FHWA-ID-EIS-12-01-F

Mobility and Road User Cost Technical Report

Final Environmental Impact Statement

US-95 Thorncreek Road to Moscow

Project No. DHP-NH-4110(156);Key No 09294

ADDENDUM 1
US-95 THORNCREEK ROAD TO MOSCOW
MOBILITY AND ROAD USER COST STUDY
ON ALTERNATIVES CARRIED FORWARD

DHP-NH-4110 (156)
KEY # 09294
December 31, 2014

PREPARED BY
DISTRICT 2 PROJECT DEVELOPMENT ENGINEER

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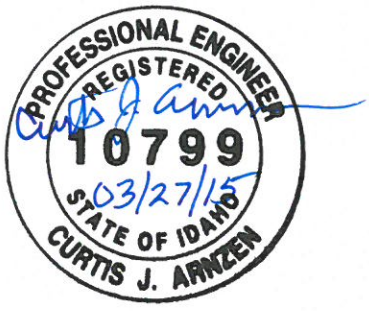

Addendum 1 for Mobility and Road User Cost Study

DHP-NH-4110 (156); Key No. 9294; Thorncreek to Moscow

December 31, 2014

Introduction

Addendum 1 for the Mobility and Road User Cost Study for US-95 Thorncreek to Moscow documents the mobility and road user costs of Alternative Modified W4. The conclusions of the Mobility and Road User Cost Study dated March 12, 2014, did not change as a result of the alignment shift; however, some of the calculations changed slightly as a result of 0.04 mile length differential between Alternative W4 and Alternative Modified W4. Addendum 1 documents the revised calculations and shows that there is little significance in mobility and road user cost between Alternative W4 and Alternative Modified W4. In fact, many of the calculations for Alternative Modified W4 are not different than Alternative W4 due to the rounding of calculations.

Summary

The following are results for Alternative Modified W4 in Table 1:

Table 1: Total Travel Time in Hours (Mobility)*

Alternative	2017	2036	Total 20 Year
Modified W4	350,000	480,000	8,200,000

* The total travel time refers to the total time required for all motorists making the entire trip from Thorncreek Road to Moscow. The total travel time does not include the travel time for motorists that have a destination between Thorncreek Road and Moscow.

The following are results for Alternative Modified W4 in Table 2:

Table 2: Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs*

Alternative	2017	2036	Total 20 Year
Modified W4	$14,300,000	$19,500,000	$336,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Mobility

Capacity

All calculations on pages 8 through 11 and in the appendix of the Mobility and Road User Cost Study for Alternative Modified W4 are identical to Alternative W4 including the remaining US-95 Loop.

Travel Time

The following are results for Alternative Modified W4 in Table 10:

Table 10: Length and Travel Time Per Trip*

Alternative	Length (Miles)	Travel Time (Minutes)	Travel Time (Minutes:Seconds)
Modified W4	6.65	6.27	6:16

* A trip is defined as a course of travel between Thorncreek Road and Moscow without stopping.

The following are results for Alternative Modified W4 in Table 11:

Table 11: Total Travel Time (Hours)*

Alternative	2017	2036	Total 20 Year
Modified W4	350,000	480,000	8,200,000

* The total travel time refers to the total time required for all motorists making the entire trip from Thorncreek Road to Moscow. The total travel time does not include the travel time for motorists that have a destination between Thorncreek Road and Moscow.

Road User Costs

Cost of Travel Time

The following are results for Alternative Modified W4 in Table 9:

Table 9: Total Travel Time Costs*			
Alternative	**2017**	**2036**	**Total 20 Year**
Modified W4	$5,200,000	$7,200,000	$123,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Cost of Time Related Vehicle Depreciation

The following are results for Alternative Modified W4 in Table 10:

Table 10: Total Cost of Time Related Vehicle Depreciation*			
Alternative	**2017**	**2036**	**Total 20 Year**
Modified W4	$470,000	$630,000	$11,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Vehicle Operating Costs

The following are results for Alternative Modified W4 in Table 11:

Table 11: Total Vehicle Operating Cost*			
Alternative	**2017**	**2036**	**Total 20 Year**
Modified W4	$8,600,000	$11,700,000	$202,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

*Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs**

The following are results for Alternative Modified W4 in Table 13:

Table 13: Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs*			
Alternative	**2017**	**2036**	**Total 20 Year**
Modified W4	$14,300,000	$19,500,000	$336,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Conclusion

The following are results for Alternative Modified W4 in Table 14:

Table 14: Total Travel Time in Hours (Mobility)*			
Alternative	**2017**	**2036**	**Total 20 Year**
Modified W4	350,000	480,000	8,200,000

* The total travel time refers to the total time required for all motorists making the entire trip from Thorncreek Road to Moscow. The total travel time does not include the travel time for motorists that have a destination between Thorncreek Road and Moscow.

The following are results for Alternative Modified W4 in Table 15:

Table 15: Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs*			
Alternative	**2017**	**2036**	**Total 20 Year**
Modified W4	$14,300,000	$19,500,000	$336,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Appendix A.2 Travel Time Calculations

Length and Travel Time of Alternative Modified W4							
		Length of Segment within Speed Zone				Travel Time Per Trip	
Alternative	Length	35 MPH	45 MPH	57 MPH	65 MPH	Minutes	Min:Sec
Modified W4	6.65	0.03	0.27		6.35	6.27	6:16

Appendix A.2 Travel Time Calculations

2017

Total Travel Time for Alternative Modified W4					
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	4757	1.67	7944	6.27	830.1
Passenger Cars on Business Use	320	1.24	397	6.27	41.5
Light Single Unit Trucks	382	1.05	401	6.27	41.9
Heavy Single Unit Trucks	67	1	67	6.27	7
Combination Trucks	395	1.12	442	6.27	46.2
				Travel Time (Hours) Per Calendar Day:	**966.7**
				Travel Time (Hours) Per Calendar Year:	**352845.5**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

Appendix A.2 Travel Time Calculations

2036

Total Travel Time For Alternative Modified W4					
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	6329	1.67	10569	6.27	1104.5
Passenger Cars on Business Use	426	1.24	528	6.27	55.2
Light Single Unit Trucks	584	1.05	613	6.27	64.1
Heavy Single Unit Trucks	102	1	102	6.27	10.7
Combination Trucks	603	1.12	675	6.27	70.5
				Travel Time (Hours) Per Calendar Day:	**1305**
				Travel Time (Hours) Per Calendar Year:	**476325**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

Appendix A.2 Travel Time Calculations

20 Year Period From 2017 Through 2036

Total Travel Time For Alternative Modified W4					
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time Per Trip (Minutes)	Total Hours
Passenger Cars on Personal Use	110187	1.67	184012	6.27	19229.3
Passenger Cars on Business Use	7409	1.24	9187	6.27	960
Light Single Unit Trucks	9523	1.05	9999	6.27	1044.9
Heavy Single Unit Trucks	1661	1	1661	6.27	173.6
Combination Trucks	9838	1.12	11019	6.27	1151.5
				Total Travel Time (Hours):	**8234144.5**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

Appendix B.1 Travel Time Cost Calculations

2017

Travel Time Cost for Alternative Modified W4						
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	4757	1.67	$11.89	6.27	1.051	$10,374.10
Passenger Cars on Business Use	320	1.24	$29.75	6.27	1.051	$1,296.52
Light Single Unit Trucks	382	1.05	$23.06	6.27	1.051	$1,015.85
Heavy Single Unit Trucks	67	1	$29.65	6.27	1.051	$218.18
Combination Trucks	395	1.12	$29.65	6.27	1.051	$1,440.65
					**Cost Per Day:	$14,345.30
					**Cost Per Year:	$5,236,035.49

* Small Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All travel time costs were adjusted to July 1, 2013, using the Employment Cost Index.

Appendix B.1 Travel Time Cost Calculations

2036

Travel Time Cost for Alternative Modified W4						
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	6329	1.67	$11.89	6.27	1.051	$13,802.33
Passenger Cars on Business Use	426	1.24	$29.75	6.27	1.051	$1,725.99
Light Single Unit Trucks	584	1.05	$23.06	6.27	1.051	$1,553.03
Heavy Single Unit Trucks	102	1	$29.65	6.27	1.051	$332.16
Combination Trucks	603	1.12	$29.65	6.27	1.051	$2,199.27
					**Cost Per Day:	$19,612.78
					**Cost Per Year:	$7,158,664.21

* Small Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All travel time costs were adjusted to July 1, 2013, using the Employment Cost Index.

Appendix B.1 Travel Time Cost Calculations

20 Year Period From 2017 Through 2036

Travel Time Cost for Modified Alternative W4						
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs
Passenger Cars on Personal Use	110187	1.67	$11.89	6.27	1.051	$87,708,272.18
Passenger Cars on Business Use	7409	1.24	$29.75	6.27	1.051	$10,956,708.84
Light Single Unit Trucks	9523	1.05	$23.06	6.27	1.051	$9,243,453.43
Heavy Single Unit Trucks	1661	1	$29.65	6.27	1.051	$1,974,268.43
Combination Trucks	9838	1.12	$29.65	6.27	1.051	$13,096,685.83
					**Total Cost:	$122,979,388.70

* Small Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All travel time costs were adjusted to July 1, 2013, using the Employment Cost Index.

Appendix B.2 Time Related Vehicle Depreciation Cost Calculations

2017

Time-Related Vehicle Depreciation for Alternative Modified W4					
Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	3721	6.27	$1.05	1.019	$416.04
Medium to Large Autos	1354	6.27	$1.40	1.048	$207.60
Four Tire SU	54	6.27	$2.58	1.054	$15.35
6 Tire Trucks	339	6.27	$3.60	1.054	$134.42
3 or 4 axles	65	6.27	$9.06	1.069	$65.79
5+ Axles	387	6.27	$10.12	1.069	$437.51
				Total Daily Cost:	**$1,276.70**
				****Cost Per Year:**	**$465,995.55**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate Producer Price Index.

Appendix B.2 Time Related Vehicle Depreciation Cost Calculations

2036

Time-Related Vehicle Depreciation for Alternative Modified W4					
Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	5056	6.27	$1.05	1.019	$565.31
Medium to Large Autos	1840	6.27	$1.40	1.048	$282.11
Four Tire SU	73	6.27	$2.58	1.054	$20.74
6 Tire Trucks	461	6.27	$3.60	1.054	$182.79
3 or 4 axles	88	6.27	$9.06	1.069	$89.06
5+ Axles	526	6.27	$10.12	1.069	$594.65
				Total Daily Cost:	**$1,734.67**
				**Cost Per Year:	**$633,156.02**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate Producer Price Index.

Appendix B.2 Time Related Vehicle Depreciation Cost Calculations

20 Year Period From 2017 Through 2036

Time-Related Vehicle Depreciation for Alternative Modified W4					
Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Cost
Small Autos	87127	6.27	$1.05	1.019	$3,555,702.35
Medium to Large Autos	31704	6.27	$1.40	1.048	$1,774,240.68
Four Tire SU	1264	6.27	$2.58	1.054	$131,104.18
6 Tire Trucks	7938	6.27	$3.60	1.054	$1,148,850.09
3 or 4 axles	1522	6.27	$9.06	1.069	$562,250.32
5+ Axles	9062	6.27	$10.12	1.069	$3,739,309.65
				Total Cost:	**$10,911,457.27**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate Producer Price Index.

Appendix B.3 Vehicle Operating Cost Calculations

2017

Vehicle Operating Costs on Alternative Modified W4				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	3721	6.65	$0.43	$10,760.97
Medium to Large Autos	1354	6.65	$0.56	$5,084.51
Four Tire SU	54	6.65	$0.94	$337.05
6 Tire Trucks	339	6.65	$1.23	$2,768.63
3 or 4 axles	65	6.65	$1.45	$627.14
5+ Axles	387	6.65	$1.59	$4,094.43
			Total Daily Cost:	**$23,672.72**
			****Cost Per Year:**	**$8,640,544.09**

* Small differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate PPI and CPI Indexes.

Appendix B.3 Vehicle Operating Cost Calculations

2036

Vehicle Operating Costs on Alternative Modified W4				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	5056	6.65	$0.43	$14,621.73
Medium to Large Autos	1840	6.65	$0.56	$6,909.53
Four Tire SU	73	6.65	$0.94	$455.64
6 Tire Trucks	461	6.65	$1.23	$3,765.01
3 or 4 axles	88	6.65	$1.45	$849.05
5+ Axles	526	6.65	$1.59	$5,565.04
			Total Daily Cost:	**$32,165.99**
			****Cost Per Year:**	**$11,740,586.84**

* Small differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate PPI and CPI Indexes.

Appendix B.3 Vehicle Operating Cost Calculations

20 Year Period From 2017 Through 2036

Vehicle Operating Costs on Alternative Modified W4				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	87127	6.65	$0.43	$91,968,106.70
Medium to Large Autos	31704	6.65	$0.56	$43,454,778.37
Four Tire SU	1264	6.65	$0.94	$2,879,620.85
6 Tire Trucks	7938	6.65	$1.23	$23,662,940.63
3 or 4 axles	1522	6.65	$1.45	$5,359,928.39
5+ Axles	9062	6.65	$1.59	$34,994,479.72
			Total Cost:	**$202,319,854.66**

* Small differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate PPI and CPI Indexes.

US-95 THORNCREEK ROAD TO MOSCOW MOBILITY AND ROAD USER COST STUDY ON ALTERNATIVES CARRIED FORWARD

DHP-NH-4110 (156)
KEY # 09294
March 12, 2014

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Table of Contents

Mobility and Road User Cost Study

DHP-NH-4110 (156); Key No. 9294; Thorncreek to Moscow

March 12, 2014

Introduction

This Mobility and Road User Cost Study is a supporting document of the Final Environmental Impact Statement for US-95, Thorncreek to Moscow. It was written to address public comments received during the public comment period and to update Level of Service Calculations using an updated Highway Capacity Manual (HCM 2010). This study addresses the significance of travel time and travel length by calculating the travel time and road user cost of the alternatives for motorists traveling the entire distance between Thorncreek Road and Moscow entirely on the proposed alternatives.

Cost of travel time, cost of time related vehicle depreciation, and vehicle operating costs are components of road user cost that are calculated and presented in this report. Crash costs are also a component of road user cost and are presented in the AASHTO Highway Safety Manual Analysis on Alternatives Carried Forward. Calculations in this report are based on motorists traveling the entire trip between Thorncreek Road and Moscow. The crash costs presented in the safety analysis are for all traffic on Proposed US-95 and the portion of the existing US-95 that will remain if an action alternative is selected known as the "Remaining US-95 Loop".

