Phone: Fax: E-Mail: \_\_\_\_\_Directional Two-Lane Highway Segment Analysis\_\_\_\_\_\_ Analyst A. Greenlaw Agency/Co. TYLI Date Performed 6/25/14 Analysis Time Period AM Peak Route 26 Corridor NB Highway Libby Hill Rd to N Raymond Rd From/To Jurisdiction Gray Analysis Year 2013 Description Segment Analysis \_\_\_\_\_Input Data\_\_\_\_\_ Peak hour factor, PHF 0.94 Highway class Class 3 Shoulder width 6.0 ft % Trucks and buses 12 12.0 ft % Trucks crawling 0.0
1.2 mi Truck crawl speed 0.0
Level % Recreational vehicles 0 Lane width Segment length mi/hr Level Terrain type - mi % No-passing zones 56 - % Access point density 40 Grade: Length Up/down /mi Analysis direction volume, Vd 339 veh/h Opposing direction volume, Vo 1044 veh/h \_\_\_\_\_Average Travel Speed\_\_\_\_\_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 0.965 1.000 1.00 Grade adj. factor,(note-1) fg 1.00 374 pc/h Directional flow rate, (note-2) vi 1111 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h

Adjustment for no-passing zones, fnp

Average travel speed, ATSd

Percent Free Flow Speed, PFFS

mi/h

mi/h

0.5

22.9

65.5

Percent Time-Spent-Followi	ng		
Direction PCE for trucks, ET PCE for RVs, ER Heavy-vehicle adjustment factor, fHV Analysis(d) 1.1 0.988		Opposing 1.0 1.0	
Base percent time-spent-following,(note-4) BPTSFd	2/h 49.5 16.9 53.7	1.00 1111 %	pc/h
Level of Service and Other Performa	ance 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 0.22 108 407 4.7 1700 1700	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,	1.2 Lu - - 22.9 53.7 E	mi mi mi mi/h
Average Travel Speed with Passi	lng Lan	ıe	
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-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	Spl	0.0	%
Percent Time-Spent-Following with F	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-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 Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	E -	veh-h	
Bicycle Level of Service	<u> </u>		

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	360.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	5.15
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.

Phone: Fax: E-Mail: \_\_\_\_\_Directional Two-Lane Highway Segment Analysis\_\_\_\_\_\_ Analyst A. Greenlaw Agency/Co. TYLI Date Performed 6/25/14 Analysis Time Period PM Peak Route 26 Corridor NB Highway Libby Hill Rd to N Raymond Rd From/To Jurisdiction Gray Analysis Year 2013 Description Segment Analysis \_\_\_\_\_Input Data\_\_\_\_\_ Peak hour factor, PHF 0.94 Highway class Class 3 Shoulder width 6.0 ft % Trucks and buses 3 12.0 ft % Trucks crawling
1.2 mi Truck crawl speed
Level % Recreational vehi 0.0 Lane width 0.0 Segment length mi/hr Level % Recreational vehicles 0 Terrain type mi % No-passing zones 56Access point density 40 Grade: Length Up/down /mi Analysis direction volume, Vd 1138 veh/h Opposing direction volume, Vo 574 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 1211 pc/h Directional flow rate, (note-2) vi 612 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h mi/h Adjustment for no-passing zones, fnp 1.1

