highway w of passing lane for percent time-sp Length of two-lane highway downstream o	ent-followi	ng, Lde	-	mi
the passing lane for percent time-s Adj. factor for the effect of passing l on percent time-spent-following, fp	pent-follow ane			mi
Percent time-spent-following including passing lane, PTSFpl	_		-	90
Level of Service and Other Perfor	mance Measu	res with	n Passing	Lane
Level of service including passing lane Peak 15-min total travel time, TT15	, LOSpl	A -	veh-h	
Bicycle Leve	l of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1203.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.08
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JC

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project Saturday

Highway SR 1

From/To Rio Rd / Carmel Valley Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 3 NB

Highway	class Class	2		Peak hour factor, PHF	0.92	
Shoulder	width	6.0	ft	% Trucks and buses	1	용
Lane wid	lth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Specific	c Grade	% Recreational vehicles	0	용
Grade:	Length	0.30	mi	% No-passing zones	100	용
	Up/down	-3.0	용	Access point density	0	/mi

Input Data

Analysis direction volume, Vd $\,$ 1027 $\,$ veh/h Opposing direction volume, Vo $\,$ 948 $\,$ veh/h

_____Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fB Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(1.0 1.0 IV 1.000 1.00 1116	•	1.3 1.0 0.9 1.0	97 0
Free-Flow Speed from Field Measuremen Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (not Adj. for access point density, (note-3)	e-3) fLS	- 45.0	mi/h veh/h mi/h mi/h mi/h	
Free-flow speed, FFSd		45.0	mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 26.0 57.8	mi/h mi/h %	

Percent Time-Spent-	Following	
PCE for trucks, ET 1. PCE for RVs, ER 1.	0 1.0 000 1.000	
	16 pc/h 1118 pc/h	
Level of Service and Other P	erformance Measures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.66 84 veh-mi 308 veh-mi 3.2 veh-h 1700 veh/h 1700 veh/h 1700 veh/h	
Passing Lane And	alysis	
Total length of analysis segment, Lt Length of two-lane highway upstream of the plength of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from ab Level of service, LOSd (from above)	- mi 26.0 mi/h	
Average Travel Speed wit	h Passing Lane	
Downstream length of two-lane highway within length of passing lane for average trave	l speed, Lde - mi	
Length of two-lane highway downstream of eff. length of the passing lane for average to Adj. factor for the effect of passing lane on average speed, fpl		
Average travel speed including passing lane, Percent free flow speed including passing la		
Percent Time-Spent-Following	with Passing Lane	
Downstream length of two-lane highway within of passing lane for percent time-spent-f. Length of two-lane highway downstream of eff.	ollowing, Lde - mi	
the passing lane for percent time-spent- Adj. factor for the effect of passing lane on percent time-spent-following, fpl		
Percent time-spent-following including passing lane, PTSFpl	- %	
Level of Service and Other Performance	Measures with Passing Lane	
Level of service including passing lane, LOS Peak 15-min total travel time, TT15	pl A - veh-h	
Bicycle Level of	Service	

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1116.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.60
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project AM Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.97 Shoulder width 6.0 ft % Trucks and buses 4 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 Access point density 0 /mi Analysis direction volume, Vd 817 veh/h Opposing direction volume, Vo 669 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.9 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.996 0.966 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 846 pc/h 714 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.0 Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 30.6 mi/h Percent Free Flow Speed, PFFS 68.0 용

Percent Time-Spent-Follow	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		Opposing 1.0 1.0 1.000	(0)
Directional flow rate,(note-2) vi 842 Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		748	pc/h
Level of Service and Other Perform	mance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.50 63 245 2.1 0 1700		
Passing Lane Analysi	s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - - 30.6 83.8 D	mi mi mi mi/h
Average Travel Speed with Pass	sing La	ne	
Downstream length of two-lane highway within effe- length of passing lane for average travel spe- Length of two-lane highway downstream of effectiv.	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P		0.0	%
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effe- of passing lane for percent time-spent-follow Length of two-lane highway downstream of effective	ing, Ld	e -	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		_	%
Level of Service and Other Performance Meas	ures wi	th Passing :	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	842.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.14
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project PM

Highway SR 1

From/To Carmel Valley Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 3 SB

Input	Data

Highway	class Class	2		Peak hour factor, PHF	0.90	
Shoulder	width	6.0	ft	% Trucks and buses	1	용
Lane wid	lth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Specific	c Grade	% Recreational vehicles	0	용
Grade:	Length	0.30	mi	% No-passing zones	100	용
	nwob/aU	-3.0	용	Access point density	0	/mi

Analysis direction volume, Vd 739 veh/h Opposing direction volume, Vo 1071 veh/h

_____Average Travel Speed_

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) f	Analysis(d) 1.1 1.0 HV 0.999) Opp	osing (o 1.3 1.0 0.997)
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	822	pc/h	1194	pc/h
Free-Flow Speed from Field Measurement Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(not Adj. for access point density,(note-3)	45 45 16-3) fLS 0.	mi/h veh/h 5.0 mi/h .0 mi/h .0 mi/h		
Free-flow speed, FFSd	4.5	5.0 mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	27	.3* mi/h 7.1 mi/h).1 %		

Percent Time-Spent-Follow	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	75.4 % 16.1 81.7 %	1.0 1.0 1.000 0.92 1291	o) pc/h
Level of Service and Other Perform Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.48 62 v 222 v 2.3 v 1700 v 1700 v	reh-mi reh-mi reh-h reh/h reh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		- 27.1 81.7 D	mi mi mi mi/h
Downstream length of two-lane highway within effectiength of passing lane for average travel speetength of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	tive d, Lde speed, Ld	- - - 0.0	mi mi
Percent Time-Spent-Following with Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl	tive lengt ng, Lde length of	h -	mi mi
Level of Service and Other Performance Measu Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - v	eassing L	ane

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	821.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.44
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project Saturday Highway SR 1 From/To Carmel Valley Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 3 SB Input Data Highway class Class 2 Peak hour factor, PHF 0.93 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 0.3 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 0 용 Grade: Length 0.30 mi % No-passing zones 100 Up/down -3.0 용 Access point density 0 /mi Analysis direction volume, Vd 948 veh/h Opposing direction volume, Vo 1027 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.3 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1019 pc/h 1108 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 0.0 mi/h Free-flow speed, FFSd 45.0 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 26.2 mi/h Percent Free Flow Speed, PFFS 58.2 용

Percent Time-Spent-Fo	llowing		
PCE for trucks, ET PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.000 0.92	
Directional flow rate,(note-2) vi 1019 Base percent time-spent-following,(note-4) BPT Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	15.5	1198 %	pc/h
Level of Service and Other Per	formance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Anal	ysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pas Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from abov Level of service, LOSd (from above)		0.3 u - 26.2 87.7 E	mi mi mi mi/h
Average Travel Speed with	Passing Lane		
Downstream length of two-lane highway within e length of passing lane for average travel Length of two-lane highway downstream of effec	speed, Lde	-	mi
<pre>length of the passing lane for average tra Adj. factor for the effect of passing lane on average speed, fpl</pre>	vel speed, Lo	d - -	mi
Average travel speed including passing lane, A Percent free flow speed including passing lane		- 0.0	%
Percent Time-Spent-Following w	ith Passing 1	Lane	
Downstream length of two-lane highway within e of passing lane for percent time-spent-fol Length of two-lane highway downstream of effec	lowing, Lde	-	mi
the passing lane for percent time-spent-fo Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance M	easures with	Passing :	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Se	rvice		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1019.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.55
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project AM

Highway

SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Description Rio Ranch Seg 4 NB

		I	nput Data		
Highway class Class	2		Peak hour factor, PHF	0.85	
Shoulder width	6.0	ft	% Trucks and buses	1	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	용
Grade: Length		mi	% No-passing zones	100	용
Up/down	-	용	Access point density	3	/mi
			3 43		

Analysis direction volume, Vd 403 veh/h Opposing direction volume, Vo 594 veh/h

Average	e Travel Speed	
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) Grade adj. factor,(note-1) fg	Analysis(d) 1.2 1.0 fHV 0.998 1.00	Opposing (o) 1.1 1.0 0.999 1.00

700

pc/h

orace adj. raccor, (moce r, rg			
Directional flow rate,(note-2) vi	475	pc/h	
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand.(note-3) V		_	mi/h veh/h
Estimated Free-Flow Speed:		45.0	
Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) Adj. for access point density,(note-3) fA	fLS	45.0 0.0 0.8	mi/h mi/h mi/h
Free-flow speed, FFSd		44.3	mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 32.8 74.2	mi/h mi/h %

Percent Time-S	Spent-Following		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	Analysis(d) 1.0 1.0 1.00 1.000 1.000 474 pc/h e-4) BPTSFd 52.4 32.7 65.6	1.0 1.0 1.000 1.00 699	(o) pc/h
Level of Service and Ot	her Performance	Measures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMTe Peak-hour vehicle-miles of travel, VMTe Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	121 1.1 1698 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing La	ne Analysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tapers Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above)	s, Lpl	0.3 1. Lu – – 32.8 65.6	mi mi mi mi/h
Average Travel Speed	d with Passing L	ane	
Downstream length of two-lane highway was length of passing lane for average Length of two-lane highway downstream of length of the passing lane for average factor for the effect of passing on average speed, fpl	travel speed, Ld of effective rage travel speed		mi mi
Average travel speed including passing Percent free flow speed including pass		0.0	8
Percent Time-Spent-Foll	owing with Passi	ng Lane	
Downstream length of two-lane highway work of passing lane for percent time-sp. Length of two-lane highway downstream of two-lane highway work with the control of two-lane highway with the control of two-lane	pent-following, L of effective leng	de - th of	mi
the passing lane for percent time-s Adj. factor for the effect of passing in on percent time-spent-following, fr Percent time-spent-following	lane	Ld - -	mi
including passing lane, PTSFpl		-	8
Level of Service and Other Perform	rmance Measures w	vith Passing :	Lane
Level of service including passing lane Peak 15-min total travel time, TT15	e, LOSpl A	veh-h	
Ricycle Leve	al of Sarvica		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	474.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.16
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project PM Highway SR 1 From/To Ribera Rd / Rio Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 NB Input Data Highway class Class 2 Peak hour factor, PHF 0 90 Shoulder width 6.0 ft % Trucks and buses 3 용 Lane width 12.0 % Trucks crawling 0.0 ft Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 903 veh/h Opposing direction volume, Vo 672 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.997 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1003 pc/h 749 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 28.4 mi/h