The Idaho Transportation Department's (ITD) mission statement is, "Your Safety. Your Mobility. Your Economic Opportunity." Safety, mobility, and economics are considered by the ITD in all decisions relating to transportation including the selection of an Alternative on US-95 between Thorncreek Road and Moscow. Safety for Thorncreek to Moscow was addressed in a separate document titled the AASHTO Highway Safety Manual Analysis on Alternatives Carried Forward, while mobility and economics, in terms of cost of travel time, cost of time related vehicle depreciation, and vehicle operating costs, are addressed in this report.

One goal of the ITD's 2011 Strategic Plan is to, "Provide a mobility-focused transportation system that drives economic opportunity." Transportation networks that allow motorists to travel from one location to another quickly and efficiently will reduce road user costs for users of the highway and will contribute to economic growth and opportunity. Road users and the public depend on a network that provides safe, fast, and efficient service. The ITD's Strategic Plan states that Idaho's gross domestic product and the state's transportation system are linked and throughout Idaho's history, improvements to the mobility of the state's transportation network have preceded economic growth.

Summary

Table 1 shows the projected travel times for motorists making the entire trip from Thorncreek Road to Moscow in 2017, 2036, and the total 20 year period. 2017 was selected because it is the first year after the project's scheduled completion. The 20 year prediction period was used because it is the normal practice to design a project using traffic volumes projected 20 years after completion of the project.

Table 1: Total Travel Time in Hours (Mobility)*

Alternative	2017	2036	Total 20 Year
No Action	380,000	520,000	9,000,000
E2	310,000	420,000	7,200,000
C3	340,000	460,000	8,000,000
W4	360,000	480,000	8,300,000

* The total travel time refers to the total time required for all motorists making the entire trip from Thorncreek Road to Moscow. The total travel time does not include the travel time for motorists that have a destination between Thorncreek Road and Moscow.

Table 2, shown below, displays the total cost of travel time, cost of time related vehicle depreciation, and vehicle operating costs for the alternatives in 2017, 2036, and the total 20 year period.

Table 2: Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs*

Alternative	2017	2036	Total 20 Year
No Action	$14,600,000	$19,700,000	$339,000,000
E2	$12,600,000	$17,200,000	$295,000,000
C3	$13,300,000	$18,000,000	$311,000,000
W4	$14,500,000	$19,700,000	$338,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

All action alternatives have less travel time than the No Action Alternative and Alternative E2 has the least travel time of all the alternatives. Alternative E2 also has the least total cost of travel time, cost of time related vehicle depreciation, and vehicle operating costs. In fact,

Alternative E2 has over forty million dollars of savings over Alternatives W4 and the No Action Alternative and sixteen million dollars of savings over Alternative C3 in terms of these costs over the 20 year study period. As traffic volumes grow at an exponential rate in the future, total travel times and road user costs will continue to grow and the differences in total travel time and road user costs between the alternatives will become greater.

Mobility

Mobility refers to the efficiency and speed that motorists travel from one location to another and is defined by the AASHTO Policy on Geometric Design of Highways and Streets as "trip travel time." Mobility is considered by the ITD for every highway construction project, including US-95 Thorncreek to Moscow. Mobility reduces road user costs and will improve economic opportunity according to the 2011 ITD Strategic Plan. Mobility is reported in terms of travel times shown below in the section titled *Travel Times*.

Capacity

Capacity is an important component of mobility. It is defined by the HCM 2010 as "the maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions." Stated simply, capacity refers to the ability of a road to accommodate traffic volume.

Capacity is an important project consideration and, consequently, the Purpose and Need Statement references capacity. The purpose and need statement is the following:

- Purpose – The purpose of this project is to improve public safety and increase highway capacity on US 95 between Thorncreek Road and Moscow.
- Need – Within the project limits, US95 does not meet current American Association of State Highway and Transportation Officials (AASHTO) Standards (widths, clear-zones, grades, and sight distance). Additional concerns include high accident locations and insufficient highway capacity.

Level-of-Service (LOS) was calculated for the alternatives using the HCM 2010. The HCM 2010 defines LOS as "a quantitative stratification of a performance measure or measures that

represent quality of service." The Level-of-Service is reported as six service measures using letters A through F. LOS for a two-way two-lane highway is measured by average travel speed and percent of time following. According to the HCM 2010 the LOS criteria for a Class I two-lane two-way highway such as the No Action Alternative on US-95 between Thorncreek Road and Moscow is the following:

- LOS A: Motorists experience high operating speeds and little difficulty in passing. Platoons of three or more motorists are rare.
- LOS B: Passing demand and passing capacity are balanced; however, the degree of platooning becomes noticeable and some speed reductions are present.
- LOS C: Most vehicles are traveling in platoons and speeds are noticeably slower.
- LOS D: Platooning increases significantly and passing demand is high.
- LOS E: The peak hour traffic demand is reaching its maximum capacity. Passing is nearly impossible.
- LOS F: The demand flow has exceeded the capacity of the segment. Operating conditions are unstable and heavy congestion exists.

LOS for the action alternatives is calculated differently than the No Action Alternative because the action alternatives are multilane highways and the No Action Alternative is a two-lane two-way highway. Two-lane two-way highways have more delay because passing opportunities are rarer. LOS for multilane highways is measured by highway density in passenger cars per mile per lane in terms of a category between A and F. LOS on a multi-lane highway is described in the HCM 2010 as the following:

- LOS A represents free flow operations: Free flow speed prevails on the highway and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.
- LOS B represents reasonably free-flow operations and the free flow speed on the highway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents and point breakdowns are still easily absorbed.
- LOS C provides for flow with speeds near the free flow speed of the highway. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed,

but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.

- LOS D is the level at which speeds begin to decline with increasing flows with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
- LOS E describes operation at capacity. Operations on the highway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from an approach or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.
- LOS F describes breakdown, or unstable flow. The existing demand of the highway exceeds the capacity of the highway.

Capacity of Alternatives

ITD completed a LOS and capacity analysis for the No Action Alternative for the different segments and included it in Appendix A.1 and the results for the No Action Alternative and capacity analysis in 2017 and 2037 are the following:

Table 3: LOS, Volume, and Capacity For No Action Alternative in 2017

Alternative	Average Travel Speed (mph)	Percent Time Spent Following	LOS	Directional Traffic Flow Volume (pcph*)	Total Directional Capacity (pcph*)	Volume to Capacity Ratio
No Action Rural	57.2	64.3	C	450	1400	.32
No Action Suburban	39.0	69.2	E	550	1500	.37

* Passenger Cars Per Hour Rounded to Nearest 50

Table 4: LOS, Volume, and Capacity For No Action Alternative in 2037

Alternative	Average Travel Speed (mph)	Percent Time Spent Following	LOS	Directional Traffic Flow Volume (pcph*)	Total Directional Capacity (pcph*)	Volume to Capacity Ratio
No Action Rural	55.6	71.0	D	650	1500	0.43
No Action Suburban	37.0	76.9	E	750	1550	0.48

* Passenger Cars Per Hour Rounded to Nearest 50

The No Action Alternative does not satisfy the Purpose and Need Statement of the Thorncreek to Moscow Project because US-95 is not expanded to accommodate more capacity. Capacity increases slightly from 2017 to 2037 only because the grade factor and heavy vehicle factors in the capacity equations increase with traffic volume. Traffic volumes increase with time

reducing the LOS and increasing the volume to capacity ratio. The traffic flow volumes increase much faster than the capacity of the No Action Alternative.

The LOS calculations show that the rural portion of US-95 currently operates at LOS C and the Level of Service is expected to deteriorate to LOS D by 2037. The suburban segment immediately south of Moscow operates at LOS E in 2017 and 2037. The Idaho Transportation Department's Design Manual and the AASHTO Green Book both recommend a LOS B for rural rolling terrain on a rural arterial such as US-95 between Thorncreek Road and Moscow and a LOS C for the suburban highway immediately south of Moscow.

Table 5, shown below, displays the combined LOS and volume of the No Action Alternative in 2017 and 2037 using a weighted average to merge the results of calculations within the rural and suburban portions the No Action Alternative. Because the rural portion of US-95 is much longer than the suburban portion, the results of the combined calculations are similar to the results of the rural calculations.

Table 5: Combined LOS and Volume of Alternatives in 2017 and 2037 Using a Weighted Average

Alternative	Average Travel Speed (mph)	Percent Time Spent Following	LOS	Directional Traffic Flow Volume (pcph*)
No Action 2017	55.8	64.7	C	450
No Action 2037	54.2	71.4	D	650

* Passenger Cars Per Hour Rounded to Nearest 50

The multilane LOS and capacity analysis for the action alternatives is shown in Appendix A.1. The results of the LOS and capacity analysis for the action alternatives are shown in Table 6 and 7 below:

Table 6: LOS, Volume, and Capacity For Action Alternatives in 2017

Alternative	Density (pcpmpl*)	LOS	Directional Traffic Flow Volume (pcph**)	Directional Capacity (pcph**)	Volume to Capacity Ratio
Alternative E2 - Rural	3.6	A	450	4700	0.10
Alternative E2 - Suburban	6.1	A	600	4000	0.15
Alternative C3 – Rural	3.6	A	450	4700	0.10
Alternative C3 - Suburban	6.1	A	600	4000	0.15
Alternative W4 - Rural	3.6	A	450	4700	0.10
Alternative W4 - Suburban	6.1	A	600	4000	0.15

* Passenger Cars Per Mile Per Lane

** Passenger Cars Per Hour Rounded to Nearest 50

Table 7: LOS, Volume, and Capacity For Action Alternatives in 2037					
Alternative	**Density (pcpmpl*)**	**LOS**	**Directional Traffic Flow Volume (pcph**)**	**Directional Capacity (pcph**)**	**Volume to Capacity Ratio**
Alternative E2 - Rural	5.0	A	650	4700	0.14
Alternative E2 - Suburban	8.3	A	850	4000	0.21
Alternative C3 – Rural	5.0	A	650	4700	0.14
Alternative C3 - Suburban	8.3	A	850	4000	0.21
Alternative W4 - Rural	5.0	A	650	4700	0.14
Alternative W4 - Suburban	8.3	A	850	4000	0.21

* Passenger Cars Per Mile Per Lane ** Passenger Cars Per Hour Rounded to Nearest 50

The action alternatives all satisfy the capacity component of the purpose and need statement and have about 3 times more capacity than the No Action Alternative. Capacities for the rural divided sections are identical and capacities for the suburban 5-Lane sections are identical. The 5-lane suburban section of each action alternative has less capacity than the rural divided 4-lane section of each alternative.

All action alternatives have a LOS of A in 2017 through 2037 for both the rural divided US-95 highway segment and the suburban 5-Lane US-95 highway segment. LOS A represents a free flow condition where motorists are almost completely unimpeded in their ability to maneuver within the traffic stream. The directional density of traffic for the three action alternatives is identical within the rural divided sections and the directional density of traffic is identical within the suburban 5-Lane sections of all three action alternatives. The 5-lane suburban section of each action alternative has greater directional density than the rural divided 4-lane section. The 5-lane suburban section of Alternative C3 is longer and has a greater overall percentage of

length than Alternatives E2 and W4; therefore, the directional density is the greatest for Alternative C3 and the least for Alternatives E2 and W4.

Tables 8 and 9, shown below, display the combined suburban and rural density, level-of-service and directional traffic flow volume using weighted averages based on the length of both the suburban and rural highways.

Table 8: Combined LOS, Density, and Volume of Alternatives in 2017 Using a Weighted Average

Alternative	Density (pcpmpl*)	LOS	Directional Traffic Flow Volume (pcph**)
Alternative E2	3.7	A	450
Alternative C3	5.0	A	550
Alternative W4	3.7	A	450

* Passenger Cars Per Mile Per Lane ** Passenger Cars Per Hour Rounded to Nearest 50

Table 9: Combined LOS, Density, and Volume of Alternatives in 2037 Using a Weighted Average

Alternative	Density (pcpmpl*)	LOS	Directional Traffic Flow Volume (pcph**)
Alternative E2	5.1	A	650
Alternative C3	6.9	A	750
Alternative W4	5.1	A	650

* Passenger Cars Per Mile Per Lane ** Passenger Cars Per Hour Rounded to Nearest 50

Alternatives E2 and W4 have lighter density and traffic flow volume than Alternative C3 because their suburban sections are much shorter than the suburban section of Alternative C3. In 2037, all Alternatives continue to operate at a free-flow condition, or LOS A; therefore, the lighter density and traffic flow volumes would not be noticeable to the typical motorist. However, as the traffic volumes grow in the future, Alternative C3 would have a reduction in LOS before Alternatives E2 and W4 and reach its capacity before Alternatives E2 and W4.

Capacity of the Remaining US-95 Loop for Alternatives

If any action alternative is selected it will retain a portion of the Existing US-95 Alignment referred to as the "Remaining US-95 Loop". The traffic volume on the Remaining US-95 Loop will be greatly reduced and level of service will improve greatly because the majority of the traffic will use the new US-95 Alignment. The level of service calculations shows that the rural US-95 portion of the Remaining US-95 Loop for Alternatives E2, C3, and W4 will operate at a Level of Service A not only in 2017, but also in 2037. If the speed limit of the suburban portion of the Remaining US-95 Loop in Alternatives E2 and W4 is increased to 55 mph or greater, it will operate at a level of service of B in 2017 and 2037. With a posted speed limit of 45 mph in the suburban portion of the Remaining US-95 Loop, the level of service will be lowered in both Alternatives E2 and W4 to either C or D in 2017 and 2037. Alternative C3 does not have a suburban portion of the Remaining US-95 Loop.

Travel Time

The differences in length and travel time of the alternatives per trip between the alternatives are shown in Table 10 below:

Table 10: Length and Travel Time Per Trip*

Alternative	Length (Miles)	Travel Time (Minutes)	Travel Time (Minutes:Seconds)
No Action	6.34	6.82	6:49
E2	5.85	5.51	5:31
C3	5.94	6.08	6:05
W4	6.69	6.31	6:19

* A trip is defined as a course of travel between Thorncreek Road and Moscow without stopping.

Using the differences in length and travel time shown above and the projected traffic volumes shown in Appendix C.1, the total travel times for all motorists traveling the entire distance between Thorncreek Road and Moscow on the alternatives for 2017, 2036, and the 20 year period between 2017 and 2036 were calculated. Calculations of the travel times and assumptions used to calculate the travel times are shown in Appendix A.2 and results of the calculations are shown in Table 11 below.