19.8

56.5

mi/h

Average travel speed, ATSd

Percent T	ime-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, fl	HV 1.000		1.000	
Grade adjustment factor, (note-1) for	g 1.00		1.00	
Directional flow rate, (note-2) vi		c/h	611	pc/h
Base percent time-spent-following,	_		5	_
Adjustment for no-passing zones, fi		16.7		
Percent time-spent-following, PTSF	_	91.2	\$	
Level of Service a	nd Other Performa	ance Meas	sures	
Level of service, LOS		E		
Volume to capacity ratio, v/c		0.71		
Peak 15-min vehicle-miles of trave:	1. VMT15	363	veh-mi	
Peak-hour vehicle-miles of travel,		1366	veh-mi	
Peak 15-min total travel time, TT1!		18.4	veh-h	
Capacity from ATS, CdATS	<b>~</b>	1695	veh/h	
Capacity from PTSF, CdPTSF		1700	ven/n veh/h	
Directional Capacity		1695	veh/h	
	ng Lane Analysis			
Total length of analysis segment, 1			1.2	mi
Length of two-lane highway upstream	m of the passing	lane, Lu	ı –	mi
Length of passing lane including to	apers, Lpl		_	mi
Average travel speed, ATSd (from al	bove)		19.8	mi/h
Percent time-spent-following, PTSF	d (from above)		91.2	
Level of service, LOSd (from above	)		E	
Average Travel :	Speed with Pass:	ing Lane_		
Downstream length of two-lane high	way within effect	tive		
	_			m i
length of passing lane for aver-		ı, Lae	_	mi
Length of two-lane highway downstre			3	
length of the passing lane for		speea, Lo	1 –	mı
Adj. factor for the effect of pass:	ing lane			
on average speed, fpl			_	
Average travel speed including pass		-~ 1	-	•
Percent free flow speed including p	passing lane, PF	r'Sp1	0.0	00
Percent Time-Spent	-Following with 1	Passing I	lane	
Downstream length of two-lane high	way within effect	tive lend	qth	
of passing lane for percent time	_		_	mi
Length of two-lane highway downstre	_		of	
the passing lane for percent to			-	mi
Adj. factor for the effect of pass:	_			
on percent time-spent-following			_	
Percent time-spent-following	3, TPT			
including passing lane, PTSFpl			-	%
Level of Service and Other Pe	erformance Measu	res with	Passing	Lane
Level of service including passing	lana IOCnl	E		
	_		web b	
Peak 15-min total travel time, TT1	· ·	_	veh-h	
Bicycle	Level of Service	<u>e</u>		
	0_ 00_ 00_			

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1210.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	2.99
Bicycle LOS	С

- 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.

Phone: Fax: E-Mail: \_\_\_\_\_Directional Two-Lane Highway Segment Analysis\_\_\_\_\_\_ Analyst A. Greenlaw Agency/Co. TYLI Date Performed 6/25/14 Analysis Time Period AM Peak Route 26 Corridor SB Highway Libby Hill Rd to N Raymond Rd From/To Jurisdiction Gray Analysis Year 2013 Description Segment Analysis \_\_\_\_\_Input Data\_\_\_\_\_ Peak hour factor, PHF 0.83 Highway class Class 3 Shoulder width 6.0 ft % Trucks and buses 5 12.0 ft % Trucks crawling 0.0 1.2 mi Truck crawl speed 0.0 Level % Recreational vehicles 0 0.0 Lane width 0.0 Segment length mi/hr Level Terrain type % No-passing zones 55 Access point density 40 - mi - % Grade: Length Up/down /mi Analysis direction volume, Vd 1044 veh/h Opposing direction volume, Vo 339 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 0.985 Grade adj. factor,(note-1) fg 1.00 1.00 1258 pc/h Directional flow rate, (note-2) vi 415 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h mi/h Adjustment for no-passing zones, fnp 1.6