64.1

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follow:	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.000 1.00	
Directional flow rate,(note-2) vi 1003 por Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		747	pc/h
Level of Service and Other Performs	ance Meası	ures	
Peak 15-min total travel time, TT15	271 x 2.6 x 0 x 1700 x	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 - - 28.4 88.4 E	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl		- -	
Percent free flow speed including passing lane, PFI	'Spl	0.0	*
Percent Time-Spent-Following with I	Passing La	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	ક
Level of Service and Other Performance Measur	res with 1	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1003.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.98
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project Saturday

Highway SR 1

From/To Ribera Rd / Rio Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017 Description Rio Ranch Seg 4 NB

_____Input Data_____

Highway	class Class	2		Peak hour factor, PHF	0.87	
Shoulder	r width	6.0	ft	% Trucks and buses	1	8
Lane wid	lth	12.0	ft	% Trucks crawling	0.0	8
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	_	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	3	/mi

Analysis direction volume, Vd 821 veh/h Opposing direction volume, Vo 849 veh/h

______Average Travel Speed__

Direction	Ana	lvsis	(d)	 aa0	osing (c	.)
PCE for trucks, ET	111101	1.0		OPP	1.0	, ,
•		1.0			1.0	
PCE for RVs, ER						
Heavy-vehicle adj. factor, (note-5)					1.000	
Grade adj. factor,(note-1) fg		1.00			1.00	
Directional flow rate,(note-2) vi		944	pc/h		976	pc/h
Free-Flow Speed from Field Measurem Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(n Adj. for access point density,(note	note-3)	fLS	- - 45.0 0.0 0.8	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd			44.3	mi/h		
Adjustment for no-passing zones, fr Average travel speed, ATSd Percent Free Flow Speed, PFFS	ıp		2.3* 27.1 61.1	mi/h mi/h %		

Percent Time-Spent-Follow	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00 Directional flow rate,(note-2) vi 944 rg Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h 76.2 20.0	1.0 1.0 1.000 1.00	pc/h
Level of Service and Other Perform	mance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis	S		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	_	0.3 u - 27.1 86.0 E	mi mi mi mi/h
Average Travel Speed with Pass	sing Lane		
Downstream length of two-lane highway within effective length of passing lane for average travel specting the spectific length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSPI Percent free flow speed including passing lane, Pi	ctive ed, Lde e speed, L	-	mi mi
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-follow: Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane	ctive len ing, Lde e length	gth - of	mi mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFplLevel of Service and Other Performance Measu	ures with	- Passing T	% Jane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	943.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.51
Ricycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project AM Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 91 Shoulder width 6.0 ft % Trucks and buses 4 용 Lane width 12.0 % Trucks crawling ft 0.0 Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 594 veh/h Opposing direction volume, Vo 403 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.3 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.996 0.988 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 655 pc/h 448 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 0.8 mi/h Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 33.4 mi/h

75.5

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Percent Free Flow Speed, PFFS

Percent Time-Spent-Follows	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		Opposing 1.0 1.0 1.000	
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp	34.5	443 % %	pc/h
Level of Service and Other Performs	ance Mea	sures	
Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 	mi mi mi mi/h
Average Travel Speed with Passi	ing Lane		
Downstroom longth of two lone highway within offert			
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel and adj. factor for the effect of passing lane	speed, L	d -	mi
on average speed, fpl Average travel speed including passing lane, ATSpl		-	
Percent free flow speed including passing lane, PFF	FSpl	0.0	8
Percent Time-Spent-Following with F	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followin Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follows Adj. factor for the effect of passing lane			mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res with	Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	652.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.02
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

____Directional Two-Lane Highway Segment Analysis____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project PM

Highway SR 1

From/To Rio Rd / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year Description Rio Ranch Seg 4 SB

_____Input Data_____

Highway	class Class	2		Peak hour factor, PHF	0.93	
Shoulder	r width	6.0	ft	% Trucks and buses	0	용
Lane wio	dth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	0.3	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Level		% Recreational vehicles	0	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	-	용	Access point density	3	/mi

Analysis direction volume, Vd 672 veh/h Opposing direction volume, Vo 903 veh/h

_____Average Travel Speed____

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fl Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Analysis(1.1 1.0 HV 1.000 1.00 723			sing (o 1.0 1.0 1.00 1.000 1.00) pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-1) for access point density,(note-1)	te-3) fLS	- 45.0	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		44.3	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 28.8 65.1	mi/h mi/h %		

Percent Time-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor, (note-1) fg Directional flow rate, (note-2) vi Base percent time-spent-following, (note-4) Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h	Opposing 1.0 1.0 1.000 1.000 971 %	pc/h
Level of Service and Other Perform	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.43 54 202 1.9 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)	lane, I	0.3 - - 28.8 77.5 D	mi mi mi mi/h
Average Travel Speed with Pass	ing Lane	=	
Downstream length of two-lane highway within effections length of passing lane for average travel speed. Length of two-lane highway downstream of effective length of the passing lane for average travel and j. factor for the effect of passing lane on average speed, fpl. Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFF	tive d, Lde speed, I	-	mi mi
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effection of passing lane for percent time-spent-follows: Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow. Adj. factor for the effect of passing lane on percent time-spent-following, fpl	ng, Lde length	- of	mi mi
Percent time-spent-following			
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measu:	res with	n Passing 1	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level Of Service	~		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	722.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.18
Bicycle LOS	В

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project Saturday Highway SR 1 From/To Rio Rd / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 4 SB Input Data Highway class Class 2 Peak hour factor, PHF 0 97 Shoulder width 6.0 ft % Trucks and buses 0 용 Lane width 12.0 % Trucks crawling 0.0 ft Segment length Truck crawl speed 0.3 0.0 mi/hr Terrain type Level % Recreational vehicles 0 용 % No-passing zones Grade: Length 100 Up/down 용 Access point density 3 /mi Analysis direction volume, Vd 849 veh/h Opposing direction volume, Vo 821 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.1 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 875 pc/h 846 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 0.8 Free-flow speed, FFSd 44.3 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 28.6 mi/h Percent Free Flow Speed, PFFS 64.6 용

Percent Time-Spent-Follows	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 1.00		Opposing 1.0 1.0 1.000	(0)
Directional flow rate,(note-2) vi 875 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		846	pc/h
Level of Service and Other Performa	ance Mea	asures	
·	D 0.51 66 255 2.3 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		0.3 Lu - - 28.6 84.3 D	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane	e	
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane on average speed, fpl	speed, I	Ld - -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFR		0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		_	ક
Level of Service and Other Performance Measur	res with	n Passing :	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	875.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.28
Bicycle LOS	В

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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

__Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project AM Carmel Valley Road

Highway From/To Schulte / Robinson Canyon

Unincorporated Monterey County Jurisdiction

Analysis Year Oct 2016

Percent Free Flow Speed, PFFS

Description Rio Ranch Seg 6 EB

					_		
	Highway	class Class	2		Peak hour factor, PHF	0.91	
	Shoulde	r width	6.0	ft	% Trucks and buses	8	용
	Lane wid	lth	12.0	ft	% Trucks crawling	0.0	8
	Segment	length	1.5	mi	Truck crawl speed	0.0	mi/hr
	Terrain	type	Level		% Recreational vehicles	1	용
	Grade:	Length	-	mi	% No-passing zones	100	용
		Up/down	_	용	Access point density	26	/mi

Input Data

Analysis direction volume, Vd 461 veh/h Opposing direction volume, Vo 919 veh/h

Averag	ge Travel Speed	
Direction	Analysis(d)	Opposing (o)

PCE for trucks, ET	1.2	1.0
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	0.984	1.000
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate, (note-2) vi	515 pc/h	1010 pc/h

67.5

Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM	_	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) fLS	50.0	mi/h mi/h
Adj. for access point density,(note-3) fA Free-flow speed, FFSd	6.5 43.5	mi/h mi/h
Adjustment for no-passing zones, fnp	2.3*	mi/h
Average travel speed, ATSd	29.4	mi/h

Percent Time	-Spent-Followi	.ng		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	Analysis(d) 1.0 1.0 1.00 1.000	Op	pposing (1.0 1.0 1.000 1.000	0)
Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	507 po te-4) BPTSFd		1010	pc/h
Level of Service and (Other Performa	nce Measi	ires	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMP Peak-hour vehicle-miles of travel, VMP Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	VMT15 T60	692 x 6.5 x 1700 x	reh-mi reh-mi reh-h reh/h reh/h	
Passing	ùane Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including tape: Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (Evel of service, LOSd (from above)	rs, Lpl e)		1.5 - - 29.4 65.0 C	mi mi mi mi/h
Average Travel Spec	ed with Passi	.ng Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream	e travel speed		-	mi
length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl		speed, Ld	-	mi
Average travel speed including passing Percent free flow speed including passing	g lane, ATSpl sing lane, PFF	Spl	- 0.0	%
Percent Time-Spent-Fo	llowing with F	Passing La	ine	
Downstream length of two-lane highway of passing lane for percent time-Length of two-lane highway downstream	spent-following of effective	ng, Lde length of	_ :	mi
the passing lane for percent time Adj. factor for the effect of passing on percent time-spent-following,	lane	.ng, Ld	-	mi
Percent time-spent-following including passing lane, PTSFpl			-	%
Level of Service and Other Perf	ormance Measur	es with E	assing L	ane
Level of service including passing lar Peak 15-min total travel time, TT15	ne, LOSpl		reh-h	
Bicycle Le	vel of Service			

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	506.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.21
Bicycle LOS	D

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- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project PM Carmel Valley Road Highway From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0 92 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 1028 veh/h Opposing direction volume, Vo 564 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1117 pc/h 618 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 27.7 mi/h

63.8

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Percent Free Flow Speed, PFFS