Table 11: Total Travel Time (Hours)*			
Alternative	**2017**	**2036**	**Total 20 Year**
No Action	380,000	520,000	9,000,000
E2	310,000	420,000	7,200,000
C3	340,000	460,000	8,000,000
W4	360,000	480,000	8,300,000

* The total travel time refers to the total time required for all motorists making the entire trip from Thorncreek Road to Moscow. The total travel time does not include the travel time for motorists that have a destination between Thorncreek Road and Moscow.

Of the proposed alternatives, Alternative E2 has the least travel time and the No Action Alternative has the most travel time of all the alternatives.

One of the two primary reasons the report was written is to address public comments regarding the length and travel time significance between the alternatives. The comments from the public hearing that discussed the significance of length and travel time between the alternatives were focused on motorists making the entire trip from Thorncreek Road to Moscow; therefore, this report focuses on addressing public comments by addressing the significance of length and travel time for motorists making the entire trip from Thorncreek Road to Moscow.

Travel times for motorists who are traveling to a destination within project limits either on the proposed alternative or on the portion of existing US-95 that will remain as a loop for commuter traffic (known as the Remaining US-95 Loop) are not captured in the total travel time listed in Tables 1, 11, and 14. The reasons local travel times are excluded from the total travel time calculations are the following:

- Total travel time for motorists making the entire trip from Thorncreek Road to Moscow is easily calculated with only one set of calculations and the travel time calculations use assumptions that are easy to support. Adding travel times for motorists that have a destination within project limits would require numerous calculations that rely on many assumptions. Calculating travel times for all motorists that have a destination within project limits would require two separate calculations (one for NB travel and one for SB

travel) for every approach or county road within project limits. Every approach or county road would require detailed information regarding the volume and classification of daily traffic that uses the approach or county road. At this time approximately 50 commercial, industrial, and residential approaches and six county roads exist at a destination within project limits. Volume of traffic data and classification of traffic data would be required in both the northbound and southbound direction of travel from the approaches or county roads for a total of over 100 separate sets of calculations. In addition, the actual approach locations and the number of total approaches on Proposed US-95 of any of the action alternatives will change based on Right-of-Way negotiations after the environmental document is approved adding more uncertainty to the calculation of travel times.

- Excluding local traffic that has a destination within project limits will not significantly skew the travel time results towards an alternative. Traffic traveling to a destination within project limits is light compared to the mainline traffic volumes. The majority of traffic that makes a trip on US-95 between Thorncreek Road and Moscow are commuters who travel the entire trip from Thorncreek Road to Moscow without stopping. In 2017, the AADT between Thorncreek Road and Moscow without stopping is estimated to be 5,920 vehicles per day. The traffic volume making the relatively short trip from Moscow to a destination within 1.4 miles south of Moscow is estimated to be 1,500 vehicles per day. On alternatives E2 and W4, the 1500 vehicles per day turn onto the northern Remaining US-95 loop to reach their destination. Delay time is expected with this move because vehicles decelerate and stop prior to the intersection, wait for a gap in traffic at the intersection, and accelerate to the speed limit on the Remaining US-95 loop after traveling through the intersection. On Alternative C3 and the No Action Alternative, the 1500 vehicles would access their business from US-95 and no delay time would be associated with turning onto the Remaining US-95 Loop. Calculations in Appendix A.3 show that between 12 and 28 seconds of delay time are associated with turning onto and off of the northern Remaining US-95 loop depending upon the turning move and the length of gaps associated with traffic volume. Alternative C3 and the No Action Alternative have a slight advantage in travel time length over alternatives E2 and W4 as a result of the intersection; however, the slight advantage of travel time for local traffic is small compared with the travel time advantage of all through traffic making the trip from Thorncreek Road to Moscow. To illustrate this point, the difference in total travel time between alternatives C3 and the No Action Alternative (local traffic uses US-

95) and Alternatives E2 and W4 (local traffic turns on Remaining US-95 Loop) for 2017 is only about 2600 hours as shown in Appendix A.3. Since Table 11 uses only two significant figures and reports travel time to the nearest 10,000, the calculated delay difference is not significant enough to be captured in the results. The traffic volume making a trip with a destination between 1.4 miles south of Moscow and Thorncreek Road is nearly the same for all alternatives and only estimated to be about 200 to 300.

Road User Costs

A mobility-focused transportation system that efficiently moves motorists from one location to another will have positive economic implications. Highways that have shorter travel times and less length to travel from one location to another will have less road user costs. Road user costs are defined as costs borne by motorists and the community at large as a result of motorized travel. The components of road user cost for this study include travel time cost, time-related vehicle depreciation, and vehicle operating costs. The methods used to calculate these costs are found in an FHWA Report published in December 2011 titled, "Work Zone User Costs: Concepts and Applications." The report was primarily written to quantify additional road user costs as a result of highway construction; however, the concepts and applications can be applied to the estimation of road user costs for the different alternatives on this project.

In general, the manual is intended to address the road user costs associated with detours around a construction zone, or the road user costs of motorists traveling through a construction zone from a beginning point to an ending point. Delay costs for motorists making a destination within a work zone are typically not captured in procedures outlined in this manual.

Travel time costs, time-related vehicle depreciation costs, and vehicle operating costs reported in this study do not include costs for the motorists that are traveling to a destination within project limits. They include the costs of the motorists who are traveling the trip from Thorncreek Road to Moscow without stopping at a destination within the project limits. The costs are calculated using the travel times for the different alternatives calculated in this report.

Cost of Travel Time

The total travel time cost is calculated by applying a monetary value to the travel time that was presented in Tables 1, 11, and 14: Total Travel Time. Time spent traveling in a vehicle is a resource with an economic value and time spent traveling in a vehicle would have otherwise been used productively, whether it was for work, recreation, or non-work activities.

Calculations for the cost of travel time and assumptions used to calculate the travel time costs are shown in Appendix B.1 and results of the calculations are shown in Table 9 below. The cost of travel time in Appendix B.1 is for the motorists who make the entire trip from Thorncreek Road to Moscow and does not include the cost of travel time for motorists that have a destination within project limits. Table 9 reports the total travel time costs.

Table 9: Total Travel Time Costs*

Alternative	2017	2036	Total 20 Year
No Action	$5,700,000	$7,800,000	$134,000,000
E2	$4,600,000	$6,300,000	$108,000,000
C3	$5,100,000	$6,900,000	$119,000,000
W4	$5,300,000	$7,200,000	$124,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Of the proposed alternatives, Alternative E2 has the least travel time cost and the No Action Alternative has the most travel time cost.

Cost of Time Related Vehicle Depreciation

Vehicles depreciate as they age and time related vehicle depreciation costs are estimated from the annual ownership costs of vehicles. Time related vehicle depreciation applies a monetary value to travel times presented in Tables 1, 11, and 14 for different vehicle types. Mileage-related depreciation costs are not included within the time related vehicle depreciation costs. Mileage related depreciation costs are included within the next section titled Vehicle Operating Costs.

Calculations for time related vehicle depreciation and assumptions used to calculate the time related vehicle depreciation are shown in Appendix B.2 and results of the calculations are shown in Table 10 below. The cost of time related vehicle depreciation shown in Appendix B.2 is for the motorists who make the entire trip from Thorncreek Road to Moscow and does not include the cost of time related vehicle depreciation for motorists who have a destination within project limits. Table 10 reports the total time related vehicle depreciation cost.

Table 10: Total Cost of Time Related Vehicle Depreciation*

Alternative	2017	2036	Total 20 Year
No Action	$510,000	$690,000	$12,000,000
E2	$410,000	$560,000	$10,000,000
C3	$450,000	$610,000	$11,000,000
W4	$470,000	$640,000	$11,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Of the proposed alternatives, Alternative E2 has the least time related vehicle depreciation cost and the No Action Alternative has the most time related vehicle depreciation cost of all the alternatives.

Vehicle Operating Costs

Vehicle Operating Costs are mileage dependent costs incurred by road users and are used to analyze the significance of length difference between the alternatives. Vehicle operating costs are calculated by applying a monetary value for a specific vehicle type to the length of the alternative shown in Table 10. Consumption costs for the following components were included in this calculation: fuel, engine oil, tire wear, repair and maintenance, and mileage related depreciation.

Calculations for the vehicle operating costs and assumptions used to calculate the vehicle operating costs are shown in Appendix B.3 and results of the calculations are shown in Table 11 below. The vehicle operating costs are for the motorists who make the entire trip from

Thorncreek Road to Moscow and do not include the vehicle operating costs for motorists who have a destination within project limits. Table 11 reports the total vehicle operating cost.

Table 11: Total Vehicle Operating Cost*

Alternative	2017	2036	Total 20 Year
No Action	$8,200,000	$11,200,000	$193,000,000
E2	$7,600,000	$10,300,000	$178,000,000
C3	$7,700,000	$10,500,000	$181,000,000
W4	$8,700,000	$11,800,000	$204,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Of the proposed alternatives, Alternative E2 has the least vehicle operating cost and Alternative W4 has the most vehicle operating cost of all the alternatives.

Adjustment for Inflation

All costs have been adjusted for inflation using the appropriate index to July 1, 2013. Appendix C.3 includes all appropriate Consumer Price Indices, Producer Price Indices, and Employment Price Indices for reference.

*Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs**

The total road user cost reported in this study is the total travel time cost, time-related vehicle depreciation cost, and vehicle operating cost. The total road user cost is shown in Table 13 below.

Table 13: Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs*

Alternative	2017	2036	Total 20 Year
No Action	$14,600,000	$19,700,000	$339,000,000
E2	$12,600,000	$17,200,000	$295,000,000
C3	$13,300,000	$18,000,000	$311,000,000
W4	$14,500,000	$19,700,000	$338,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

Alternative E2 has the lowest road user cost of all alternatives.

Conclusion

This Mobility and Road User Cost Study addresses comments regarding the significance of the difference in length and travel time between the alternatives by calculating travel time and road user cost for motorists traveling the entire distance between Thorncreek Road and Moscow entirely on the proposed alternatives. The distance, travel time, and road user costs between alternatives appear to be small to some individual motorists; however, the combined total of distances, travel times, and road user costs for all vehicle trips over time are much larger and are considered in this report. The significance of the difference in length and travel time between alternatives is reflected in the total road user cost for the alternatives. Tables 14 and 15, shown below, show the total travel time and the total road user costs for the alternatives.

Table 14: Total Travel Time in Hours (Mobility)*			
Alternative	**2017**	**2036**	**Total 20 Year**
No Action	380,000	520,000	9,000,000
E2	310,000	420,000	7,200,000
C3	340,000	460,000	8,000,000
W4	360,000	480,000	8,300,000

* The total travel time refers to the total time required for all motorists making the entire trip from Thorncreek Road to Moscow. The total travel time does not include the travel time for motorists that have a destination between Thorncreek Road and Moscow.

Table 15: Total Cost of Travel Time, Cost of Time Related Vehicle Depreciation, and Vehicle Operating Costs*			
Alternative	**2017**	**2036**	**Total 20 Year**
No Action	$14,600,000	$19,700,000	$339,000,000
E2	$12,600,000	$17,200,000	$295,000,000
C3	$13,300,000	$18,000,000	$311,000,000
W4	$14,500,000	$19,700,000	$338,000,000

* The costs are for all motorists making the entire trip from Thorncreek Road to Moscow. The costs are not for motorists that have a destination between Thorncreek Road and Moscow.

All action alternatives have less travel time than the No Action Alternative and Alternative E2 has the least travel time of all the alternatives. Alternative E2 also has the least total cost of travel time, cost of time related vehicle depreciation, and vehicle operating costs. In fact, Alternative E2 has over forty million dollars of savings over Alternatives W4 and the No Action Alternative and sixteen million dollars of savings over Alternative C3 in terms these costs over the 20 year study period. As traffic volumes grow at an exponential rate in the future, total travel times and road user costs will continue to grow and the differences in total travel time and road user costs between the alternatives will become greater.

Both mobility and road user costs are important components of ITD's Strategic Plan and mission statement and are considered on all highway construction projects. From a mobility and road user cost perspective, Alternative E2 is the preferred alternative. Selecting Alternative E2 will result in the shortest total travel time and lowest road user cost for motorists.

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APPENDIX A - MOBILITY

Appendix A.1

Level of Service Calculations and Summary

Level-Of-Service

Summary

LOS SUMMARY

Level of Service Results for No Action Alternative in 2017					
Alternative	**Beginning MP**	**Ending MP**	**Average Travel Speed (mph)**	**Percent Time Spent Following (%)**	**Level of Service**
2017 No Action NB1	337.668	342.93	55.8	71.5	D
2017 No Action NB2	342.93	343.525	55.8	65.9	D
2017 No Action NB3	343.525	344.004	39.0	72.2	E
2017 No Action SB1	337.668	342.28	58.4	58.0	C
2017 No Action SB2	342.28	342.93	62.3	41.0	B
2017 No Action SB3	342.93	343.525	55.3	73.8	D
2017 No Action SB4	343.525	344.004	39.0	66.2	E
2017 No Action Rural Total	337.668	343.525	57.2	64.3	**C**
2017 No Action Suburban Total	343.525	344.004	39.0	69.2	**E**
2017 No Action Total	337.668	343.525	55.8	64.7	C

Level of Service Results for No Action Alternative in 2037					
Alternative	**Beginning MP**	**Ending MP**	**Average Travel Speed (mph)**	**Percent Time Spent Following (%)**	**Level of Service**
2037 No Action NB1	337.668	342.93	54.3	79.0	D
2037 No Action NB2	342.93	343.525	53.5	75.2	D
2037 No Action NB3	343.525	344.004	37.0	79.7	E
2037 No Action SB1	337.668	342.28	57.0	63.9	C
2037 No Action SB2	342.28	342.93	61.0	45.6	B
2037 No Action SB3	342.93	343.525	53.2	79.4	D
2037 No Action SB4	343.525	344.004	36.9	74.0	E
2037 No Action Rural Total	337.668	343.525	55.6	71.0	**D**
2037 No Action Suburban Total	343.525	344.004	37.0	76.9	**E**
2037 No Action Total	337.668	343.525	54.2	71.5	D

LOS SUMMARY

Multilane Level of Service Results for Action Alternatives in 2017			
Alternative	**Average Travel Speed (mph)**	**Density (pc/ln/hr)**	**Level of Service**
2017 W4 Rural	65	3.6	A
2017 W4 Suburban	50	6.1	A
2017 C3 Rural	65	3.6	A
2017 C3 Suburban	50	6.1	A
2017 E2 Rural	65	3.6	A
2017 E2 Suburban	50	6.1	A