20.4

58.4

mi/h

Average travel speed, ATSd

Percent Time	e-Spent-Follow	ing		
Direction	Analysis(d)	0	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	
Grade adjustment factor,(note-1) fg			1.00	
Directional flow rate,(note-2) vi	_	c/h	408	pc/h
Base percent time-spent-following, (no	ote-4) BPTSFd			
Adjustment for no-passing zones, fnp		14.9		
Percent time-spent-following, PTSFd		90.6 %		
Level of Service and	Other Performa	ance Meas	ures	
Level of service, LOS		E		
Volume to capacity ratio, v/c		0.75		
Peak 15-min vehicle-miles of travel,	VMT15	377	veh-mi	
Peak-hour vehicle-miles of travel, VI			veh-mi	
Peak 15-min total travel time, TT15			veh-h	
Capacity from ATS, CdATS		1675	veh/h	
Capacity from PTSF, CdPTSF		1700	veh/h	
Directional Capacity		1675	veh/h	
Passing	Lane Analysis			
Total length of analysis segment, Lt			1.2	mi
Length of two-lane highway upstream of	of the passing	lane. Lu		mi
Length of passing lane including tape			_	mi
Average travel speed, ATSd (from above	_		20.4	mi/h
Percent time-spent-following, PTSFd			90.6	,
Level of service, LOSd (from above)	,		E	
Average Travel Spe	eed with Pass	ing Lane_		
Downstream length of two-lane highway	, within effect	tivo		
length of passing lane for average			_	mi
Length of two-lane highway downstream	_	a, hae		шт
length of the passing lane for a		speed Ld	_	mi
Adj. factor for the effect of passing		ореса, да	•	
on average speed, fpl	j ranc		_	
Average travel speed including passing	ng lane. ATSpl		_	
Percent free flow speed including pas		FSpl	0.0	%
Percent Time-Spent-Fo	_			
Downstream length of two-lane highway			th	
of passing lane for percent time	_		_	mi
Length of two-lane highway downstrear			f	
the passing lane for percent time	_	ıng, Ld	_	mi
Adj. factor for the effect of passing	_			
on percent time-spent-following,	tpl		_	
Percent time-spent-following including passing lane, PTSFpl			_	%
Level of Service and Other Per	formance Measur	res with	Passing	
		W _ CII	- ~~~ 1119	
Level of service including passing la	ane, LOSpl	E		
Peak 15-min total travel time, TT15		_	veh-h	
Diamala I	aval of Commis	9		
Bicycle Le	ever of Service	E		

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1257.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	3.50
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.

Phone: Fax: E-Mail: \_\_\_\_\_Directional Two-Lane Highway Segment Analysis\_\_\_\_\_\_ Analyst A. Greenlaw Agency/Co. TYLI Date Performed 6/25/14 Analysis Time Period PM Peak Route 26 Corridor SB Highway Libby Hill Rd to N Raymond Rd From/To Jurisdiction Gray Analysis Year 2013 Description Segment Analysis \_\_\_\_\_Input Data\_\_\_\_\_ Peak hour factor, PHF 0.88 Highway class Class 3 Shoulder width 6.0 ft % Trucks and buses 5 12.0 ft % Trucks crawling 0.0 1.2 mi Truck crawl speed 0.0 Level % Recreational vehicles 0 0.0 Lane width Segment length 0.0 mi/hr Level Terrain type % No-passing zones 55 Access point density 40 - mi - % Grade: Length Up/down /mi Analysis direction volume, Vd 574 veh/h Opposing direction volume, Vo 1138 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 0.995 1.000 1.00 Grade adj. factor,(note-1) fg 1.00 656 pc/h Directional flow rate, (note-2) vi 1293 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h mi/h Adjustment for no-passing zones, fnp 0.5

19.4

55.3

mi/h

Average travel speed, ATSd

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  1.00  1.00  1.00	(1	Opposing 1.0 1.0 1.000	
Base percent time-spent-following,(note-4) BPTSFd	68.6 15.2 73.7	1293	pc/h
Level of Service and Other Performa	ance Me	easures	
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	E 0.39 196 689 10.1 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,	1.2 Lu - - 19.4 73.7 E	mi mi mi mi/h
Average Travel Speed with Passi	ing Lan	ne	
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	9
Percent Time-Spent-Following with P	Passing	g 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	<b>-</b>	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 Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	E -	veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	652.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	3.17
Bicycle LOS	С

- 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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1.2 mi Truck crawl speed 0.0
Level % Recreational vehicles 0 Lane width Segment length mi/hr Level Terrain type - mi % No-passing zones 56 - % Access point density 40 Grade: Length Up/down /mi Analysis direction volume, Vd 415 veh/h Opposing direction volume, Vo 1274 veh/h \_\_\_\_\_Average Travel Speed\_\_\_\_\_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 0.965 1.000 1.00 Grade adj. factor, (note-1) fg 1.00 458 pc/h Directional flow rate, (note-2) vi 1355 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h mi/h