Percent Time-Spen	t-Following		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	ysis(d) 1.0 1.0 1.000	Opposing 1.0 1.0 1.000	(0)
	1117 pc/h	613	pc/h
Level of Service and Other	Performance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.66 419 1542 15.1 0 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane	Analysis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the Length of passing lane including tapers, I Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	pl	1.5 Lu – 27.7 90.8 E	mi mi mi mi/h
Average Travel Speed w	ith Passing Lane	e	
Downstream length of two-lane highway with length of passing lane for average tra Length of two-lane highway downstream of e	vel speed, Lde	-	mi
length of the passing lane for average Adj. factor for the effect of passing lane on average speed, fpl	travel speed, 1	Ld - -	mi
Average travel speed including passing lan Percent free flow speed including passing		0.0	%
Percent Time-Spent-Followi	ng with Passing	Lane	
Downstream length of two-lane highway with of passing lane for percent time-spent Length of two-lane highway downstream of e	-following, Lde	-	mi
the passing lane for percent time-spen Adj. factor for the effect of passing lane	t-following, Ld		mi
on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performan	ce Measures witl	n Passing 1	Lane
Level of service including passing lane, I Peak 15-min total travel time, TT15		veh-h	
Bicycle Level o	f Service		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1117.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.61
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone:

E-Mail:

_Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Cumulative + Project Saturday Analysis Time Period Highway Carmel Valley Road From/To Schulte / Robinson Canyon Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.92 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 % No-passing zones mi 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 791 veh/h Opposing direction volume, Vo 669 veh/h _Average Travel Speed_ Opposing (o) Direction Analysis(d) PCE for trucks, ET 1.2 1.1 PCE for RVs, ER 1.0 1.0 0.992 Heavy-vehicle adj. factor, (note-5) fHV 0.986 Grade adj. factor,(note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 872 pc/h 733 pc/h Free-Flow Speed from Field Measurement: mi/h Field measured speed, (note-3) S FM Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 6.5 mi/h Free-flow speed, FFSd 43.5 mi/h

2.3*

28.7

66.1

mi/h

mi/h

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Adjustment for no-passing zones, fnp

Average travel speed, ATSd

Percent Free Flow Speed, PFFS

Percent Tim	e-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(n Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	0.92 935 po note-4) BPTSFd	c/h 74.0 % 23.7 87.3 %	1.0 1.0 1.000 1.000 727	o) pc/h
Level of Service and	Other Performa	ance Meas	ures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, V Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	MT60	1187 11.2 0 1564 1564	veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream Length of passing lane including tap Average travel speed, ATSd (from abo Percent time-spent-following, PTSFd Level of service, LOSd (from above)	of the passing ers, Lpl eve)		1.5 - - 28.7 87.3 E	mi mi mi mi/h
Average Travel Sp	eed with Pass:	ing Lane_		
Downstream length of two-lane highwa length of passing lane for avera Length of two-lane highway downstrea length of the passing lane for a Adj. factor for the effect of passin on average speed, fpl Average travel speed including passi Percent free flow speed including pa	y within effect ge travel speed m of effective verage travel : g lane ng lane, ATSpl	tive d, Lde speed, Ld	- 1 - - -	mi mi
Percent Time-Spent-F	ollowing with	Passing I	ane	
Downstream length of two-lane highwa of passing lane for percent time Length of two-lane highway downstrea the passing lane for percent tim Adj. factor for the effect of passin on percent time-spent-following, Percent time-spent-following including passing lane, PTSFpl	-spent-following of effective ne-spent-following lane	ng, Lde length o	-	mi mi
Level of Service and Other Per	formance Measu	res with	Passing T	ane
Level of service including passing l Peak 15-min total travel time, TT15	ane, LOSpl	A -	veh-h	-
Bicycle L	evel of Service	e.		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	859.8
Effective width of outside lane, We	24.00
Iffective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.48
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project AM Highway Carmel Valley Road From/To Robinson Canyon / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 919 veh/h Opposing direction volume, Vo 461 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.1 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.992 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1121 pc/h 567 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 28.1 mi/h

64.6

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Percent Free Flow Speed, PFFS

Percent Time-Sp	ent-Follow	ing		
Direction An	alysis(d)		Opposina	(0)
PCE for trucks, ET	1.0		1.0	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		1.000	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	1121 po		562	pc/h
Base percent time-spent-following, (note-	4) BPTSFd	77.6	용	
Adjustment for no-passing zones, fnp		20.0		
Percent time-spent-following, PTSFd		90.9	8	
Level of Service and Oth	er Performa	ance Mea	sures	
Level of service, LOS		E		
Volume to capacity ratio, v/c		0.66		
Peak 15-min vehicle-miles of travel, VMT	15	420	veh-mi	
Peak-hour vehicle-miles of travel, VMT60		1379	veh-mi	
Peak 15-min total travel time, TT15		14.9	veh-h	
Capacity from ATS, CdATS		0	veh/h	
Capacity from PTSF, CdPTSF		1700	veh/h	
Directional Capacity		1700		
Passing Lan	e Analysis			
rabbing ban	c marybrb.			
Total length of analysis segment, Lt			1.5	mi
Length of two-lane highway upstream of t	he passing	lane, L	u -	mi
Length of passing lane including tapers,	Lpl		-	mi
Average travel speed, ATSd (from above)			28.1	mi/h
Percent time-spent-following, PTSFd (fro	m above)		90.9	
Level of service, LOSd (from above)			E	
Average Travel Speed	with Pass	ing Lane		
Downstone loosth of too loos bishoos oi				
Downstream length of two-lane highway wi				m 4
length of passing lane for average t Length of two-lane highway downstream of		ı, Lae	-	mi
length of the passing lane for avera		T boods	d -	mi
Adj. factor for the effect of passing la		speeu, n	u -	шт
on average speed, fpl	110		_	
Average travel speed including passing l	ane ATSnl		_	
Percent free flow speed including passin			0.0	8
		-		
Percent Time-Spent-Follo	wing with 1	Passing	Lane	
Downstream length of two-lane highway wi	thin effect	tive len	gth.	
of passing lane for percent time-spe				mi
Length of two-lane highway downstream of				
the passing lane for percent time-sp	ent-follow:	ing, Ld	-	mi
Adj. factor for the effect of passing la	ne			
on percent time-spent-following, fpl			-	
Percent time-spent-following				
including passing lane, PTSFpl			-	용
Level of Service and Other Perform	ance Measu	res with	Passing	Lane
Level of service including passing lane,	I.OSpl	Δ		
Peak 15-min total travel time, TT15	порът	_	veh-h	
rear 15 min cocar craver crme, 1115			A C11 11	
Bicycle Level	of Service	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1120.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.62
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project PM $\,$

Highway Carmel Valley Road

From/To Robinson Canyon / Schulte

Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016

Description Rio Ranch Seg 6 WB

_____Input Data_____

Highway class Class	2		Peak hour factor, PHF	0.82	
Shoulder width	6.0	ft	% Trucks and buses	8	용
Lane width	12.0	ft	% Trucks crawling	0.0	용
Segment length	1.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	1	용
Grade: Length	_	mi	% No-passing zones	100	용
Up/down	-	용	Access point density	26	/mi

Analysis direction volume, Vd $\,$ 564 $\,$ veh/h Opposing direction volume, Vo $\,$ 1028 $\,$ veh/h

______Average Travel Speed__

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fH Grade adj. factor,(note-1) tg Directional flow rate,(note-2) vi	Analysis(d) 1.1 1.0 V 0.992 1.00 693		sing (0) 1.0 1.0 1.000 1.000 1.254 pc/h
Free-Flow Speed from Field Measuremen Field measured speed, (note-3) S FM Observed total demand, (note-3) V Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS Adj. for lane and shoulder width, (not Adj. for access point density, (note-3)	50 e-3) fLS 0.	mi/h veh/h 0.0 mi/h 0 mi/h 5 mi/h	
Free-flow speed, FFSd	43	3.5 mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	26	3* mi/h 5.1 mi/h 0.0 %	

Percent Time-Spent-Follow	/ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Directional flow rate,(note-1) fg Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd Level of Service and Other Perform	oc/h 69.8 % 16.9 75.8 %	posing 1.0 1.0 1.000 1.000 1.254	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.40 258 v 846 v 9.9 v 1700 v 1700 v	reh-mi reh-mi reh-h reh/h reh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		- 26.1 75.8 D	mi mi mi mi/h
Downstream length of two-lane highway within effecting length of passing lane for average travel speed. Length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl. Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF	etive ed, Lde e speed, Ld	- - - - 0.0	mi mi
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following the passing lane for percent time-spent-following. Length of two-lane highway downstream of effective the passing lane for percent time-spent-following and percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl Level of Service and Other Performance Measurement of the percent management of the performance measurement of	etive lengt ng, Lde e length of ing, Ld	h - - -	mi mi %
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A - v	eh-h	

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	687.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.37
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project Saturday Highway Carmel Valley Road From/To Robinson Canyon / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 6 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 1.5 0.0 mi/hr Terrain type % Recreational vehicles 1 Level 용 Grade: Length % No-passing zones 100 Up/down 용 Access point density /mi Analysis direction volume, Vd 669 veh/h Opposing direction volume, Vo 791 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.992 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 822 pc/h 965 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h mi/h Adj. for access point density, (note-3) fA 6.5 Free-flow speed, FFSd 43.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 27.3 mi/h

62.8

용

Percent Free Flow Speed, PFFS

Percent Time-Spent-Fol	lowing		
Direction Analysis(PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor, (note-1) fg 1.00		Opposing 1.0 1.0 1.000	(0)
	pc/h Fd 71.4 21.8 81.4	965	pc/h
Level of Service and Other Perf	ormance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	D 0.48 306 1004 11.2 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analy	sis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pass Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above Level of service, LOSd (from above)		1.5 Lu - - 27.3 81.4 D	mi mi mi mi/h
Average Travel Speed with P	assing Lar	ıe	
Downstream length of two-lane highway within ef length of passing lane for average travel s Length of two-lane highway downstream of effect	peed, Lde	-	mi
length of the passing lane for average trav Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, AT	el speed,	Ld -	mi
Percent free flow speed including passing lane, Ar		0.0	용
Percent Time-Spent-Following wi	th Passing	g Lane	
Downstream length of two-lane highway within ef of passing lane for percent time-spent-foll Length of two-lane highway downstream of effect	owing, Lde	e –	mi
the passing lane for percent time-spent-fol Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Me	asures wit	h Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Ser	vice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	815.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.45
Bicycle LOS	D

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- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Highway Carmel Valley Road

From/To Rancho San Carlos / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB

Percent Free Flow Speed, PFFS

rebeliption kio kanen beg / BB

		_		
Highway class Class	2	Peak hour factor, PHF	0.82	
Shoulder width	6.0 ft	% Trucks and buses	8	8
Lane width	12.0 ft	% Trucks crawling	0.0	8
Segment length	2.4 mi	Truck crawl speed	0.0	mi/hr
Terrain type	Specific Grade	% Recreational vehicles	1	왕
Grade: Length	0.25 mi	% No-passing zones	100	%
Up/down	-3.0 %	Access point density	14	/mi