Multilane Level of Service Results for Action Alternatives in 2037			
Alternative	**Average Travel Speed (mph)**	**Density (pc/ln/hr)**	**Level of Service**
2037 W4 Rural	65	5.0	A
2037 W4 Suburban	50	8.3	A
2037 C3 Rural	65	5.0	A
2037 C3 Suburban	50	8.3	A
2037 E2 Rural	65	5.0	A
2037 E2 Suburban	50	8.3	A

AVERAGE TRAVEL SPEED, PERCENT OF TIME SPENT FOLLOWING, AND DIRECTIONAL TRAFFIC FLOW VOLUME WEIGHTED AVERAGES FOR NO ACTION ALTERNATIVE

Average Travel Speed for No Action Alternative					
Year	Rural Average Travel Speed (mph)	Rural Length (miles)	Suburban Average Travel Speed (mph)	Suburban Length (miles)	Weighted Average Travel Speed (mph)
2017	57.2	5.86	39	0.48	55.8
2037	55.6	5.86	37	0.48	54.2

Percent Time Spent Following for No Action Alternative					
Year	Rural Average Travel Speed (mph)	Rural Length (miles)	Suburban Average Travel Speed (mph)	Suburban Length (miles)	Weighted Average Travel Speed (mph)
2017	64.3	5.86	69.2	0.48	64.7
2037	71	5.86	76.9	0.48	71.4

Directional Traffic Flow Volume for No Action Alternative*					
Year	Rural Average Travel Speed (mph)	Rural Length (miles)	Suburban Average Travel Speed (mph)	Suburban Length (miles)	Weighted Average Travel Speed (mph)
2017	450	5.86	550	0.48	450
2037	650	5.86	750	0.48	650

* Passenger Cars Per Hour Rounded to Nearest 50

DENSITY AND VOLUME WEIGHTED AVERAGES

2017 Directional Density for Action Alternatives					
Alternative	Rural Density (pcpmpl)	Rural Length (miles)	Suburban Density (pcpmpl)	Suburban Length (miles)	Density Weighted Average (pcpmpl)
E2	3.6	5.61	6.1	0.24	3.7
C3	3.6	4.52	6.1	5.94	5.0
W4	3.6	6.39	6.1	0.3	3.7

2017 Directional Volume for Action Alternatives					
Alternative	Rural Volume (pcph)*	Rural Length (miles)	Suburban Directional Volume (pcph)*	Suburban Length (miles)	Directional Volume Weighted Average (pcph)*
E2	450	5.61	600	0.24	450
C3	450	4.52	600	5.94	550
W4	450	6.39	600	0.3	450

* Passenger Cars Per Hour Rounded to Nearest 50

2037 Directional Density for Action Alternatives					
Alternative	Rural Density (pcpmpl)	Rural Length (miles)	Suburban Density (pcpmpl)	Suburban Length (miles)	Density Weighted Average (pcpmpl)
E2	5.0	5.61	8.3	0.24	5.1
C3	5.0	4.52	8.3	5.94	6.9
W4	5.0	6.39	8.3	0.3	5.1

2037 Directional Volume for Action Alternatives					
Alternative	Rural Volume (pcph)*	Rural Length (miles)	Suburban Directional Volume (pcph)*	Suburban Length (miles)	Directional Volume Weighted Average (pcph)*
E2	650	5.61	850	0.24	650
C3	650	4.52	850	5.94	750
W4	650	6.39	850	0.3	650

* Passenger Cars Per Hour Rounded to Nearest 50

Level-of-Service Calculations for Action Alternatives

HCS 2010: Basic Freeway Segments Release 6.50

Phone: Fax:
E-mail:

Operational Planning Analysis

Analyst:	Jared Hopkins
Agency or Company:	ITD District 2
Date Performed:	10/9/2013
Analysis Time Period:	2017
Freeway/Direction:	N / S
From/To:	337.668 - 342.747
Jurisdiction:	ITD District 2
Analysis Year:	2017
Description:	US-95 E-2 Rural 2017

Flow Inputs and Adjustments

Annual average daily traffic, AADT	5920	veh/day
Peak-hour proportion of AADT, K	0.11	
Peak-hour direction percent, D	60	%
Volume, DDHV	391	veh/h
Peak Hour factor, PHF	0.93	
Trucks and buses	8	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicles PCE, ER	2.0	
Heavy Vehicle adjustment, fHV	0.893	
Driver population factor, fp	1.00	
Flow rate, vp	235	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	6.0	ft
Interchange density	3.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	8.1	mi/h
Free-flow speed	67.3	mi/h

LOS and Performance Measures

Flow rate, vp	235	pc/h/ln
Free-flow speed, FFS	67.3	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	2	

Density, D	3.6	pc/mi/ln
Level of Service, LOS	A	

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

HCS 2010: Basic Freeway Segments Release 6.50

Phone: Fax:
E-mail:

Operational Planning Analysis

Analyst:	Jared Hopkins
Agency or Company:	ITD District 2
Date Performed:	10/9/2013
Analysis Time Period:	2037
Freeway/Direction:	N / S
From/To:	337.668 - 342.747
Jurisdiction:	ITD District 2
Analysis Year:	2037
Description:	US-95 E-2 Rural 2037

Flow Inputs and Adjustments

Annual average daily traffic, AADT	8175	veh/day
Peak-hour proportion of AADT, K	0.11	
Peak-hour direction percent, D	60	%
Volume, DDHV	540	veh/h
Peak Hour factor, PHF	0.93	
Trucks and buses	8	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicles PCE, ER	2.0	
Heavy Vehicle adjustment, fHV	0.893	
Driver population factor, fp	1.00	
Flow rate, vp	325	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	6.0	ft
Interchange density	3.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	8.1	mi/h
Free-flow speed	67.3	mi/h

LOS and Performance Measures

Flow rate, vp	325	pc/h/ln
Free-flow speed, FFS	67.3	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	2	

Density, D	5.0	pc/mi/ln
Level of Service, LOS	A	

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

HCS 2010: Multilane Highways Release 6.50

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	Jared Hopkins
Agency/Co:	ITD District 2
Date:	10/9/2013
Analysis Period:	2017
Highway:	US-95
From/To:	342.747 - 343.518
Jurisdiction:	ITD District 2
Analysis Year:	2017
Project ID:	US-95 E-2 Urban 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	29		21	
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	7.3	mph	5.3	mph
Free-flow speed	47.8	mph	49.8	mph

VOLUME

Direction	1		2	
Volume, V	509	vph	509	vph
Peak-hour factor, PHF	0.93		0.93	
Peak 15-minute volume, v15	137		137	
Trucks and buses	8	%	8	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	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	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.893		0.893	
Flow rate, vp	306	pcphpl	306	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	306	pcphpl	306	pcphpl
Free-flow speed, FFS	47.8	mph	49.8	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	6.1	pc/mi/ln	6.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	273.7	273.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	3.76	3.76
Bicycle LOS	D	D

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

HCS 2010: Multilane Highways Release 6.50

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	Jared Hopkins
Agency/Co:	ITD District 2
Date:	10/9/2013
Analysis Period:	2037
Highway:	US-95
From/To:	342.747 - 343.518
Jurisdiction:	ITD District 2
Analysis Year:	2037
Project ID:	US-95 E-2 Urban 2037

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	29		21	
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	7.3	mph	5.3	mph
Free-flow speed	47.8	mph	49.8	mph

VOLUME

Direction	1		2	
Volume, V	689	vph	689	vph
Peak-hour factor, PHF	0.93		0.93	
Peak 15-minute volume, v15	185		185	
Trucks and buses	8	%	8	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	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	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.893		0.893	
Flow rate, vp	414	pcphpl	414	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	414	pcphpl	414	pcphpl
Free-flow speed, FFS	47.8	mph	49.8	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	8.3	pc/mi/ln	8.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	370.4	370.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	3.92	3.92
Bicycle LOS	D	D

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

HCS 2010: Basic Freeway Segments Release 6.50

Phone: Fax:
E-mail:

Operational Planning Analysis

Analyst:	Jared Hopkins
Agency or Company:	ITD District 2
Date Performed:	10/9/2013
Analysis Time Period:	2017
Freeway/Direction:	N / S
From/To:	337.668 - 341.95
Jurisdiction:	ITD District 2
Analysis Year:	2017
Description:	US-95 C-3 Rural 2017

Flow Inputs and Adjustments

Annual average daily traffic, AADT	5920	veh/day
Peak-hour proportion of AADT, K	0.11	
Peak-hour direction percent, D	60	%
Volume, DDHV	391	veh/h
Peak Hour factor, PHF	0.93	
Trucks and buses	8	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicles PCE, ER	2.0	
Heavy Vehicle adjustment, fHV	0.893	
Driver population factor, fp	1.00	
Flow rate, vp	235	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	6.0	ft
Interchange density	5.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	12.4	mi/h
Free-flow speed	63.0	mi/h

LOS and Performance Measures

Flow rate, vp	235	pc/h/ln
Free-flow speed, FFS	63.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	2	

Density, D	3.6	pc/mi/ln
Level of Service, LOS	A	

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

HCS 2010: Basic Freeway Segments Release 6.50

Phone: Fax:
E-mail:

Operational Planning Analysis

Analyst:	Jared Hopkins
Agency or Company:	ITD District 2
Date Performed:	10/9/2013
Analysis Time Period:	2037
Freeway/Direction:	N / S
From/To:	337.668 - 341.95
Jurisdiction:	ITD District 2
Analysis Year:	2037
Description: US-95 C-3 Rural 2037	

Flow Inputs and Adjustments

Annual average daily traffic, AADT	8175	veh/day
Peak-hour proportion of AADT, K	0.11	
Peak-hour direction percent, D	60	%
Volume, DDHV	540	veh/h
Peak Hour factor, PHF	0.93	
Trucks and buses	8	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicles PCE, ER	2.0	
Heavy Vehicle adjustment, fHV	0.893	
Driver population factor, fp	1.00	
Flow rate, vp	325	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	6.0	ft
Interchange density	5.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	12.4	mi/h
Free-flow speed	63.0	mi/h

LOS and Performance Measures

Flow rate, vp	325	pc/h/ln
Free-flow speed, FFS	63.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	2	

Density, D	5.0	pc/mi/ln
Level of Service, LOS	A	

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

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	Jared Hopkins
Agency/Co:	ITD District 2
Date:	10/9/2013
Analysis Period:	2017
Highway:	US-95
From/To:	341.95 - 343.608
Jurisdiction:	ITD District 2
Analysis Year:	2017
Project ID:	US-95 C-3 Urban 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	17		17	
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	4.3	mph	4.3	mph
Free-flow speed	50.8	mph	50.8	mph

VOLUME

Direction	1		2	
Volume, V	509	vph	509	vph
Peak-hour factor, PHF	0.93		0.93	
Peak 15-minute volume, v15	137		137	
Trucks and buses	8	%	8	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	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	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.893		0.893	
Flow rate, vp	306	pcphpl	306	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	306	pcphpl	306	pcphpl
Free-flow speed, FFS	50.8	mph	50.8	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	6.1	pc/mi/ln	6.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	273.7	273.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	3.76	3.76
Bicycle LOS	D	D

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

HCS 2010: Multilane Highways Release 6.50

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	Jared Hopkins
Agency/Co:	ITD District 2
Date:	10/9/2013
Analysis Period:	2037
Highway:	US-95
From/To:	341.95 - 343.608
Jurisdiction:	ITD District 2
Analysis Year:	2037
Project ID:	US-95 C-3 Urban 2037

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	17		17	
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	4.3	mph	4.3	mph
Free-flow speed	50.8	mph	50.8	mph

VOLUME

Direction	1		2	
Volume, V	689	vph	689	vph
Peak-hour factor, PHF	0.93		0.93	
Peak 15-minute volume, v15	185		185	
Trucks and buses	8	%	8	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	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	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.893		0.893	
Flow rate, vp	414	pcphpl	414	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	414	pcphpl	414	pcphpl
Free-flow speed, FFS	50.8	mph	50.8	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	8.3	pc/mi/ln	8.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	370.4	370.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	3.92	3.92
Bicycle LOS	D	D

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

HCS 2010: Basic Freeway Segments Release 6.50

Phone: Fax:
E-mail:

Operational Planning Analysis

Analyst:	Jared Hopkins
Agency or Company:	ITD District 2
Date Performed:	10/9/2013
Analysis Time Period:	2017
Freeway/Direction:	N / S
From/To:	337.668 - 343.905
Jurisdiction:	ITD District 2
Analysis Year:	2017
Description:	US-95 W-4 Rural 2017

Flow Inputs and Adjustments

Annual average daily traffic, AADT	5920	veh/day
Peak-hour proportion of AADT, K	0.11	
Peak-hour direction percent, D	60	%
Volume, DDHV	391	veh/h
Peak Hour factor, PHF	0.93	
Trucks and buses	8	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicles PCE, ER	2.0	
Heavy Vehicle adjustment, fHV	0.893	
Driver population factor, fp	1.00	
Flow rate, vp	235	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	6.0	ft
Interchange density	4.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	10.3	mi/h
Free-flow speed	65.1	mi/h

LOS and Performance Measures

Flow rate, vp	235	pc/h/ln
Free-flow speed, FFS	65.1	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	2	

Density, D	3.6	pc/mi/ln
Level of Service, LOS	A	

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

HCS 2010: Multilane Highways Release 6.50

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	Jared Hopkins
Agency/Co:	ITD District 2
Date:	10/9/2013
Analysis Period:	2017
Highway:	US-95
From/To:	343.905 - 344.358
Jurisdiction:	ITD District 2
Analysis Year:	2017
Project ID:	US-95 W-4 Urban 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	23		17	
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	5.8	mph	4.3	mph
Free-flow speed	49.3	mph	50.8	mph

VOLUME

Direction	1		2	
Volume, V	509	vph	509	vph
Peak-hour factor, PHF	0.93		0.93	
Peak 15-minute volume, v15	137		137	
Trucks and buses	8	%	8	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	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	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.893		0.893	
Flow rate, vp	306	pcphpl	306	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	306	pcphpl	306	pcphpl
Free-flow speed, FFS	49.3	mph	50.8	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	6.1	pc/mi/ln	6.1	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	273.7	273.7
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	3.76	3.76
Bicycle LOS	D	D