0.5

20.4

58.3

mi/h

Adjustment for no-passing zones, fnp

Average travel speed, ATSd

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  1.00  1.000	(1)	Opposing 1.0 1.0 1.000	1
Directional flow rate,(note-2) vi 441 possible Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd	57.3 13.7 60.7	1355	pc/h
Level of Service and Other Performa	ance 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 0.27 132 498 6.5 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,	1.2 Lu - 20.4 60.7 E	mi mi mi mi/h
Average Travel Speed with Passi	ing Lan	ıe	
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 falls 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 F	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-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 Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	E -	veh-h	
Bicycle Level of Service	=		

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	441.5
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	5.25
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.

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1.2 mi Truck crawl speed 0.0
Level % Recreational vehicles 0 0.0 Lane width 0.0 Segment length mi/hr Level Terrain type % No-passing zones 56
Access point density 40 - mi - % Grade: Length Up/down /mi Analysis direction volume, Vd 1390 veh/h Opposing direction volume, Vo 701 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 1479 pc/h Directional flow rate, (note-2) vi 748 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h

Adjustment for no-passing zones, fnp

Average travel speed, ATSd

Percent Free Flow Speed, PFFS

mi/h

mi/h

0.8

16.9

48.3

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 1.00 1.00 1.00		Opposing 1.0 1.0 1.000	
Directional flow rate, (note-2) vi 1479 pc Base percent time-spent-following, (note-4) BPTSFd		746	pc/h
Level of Service and Other Performa	ance Me	easures	
Peak-hour vehicle-miles of travel, VMT60 Peak 15-min total travel time, TT15 Capacity from ATS, CdATS Capacity from PTSF, CdPTSF	E 0.87 444 1668 26.2 1695 1700 1695	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,	1.2 Lu - - 16.9 95.2 E	mi mi mi mi/h
Average Travel Speed with Passi	ing Lan	ne	
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-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 P	Passing	g 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	<b>-</b>	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 Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	E -	veh-h	
Bicycle Level of Service	<u> </u>		

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1478.7
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	3.09
Bicycle LOS	С

- 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.

Phone: Fax: E-Mail: \_\_\_\_\_Directional Two-Lane Highway Segment Analysis\_\_\_\_\_\_ Analyst A. Greenlaw Agency/Co. TYLI Date Performed 6/25/14 Analysis Time Period AM Peak Route 26 Corridor SB Highway Libby Hill Rd to N Raymond Rd From/To Jurisdiction Gray Analysis Year Future No Build Description Segment Analysis \_\_\_\_\_Input Data\_\_\_\_\_ Peak hour factor, PHF 0.83 Highway class Class 3 Shoulder width 6.0 ft % Trucks and buses 5 12.0 ft % Trucks crawling
1.2 mi Truck crawl speed
Level % Recreational vehi 0.0 Lane width 0.0 Segment length mi/hr Level % Recreational vehicles 0 Terrain type mi % No-passing zones 55Access point density 40 Grade: Length Up/down /mi Analysis direction volume, Vd 1274 veh/h Opposing direction volume, Vo 415 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 0.990 Grade adj. factor,(note-1) fg 1.00 1.00 1535 pc/h Directional flow rate, (note-2) vi 505 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h