____Input Data__

Analysis direction volume, Vd 690 veh/h Opposing direction volume, Vo 988 veh/h

Average Trav	el Spe	ed			
Direction An	alysis	(d)	0pp	osing (0)
PCE for trucks, ET	1.1			1.1	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.99	2		0.992	
Grade adj. factor,(note-1) fg	1.00			1.00	
Directional flow rate,(note-2) vi	848	pc/h		1215	pc/h
Free-Flow Speed from Field Measurement:					
Field measured speed,(note-3) S FM		-	mi/h		
Observed total demand, (note-3) V		-	veh/h		
Estimated Free-Flow Speed:					
Base free-flow speed,(note-3) BFFS		55.0	mi/h		
Adj. for lane and shoulder width, (note-3) fLS	0.0	mi/h		
Adj. for access point density, (note-3) f	A	3.5	mi/h		
Free-flow speed, FFSd		51.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd		1.8* 33.7	mi/h mi/h		

65.4 %

Percent Time-Spent-Fol	lowing		
Direction PCE for trucks, ET PCE for RVs, ER 1.0 PCE for RVs, ER Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4) BPTS Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h Fd 76.1 15.6	Opposing (1.0 1.0 1.00 0.92 1310 %	
Level of Service and Other Perf	ormance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analy	sis		
Total length of analysis segment, Lt Length of two-lane highway upstream of the pass Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above Level of service, LOSd (from above)		2.4 u - 33.7 82.2 D	mi mi mi mi/h
Average Travel Speed with P	assing Lane		
Downstream length of two-lane highway within ef length of passing lane for average travel so Length of two-lane highway downstream of effect length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, AT Percent free flow speed including passing lane,	fective peed, Lde ive el speed, L	- d - -	mi mi
Percent Time-Spent-Following wi	th Passing	Lane	
Downstream length of two-lane highway within ef of passing lane for percent time-spent-foll Length of two-lane highway downstream of effect the passing lane for percent time-spent-fol Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following	owing, Lde ive length	- of	mi mi
including passing lane, PTSFpl		-	%
Level of Service and Other Performance Me	asures with	Passing I	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Ser	vice		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	841.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.47
Bicycle LOS	D

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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project PM Highway Carmel Valley Road From/To Rancho San Carlos / Schulte Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 EB Input Data Highway class Class 2 Peak hour factor, PHF 0.82 Shoulder width 6.0 ft % Trucks and buses 8 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 mi % No-passing zones 100 Up/down -3.0 용 Access point density /mi Analysis direction volume, Vd 1063 veh/h Opposing direction volume, Vo 681 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.0 1.2 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adj. factor, (note-5) fHV 1.000 0.981 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 1296 pc/h 847 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 33.1 mi/h Percent Free Flow Speed, PFFS 64.2 용

Percent Time-Spent-Follows	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00		1.0 1.0 1.000 0.92	
Directional flow rate,(note-2) vi 1296 po Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd			pc/h
Level of Service and Other Performa	ance Meas	ures	
Peak 15-min total travel time, TT15	2551 23.5 0	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - - 33.1 92.5 E	mi mi mi mi/h
Average Travel Speed with Pass:	ing Lane_		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel : Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl		- -	
Percent free flow speed including passing lane, PFI	'Sp1	0.0	*
Percent Time-Spent-Following with I	Passing L	ane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective	ng, Lde	-	mi
the passing lane for percent time-spent-follow: Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Measur	res with	Passing L	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15		veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1296.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.69
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

__Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project Saturday

Carmel Valley Road Highway

From/To Rancho San Carlos / Schulte

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016

Percent Free Flow Speed, PFFS

Description Rio Ranch Seg 7 EB

Highway	class Class	2		Peak hour factor, PHF	0.82	
Shoulder	r width	6.0	ft	% Trucks and buses	8	%
Lane wio	dth	12.0	ft	% Trucks crawling	0.0	8
Segment	length	2.4	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Specific	c Grade	% Recreational vehicles	1	8
Grade:	Length	0.25	mi	% No-passing zones	100	8
	Up/down	-3.0	용	Access point density	14	/mi

Input Data

Analysis direction volume, Vd 854 veh/h Opposing direction volume, Vo 840 veh/h

Average Travel	Speed
----------------	-------

ravel Speed_		
1.0 1.0 1.0 1.000) Opp	osing (o) 1.1 1.0 0.992 1.00 1033 pc/h
55 5e-3) fLS 0.	.0 mi/h	
1.	.8* mi/h	
H	Analysis(d 1.0 1.0 1.0 1.0 1.00 1.00 1.00 1.01 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.041 1.00 1.00	1.0 1.0 1.0 1.00 1.00 1.00 1041 pc/h nt: - mi/h - veh/h te-3) fLS 0.0 mi/h 3) fA 3.5 mi/h 51.5 mi/h

65.3 %

Percent Time-Spent-Follo	wing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0		Opposing 1.0 1.0	(0)
Heavy-vehicle adjustment factor, fHV 1.000 Grade adjustment factor,(note-1) fg 1.00	pc/h l 80.4 16.6 88.4	1.000 0.92 1113 %	pc/h
Level of Service and Other Perfor	mance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.61 625 2050 18.6 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	.s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 - - 33.6 88.4 E	mi mi mi mi/h
Average Travel Speed with Pas	sing Lane	=	
Downstream length of two-lane highway within effe length of passing lane for average travel spe Length of two-lane highway downstream of effectiv	ed, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl		id -	mi
Average travel speed including passing lane, ATSp Percent free flow speed including passing lane, P		0.0	8
Percent Time-Spent-Following with	Passing	Lane	
Downstream length of two-lane highway within effe of passing lane for percent time-spent-follow Length of two-lane highway downstream of effectiv	ing, Lde	-	mi
the passing lane for percent time-spent-follo Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	%
Level of Service and Other Performance Meas	ures with	n Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servi	.ce		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1041.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.58
Bicycle LOS	E

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: F E-Mail:	āx:
Directional Two-Lane Hig	ghway Segment Analysis
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Cumulative + Proj Highway Carmel Valley Roa From/To Schulte / Rancho Jurisdiction Unincorporated Mo Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB	ad San Carlos
Input D)ata
Shoulder width 6.0 ft % Tru Lane width 12.0 ft % Tru Segment length 2.4 mi Truck Terrain type Specific Grade % Rec Grade: Length 0.25 mi % No- Up/down 3.0 % Acces	hour factor, PHF 0.77 ucks and buses 8 % ucks crawling 0.0 % c crawl speed 0.0 mi/hr creational vehicles 1 % -passing zones 100 % ss point density 14 /mi eh/h
=	eh/h
Average Trave	el Speed
Direction Ana PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHV Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	Alysis(d) Opposing (o) 1.1 1.0 1.0 1.0 0.992 1.000 1.00 1.00 1293 pc/h 896 pc/h
Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-3) Adj. for access point density,(note-3) fA	
Free-flow speed, FFSd	51.5 mi/h
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	1.8* mi/h 32.7 mi/h 63.5 %

Percent Time-Spe	nt-Followi	ng		
PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	lysis(d) 1.0 1.0 1.000 0.92 1395 pc		posing (1.0 1.0 1.000 1.00	o) pc/h
Base percent time-spent-following, (note-4 Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd) BPTSFd		890	релі
Level of Service and Othe	r Performa	nce Measu	res	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT1 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	5	2371 v 23.5 v 0 v 1564 v	eh-mi eh-mi eh-h eh/h eh/h	
Passing Lane	Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of th Length of passing lane including tapers, Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl		2.4 - - 32.7 94.0 E	mi mi mi mi/h
Average Travel Speed	with Passi	ng Lane		
Downstream length of two-lane highway wit length of passing lane for average tr Length of two-lane highway downstream of	avel speed		_	mi
length of the passing lane for average Adj. factor for the effect of passing land on average speed, fpl	e travel s e		-	mi
Average travel speed including passing la Percent free flow speed including passing	ne, ATSPI lane, PFF	Spl	0.0	8
Percent Time-Spent-Follow	ing with Pa	assing La	ne	
Downstream length of two-lane highway wit of passing lane for percent time-spen Length of two-lane highway downstream of	t-following	g, Lde	-	mi
the passing lane for percent time-spe Adj. factor for the effect of passing lan on percent time-spent-following, fpl	nt-followi			mi
Percent time-spent-following including passing lane, PTSFpl			_	ક
Level of Service and Other Performa	nce Measur	es with P	assing L	ane
Level of service including passing lane, Peak 15-min total travel time, TT15	LOSpl		eh-h	
Bicycle Level	of Service			

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1283.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.68
Bicycle LOS	E

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

____Directional Two-Lane Highway Segment Analysis_____

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project PM

Carmel Valley Road Highway

From/To Schulte / Rancho San Carlos

Jurisdiction Unincorporated Monterey County

Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB

_____Input Data_____

Highway	class	Class	2		Peak hour factor, PHF 0	.77	
Shoulder	width		6.0	ft	% Trucks and buses 8		용
Lane wio	lth		12.0	ft	% Trucks crawling 0	.0	용
Segment	length		2.4	mi	Truck crawl speed 0	. 0	mi/hr
Terrain	type		Specific	c Grade	% Recreational vehicles 1		용
Grade:	Length		0.25	mi	% No-passing zones 10	0 0	용
	Up/down	1	3.0	용	Access point density 14	4	/mi

Analysis direction volume, Vd 681 veh/h Opposing direction volume, Vo 1063 veh/h

_____Average Travel Speed____

Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fl Grade adj. factor,(note-1) fg	Analysis(c 1.1 1.0 HV 0.990 1.00		Opposing 1.0 1.0 1.00	0
Directional flow rate,(note-2) vi	893	pc/h	1381	pc/h
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note-1) Adj. for access point density,(note-1)	: te-3) fLS (- 55.0 0.0	mi/h veh/h mi/h mi/h mi/h	
Free-flow speed, FFSd	į	51.5	mi/h	
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS	3	1.8* 32.1 52.2	mi/h mi/h %	