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

HCS 2010: Basic Freeway Segments Release 6.50

Phone: Fax:
E-mail:

Operational Planning Analysis

Analyst:	Jared Hopkins
Agency or Company:	ITD District 2
Date Performed:	10/9/2013
Analysis Time Period:	2037
Freeway/Direction:	N / S
From/To:	337.668 - 343.905
Jurisdiction:	ITD District 2
Analysis Year:	2037
Description: US-95 W-4 Rural 2037	

Flow Inputs and Adjustments

Annual average daily traffic, AADT	8175	veh/day
Peak-hour proportion of AADT, K	0.11	
Peak-hour direction percent, D	60	%
Volume, DDHV	540	veh/h
Peak Hour factor, PHF	0.93	
Trucks and buses	8	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicles PCE, ER	2.0	
Heavy Vehicle adjustment, fHV	0.893	
Driver population factor, fp	1.00	
Flow rate, vp	325	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	6.0	ft
Interchange density	4.00	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	10.3	mi/h
Free-flow speed	65.1	mi/h

LOS and Performance Measures

Flow rate, vp	325	pc/h/ln
Free-flow speed, FFS	65.1	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	2	

Density, D	5.0	pc/mi/ln
Level of Service, LOS	A	

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

HCS 2010: Multilane Highways Release 6.50

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	Jared Hopkins
Agency/Co:	ITD District 2
Date:	10/9/2013
Analysis Period:	2037
Highway:	US-95
From/To:	343.905 - 344.358
Jurisdiction:	ITD District 2
Analysis Year:	2037
Project ID:	US-95 W-4 Urban 2037

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	23		17	
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	5.8	mph	4.3	mph
Free-flow speed	49.3	mph	50.8	mph

VOLUME

Direction	1		2	
Volume, V	689	vph	689	vph
Peak-hour factor, PHF	0.93		0.93	
Peak 15-minute volume, v15	185		185	
Trucks and buses	8	%	8	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	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	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.893		0.893	
Flow rate, vp	414	pcphpl	414	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	414	pcphpl	414	pcphpl
Free-flow speed, FFS	49.3	mph	50.8	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	8.3	pc/mi/ln	8.3	pc/mi/ln

Bicycle Level of Service

Posted speed limit, Sp		45
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	370.4	370.4
Effective width of outside lane, We	24.00	24.00
Effective speed factor, St	4.42	4.42
Bicycle LOS Score, BLOS	3.92	3.92
Bicycle LOS	D	D

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

Level-of-Service Calculations for No Action Alternative

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	No Action 2017 NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 407 veh/h
Opposing direction volume, Vo 272 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	
Heavy-vehicle adj. factor, (note-5) fHV	0.933		0.919	
Grade adj. factor, (note-1) fg	0.93		0.84	
Directional flow rate, (note-2) vi	539	pc/h	405	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.8	mi/h
Average travel speed, ATSd	55.8	mi/h
Percent Free Flow Speed, PFFS	84.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.4		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.969		0.954	
Grade adjustment factor, (note-1) fg	0.94		0.86	
Directional flow rate, (note-2) vi	514	pc/h	381	pc/h
Base percent time-spent-following, (note-4) BPTSFd	49.8	%		
Adjustment for no-passing zones, fnp	37.7			
Percent time-spent-following, PTSFd	71.5	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.32	
Peak 15-min vehicle-miles of travel, VMT15	620	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2157	veh-mi
Peak 15-min total travel time, TT15	11.1	veh-h
Capacity from ATS, CdATS	1401	veh/h
Capacity from PTSF, CdPTSF	1444	veh/h
Directional Capacity	1401	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	55.8	mi/h
Percent time-spent-following, PTSFd (from above)	71.5	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	467.8
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.29
Bicycle LOS	F

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	No Action 2017 NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 509 veh/h
Opposing direction volume, Vo 339 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.7		2.0	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.947		0.926	
Grade adj. factor, (note-1) fg	0.97		0.89	
Directional flow rate, (note-2) vi	637	pc/h	473	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		70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS		2.6	mi/h
Adj. for access point density, (note-3) fA		1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		1.5	mi/h
Average travel speed, ATSd		55.8	mi/h
Percent Free Flow Speed, PFFS		84.6	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.2		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.984		0.954	
Grade adjustment factor, (note-1) fg	0.97		0.89	
Directional flow rate, (note-2) vi	613	pc/h	459	pc/h
Base percent time-spent-following, (note-4) BPTSFd	57.0	%		
Adjustment for no-passing zones, fnp	15.6			
Percent time-spent-following, PTSFd	65.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.37	
Peak 15-min vehicle-miles of travel, VMT15	88	veh-mi
Peak-hour vehicle-miles of travel, VMT60	305	veh-mi
Peak 15-min total travel time, TT15	1.6	veh-h
Capacity from ATS, CdATS	1475	veh/h
Capacity from PTSF, CdPTSF	1548	veh/h
Directional Capacity	1475	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	55.8	mi/h
Percent time-spent-following, PTSFd (from above)	65.9	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	585.1
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.40
Bicycle LOS	F

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2017
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2017
Description	No Action 2017 NB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	32	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 509 veh/h
Opposing direction volume, Vo 339 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.7		2.0	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.947		0.926	
Grade adj. factor, (note-1) fg	0.97		0.89	
Directional flow rate, (note-2) vi	637	pc/h	473	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	2.6	mi/h
Adj. for access point density, (note-3) fA	3.8	mi/h
Free-flow speed, FFSd	48.7	mi/h
Adjustment for no-passing zones, fnp	1.0	mi/h
Average travel speed, ATSd	39.0	mi/h
Percent Free Flow Speed, PFFS	80.2	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.2		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.984		0.954	
Grade adjustment factor, (note-1) fg	0.97		0.89	
Directional flow rate, (note-2) vi	613	pc/h	459	pc/h
Base percent time-spent-following, (note-4) BPTSFd	57.0	%		
Adjustment for no-passing zones, fnp	26.5			
Percent time-spent-following, PTSFd	72.2	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.37	
Peak 15-min vehicle-miles of travel, VMT15	73	veh-mi
Peak-hour vehicle-miles of travel, VMT60	255	veh-mi
Peak 15-min total travel time, TT15	1.9	veh-h
Capacity from ATS, CdATS	1475	veh/h
Capacity from PTSF, CdPTSF	1548	veh/h
Directional Capacity	1475	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	39.0	mi/h
Percent time-spent-following, PTSFd (from above)	72.2	
Level of service, LOSd (from above)	E	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	585.1
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.40
Bicycle LOS	F

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2017
Description	No Action 2017 SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 407 veh/h
Opposing direction volume, Vo 272 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.940		0.919	
Grade adj. factor, (note-1) fg	0.94		0.84	
Directional flow rate, (note-2) vi	542	pc/h	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.4	mi/h
Average travel speed, ATSd	56.0	mi/h
Percent Free Flow Speed, PFFS	85.0	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.4		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.969		0.954	
Grade adjustment factor, (note-1) fg	0.95		0.86	
Directional flow rate, (note-2) vi	520	pc/h	390	pc/h
Base percent time-spent-following, (note-4) BPTSFd	51.1	%		
Adjustment for no-passing zones, fnp	33.8			
Percent time-spent-following, PTSFd	70.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.32	
Peak 15-min vehicle-miles of travel, VMT15	551	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1872	veh-mi
Peak 15-min total travel time, TT15	9.8	veh-h
Capacity from ATS, CdATS	1401	veh/h
Capacity from PTSF, CdPTSF	1444	veh/h
Directional Capacity	1401	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	56.0	mi/h
Percent time-spent-following, PTSFd (from above)	70.4	
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	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	mi
Adj. factor for the effect of passing lane on average speed, fpl	1.10	
Average travel speed including passing lane, ATSpl	58.4	
Percent free flow speed including passing lane, PFFSpl	88.5	%

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	7.14	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-6.54	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	0.61	
Percent time-spent-following including passing lane, PTSFpl	58.0	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	C	
Peak 15-min total travel time, TT15	9.4	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	478.8
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.30
Bicycle LOS	F

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2017
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	No Action 2017 SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 407 veh/h
Opposing direction volume, Vo 272 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.940		0.919	
Grade adj. factor, (note-1) fg	0.94		0.84	
Directional flow rate, (note-2) vi	542	pc/h	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.8	mi/h
Average travel speed, ATSd	56.7	mi/h
Percent Free Flow Speed, PFFS	86.0	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.4		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.969		0.954	
Grade adjustment factor, (note-1) fg	0.95		0.86	
Directional flow rate, (note-2) vi	520	pc/h	390	pc/h
Base percent time-spent-following, (note-4) BPTSFd	51.1	%		
Adjustment for no-passing zones, fnp	28.2			
Percent time-spent-following, PTSFd	67.2	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.32	
Peak 15-min vehicle-miles of travel, VMT15	72	veh-mi
Peak-hour vehicle-miles of travel, VMT60	244	veh-mi
Peak 15-min total travel time, TT15	1.3	veh-h
Capacity from ATS, CdATS	1401	veh/h
Capacity from PTSF, CdPTSF	1444	veh/h
Directional Capacity	1401	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	56.7	mi/h
Percent time-spent-following, PTSFd (from above)	67.2	
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	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	mi
Adj. factor for the effect of passing lane on average speed, fpl	1.10	
Average travel speed including passing lane, ATSpl	62.3	
Percent free flow speed including passing lane, PFFSpl	94.6	%

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	7.14	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-7.14	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	0.61	
Percent time-spent-following including passing lane, PTSFpl	41.0	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	B	
Peak 15-min total travel time, TT15	1.2	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	478.8
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.30
Bicycle LOS	F

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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	No Action 2017 SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 509 veh/h
Opposing direction volume, Vo 339 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.7		2.0	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.947		0.926	
Grade adj. factor, (note-1) fg	0.97		0.90	
Directional flow rate, (note-2) vi	652	pc/h	479	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.8	mi/h
Average travel speed, ATSd	55.3	mi/h
Percent Free Flow Speed, PFFS	84.0	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.2		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.984		0.954	
Grade adjustment factor, (note-1) fg	0.97		0.90	
Directional flow rate, (note-2) vi	627	pc/h	464	pc/h
Base percent time-spent-following, (note-4) BPTSFd	58.9	%		
Adjustment for no-passing zones, fnp	26.0			
Percent time-spent-following, PTSFd	73.8	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.38	
Peak 15-min vehicle-miles of travel, VMT15	90	veh-mi
Peak-hour vehicle-miles of travel, VMT60	305	veh-mi
Peak 15-min total travel time, TT15	1.6	veh-h
Capacity from ATS, CdATS	1475	veh/h
Capacity from PTSF, CdPTSF	1548	veh/h
Directional Capacity	1475	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	55.3	mi/h
Percent time-spent-following, PTSFd (from above)	73.8	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	598.8
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.41
Bicycle LOS	F

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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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2017
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2017
Description	No Action 2017 SB 4

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	0	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 509 veh/h
Opposing direction volume, Vo 339 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.7		2.0	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.947		0.926	
Grade adj. factor, (note-1) fg	0.97		0.90	
Directional flow rate, (note-2) vi	652	pc/h	479	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	2.6	mi/h
Adj. for access point density, (note-3) fA	3.8	mi/h
Free-flow speed, FFSd	48.7	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATSd	39.0	mi/h
Percent Free Flow Speed, PFFS	80.2	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.2		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.984		0.954	
Grade adjustment factor, (note-1) fg	0.97		0.90	
Directional flow rate, (note-2) vi	627	pc/h	464	pc/h
Base percent time-spent-following, (note-4) BPTSFd	58.9	%		
Adjustment for no-passing zones, fnp	12.7			
Percent time-spent-following, PTSFd	66.2	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.38	
Peak 15-min vehicle-miles of travel, VMT15	75	veh-mi
Peak-hour vehicle-miles of travel, VMT60	255	veh-mi
Peak 15-min total travel time, TT15	1.9	veh-h
Capacity from ATS, CdATS	1475	veh/h
Capacity from PTSF, CdPTSF	1548	veh/h
Directional Capacity	1475	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	39.0	mi/h
Percent time-spent-following, PTSFd (from above)	66.2	
Level of service, LOSd (from above)	E	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	598.8
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.41
Bicycle LOS	F

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	No Action 2037 NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 555 veh/h
Opposing direction volume, Vo 370 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.7		1.9	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.947		0.933	
Grade adj. factor, (note-1) fg	0.97		0.91	
Directional flow rate, (note-2) vi	694	pc/h	501	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.3	mi/h
Average travel speed, ATSd	54.3	mi/h
Percent Free Flow Speed, PFFS	82.4	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.4	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		0.969	
Grade adjustment factor, (note-1) fg	0.98		0.91	
Directional flow rate, (note-2) vi	651	pc/h	482	pc/h
Base percent time-spent-following, (note-4) BPTSFd	60.4	%		
Adjustment for no-passing zones, fnp	32.4			
Percent time-spent-following, PTSFd	79.0	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	845	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2942	veh-mi
Peak 15-min total travel time, TT15	15.6	veh-h
Capacity from ATS, CdATS	1502	veh/h
Capacity from PTSF, CdPTSF	1565	veh/h
Directional Capacity	1502	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	54.3	mi/h
Percent time-spent-following, PTSFd (from above)	79.0	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	637.9
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.45
Bicycle LOS	F

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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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	No Action 2037 NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 689 veh/h
Opposing direction volume, Vo 459 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.4		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.969		0.940	
Grade adj. factor, (note-1) fg	0.99		0.96	
Directional flow rate, (note-2) vi	826	pc/h	585	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.4	mi/h
Average travel speed, ATSd	53.5	mi/h
Percent Free Flow Speed, PFFS	81.2	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.2	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		0.984	
Grade adjustment factor, (note-1) fg	1.00		0.96	
Directional flow rate, (note-2) vi	792	pc/h	558	pc/h
Base percent time-spent-following, (note-4) BPTSFd	67.0	%		
Adjustment for no-passing zones, fnp	13.9			
Percent time-spent-following, PTSFd	75.2	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.49	
Peak 15-min vehicle-miles of travel, VMT15	119	veh-mi
Peak-hour vehicle-miles of travel, VMT60	413	veh-mi
Peak 15-min total travel time, TT15	2.2	veh-h
Capacity from ATS, CdATS	1546	veh/h
Capacity from PTSF, CdPTSF	1623	veh/h
Directional Capacity	1546	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	53.5	mi/h
Percent time-spent-following, PTSFd (from above)	75.2	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	792.0
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.56
Bicycle LOS	F