Adjustment for no-passing zones, fnp

Average travel speed, ATSd

Percent Free Flow Speed, PFFS

mi/h

mi/h

1.3

17.8

51.0

Percent Tim	ne-Spent-Follow:	ing		
Direction	Analysis(d)	Or	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	
Grade adjustment factor, (note-1) fg			1.00	
		c/h	500	pc/h
Base percent time-spent-following, (r.	<del>-</del>		300	P0/11
Adjustment for no-passing zones, fnr		11.6		
Percent time-spent-following, PTSFd	,	94.2 %		
Level of Service and	l Other Performa	ance Meası	ıres	
Level of service, LOS		E		
Volume to capacity ratio, v/c		0.91		
Peak 15-min vehicle-miles of travel,	∨мт1 <b>5</b>		zeh-mi	
Peak-hour vehicle-miles of travel, V			zeh-mi	
Peak 15-min total travel time, TT15	11100		zeh-h	
Capacity from ATS, CdATS			zeh/h zeh/h	
Capacity from PTSF, CdPTSF			•	
Directional Capacity		1683 7	/eh/h	
Passing	g Lane Analysis			
Total length of analysis segment, Lt			1.2	mi
Length of two-lane highway upstream		lane, Lu	_	mi
Length of passing lane including tap			_	mi
Average travel speed, ATSd (from abo	_		17.8	mi/h
Percent time-spent-following, PTSFd			94.2	
Level of service, LOSd (from above)	(IIOm above)		E	
Average Travel Sp	eed with Pass:	ing Lane		
Downstream length of two-lane highwa	y within effect	tive		
length of passing lane for avera	ge travel speed	d, Lde	_	mi
Length of two-lane highway downstrea	_	•		
length of the passing lane for a		speed, Ld	_	mi
Adj. factor for the effect of passin				
on average speed, fpl	-9		_	
Average travel speed including passi	ng lane ATSpl		_	
Percent free flow speed including passi		agn]	0.0	%
referre free from Speed including po	issing ranc, in	горт	0.0	0
Percent Time-Spent-F	ollowing with I	Passing La	ane	
Downstream length of two-lane highwa	y within effect	tive lengt	:h	
of passing lane for percent time	_		_	mi
Length of two-lane highway downstrea	_	_	=	
the passing lane for percent time			_	mi
Adj. factor for the effect of passin	_	<b>J</b>		
on percent time-spent-following,	_		_	
Percent time-spent-following	-F =			
including passing lane, PTSFpl			_	%
Level of Service and Other Per	formance Measu	res with I	Passing	Lane
Torrol of gomeine implediture of the land	ano 100-1	П		
Level of service including passing l	ane, LOSpl	E	- 1- 1	
Peak 15-min total travel time, TT15		_ 7	zeh-h	
Bicycle I	evel of Service	ے		
Dicycle i				

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	1534.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	3.60
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.

Phone: Fax: E-Mail: \_\_\_\_\_\_Directional Two-Lane Highway Segment Analysis\_\_\_\_\_ Analyst A. Greenlaw Agency/Co. TYLI Date Performed 6/25/14 Analysis Time Period PM Peak Route 26 Corridor SB Highway Libby Hill Rd to N Raymond Rd From/To Jurisdiction Gray Future No Build Analysis Year Description Segment Analysis \_\_\_\_\_Input Data\_\_\_\_\_ Highway class Class 3
Shoulder width 6.0 ft % Trucks and public tane width 12.0 ft % Trucks crawling 0.0
The state of the Peak hour factor, PHF 0.88 5 0.0 0.0 mi/hr mi % No-passing zones 55Access point density 40 Up/down /mi Analysis direction volume, Vd 701 veh/h Opposing direction volume, Vo 1390 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 0.995 1.000 1.00 Grade adj. factor,(note-1) fg 1.00 801 pc/h 1580 pc/h Directional flow rate, (note-2) vi 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 10.0 mi/h Free-flow speed, FFSd 35.0 mi/h mi/h

0.4

16.1

46.1

mi/h

Adjustment for no-passing zones, fnp

Average travel speed, ATSd

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 1.00 1.000 1.000		Opposing 1.0 1.0 1.000 1.000	
Directional flow rate,(note-2) vi 797 pc Base percent time-spent-following,(note-4) BPTSFd Adjustment for no-passing zones, fnp Percent time-spent-following, PTSFd		1580	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	E 0.47 239 841 14.8 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,	1.2 Lu - - 16.1 81.1 E	mi mi mi mi/h
Average Travel Speed with Passi	lng Lan	ıe	
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	<sup>r</sup> Spl	0.0	%
Percent Time-Spent-Following with F	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-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 Passing	Lane
Level of service including passing lane, LOSpl Peak 15-min total travel time, TT15	E -	veh-h	
Bicycle Level of Service	<u> </u>		

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	796.6
Effective width of outside lane, We	24.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	3.27
Bicycle LOS	С

- 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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