Percent Time-Spent-Follow:	ing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	c/h 80.4 13.4 85.9	Opposing (o) pc/h
Level of Service and Other Performa	ance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	16.6 1686 1564 1564	veh-mi veh-mi veh-h veh/h veh/h	
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 u - 32.1 85.9 E	mi mi mi mi/h
Aviorago Travol Spood with Dagg	ing Tano		
Downstream length of two-lane highway within effect length of passing lane for average travel speed Length of two-lane highway downstream of effective length of the passing lane for average travel sadj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PFI	tive d, Lde speed, L FSpl	- d - - - 0.0	mi mi
Percent lime-spent-rollowing with	Passing	Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-following Length of two-lane highway downstream of effective the passing lane for percent time-spent-following Adj. factor for the effect of passing lane	ng, Lde length	of	mi mi
on percent time-spent-following, fpl		-	
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	res with	Passing I	ane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	884.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	4.50
Bicycle LOS	D

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Cumulative + Project Saturday Analysis Time Period Highway Carmel Valley Road From/To Schulte / Rancho San Carlos Jurisdiction Unincorporated Monterey County Analysis Year Oct 2016 Description Rio Ranch Seg 7 WB Input Data Highway class Class 2 Peak hour factor, PHF 0.94 Shoulder width 6.0 ft % Trucks and buses 1 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.4 шi 0.0 mi/hr Terrain type Specific Grade % Recreational vehicles 1 용 Grade: Length 0.25 тi % No-passing zones 100 Up/down 3.0 Access point density /mi Analysis direction volume, Vd 840 veh/h Opposing direction volume, Vo 854 veh/h _Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.1 1.0 PCE for RVs, ER 1.0 1.0 Heavy-vehicle adj. factor, (note-5) fHV 0.999 1.000 Grade adj. factor, (note-1) fg 1.00 1.00 Directional flow rate, (note-2) vi 895 pc/h 909 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 0.0 mi/h Adj. for access point density, (note-3) fA 3.5 mi/h Free-flow speed, FFSd 51.5 mi/h Adjustment for no-passing zones, fnp 1.8* mi/h Average travel speed, ATSd 35.7 mi/h Percent Free Flow Speed, PFFS 69.3 용

Percent Time-Spent-Follow	ing		
Direction Analysis(d) PCE for trucks, ET 1.0 PCE for RVs, ER 1.0 Heavy-vehicle adjustment factor, fHV 1.000		1.0 1.0 1.000	(0)
Grade adjustment factor,(note-1) fg 0.92 Directional flow rate,(note-2) vi 971 p Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		1.00	pc/h
Level of Service and Other Perform	ance Me	easures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	E 0.57 536 2016 15.0 1698 1564 1564		
Passing Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of the passing Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		2.4 Lu - - 35.7 86.7 E	mi mi mi mi/h
Average Travel Speed with Pass	ing Lar	ne	
Downstream length of two-lane highway within effectength of passing lane for average travel speetength of two-lane highway downstream of effective	d, Lde	-	mi
length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl	speed,	Ld -	mi
Average travel speed including passing lane, ATSpl Percent free flow speed including passing lane, PF		0.0	%
Percent Time-Spent-Following with	Passing	g Lane	
Downstream length of two-lane highway within effect of passing lane for percent time-spent-followi Length of two-lane highway downstream of effective	ng, Lde	e -	mi
the passing lane for percent time-spent-follow Adj. factor for the effect of passing lane on percent time-spent-following, fpl			mi
Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measu	res wit	th Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	A -	veh-h	
Bicycle Level of Servic	e		

Posted speed limit, Sp	50
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	893.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.62
Bicycle LOS Score, BLOS	2.53
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project AM Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	VOLUME			
Direction	1		2	
Volume, V	787	vph	1011	vph
Peak-hour factor, PHF	0.80	VPII	0.87	V PII
		VPII		v P11
Peak-hour factor, PHF	0.80	% V D11	0.87	8
Peak-hour factor, PHF Peak 15-minute volume, v15	0.80 246	-	0.87 291	-
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	0.80 246 3	8	0.87 291 1	8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	0.80 246 3	8	0.87 291 1	8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	0.80 246 3 0 Level	90	0.87 291 1 0 Level	े १
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	0.80 246 3 0 Level 0.00	000 000 010	0.87 291 1 0 Level 0.00	200 avo
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	0.80 246 3 0 Level 0.00 0.00	000 000 010	0.87 291 1 0 Level 0.00 0.00	200 avo
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	0.80 246 3 0 Level 0.00 0.00	000 000 010	0.87 291 1 0 Level 0.00 0.00	200 000 000 000 000 000 000 000 000 000
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	0.80 246 3 0 Level 0.00 0.00 2	000 000 010	0.87 291 1 0 Level 0.00 0.00 2	200 000 000 000 000 000 000 000 000 000
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.80 246 3 0 Level 0.00 0.00 2 1.00	000 000 010	0.87 291 1 0 Level 0.00 0.00 2 1.00	200 avo
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.80 246 3 0 Level 0.00 0.00 2 1.00 1.5 1.2	000 000 010	0.87 291 1 0 Level 0.00 0.00 2 1.00 1.5 1.2	200 000 000 000 000 000 000 000 000 000
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	0.80 246 3 0 Level 0.00 0.00 2 1.00 1.5 1.2 0.985	% % mi	0.87 291 1 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % mi

Flow rate, vp Free-flow speed, FF Avg. passenger-car Level of service, L Density, D	travel speed, S	1 499 53.0 55.0 A 9.1	pcphpl mph mph pc/mi/ln	54.0 55.0 A	pcphpl mph mph pc/mi/ln
	Bicycle L	evel of Se	rvice		
Posted speed limit, Percent of segment	-	55		55	
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outsid	e lane, vOL	491.9		581.0	
Effective width of	outside lane, We	24.00		24.00	
Effective speed fac	tor, St	4.79		4.79	
Bicycle LOS Score,	BLOS	2.75		2.36	
Bicycle LOS		C		В	

Fax:

Phone: E-mail:

__OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project PM Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed	53.0	mph	54.0	mph
	_VOLUME			
Direction	1		2	
Volume, V	1142	vph	805	vph
Peak-hour factor, PHF	0.88		0.93	
Peak 15-minute volume, v15	324		216	
Trucks and buses	1	8	1	%
Recreational vehicles	0	용	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
	1.2		1.2	
Recreational vehicles PCE, ER	1.2			
Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	0.995		0.995	
· · · · · · · · · · · · · · · · · · ·		pcphpl		pcphpl
Heavy vehicle adjustment, fHV	0.995	pcphpl		pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 652 53.0 55.0 B	pcphpl mph mph	54.0 55.0 A	pcphpl mph mph pc/mi/ln
Bicycle	Level of Se	rvice		_
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	648.9		432.8	
Effective width of outside lane, W	re 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.41		2.21	
Bicycle LOS	В		В	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project Saturday

Highway: Carmel Valley Road

From/To: Rio to Rancho San Carlos

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 8

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		4	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	1.0	mph
Free-flow speed		mph		mph
	_VOLUME			
Direction	1		2	
Volume, V	952	vph	936	vph
Peak-hour factor, PHF	0.91	-	0.94	-
Peak 15-minute volume, v15	262		249	
Trucks and buses	1	ક	1	ક
Recreational vehicles	0	ક	0	ક
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
B			1.2	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	1.2 0.995		0.995	
the contract of the contract o		pcphpl	0.995	pcphpl
Heavy vehicle adjustment, fHV	0.995	pcphpl	0.995	pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS	1 525 53.0 55.0 A 9.5	mph mph	2 500 54.0 55.0 A	pcphpl mph mph
Density, D	9.5	pc/mi/ln	9.1	pc/mi/ln
	e Level of S	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	523.1		497.9	
Effective width of outside lane, W	We 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.30		2.28	
Bicycle LOS	В		В	

Fax:

Phone: E-mail:

__OPERATIONAL ANALYSIS__

____FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project AM
Highway: Carmel Valley Road
From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed		mph		mph
	_VOLUME			
Direction	1		2	
Volume, V	1093	vph	1363	vph
Peak-hour factor, PHF	0.86	-	0.68	-
Peak 15-minute volume, v15	318		501	
Trucks and buses	2	용	2	용
Recreational vehicles	0	용	0	용
Terrain type	Level		Level	
Grade	0.00	8	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.990		0.990	
neavy venicie aajabemene, inv	0.990			
Flow rate, vp	641	pcphpl		pcphpl
· ·		pcphpl		pcphpl

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel sp Level of service, LOS Density, D		53.0 55.0 B	pcphpl mph mph pc/mi/ln	53.0 55.0 C	pcphpl mph mph pc/mi/ln	
Bicycle Level of Service						
Posted speed limit, Sp Percent of segment with occu	upied	55		55		
on-highway parking		0		0		
Pavement rating, P		3		3		
Flow rate in outside lane, v	7OL	635.5		1002.2		
Effective width of outside 1	Lane, We	24.00		24.00		
Effective speed factor, St		4.79		4.79		
Bicycle LOS Score, BLOS		2.63		2.86		
Bicycle LOS		C		C		

Fax:

Phone: E-mail:

__OPERATIONAL ANALYSIS__

___FREE-FLOW SPEED_

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project PM Highway: Carmel Valley Road From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

P1	-		0	
Direction	1	6.	2	C 1
Lane width	12.0	ft	12.0	ft
Lateral clearance:	6 0	C 1	6 0	. .
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	8		8	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	2.0	mph	2.0	mph
Free-flow speed	53.0	mph	53.0	mph
	VOLUME			
Direction	1		2	
Volume, V	1493	vph	1132	vph
Peak-hour factor, PHF	0.95	VPII	0.88	V P11
Peak 15-minute volume, v15	393		322	
Trucks and buses	2	8	1	8
Recreational vehicles	0	8	0	8
Terrain type	Level	•	Level	•
Grade	0.00	용	0.00	8
Segment length	0.00	m i	0.00	mi
Number of lanes	2	шт	2	шт
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.5		1.5	
Heavy vehicle adjustment, fHV Flow rate, vp	0.990 793	nanhn¹	0.995	nanhn1
riow race, vp	193	pcphpl	646	pcphpl
	RESULTS			

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 793 53.0 55.0 B	pcphpl mph mph pc/mi/ln	53.0 55.0 B	pcphpl mph mph pc/mi/ln
Bicycle I	Level of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	785.8		643.2	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.74		2.41	
Bicycle LOS	C		В	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project Saturday Highway: Carmel Valley Road