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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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2037
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2037
Description	No Action 2037 NB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	32	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 689 veh/h
Opposing direction volume, Vo 459 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		1.4		1.8	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.969		0.940	
Grade adj. factor, (note-1)	fg	0.99		0.96	
Directional flow rate, (note-2)	vi	826	pc/h	585	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	2.6	mi/h
Adj. for access point density, (note-3)	fA	3.8	mi/h
Free-flow speed, FFSd		48.7	mi/h
Adjustment for no-passing zones, fnp		0.7	mi/h
Average travel speed, ATSd		37.0	mi/h
Percent Free Flow Speed, PFFS		76.1	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.2	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		0.984	
Grade adjustment factor, (note-1) fg	1.00		0.96	
Directional flow rate, (note-2) vi	792	pc/h	558	pc/h
Base percent time-spent-following, (note-4) BPTSFd	67.0	%		
Adjustment for no-passing zones, fnp	21.7			
Percent time-spent-following, PTSFd	79.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.49	
Peak 15-min vehicle-miles of travel, VMT15	99	veh-mi
Peak-hour vehicle-miles of travel, VMT60	345	veh-mi
Peak 15-min total travel time, TT15	2.7	veh-h
Capacity from ATS, CdATS	1546	veh/h
Capacity from PTSF, CdPTSF	1623	veh/h
Directional Capacity	1546	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	37.0	mi/h
Percent time-spent-following, PTSFd (from above)	79.7	
Level of service, LOSd (from above)	E	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	792.0
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.56
Bicycle LOS	F

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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2037
Description	No Action 2037 SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 555 veh/h
Opposing direction volume, Vo 370 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.6		1.9	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.954		0.933	
Grade adj. factor, (note-1) fg	0.98		0.92	
Directional flow rate, (note-2) vi	698	pc/h	507	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.0	mi/h
Average travel speed, ATSd	54.5	mi/h
Percent Free Flow Speed, PFFS	82.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.4	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		0.969	
Grade adjustment factor, (note-1) fg	0.98		0.92	
Directional flow rate, (note-2) vi	666	pc/h	488	pc/h
Base percent time-spent-following, (note-4) BPTSFd	60.9	%		
Adjustment for no-passing zones, fnp	28.8			
Percent time-spent-following, PTSFd	77.5	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	751	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2553	veh-mi
Peak 15-min total travel time, TT15	13.8	veh-h
Capacity from ATS, CdATS	1502	veh/h
Capacity from PTSF, CdPTSF	1565	veh/h
Directional Capacity	1502	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	54.5	mi/h
Percent time-spent-following, PTSFd (from above)	77.5	
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	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	mi
Adj. factor for the effect of passing lane on average speed, fpl	1.11	
Average travel speed including passing lane, ATSpl	57.0	
Percent free flow speed including passing lane, PFFSpl	86.5	%

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	5.97	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-5.37	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	0.61	
Percent time-spent-following including passing lane, PTSFpl	63.9	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	C	
Peak 15-min total travel time, TT15	13.2	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	652.9
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.46
Bicycle LOS	F

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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2037
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	No Action 2037 SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 555 veh/h
Opposing direction volume, Vo 370 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.6		1.9	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.954		0.933	
Grade adj. factor, (note-1) fg	0.98		0.92	
Directional flow rate, (note-2) vi	698	pc/h	507	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.6	mi/h
Average travel speed, ATSd	54.9	mi/h
Percent Free Flow Speed, PFFS	83.3	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.0		1.4	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	1.000		0.969	
Grade adjustment factor, (note-1) fg	0.98		0.92	
Directional flow rate, (note-2) vi	666	pc/h	488	pc/h
Base percent time-spent-following, (note-4) BPTSFd	60.9	%		
Adjustment for no-passing zones, fnp	24.1			
Percent time-spent-following, PTSFd	74.8	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	98	veh-mi
Peak-hour vehicle-miles of travel, VMT60	333	veh-mi
Peak 15-min total travel time, TT15	1.8	veh-h
Capacity from ATS, CdATS	1502	veh/h
Capacity from PTSF, CdPTSF	1565	veh/h
Directional Capacity	1502	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	54.9	mi/h
Percent time-spent-following, PTSFd (from above)	74.8	
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	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	mi
Adj. factor for the effect of passing lane on average speed, fpl	1.11	
Average travel speed including passing lane, ATSpl	61.0	
Percent free flow speed including passing lane, PFFSpl	92.5	%

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	5.97	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-5.97	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	0.61	
Percent time-spent-following including passing lane, PTSFpl	45.6	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	B	
Peak 15-min total travel time, TT15	1.6	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	652.9
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.46
Bicycle LOS	F

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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	No Action 2037 SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	689	veh/h
Opposing direction volume, Vo	459	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.4		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.969		0.940	
Grade adj. factor, (note-1) fg	0.99		0.96	
Directional flow rate, (note-2) vi	845	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	53.2	mi/h
Percent Free Flow Speed, PFFS	80.8	%

Percent Time-Spent-Following

Direction	Analysis (d)			Opposing (o)	
PCE for trucks, ET	1.0			1.2	
PCE for RVs, ER	1.0			1.0	
Heavy-vehicle adjustment factor, fHV	1.000			0.984	
Grade adjustment factor, (note-1) fg	1.00			0.96	
Directional flow rate, (note-2) vi	811	pc/h		571	pc/h
Base percent time-spent-following, (note-4) BPTSFd		67.1	%		
Adjustment for no-passing zones, fnp		21.0			
Percent time-spent-following, PTSFd		79.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.50	
Peak 15-min vehicle-miles of travel, VMT15	122	veh-mi
Peak-hour vehicle-miles of travel, VMT60	413	veh-mi
Peak 15-min total travel time, TT15	2.3	veh-h
Capacity from ATS, CdATS	1546	veh/h
Capacity from PTSF, CdPTSF	1623	veh/h
Directional Capacity	1546	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	53.2	mi/h
Percent time-spent-following, PTSFd (from above)	79.4	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	810.6
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.57
Bicycle LOS	F

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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	10/1/2013
Analysis Time Period	2037
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2037
Description	No Action 2037 SB 4

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	0	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 689 veh/h
Opposing direction volume, Vo 459 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.4		1.8	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.969		0.940	
Grade adj. factor, (note-1) fg	0.99		0.96	
Directional flow rate, (note-2) vi	845	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		55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS		2.6	mi/h
Adj. for access point density, (note-3) fA		3.8	mi/h
Free-flow speed, FFSd		48.7	mi/h
Adjustment for no-passing zones, fnp		0.6	mi/h
Average travel speed, ATSd		36.9	mi/h
Percent Free Flow Speed, PFFS		75.9	%

Percent Time-Spent-Following

Direction	Analysis (d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.984
Grade adjustment factor, (note-1) fg	1.00	0.96
Directional flow rate, (note-2) vi	811 pc/h	571 pc/h

Base percent time-spent-following, (note-4)	BPTSFd	67.1	%
Adjustment for no-passing zones, fnp		11.8	
Percent time-spent-following, PTSFd		74.0	%

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.50	
Peak 15-min vehicle-miles of travel, VMT15	101	veh-mi
Peak-hour vehicle-miles of travel, VMT60	345	veh-mi
Peak 15-min total travel time, TT15	2.7	veh-h
Capacity from ATS, CdATS	1546	veh/h
Capacity from PTSF, CdPTSF	1623	veh/h
Directional Capacity	1546	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	36.9	mi/h
Percent time-spent-following, PTSFd (from above)	74.0	
Level of service, LOSd (from above)	E	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	810.6
Effective width of outside lane, We	14.00
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	6.57
Bicycle LOS	F

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.

Level of Service Calculations
for Remaining US-95 Loop

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 C3 Rural NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	18	veh/h
Opposing direction volume, Vo	12	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	35	pc/h	23	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	3.0	mi/h
Average travel speed, ATSd	62.5	mi/h
Percent Free Flow Speed, PFFS	94.8	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	30	pc/h	20	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.8	%		
Adjustment for no-passing zones, fnp	52.2			
Percent time-spent-following, PTSFd	35.1	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	27	veh-mi
Peak-hour vehicle-miles of travel, VMT60	95	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	62.5	mi/h
Percent time-spent-following, PTSFd (from above)	35.1	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	20.7
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 C3 Rural NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	18	veh/h
Opposing direction volume, Vo	12	veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.7		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.880		0.880	
Grade adj. factor, (note-1)	fg	0.67		0.67	
Directional flow rate, (note-2)	vi	35	pc/h	23	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3)	fLS	2.6	mi/h
Adj. for access point density, (note-3)	fA	1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		1.1	mi/h
Average travel speed, ATSd		64.3	mi/h
Percent Free Flow Speed, PFFS		97.6	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	30	pc/h	20	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.8	%		
Adjustment for no-passing zones, fnp	15.9			
Percent time-spent-following, PTSFd	13.3	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	11	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	64.3	mi/h
Percent time-spent-following, PTSFd (from above)	13.3	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	20.7
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 C3 Rural SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	18	veh/h
Opposing direction volume, Vo	12	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	36	pc/h	24	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	62.9	mi/h
Percent Free Flow Speed, PFFS	95.5	%

Percent Time-Spent-Following

Direction	Analysis (d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.933	0.933
Grade adjustment factor, (note-1) fg	0.73	0.73
Directional flow rate, (note-2) vi	31 pc/h	21 pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.9 %	
Adjustment for no-passing zones, fnp	46.1	
Percent time-spent-following, PTSFd	31.4 %	

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	24	veh-mi
Peak-hour vehicle-miles of travel, VMT60	83	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	62.9	mi/h
Percent time-spent-following, PTSFd (from above)	31.4	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-12.40	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	21.2
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 C3 Rural SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	18	veh/h
Opposing direction volume, Vo	12	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	36	pc/h	24	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	63.9	mi/h
Percent Free Flow Speed, PFFS	97.0	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	31	pc/h	21	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.9	%		
Adjustment for no-passing zones, fnp	34.2			
Percent time-spent-following, PTSFd	24.3	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	11	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	63.9	mi/h
Percent time-spent-following, PTSFd (from above)	24.3	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-13.00	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	21.2
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 C3 Rural SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 18 veh/h
Opposing direction volume, Vo 12 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	36	pc/h	24	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.7	mi/h
Average travel speed, ATSd	63.7	mi/h
Percent Free Flow Speed, PFFS	96.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	31	pc/h	21	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.9	%		
Adjustment for no-passing zones, fnp	36.3			
Percent time-spent-following, PTSFd	25.5	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	11	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	63.7	mi/h
Percent time-spent-following, PTSFd (from above)	25.5	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	21.2
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 E2 Rural NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 24 veh/h
Opposing direction volume, Vo 16 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	47	pc/h	31	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	3.0	mi/h
Average travel speed, ATSd	62.3	mi/h
Percent Free Flow Speed, PFFS	94.5	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	41	pc/h	27	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.1	%		
Adjustment for no-passing zones, fnp	52.2			
Percent time-spent-following, PTSFd	36.6	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	37	veh-mi
Peak-hour vehicle-miles of travel, VMT60	127	veh-mi
Peak 15-min total travel time, TT15	0.6	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	62.3	mi/h
Percent time-spent-following, PTSFd (from above)	36.6	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	27.6
Effective width of outside lane, We	26.32
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.38
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.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 E2 Rural NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 24 veh/h
Opposing direction volume, Vo 16 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.7		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.880		0.880	
Grade adj. factor, (note-1)	fg	0.67		0.67	
Directional flow rate, (note-2)	vi	47	pc/h	31	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3)	fLS	2.6	mi/h
Adj. for access point density, (note-3)	fA	1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		1.1	mi/h
Average travel speed, ATSd		64.2	mi/h
Percent Free Flow Speed, PFFS		97.4	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	41	pc/h	27	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.1	%		
Adjustment for no-passing zones, fnp	15.9			
Percent time-spent-following, PTSFd	14.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	4	veh-mi
Peak-hour vehicle-miles of travel, VMT60	14	veh-mi
Peak 15-min total travel time, TT15	0.1	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	64.2	mi/h
Percent time-spent-following, PTSFd (from above)	14.7	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	27.6
Effective width of outside lane, We	26.32
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.38
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 E2 Rural NB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	32	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd	123	veh/h
Opposing direction volume, Vo	82	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.5		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.893		0.880	
Grade adj. factor, (note-1) fg	0.70		0.67	
Directional flow rate, (note-2) vi	226	pc/h	160	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		2.6	mi/h
Adj. for access point density, (note-3) fA		3.8	mi/h
Free-flow speed, FFSd		48.7	mi/h
Adjustment for no-passing zones, fnp		1.1	mi/h
Average travel speed, ATSd		44.5	mi/h
Percent Free Flow Speed, PFFS		91.5	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.933	
Grade adjustment factor, (note-1) fg	0.76		0.73	
Directional flow rate, (note-2) vi	198	pc/h	138	pc/h
Base percent time-spent-following, (note-4) BPTSFd	21.4	%		
Adjustment for no-passing zones, fnp	39.9			
Percent time-spent-following, PTSFd	44.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.13	
Peak 15-min vehicle-miles of travel, VMT15	18	veh-mi
Peak-hour vehicle-miles of travel, VMT60	62	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1063	veh/h
Capacity from PTSF, CdPTSF	1214	veh/h
Directional Capacity	1063	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	44.5	mi/h
Percent time-spent-following, PTSFd (from above)	44.9	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	141.4
Effective width of outside lane, We	19.39
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	4.78
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 E2 Rural SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	24	veh/h
Opposing direction volume, Vo	16	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	48	pc/h	32	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	62.8	mi/h
Percent Free Flow Speed, PFFS	95.3	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	41	pc/h	28	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.1	%		
Adjustment for no-passing zones, fnp	46.1			
Percent time-spent-following, PTSFd	32.5	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	32	veh-mi
Peak-hour vehicle-miles of travel, VMT60	110	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	62.8	mi/h
Percent time-spent-following, PTSFd (from above)	32.5	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-12.40	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	28.2
Effective width of outside lane, We	26.32
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.38
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 Rural SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 24 veh/h
Opposing direction volume, Vo 16 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	48	pc/h	32	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	63.8	mi/h
Percent Free Flow Speed, PFFS	96.8	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	41	pc/h	28	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.1	%		
Adjustment for no-passing zones, fnp	34.2			
Percent time-spent-following, PTSFd	25.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	4	veh-mi
Peak-hour vehicle-miles of travel, VMT60	14	veh-mi
Peak 15-min total travel time, TT15	0.1	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	63.8	mi/h
Percent time-spent-following, PTSFd (from above)	25.4	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-13.00	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	28.2
Effective width of outside lane, We	26.32
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.38
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 E2 Rural SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	123	veh/h
Opposing direction volume, Vo	82	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.5		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.893		0.880	
Grade adj. factor, (note-1) fg	0.71		0.67	
Directional flow rate, (note-2) vi	228	pc/h	164	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.4	mi/h
Average travel speed, ATSd	60.4	mi/h
Percent Free Flow Speed, PFFS	91.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.933	
Grade adjustment factor, (note-1) fg	0.76		0.73	
Directional flow rate, (note-2) vi	203	pc/h	142	pc/h
Base percent time-spent-following, (note-4) BPTSFd	21.8	%		
Adjustment for no-passing zones, fnp	39.6			
Percent time-spent-following, PTSFd	45.1	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.13	
Peak 15-min vehicle-miles of travel, VMT15	22	veh-mi
Peak-hour vehicle-miles of travel, VMT60	74	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1063	veh/h
Capacity from PTSF, CdPTSF	1214	veh/h
Directional Capacity	1063	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	60.4	mi/h
Percent time-spent-following, PTSFd (from above)	45.1	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	144.7
Effective width of outside lane, We	19.39
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	4.79
Bicycle LOS	E

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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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 E2 Rural SB 4

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	0	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 123 veh/h
Opposing direction volume, Vo 82 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.5		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.893		0.880	
Grade adj. factor, (note-1)	fg	0.71		0.67	
Directional flow rate, (note-2)	vi	228	pc/h	164	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	2.6	mi/h
Adj. for access point density, (note-3)	fA	3.8	mi/h
Free-flow speed, FFSd		48.7	mi/h
Adjustment for no-passing zones, fnp		0.8	mi/h
Average travel speed, ATSd		44.8	mi/h
Percent Free Flow Speed, PFFS		92.1	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.933	
Grade adjustment factor, (note-1) fg	0.76		0.73	
Directional flow rate, (note-2) vi	203	pc/h	142	pc/h
Base percent time-spent-following, (note-4) BPTSFd	21.8	%		
Adjustment for no-passing zones, fnp	13.6			
Percent time-spent-following, PTSFd	29.8	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.13	
Peak 15-min vehicle-miles of travel, VMT15	18	veh-mi
Peak-hour vehicle-miles of travel, VMT60	62	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1063	veh/h
Capacity from PTSF, CdPTSF	1214	veh/h
Directional Capacity	1063	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	44.8	mi/h
Percent time-spent-following, PTSFd (from above)	29.8	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	144.7
Effective width of outside lane, We	19.39
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	4.79
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 W4 Rural NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 16 veh/h
Opposing direction volume, Vo 11 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.7		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.880		0.880	
Grade adj. factor, (note-1)	fg	0.67		0.67	
Directional flow rate, (note-2)	vi	31	pc/h	21	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3)	fLS	2.6	mi/h
Adj. for access point density, (note-3)	fA	1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		3.0	mi/h
Average travel speed, ATSd		62.5	mi/h
Percent Free Flow Speed, PFFS		94.9	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	27	pc/h	19	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.4	%		
Adjustment for no-passing zones, fnp	52.1			
Percent time-spent-following, PTSFd	34.0	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	24	veh-mi
Peak-hour vehicle-miles of travel, VMT60	85	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	62.5	mi/h
Percent time-spent-following, PTSFd (from above)	34.0	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	18.4
Effective width of outside lane, We	26.88
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.00
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 W4 Rural NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 16 veh/h
Opposing direction volume, Vo 11 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	31	pc/h	21	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		70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS		2.6	mi/h
Adj. for access point density, (note-3) fA		1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		1.1	mi/h
Average travel speed, ATSd		64.4	mi/h
Percent Free Flow Speed, PFFS		97.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	27	pc/h	19	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.4	%		
Adjustment for no-passing zones, fnp	15.8			
Percent time-spent-following, PTSFd	12.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	10	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	64.4	mi/h
Percent time-spent-following, PTSFd (from above)	12.7	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	18.4
Effective width of outside lane, We	26.88
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.00
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 W4 Rural NB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	32	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 123 veh/h
Opposing direction volume, Vo 82 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	2.5		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.893		0.880	
Grade adj. factor,(note-1) fg	0.70		0.67	
Directional flow rate,(note-2) vi	226	pc/h	160	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	2.6	mi/h
Adj. for access point density,(note-3) fA	3.8	mi/h
Free-flow speed, FFSd	48.7	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATSd	44.5	mi/h
Percent Free Flow Speed, PFFS	91.5	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.933	
Grade adjustment factor, (note-1) fg	0.76		0.73	
Directional flow rate, (note-2) vi	198	pc/h	138	pc/h
Base percent time-spent-following, (note-4) BPTSFd	21.4	%		
Adjustment for no-passing zones, fnp	39.9			
Percent time-spent-following, PTSFd	44.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.13	
Peak 15-min vehicle-miles of travel, VMT15	18	veh-mi
Peak-hour vehicle-miles of travel, VMT60	62	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1063	veh/h
Capacity from PTSF, CdPTSF	1214	veh/h
Directional Capacity	1063	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	44.5	mi/h
Percent time-spent-following, PTSFd (from above)	44.9	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	141.4
Effective width of outside lane, We	19.39
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	4.78
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 W4 Rural SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 16 veh/h
Opposing direction volume, Vo 11 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	32	pc/h	22	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	63.0	mi/h
Percent Free Flow Speed, PFFS	95.6	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	28	pc/h	19	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.5	%		
Adjustment for no-passing zones, fnp	46.1			
Percent time-spent-following, PTSFd	31.0	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	22	veh-mi
Peak-hour vehicle-miles of travel, VMT60	74	veh-mi
Peak 15-min total travel time, TT15	0.3	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	63.0	mi/h
Percent time-spent-following, PTSFd (from above)	31.0	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-12.40	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	18.8
Effective width of outside lane, We	26.88
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.03
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.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 W4 Rural SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 16 veh/h
Opposing direction volume, Vo 11 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.7		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.880		0.880	
Grade adj. factor, (note-1)	fg	0.67		0.67	
Directional flow rate, (note-2)	vi	32	pc/h	22	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3)	fLS	2.6	mi/h
Adj. for access point density, (note-3)	fA	1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		1.5	mi/h
Average travel speed, ATSd		64.0	mi/h
Percent Free Flow Speed, PFFS		97.1	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	28	pc/h	19	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.5	%		
Adjustment for no-passing zones, fnp	34.2			
Percent time-spent-following, PTSFd	23.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	10	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	64.0	mi/h
Percent time-spent-following, PTSFd (from above)	23.9	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-13.00	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	18.8
Effective width of outside lane, We	26.88
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.03
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 W4 Rural SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 123 veh/h
Opposing direction volume, Vo 82 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.5		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.893		0.880	
Grade adj. factor, (note-1)	fg	0.71		0.67	
Directional flow rate, (note-2)	vi	228	pc/h	164	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3)	fLS	2.6	mi/h
Adj. for access point density, (note-3)	fA	1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		2.4	mi/h
Average travel speed, ATSd		60.4	mi/h
Percent Free Flow Speed, PFFS		91.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.933	
Grade adjustment factor, (note-1) fg	0.76		0.73	
Directional flow rate, (note-2) vi	203	pc/h	142	pc/h
Base percent time-spent-following, (note-4) BPTSFd	21.8	%		
Adjustment for no-passing zones, fnp	39.6			
Percent time-spent-following, PTSFd	45.1	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.13	
Peak 15-min vehicle-miles of travel, VMT15	22	veh-mi
Peak-hour vehicle-miles of travel, VMT60	74	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1063	veh/h
Capacity from PTSF, CdPTSF	1214	veh/h
Directional Capacity	1063	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	60.4	mi/h
Percent time-spent-following, PTSFd (from above)	45.1	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	144.7
Effective width of outside lane, We	19.39
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	4.79
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2017
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2017
Description	2017 Old US-95 W4 Rural SB 4

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	0	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 123 veh/h
Opposing direction volume, Vo 82 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.5		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.893		0.880	
Grade adj. factor, (note-1)	fg	0.71		0.67	
Directional flow rate, (note-2)	vi	228	pc/h	164	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	2.6	mi/h
Adj. for access point density, (note-3)	fA	3.8	mi/h
Free-flow speed, FFSd		48.7	mi/h
Adjustment for no-passing zones, fnp		0.8	mi/h
Average travel speed, ATSd		44.8	mi/h
Percent Free Flow Speed, PFFS		92.1	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.933	
Grade adjustment factor, (note-1) fg	0.76		0.73	
Directional flow rate, (note-2) vi	203	pc/h	142	pc/h
Base percent time-spent-following, (note-4) BPTSFd	21.8	%		
Adjustment for no-passing zones, fnp	13.6			
Percent time-spent-following, PTSFd	29.8	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.13	
Peak 15-min vehicle-miles of travel, VMT15	18	veh-mi
Peak-hour vehicle-miles of travel, VMT60	62	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1063	veh/h
Capacity from PTSF, CdPTSF	1214	veh/h
Directional Capacity	1063	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	44.8	mi/h
Percent time-spent-following, PTSFd (from above)	29.8	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	144.7
Effective width of outside lane, We	19.39
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	4.79
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 EC3 Rural NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	18	veh/h
Opposing direction volume, Vo	12	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	35	pc/h	23	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	3.0	mi/h
Average travel speed, ATSd	62.5	mi/h
Percent Free Flow Speed, PFFS	94.8	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	30	pc/h	20	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.8	%		
Adjustment for no-passing zones, fnp	52.2			
Percent time-spent-following, PTSFd	35.1	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	27	veh-mi
Peak-hour vehicle-miles of travel, VMT60	95	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	62.5	mi/h
Percent time-spent-following, PTSFd (from above)	35.1	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	20.7
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 C3 Rural NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	18	veh/h
Opposing direction volume, Vo	12	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	35	pc/h	23	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATSd	64.3	mi/h
Percent Free Flow Speed, PFFS	97.6	%

Percent Time-Spent-Following

Direction	Analysis (d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.933	0.933
Grade adjustment factor, (note-1) fg	0.73	0.73
Directional flow rate, (note-2) vi	30 pc/h	20 pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.8 %	
Adjustment for no-passing zones, fnp	15.9	
Percent time-spent-following, PTSFd	13.3 %	

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	11	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	64.3	mi/h
Percent time-spent-following, PTSFd (from above)	13.3	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	20.7
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 C3 Rural SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 18 veh/h
Opposing direction volume, Vo 12 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	36	pc/h	24	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	62.9	mi/h
Percent Free Flow Speed, PFFS	95.5	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	31	pc/h	21	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.9	%		
Adjustment for no-passing zones, fnp	46.1			
Percent time-spent-following, PTSFd	31.4	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	24	veh-mi
Peak-hour vehicle-miles of travel, VMT60	83	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	62.9	mi/h
Percent time-spent-following, PTSFd (from above)	31.4	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-12.40	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	21.2
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 C3 Rural SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 18 veh/h
Opposing direction volume, Vo 12 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.7		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.880		0.880	
Grade adj. factor, (note-1)	fg	0.67		0.67	
Directional flow rate, (note-2)	vi	36	pc/h	24	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3)	fLS	2.6	mi/h
Adj. for access point density, (note-3)	fA	1.5	mi/h
Free-flow speed, FFSd		65.9	mi/h
Adjustment for no-passing zones, fnp		1.5	mi/h
Average travel speed, ATSd		63.9	mi/h
Percent Free Flow Speed, PFFS		97.0	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	31	pc/h	21	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.9	%		
Adjustment for no-passing zones, fnp	34.2			
Percent time-spent-following, PTSFd	24.3	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	11	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	63.9	mi/h
Percent time-spent-following, PTSFd (from above)	24.3	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-13.00	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	21.2
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 C3 Rural SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 18 veh/h
Opposing direction volume, Vo 12 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	36	pc/h	24	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.7	mi/h
Average travel speed, ATSd	63.7	mi/h
Percent Free Flow Speed, PFFS	96.7	%

Percent Time-Spent-Following

Direction	Analysis (d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.933	0.933
Grade adjustment factor, (note-1) fg	0.73	0.73
Directional flow rate, (note-2) vi	31 pc/h	21 pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.9 %	
Adjustment for no-passing zones, fnp	36.3	
Percent time-spent-following, PTSFd	25.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	11	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	63.7	mi/h
Percent time-spent-following, PTSFd (from above)	25.5	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	21.2
Effective width of outside lane, We	26.74
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.12
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 E2 Rural NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	25	veh/h
Opposing direction volume, Vo	17	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	49	pc/h	33	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	3.0	mi/h
Average travel speed, ATSd	62.3	mi/h
Percent Free Flow Speed, PFFS	94.5	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	42	pc/h	29	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.2	%		
Adjustment for no-passing zones, fnp	52.2			
Percent time-spent-following, PTSFd	36.1	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	38	veh-mi
Peak-hour vehicle-miles of travel, VMT60	133	veh-mi
Peak 15-min total travel time, TT15	0.6	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	62.3	mi/h
Percent time-spent-following, PTSFd (from above)	36.1	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	28.7
Effective width of outside lane, We	26.25
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.41
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 E2 Rural NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 25 veh/h
Opposing direction volume, Vo 17 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	49	pc/h	33	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATSd	64.2	mi/h
Percent Free Flow Speed, PFFS	97.4	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	42	pc/h	29	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.2	%		
Adjustment for no-passing zones, fnp	15.8			
Percent time-spent-following, PTSFd	14.5	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	4	veh-mi
Peak-hour vehicle-miles of travel, VMT60	15	veh-mi
Peak 15-min total travel time, TT15	0.1	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	64.2	mi/h
Percent time-spent-following, PTSFd (from above)	14.5	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	28.7
Effective width of outside lane, We	26.25
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.41
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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 E2 Rural NB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	32	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 141 veh/h
Opposing direction volume, Vo 94 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.5		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.893		0.880	
Grade adj. factor, (note-1) fg	0.72		0.68	
Directional flow rate, (note-2) vi	252	pc/h	181	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	2.6	mi/h
Adj. for access point density, (note-3) fA	3.8	mi/h
Free-flow speed, FFSd	48.7	mi/h
Adjustment for no-passing zones, fnp	1.4	mi/h
Average travel speed, ATSd	43.9	mi/h
Percent Free Flow Speed, PFFS	90.3	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.940	
Grade adjustment factor, (note-1) fg	0.77		0.74	
Directional flow rate, (note-2) vi	224	pc/h	155	pc/h
Base percent time-spent-following, (note-4) BPTSFd	23.7	%		
Adjustment for no-passing zones, fnp	40.8			
Percent time-spent-following, PTSFd	47.8	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.15	
Peak 15-min vehicle-miles of travel, VMT15	20	veh-mi
Peak-hour vehicle-miles of travel, VMT60	71	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1078	veh/h
Capacity from PTSF, CdPTSF	1230	veh/h
Directional Capacity	1078	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	43.9	mi/h
Percent time-spent-following, PTSFd (from above)	47.8	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	162.1
Effective width of outside lane, We	18.13
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	5.09
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 E2 Rural SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 25 veh/h
Opposing direction volume, Vo 17 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	50	pc/h	34	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	62.7	mi/h
Percent Free Flow Speed, PFFS	95.2	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	43	pc/h	29	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.3	%		
Adjustment for no-passing zones, fnp	46.1			
Percent time-spent-following, PTSFd	32.8	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	34	veh-mi
Peak-hour vehicle-miles of travel, VMT60	115	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	62.7	mi/h
Percent time-spent-following, PTSFd (from above)	32.8	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-12.40	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	29.4
Effective width of outside lane, We	26.25
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.41
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.