From/To: Carmel Rancho to Rio

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 9

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft.	12.0	ft.
Access points per mile	8		8	= -
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph		mph
Lane width adjustment, FLW				mph
Lateral clearance adjustment, FLC		mph		mph
Median type adjustment, FM		mph		mph
	2.0	mph	2.0	mph
Free-flow speed		mph		mph
<u>.</u>		-		-
	_VOLUME			
Direction	1		2	
Volume, V	1229	vph	1177	vph
Peak-hour factor, PHF	0.96		0.94	
the state of the s	320		313	
Trucks and buses	1	%	1	8
Recreational vehicles	0	8	0	8
Terrain type	Level		Level	
Grade	0.00	용	0.00	8
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.995		0.995	
Flow rate, vp	643	pcphpl		pcphpl
· •				
	RESULTS			

Direction	1		2	
Flow rate, vp	643	pcphpl	629	pcphpl
Free-flow speed, FFS	53.0	mph	53.0	mph
Avg. passenger-car travel speed, S	55.0	mph	55.0	mph
Level of service, LOS	В		В	
Density, D	11.7	pc/mi/ln	11.4	pc/mi/ln
Bicycle	Level of Se	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	640.1		626.1	
Effective width of outside lane, We	e 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.41		2.39	
Bicycle LOS	В		В	

Phone: E-mail: Fax:

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project AM Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0 0	mph	0 0	mph
Lateral clearance adjustment, FLC	0.0	mph mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
	_VOLUME			
Direction	1		2	
Volume, V	1082	vph	1108	nday
	1082 0.86	vph	1108 0.76	vph
Peak-hour factor, PHF		vph		vph
Peak-hour factor, PHF	0.86	vph	0.76	vph
Peak-hour factor, PHF Peak 15-minute volume, v15	0.86 315	-	0.76 364	-
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	0.86 315 2	8	0.76 364 2	8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	0.86 315 2 0	8	0.76 364 2	8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	0.86 315 2 0 Level	% %	0.76 364 2 0 Level	- % %
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	0.86 315 2 0 Level 0.00	00 00 00	0.76 364 2 0 Level 0.00	8 8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	0.86 315 2 0 Level 0.00 0.00	00 00 00	0.76 364 2 0 Level 0.00 0.00	8 8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	0.86 315 2 0 Level 0.00 0.00	00 00 00	0.76 364 2 0 Level 0.00 0.00	8 8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	0.86 315 2 0 Level 0.00 0.00 2	00 00 00	0.76 364 2 0 Level 0.00 0.00 2	8 8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.86 315 2 0 Level 0.00 0.00 2 1.00	00 00 00	0.76 364 2 0 Level 0.00 0.00 2 1.00	8 8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	0.86 315 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	00 00 00	0.76 364 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	8 8
Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	0.86 315 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % % mi	0.76 364 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % % mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 635 55.0 55.0 B	pcphpl mph mph pc/mi/ln	55.0 55.0 B	pcphpl mph mph pc/mi/ln
Bicycle 1	Level of Se	ervice		
Posted speed limit, Sp	55		55	
Percent of segment with occupied				
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	629.1		728.9	
Effective width of outside lane, We	24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.63		2.70	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS___

____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project PM Highway: Carmel Valley Road From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge		ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS		mph		mph
Lane width adjustment, FLW				mph
Lane width adjustment, FLW Lateral clearance adjustment, FLC Median type adjustment, FM Access points adjustment, FA	0.0	ngh	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	-
-		-		-
	VOLUME			
Direction	1		2	
	1		2	
Volume, V	1154	vph	960	vph
		vph	_	vph
Volume, V Peak-hour factor, PHF	1154	vph	960	vph
Volume, V Peak-hour factor, PHF	1154 0.95	vph	960 0.90	vph %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15	1154 0.95 304	-	960 0.90 267	-
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	1154 0.95 304 2	8	960 0.90 267 2	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	1154 0.95 304 2	8	960 0.90 267 2	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	1154 0.95 304 2 0 Level	00 00 00	960 0.90 267 2 0 Level	े १
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	1154 0.95 304 2 0 Level 0.00	- - - - - - - - - - - - - - - - - - -	960 0.90 267 2 0 Level 0.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	1154 0.95 304 2 0 Level 0.00 0.00	- - - - - - - - - - - - - - - - - - -	960 0.90 267 2 0 Level 0.00 0.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	1154 0.95 304 2 0 Level 0.00 0.00	- - - - - - - - - - - - - - - - - - -	960 0.90 267 2 0 Level 0.00 0.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	1154 0.95 304 2 0 Level 0.00 0.00 2	- - - - - - - - - - - - - - - - - - -	960 0.90 267 2 0 Level 0.00 0.00 2	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET	1154 0.95 304 2 0 Level 0.00 0.00 2 1.00	- - - - - - - - - - - - - - - - - - -	960 0.90 267 2 0 Level 0.00 0.00 2 1.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1154 0.95 304 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	- - - - - - - - - - - - - - - - - - -	960 0.90 267 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1154 0.95 304 2 0 Level 0.00 0.00 2 1.00 1.5 1.2 0.990	* * * mi	960 0.90 267 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % % mi

Direction Flow rate, vp Free-flow speed, FFS Avg. passenger-car travel speed, S Level of service, LOS Density, D	1 613 55.0 55.0 B 11.1	pcphpl mph mph pc/mi/ln	55.0 55.0 A	pcphpl mph mph pc/mi/ln
Bicycle	Level of Se	ervice		
Posted speed limit, Sp Percent of segment with occupied	55		55	
on-highway parking	0		0	
Pavement rating, P	3		3	
Flow rate in outside lane, vOL	607.4		533.3	
Effective width of outside lane, W	e 24.00		24.00	
Effective speed factor, St	4.79		4.79	
Bicycle LOS Score, BLOS	2.61		2.54	
Bicycle LOS	C		C	

Fax:

Phone: E-mail:

____OPERATIONAL ANALYSIS__

_____FREE-FLOW SPEED__

Analyst: JO

Agency/Co: Mott MacDonald

Date: 12/6/17

Analysis Period: Cumulative + Project Saturday

Highway: Carmel Valley Road

From/To: SR 1 / Carmel Rancho

Jurisdiction: Unincorporated Monterey County

Analysis Year: 2017

Project ID: Rio Ranch Seg 10

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW		mph		mph
Lateral clearance adjustment, FLC	0 0	mph	0 0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	55.0	mph	55.0	mph
-		_		-
	_VOLUME			
Direction	1		2	
Direction Volume, V	1 1052	vph	2 907	vph
		vph	_	vph
Volume, V	1052	vph	907	vph
Volume, V Peak-hour factor, PHF	1052 0.96	vph %	907 0.98	vph
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15	1052 0.96 274	-	907 0.98 231	-
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses	1052 0.96 274 2	%	907 0.98 231 2	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles	1052 0.96 274 2	%	907 0.98 231 2	8
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type	1052 0.96 274 2 0 Level	90 90	907 0.98 231 2 0 Level	° °
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade	1052 0.96 274 2 0 Level 0.00		907 0.98 231 2 0 Level 0.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length	1052 0.96 274 2 0 Level 0.00 0.00		907 0.98 231 2 0 Level 0.00 0.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes	1052 0.96 274 2 0 Level 0.00 0.00		907 0.98 231 2 0 Level 0.00 0.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP	1052 0.96 274 2 0 Level 0.00 0.00 2		907 0.98 231 2 0 Level 0.00 0.00 2	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1052 0.96 274 2 0 Level 0.00 0.00 2 1.00		907 0.98 231 2 0 Level 0.00 0.00 2 1.00	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER	1052 0.96 274 2 0 Level 0.00 0.00 2 1.00 1.5 1.2		907 0.98 231 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	े % %
Volume, V Peak-hour factor, PHF Peak 15-minute volume, v15 Trucks and buses Recreational vehicles Terrain type Grade Segment length Number of lanes Driver population adjustment, fP Trucks and buses PCE, ET Recreational vehicles PCE, ER Heavy vehicle adjustment, fHV	1052 0.96 274 2 0 Level 0.00 0.00 2 1.00 1.5 1.2 0.990	* * * mi	907 0.98 231 2 0 Level 0.00 0.00 2 1.00 1.5 1.2	% % % mi

Directio	n	1		2	
Flow rate, vp		553	pcphpl	467	pcphpl
Free-flow speed, FFS		55.0	mph	55.0	mph
Avg. passenger-car travel s	speed, S	55.0	mph	55.0	mph
Level of service, LOS		A		A	
Density, D		10.1	pc/mi/ln	8.5	pc/mi/ln
	Bicycle Le	evel of Ser	vice		
Posted speed limit, Sp		55		55	
Percent of segment with occ	upied				
on-highway parking		0		0	
Pavement rating, P		3		3	
Flow rate in outside lane,	VOL	547.9		462.8	
Effective width of outside	lane, We	24.00		24.00	
Effective speed factor, St		4.79		4.79	
Bicycle LOS Score, BLOS		2.56		2.47	
Bicycle LOS		C		В	

Phone: Fax: E-Mail:

_Directional Two-Lane Highway Segment Analysis___

Analyst

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Cumulative + Project AM Analysis Time Period

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year

Up/down

Description Rio Ranch Seg 13 NB

			I	nput Data		
Highway class	Class	2		Peak hour factor, PHF	0.76	
Shoulder width		5.0	ft	% Trucks and buses	3	용

5

/mi

Lane width 12.0 ft % Trucks crawling 0.0 Segment length 2.6 mi Truck crawl speed 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length mi % No-passing zones 100 Access point density

Analysis direction volume, Vd 366 veh/h Opposing direction volume, Vo 551 veh/h

Adjustment for no-passing zones, fnp

Average travel speed, ATSd

Percent Free Flow Speed, PFFS

____Average Travel Speed_

용

Direction	Ana	lysis	(d)	Opp	osing (0)
PCE for trucks, ET		1.8			1.6	
PCE for RVs, ER		1.1			1.1	
Heavy-vehicle adj. factor,(note-5)	fHV	0.97	7		0.982	
Grade adj. factor,(note-1) fg		0.94			0.98	
Directional flow rate,(note-2) vi		524	pc/h		753	pc/h
Free-Flow Speed from Field Measure	ment:					
Field measured speed, (note-3) S FM			-	mi/h		
Observed total demand, (note-3) V			_	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width,(note-3)	fLS	1.3	mi/h		
Adj. for access point density,(note	e-3) fA		1.3	mi/h		
				mi/h		

2.3*

30.2

71.2

mi/h

mi/h

용

Percent Tim	e-Spent-Follow	ing		
Direction	Analysis(d)	(Opposing	(0)
PCE for trucks, ET	1.4	`	1.0	(- /
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.988		1.000)
Grade adjustment factor,(note-1) fg	0.95		0.99	
Directional flow rate,(note-2) vi		c/h	732	pc/h
Base percent time-spent-following, (no			5	
Adjustment for no-passing zones, fnp		30.9		
Percent time-spent-following, PTSFd		68.0	Š	
Level of Service and	Other Perform	ance Meas	sures	
Level of service, LOS		С		
Volume to capacity ratio, v/c		0.30		
Peak 15-min vehicle-miles of travel,	77MT 1 5	313	veh-mi	
Peak-hour vehicle-miles of travel, V		952	veh-mi	
Peak 15-min total travel time, TT15	1100	10.4	veh-h	
Capacity from ATS, CdATS		1641	veh/h	
Capacity from PTSF, CdPTSF		1683	veh/h	
Directional Capacity		1683	veh/h	
	Lane Analysis			
Total length of analysis segment, Lt			2.6	mi
Length of two-lane highway upstream	of the passing	lane, Lu	1 -	mi
Length of passing lane including tap	ers, Lpl		-	mi
Average travel speed, ATSd (from abo			30.2	mi/h
Percent time-spent-following, PTSFd	(from above)		68.0	
Level of service, LOSd (from above)			C	
Average Travel Sp	eed with Pass	ing Lane_		
Downstreem length of two leng highway	i+bin offor	+ 1 ***		
Downstream length of two-lane highway				
length of passing lane for average			_	mi
Length of two-lane highway downstread length of the passing lane for a			4 _	mi
Adj. factor for the effect of passing		speed, Lo	1 -	шт
on average speed, fpl	y ranc		_	
Average travel speed including passi:	ng lane. ATSpl		_	
Percent free flow speed including pa			0.0	용
Percent Time-Spent-F			ane	
reredict 11e bpciic 1				
Downstream length of two-lane highway	y within effec	tive leng	gth	
of passing lane for percent time			-	mi
Length of two-lane highway downstream	m of effective	length o	of	
the passing lane for percent time	e-spent-follow	ing, Ld	-	mi
Adj. factor for the effect of passing	g lane			
on percent time-spent-following,	fpl		-	
Percent time-spent-following				
including passing lane, PTSFpl			-	왕
Level of Service and Other Per	formance Measu	res with	Passing	Lane
Level of service including passing la	ane I.OSnl	A		
Peak 15-min total travel time, TT15	апс, поврт	_	veh-h	
			- 	
P. 1. T				

__ Bicycle Level of Service _

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	481.6
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.07
Bicycle LOS	C

- 1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: Fax: E-Mail: _Directional Two-Lane Highway Segment Analysis__ Analyst Mott MacDonald Agency/Co. Date Performed 12/6/17 Analysis Time Period Cumulative + Project PM Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year Description Rio Ranch Seg 13 NB Input Data Highway class Class 2 Peak hour factor, PHF 0.88 Shoulder width 5.0 ft % Trucks and buses 2 용 Lane width 12.0 ft % Trucks crawling 0.0 Segment length Truck crawl speed 2.6 шi 0.0 mi/hr Terrain type Rolling % Recreational vehicles 0 용 Grade: Length шi % No-passing zones 100 Up/down 용 Access point density 5 /mi Analysis direction volume, Vd 871 veh/h Opposing direction volume, Vo 635 veh/h __Average Travel Speed_ Direction Analysis(d) Opposing (o) PCE for trucks, ET 1.3 1.6 PCE for RVs, ER 1.1 1.1 0.988 Heavy-vehicle adj. factor, (note-5) fHV 0.994 Grade adj. factor, (note-1) fg 1.00 0.98 Directional flow rate, (note-2) vi 996 pc/h 745 pc/h Free-Flow Speed from Field Measurement: Field measured speed, (note-3) S FM mi/h Observed total demand, (note-3) V veh/h Estimated Free-Flow Speed: Base free-flow speed, (note-3) BFFS mi/h Adj. for lane and shoulder width, (note-3) fLS 1.3 mi/h Adj. for access point density, (note-3) fA 1.3 mi/h Free-flow speed, FFSd 42.5 mi/h Adjustment for no-passing zones, fnp 2.3* mi/h Average travel speed, ATSd 26.6 mi/h Percent Free Flow Speed, PFFS 62.8 용

Percent Time	-Spent-Follow	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg	1.00		1.0 1.0 1.000 0.99)
Directional flow rate,(note-2) vi Base percent time-spent-following,(no Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		22.3	729 %	pc/h
Level of Service and	Other Perform	ance Meas	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, Peak-hour vehicle-miles of travel, VM Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	T60		veh-mi veh-mi veh-h veh/h veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream o Length of passing lane including tape Average travel speed, ATSd (from abov Percent time-spent-following, PTSFd (Level of service, LOSd (from above)	rs, Lpl e)		2.6 u - - 26.6 88.2 E	mi mi mi mi/h
Average Travel Spe	ed with Pass	ing Lane		
Downstream length of two-lane highway length of passing lane for averag Length of two-lane highway downstream	e travel speed	d, Lde	-	mi
length of the passing lane for av Adj. factor for the effect of passing on average speed, fpl	erage travel : lane	speed, Lo	d - -	mi
Average travel speed including passin Percent free flow speed including pas			0.0	૾
Percent Time-Spent-Fo	llowing with	Passing l	Lane	
Downstream length of two-lane highway of passing lane for percent time- Length of two-lane highway downstream	spent-following	ng, Lde	-	mi
the passing lane for percent time Adj. factor for the effect of passing	-spent-follow			mi
on percent time-spent-following, Percent time-spent-following			-	0.
including passing lane, PTSFpl	ommongo Mo	maa with	- Dessir-	*
Level of Service and Other Perf			rassing	raue
Level of service including passing lampeak 15-min total travel time, TT15	ne, LOSPI	A -	veh-h	
Bicycle Le	vel of Servic	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	989.8
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.21
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project Saturday

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 13 NB

	I:	nput	Data		 	
Highway alaga	~3 0	_ ,	,	factor	 0.05	

Highway cla	s Class 2		Peak hour factor, PHF	0.95	
Shoulder wid	lth 5.	.0 ft	% Trucks and buses	1	용
Lane width	12	2.0 ft	% Trucks crawling	0.0	용
Segment leng	rth 2.	.6 mi	Truck crawl speed	0.0	mi/hr
Terrain type	e Ro	olling	% Recreational vehicles	0	용
Grade: Leng	rth -	mi	% No-passing zones	100	용
Up/d	lown -	왕	Access point density	5	/mi

Analysis direction volume, Vd $\,$ 779 $\,$ veh/h Opposing direction volume, Vo $\,$ 813 $\,$ veh/h $\,$

______Average Travel Speed_

Direction		lysis	(d)	Opp	osing (o)
PCE for trucks, ET		1.4			1.3	
PCE for RVs, ER		1.1			1.1	
Heavy-vehicle adj. factor,(note-5)	fHV	0.996	5		0.997	
Grade adj. factor,(note-1) fg		0.99			1.00	
Directional flow rate,(note-2) vi		832	pc/h		858	pc/h
Free-Flow Speed from Field Measurem	ent:					
Field measured speed, (note-3) S FM			_	mi/h		
Observed total demand, (note-3) V			-	veh/h		
Estimated Free-Flow Speed:						
Base free-flow speed, (note-3) BFFS			45.0	mi/h		
Adj. for lane and shoulder width, (no	ote-3)	fLS	1.3	mi/h		
Adj. for access point density,(note	-3) fA		1.3	mi/h		
Free-flow speed, FFSd			42.5	mi/h		
Adjustment for no-passing zones, fn	p		2.3*	mi/h		
Average travel speed, ATSd			27.0	mi/h		
Percent Free Flow Speed, PFFS			63.7	8		

Percent Time-Spent-Follo	owing		
Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	pc/h i 70.5 23.9 82.2	1.0 1.0 1.000 1.000 856	(o) pc/h
Level of Service and Other Perfor	mance Mea	sures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT15 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane Analysi	.s		
Total length of analysis segment, Lt Length of two-lane highway upstream of the passin Length of passing lane including tapers, Lpl Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from above) Level of service, LOSd (from above)		27.0 82.2 D	mi mi mi mi/h
Average Travel Speed with Pas	sing Lane		
Downstream length of two-lane highway within effection length of passing lane for average travel specified by the length of two-lane highway downstream of effective length of the passing lane for average travel Adj. factor for the effect of passing lane on average speed, fpl Average travel speed including passing lane, ATSP Percent free flow speed including passing lane, F	eed, Lde /e l speed, L	- -	mi mi %
D		_	
Downstream length of two-lane highway within effective of passing lane for percent time-spent-follow Length of two-lane highway downstream of effective the passing lane for percent time-spent-follow the passing lane for percent time-spent-follow the passing lane for percent time-spent-follows.	ective len ving, Lde ve length	gth - of	mi mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl Percent time-spent-following including passing lane, PTSFpl		-	8
Level of Service and Other Performance Meas	ures with	Passing 1	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	-	veh-h	
Bicycle Level of Servi	ce		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	820.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	2.90
Bicycle LOS	C

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- 2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

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Phone: E-Mail:	Fax:				
Directional Two-Lane	Highway :	Segment .	Analys	is	
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Cumulative + I Highway SR 1 From/To Highlands Dr Jurisdiction Analysis Year 2017 Description Rio Ranch Seg 13 SB	Project Al / Ribera l	Rd			
Inpu	ut Data				
Shoulder width 5.0 ft % Lane width 12.0 ft % Segment length 2.6 mi Ti Terrain type Rolling % Grade: Length - mi % Up/down - % Ac	eak hour: Trucks an Trucks c: ruck craw Recreatio No-passin ccess poin veh/h	nd buses rawling l speed onal veh ng zones	icles	0.92 3 0.0 0.0 0 100 5	% % mi/hr % % /mi
Opposing direction volume, Vo 366	veh/h				
Average Tr	ravel Spe	ed			
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fHG Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	0.97	9		posing (2.0 1.1 0.971 0.90 455	
Free-Flow Speed from Field Measurement Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(note Adj. for access point density,(note-3)	e-3) fLS	- - 45.0 1.3 1.3	mi/h veh/h mi/h mi/h mi/h		
Free-flow speed, FFSd		42.5	mi/h		
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 31.7 74.7	mi/h mi/h %		

Percent Time-Spent-Followi	ng		
Direction Analysis(d) PCE for trucks, ET 1.2	0p	posing 1.6	(0)
PCE for RVs, ER 1.0		1.0	
Heavy-vehicle adjustment factor, fHV 0.994		0.982	
Grade adjustment factor,(note-1) fg 0.97		0.90	
	/h	450	pc/h
Base percent time-spent-following, (note-4) BPTSFd			
	34.9 78.3 %		
3, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,			
Level of Service and Other Performa	nce Measu	res	
	D		
	0.37		
		eh-mi	
		eh-mi	
·		eh-h	
		eh/h eh/h	
	1562 v		
		C11/11	
Passing Lane Analysis_			
Total length of analysis segment, Lt		2.6	mi
Length of two-lane highway upstream of the passing	lane, Lu	_	mi
Length of passing lane including tapers, Lpl		-	mi
Average travel speed, ATSd (from above)		31.7	mi/h
Percent time-spent-following, PTSFd (from above)		78.3	
Level of service, LOSd (from above)		D	
Average Travel Speed with Passi	ng Lane		
Downstream length of two-lane highway within effect	ive		
length of passing lane for average travel speed Length of two-lane highway downstream of effective		-	mi
length of the passing lane for average travel s Adj. factor for the effect of passing lane	peed, Ld	-	mi
on average speed, fpl		_	
Average travel speed including passing lane, ATSpl		_	
Percent free flow speed including passing lane, PFF	Spl	0.0	8
Percent Time-Spent-Following with P	assing La	ne	
Downstream length of two-lane highway within effect	ive lengt	h	
of passing lane for percent time-spent-followin		-	mi
Length of two-lane highway downstream of effective			шт
the passing lane for percent time-spent-followi		_	mi
Adj. factor for the effect of passing lane	J		
on percent time-spent-following, fpl		_	
Percent time-spent-following			
including passing lane, PTSFpl		-	8
Level of Service and Other Performance Measur	es with P	assing :	Lane
Level of service including passing lane, LOSpl	A		
Peak 15-min total travel time, TT15		eh-h	
Bicycle Level of Service			

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	598.9
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.18
Bicycle LOS	C

- Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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- 3. For the analysis direction only and for v>200 veh/h.
- 4. For the analysis direction only.
- 5. Use alternative Exhibit 15-14 $\stackrel{\cdot}{\text{if}}$ some trucks operate at crawl speeds on a specific downgrade.
- * These items have been entered or edited to override calculated value

Phone: Fax: E-Mail:

______Directional Two-Lane Highway Segment Analysis_____

Analyst JO

Agency/Co. Mott MacDonald

Date Performed 12/6/17

Analysis Time Period Cumulative + Project PM

Highway SR 1

From/To Highlands Dr / Ribera Rd

Jurisdiction Unincorporated Monterey County

Analysis Year 2017

Description Rio Ranch Seg 13 SB

Highway	class Class	2		Peak hour factor, PHF	0.93	
Shoulder	r width	5.0	ft	% Trucks and buses	3	용
Lane wio	dth	12.0	ft	% Trucks crawling	0.0	용
Segment	length	2.6	mi	Truck crawl speed	0.0	mi/hr
Terrain	type	Rolling		% Recreational vehicles	0	용
Grade:	Length	-	mi	% No-passing zones	100	용
	Up/down	_	용	Access point density	5	/mi

Input Data

Analysis direction volume, Vd 635 veh/h Opposing direction volume, Vo 871 veh/h

Average	Travel Speed	
Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.6	1.3

mi/h

PCE for RVs, ER
PCE for RVs, ER
1.1
Heavy-vehicle adj. factor,(note-5) fHV
0.982
Grade adj. factor,(note-1) fg
0.98
Directional flow rate,(note-2) vi
710
pc/h
945
pc/h

Free-Flow Speed from Field Measurement: Field measured speed,(note-3) S FM

ricia meabarea speca, (noce 5) b in		1111
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	1.3	mi/h
Adj. for access point density, (note-3) fA	1.3	mi/h

rree-Ilow speed, FFSd	42.5	m1/n
Adjustment for no-passing zones, fnp Average travel speed, ATSd	2.3* 27.3	mi/h mi/h
Percent Free Flow Speed, PFFS	64.3	8

Percent Time-	Spent-Follow:	ing		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(not Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	e-4) BPTSFd	c/h	1.0 1.0 1.000 1.00	pc/h
Level of Service and C	ther Performa	ance Measu	res	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, V Peak-hour vehicle-miles of travel, VMT Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity	60	1651 v 16.3 v 1685 v 1700 v	eh-mi eh-mi eh-h eh/h eh/h	
Passing I	ane Analysis			
Total length of analysis segment, Lt Length of two-lane highway upstream of Length of passing lane including taper Average travel speed, ATSd (from above Percent time-spent-following, PTSFd (f Level of service, LOSd (from above)	s, Lpl		2.6 - - 27.3 76.5 D	mi mi mi mi/h
Average Travel Spee	d with Pass:	ing Lane		
Downstream length of two-lane highway length of passing lane for average Length of two-lane highway downstream length of the passing lane for ave Adj. factor for the effect of passing on average speed, fpl Average travel speed including passing Percent free flow speed including pass	travel speed of effective rage travel s lane	d, Lde speed, Ld	- -	mi mi
Percent Time-Spent-Fol	lowing with 1	Passing La	ne	
Downstream length of two-lane highway of passing lane for percent time-s Length of two-lane highway downstream the passing lane for percent time-	pent-following of effective	ng, Lde length of	-	mi mi
Adj. factor for the effect of passing on percent time-spent-following, f Percent time-spent-following including passing lane, PTSFpl	lane	, Da	-	%
Level of Service and Other Perfo	rmance Measu	res with P	assing La	ane
Level of service including passing lar Peak 15-min total travel time, TT15	e, LOSpl		eh-h	
Bicycle Lev	el of Service	e		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	682.8
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.25
Bicycle LOS	C

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- 4. For the analysis direction only.
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- * These items have been entered or edited to override calculated value

HCS 2010: Two-Lane Highways Release 6.70

Phone: E-Mail:								
Directional Two-Lane Highway Segment Analysis								
Analyst JO Agency/Co. Mott MacDonald Date Performed 12/6/17 Analysis Time Period Cumulative + Project Saturday Highway SR 1 From/To Highlands Dr / Ribera Rd Jurisdiction Unincorporated Monterey County Analysis Year 2017 Description Rio Ranch Seg 13 SB								
Input Data								
Shoulder width 5.0 ft Lane width 12.0 ft Segment length 2.6 mi Terrain type Rolling Grade: Length - mi	Peak hour % Trucks a % Trucks c Truck craw % Recreati % No-passi Access poi	nd buses rawling l speed onal veh ng zones	icles	0.92 3 0.0 0.0 0 100	% % mi/hr % % /mi			
Opposing direction volume, Vo 779	veh/h							
Average Travel Speed								
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adj. factor,(note-5) fl Grade adj. factor,(note-1) fg Directional flow rate,(note-2) vi	d) Opposing (o) 1.4 1.1 0.988 0.99 pc/h 866 pc/h							
Free-Flow Speed from Field Measuremer Field measured speed,(note-3) S FM Observed total demand,(note-3) V Estimated Free-Flow Speed: Base free-flow speed,(note-3) BFFS Adj. for lane and shoulder width,(no Adj. for access point density,(note-	te-3) fLS	- 45.0 1.3	mi/h veh/h mi/h mi/h mi/h					
Free-flow speed, FFSd		42.5	mi/h					
Adjustment for no-passing zones, fnp Average travel speed, ATSd Percent Free Flow Speed, PFFS		2.3* 26.5 62.4	mi/h mi/h %					

Percent Time-Spe	nt-Followi	ing		
Direction Ana PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV	lysis(d) 1.0 1.0 1.000		Opposing 1.0 1.0 1.0	
Grade adjustment factor,(note-1) fg Directional flow rate,(note-2) vi Base percent time-spent-following,(note-4 Adjustment for no-passing zones, fnp	1.00 884 po) BPTSFd		1.00 847 %	pc/h
Percent time-spent-following, PTSFd		84.5	%	
Level of Service and Othe	r Periorma	ance Mea	asures	
Level of service, LOS Volume to capacity ratio, v/c Peak 15-min vehicle-miles of travel, VMT1 Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF Directional Capacity		D 0.52 574 2114 21.7 0 1700 1700	veh-mi veh-mi veh-h veh/h veh/h	
Passing Lane	Analysis_			
Total length of analysis segment, Lt Length of two-lane highway upstream of th Length of passing lane including tapers, Average travel speed, ATSd (from above) Percent time-spent-following, PTSFd (from Level of service, LOSd (from above)	Lpl		2.6 Lu - - 26.5 84.5 D	mi mi mi mi/h
Average Travel Speed	with Passi	ing Lane	e	
Downstream length of two-lane highway wit length of passing lane for average tr Length of two-lane highway downstream of	avel speed		-	mi
length of the passing lane for averag Adj. factor for the effect of passing lan on average speed, fpl	e travel s	speed, 1	Ld - -	mi
Average travel speed including passing la Percent free flow speed including passing			0.0	%
Percent Time-Spent-Follow	ing with E	Passing	Lane	
Downstream length of two-lane highway wit of passing lane for percent time-spen Length of two-lane highway downstream of	t-followir	ng, Lde	-	mi
the passing lane for percent time-spe Adj. factor for the effect of passing lan on percent time-spent-following, fpl	nt-follow:			mi
Percent time-spent-following including passing lane, PTSFpl			-	9
Level of Service and Other Performa	nce Measur	res with	h Passing	Lane
Level of service including passing lane, Peak 15-min total travel time, TT15	LOSpl	A -	veh-h	
Bicycle Level	of Service	=		

Posted speed limit, Sp	45
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	883.7
Effective width of outside lane, We	22.00
Effective speed factor, St	4.42
Bicycle LOS Score, BLOS	3.38
Bicycle LOS	C

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