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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 Rural SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 25 veh/h
Opposing direction volume, Vo 17 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	50	pc/h	34	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	63.8	mi/h
Percent Free Flow Speed, PFFS	96.8	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	43	pc/h	29	pc/h
Base percent time-spent-following, (note-4) BPTSFd	5.3	%		
Adjustment for no-passing zones, fnp	34.2			
Percent time-spent-following, PTSFd	25.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.03	
Peak 15-min vehicle-miles of travel, VMT15	4	veh-mi
Peak-hour vehicle-miles of travel, VMT60	15	veh-mi
Peak 15-min total travel time, TT15	0.1	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	63.8	mi/h
Percent time-spent-following, PTSFd (from above)	25.7	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-13.00	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	29.4
Effective width of outside lane, We	26.25
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.41
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.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 E2 Rural SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 141 veh/h
Opposing direction volume, Vo 94 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.4		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.899		0.880	
Grade adj. factor, (note-1) fg	0.72		0.68	
Directional flow rate, (note-2) vi	256	pc/h	185	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.6	mi/h
Average travel speed, ATSd	59.8	mi/h
Percent Free Flow Speed, PFFS	90.8	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.940	
Grade adjustment factor, (note-1) fg	0.78		0.74	
Directional flow rate, (note-2) vi	226	pc/h	159	pc/h
Base percent time-spent-following, (note-4) BPTSFd	23.9	%		
Adjustment for no-passing zones, fnp	40.5			
Percent time-spent-following, PTSFd	47.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.15	
Peak 15-min vehicle-miles of travel, VMT15	25	veh-mi
Peak-hour vehicle-miles of travel, VMT60	85	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1093	veh/h
Capacity from PTSF, CdPTSF	1230	veh/h
Directional Capacity	1093	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	59.8	mi/h
Percent time-spent-following, PTSFd (from above)	47.7	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	165.9
Effective width of outside lane, We	18.13
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	5.10
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 E2 Rural SB 4

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	0	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 141 veh/h
Opposing direction volume, Vo 94 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.4		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.899		0.880	
Grade adj. factor, (note-1)	fg	0.72		0.68	
Directional flow rate, (note-2)	vi	256	pc/h	185	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	2.6	mi/h
Adj. for access point density, (note-3)	fA	3.8	mi/h
Free-flow speed, FFSd		48.7	mi/h
Adjustment for no-passing zones, fnp		1.0	mi/h
Average travel speed, ATSd		44.3	mi/h
Percent Free Flow Speed, PFFS		91.0	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.940	
Grade adjustment factor, (note-1) fg	0.78		0.74	
Directional flow rate, (note-2) vi	226	pc/h	159	pc/h
Base percent time-spent-following, (note-4) BPTSFd	23.9	%		
Adjustment for no-passing zones, fnp	14.3			
Percent time-spent-following, PTSFd	32.3	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.15	
Peak 15-min vehicle-miles of travel, VMT15	21	veh-mi
Peak-hour vehicle-miles of travel, VMT60	71	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1093	veh/h
Capacity from PTSF, CdPTSF	1230	veh/h
Directional Capacity	1093	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	44.3	mi/h
Percent time-spent-following, PTSFd (from above)	32.3	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	165.9
Effective width of outside lane, We	18.13
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	5.10
Bicycle LOS	E

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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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 W4 Rural NB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	5.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	79	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	17	veh/h
Opposing direction volume, Vo	11	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	33	pc/h	21	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	3.0	mi/h
Average travel speed, ATSd	62.5	mi/h
Percent Free Flow Speed, PFFS	94.8	%

Percent Time-Spent-Following

Direction	Analysis (d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.933	0.933
Grade adjustment factor, (note-1) fg	0.73	0.73
Directional flow rate, (note-2) vi	29 pc/h	19 pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.6 %	
Adjustment for no-passing zones, fnp	52.0	
Percent time-spent-following, PTSFd	35.0 %	

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	26	veh-mi
Peak-hour vehicle-miles of travel, VMT60	90	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	5.3	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)	62.5	mi/h
Percent time-spent-following, PTSFd (from above)	35.0	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	19.5
Effective width of outside lane, We	26.81
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.08
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 W4 Rural NB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	5	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 17 veh/h
Opposing direction volume, Vo 11 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	33	pc/h	21	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATSd	64.4	mi/h
Percent Free Flow Speed, PFFS	97.7	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	29	pc/h	19	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.6	%		
Adjustment for no-passing zones, fnp	15.8			
Percent time-spent-following, PTSFd	13.1	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	10	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	64.4	mi/h
Percent time-spent-following, PTSFd (from above)	13.1	
Level of service, LOSd (from above)	A	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	19.5
Effective width of outside lane, We	26.81
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.08
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 W4 Rural NB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.87	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	32	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 141 veh/h
Opposing direction volume, Vo 94 veh/h

Average Travel Speed

Direction		Analysis (d)		Opposing (o)	
PCE for trucks, ET		2.5		2.7	
PCE for RVs, ER		1.1		1.1	
Heavy-vehicle adj. factor, (note-5)	fHV	0.893		0.880	
Grade adj. factor, (note-1)	fg	0.72		0.68	
Directional flow rate, (note-2)	vi	252	pc/h	181	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	2.6	mi/h
Adj. for access point density, (note-3)	fA	3.8	mi/h
Free-flow speed, FFSd		48.7	mi/h
Adjustment for no-passing zones, fnp		1.4	mi/h
Average travel speed, ATSd		43.9	mi/h
Percent Free Flow Speed, PFFS		90.3	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.940	
Grade adjustment factor, (note-1) fg	0.77		0.74	
Directional flow rate, (note-2) vi	224	pc/h	155	pc/h
Base percent time-spent-following, (note-4) BPTSFd	23.7	%		
Adjustment for no-passing zones, fnp	40.8			
Percent time-spent-following, PTSFd	47.8	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.15	
Peak 15-min vehicle-miles of travel, VMT15	20	veh-mi
Peak-hour vehicle-miles of travel, VMT60	71	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1078	veh/h
Capacity from PTSF, CdPTSF	1230	veh/h
Directional Capacity	1078	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	43.9	mi/h
Percent time-spent-following, PTSFd (from above)	47.8	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	162.1
Effective width of outside lane, We	18.13
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	5.09
Bicycle LOS	E

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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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	337.668 - 342.28
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 W4 Rural SB 1

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	4.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	50	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 17 veh/h
Opposing direction volume, Vo 11 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	34	pc/h	22	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.5	mi/h
Average travel speed, ATSd	63.0	mi/h
Percent Free Flow Speed, PFFS	95.5	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	29	pc/h	19	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.6	%		
Adjustment for no-passing zones, fnp	45.9			
Percent time-spent-following, PTSFd	31.3	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	23	veh-mi
Peak-hour vehicle-miles of travel, VMT60	78	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	4.6	mi
Length of two-lane highway upstream of the passing lane, Lu	2.5	mi
Length of passing lane including tapers, Lpl	1.5	mi
Average travel speed, ATSd (from above)	63.0	mi/h
Percent time-spent-following, PTSFd (from above)	31.3	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.10	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-12.40	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	20.0
Effective width of outside lane, We	26.81
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.08
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.

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Phone: Fax:
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Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.28 - 342.93
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 W4 Rural SB 2

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	27	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd 17 veh/h
Opposing direction volume, Vo 11 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.7		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.880		0.880	
Grade adj. factor, (note-1) fg	0.67		0.67	
Directional flow rate, (note-2) vi	34	pc/h	22	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	64.0	mi/h
Percent Free Flow Speed, PFFS	97.1	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.933		0.933	
Grade adjustment factor, (note-1) fg	0.73		0.73	
Directional flow rate, (note-2) vi	29	pc/h	19	pc/h
Base percent time-spent-following, (note-4) BPTSFd	3.6	%		
Adjustment for no-passing zones, fnp	34.0			
Percent time-spent-following, PTSFd	24.1	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.02	
Peak 15-min vehicle-miles of travel, VMT15	3	veh-mi
Peak-hour vehicle-miles of travel, VMT60	10	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1002	veh/h
Capacity from PTSF, CdPTSF	1158	veh/h
Directional Capacity	1002	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	0.0	mi
Length of passing lane including tapers, Lpl	0.6	mi
Average travel speed, ATSd (from above)	64.0	mi/h
Percent time-spent-following, PTSFd (from above)	24.1	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	1.70	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-1.70	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, PFFSpl	0.0	%

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	13.00	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-13.00	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	E	
Peak 15-min total travel time, TT15		veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	20.0
Effective width of outside lane, We	26.81
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	2.08
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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	342.93 - 343.525
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 C3 Rural SB 3

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	6	/mi

Analysis direction volume, Vd	141	veh/h
Opposing direction volume, Vo	94	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.4		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.899		0.880	
Grade adj. factor, (note-1) fg	0.72		0.68	
Directional flow rate, (note-2) vi	256	pc/h	185	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	70.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	2.6	mi/h
Adj. for access point density, (note-3) fA	1.5	mi/h
Free-flow speed, FFSd	65.9	mi/h
Adjustment for no-passing zones, fnp	2.6	mi/h
Average travel speed, ATSd	59.8	mi/h
Percent Free Flow Speed, PFFS	90.8	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.940	
Grade adjustment factor, (note-1) fg	0.78		0.74	
Directional flow rate, (note-2) vi	226	pc/h	159	pc/h
Base percent time-spent-following, (note-4) BPTSFd	23.9	%		
Adjustment for no-passing zones, fnp	40.5			
Percent time-spent-following, PTSFd	47.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.15	
Peak 15-min vehicle-miles of travel, VMT15	25	veh-mi
Peak-hour vehicle-miles of travel, VMT60	85	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1093	veh/h
Capacity from PTSF, CdPTSF	1230	veh/h
Directional Capacity	1093	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	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)	59.8	mi/h
Percent time-spent-following, PTSFd (from above)	47.7	
Level of service, LOSd (from above)	B	

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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	165.9
Effective width of outside lane, We	18.13
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	5.10
Bicycle LOS	E

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.

HCS 2010: Two-Lane Highways Release 6.50

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	Jared Hopkins
Agency/Co.	ITD District 2
Date Performed	1-6-2014
Analysis Time Period	2037
Highway	US-95
From/To	343.525 - 344.004
Jurisdiction	ITD District 2
Analysis Year	2037
Description	2037 Old US-95 W4 Rural SB 4

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.85	
Shoulder width	2.0	ft	% Trucks and buses	8	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	0	%
Up/down	-	%	Access point density	15	/mi

Analysis direction volume, Vd 141 veh/h
Opposing direction volume, Vo 94 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	2.4		2.7	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor, (note-5) fHV	0.899		0.880	
Grade adj. factor, (note-1) fg	0.72		0.68	
Directional flow rate, (note-2) vi	256	pc/h	185	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	2.6	mi/h
Adj. for access point density, (note-3) fA	3.8	mi/h
Free-flow speed, FFSd	48.7	mi/h
Adjustment for no-passing zones, fnp	1.0	mi/h
Average travel speed, ATSd	44.3	mi/h
Percent Free Flow Speed, PFFS	91.0	%

Percent Time-Spent-Following

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.940		0.940	
Grade adjustment factor, (note-1) fg	0.78		0.74	
Directional flow rate, (note-2) vi	226	pc/h	159	pc/h
Base percent time-spent-following, (note-4) BPTSFd	23.9	%		
Adjustment for no-passing zones, fnp	14.3			
Percent time-spent-following, PTSFd	32.3	%		

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.15	
Peak 15-min vehicle-miles of travel, VMT15	21	veh-mi
Peak-hour vehicle-miles of travel, VMT60	71	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1093	veh/h
Capacity from PTSF, CdPTSF	1230	veh/h
Directional Capacity	1093	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	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)	44.3	mi/h
Percent time-spent-following, PTSFd (from above)	32.3	
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 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, PFFSpl	0.0	%

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	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	60
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	165.9
Effective width of outside lane, We	18.13
Effective speed factor, St	4.94
Bicycle LOS Score, BLOS	5.10
Bicycle LOS	E

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.

Appendix A.2

Travel Time Calculations

Length and Travel Time of Alternative							
		Length of Segment within Speed Zone				Travel Time Per Trip	
Alternative	Length	35 MPH	45 MPH	57 MPH	65 MPH	Minutes	Min:Sec
Alternative E2	5.85	0.03	0.21		5.61	5.51	5:31
Alternative C3	5.94	0.03	1.39		4.52	6.08	6:05
Alternative W4	6.69	0.03	0.27		6.39	6.31	6:19
No Action Alternative	6.34	0.03	0.45	5.86		6.82	6:49

2017

Total Travel Time For No Action Alternative

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	4757	1.67	7944	6.82	903
Passenger Cars on Business Use	320	1.24	397	6.82	45.1
Light Single Unit Trucks	382	1.05	401	6.82	45.6
Heavy Single Unit Trucks	67	1	67	6.82	7.6
Combination Trucks	395	1.12	442	6.82	50.2
				Travel Time (Hours) Per Calendar Day:	**1051.5**
				Travel Time (Hours) Per Calendar Year:	**383797.5**

Total Travel Time For Alternative E2

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	4757	1.67	7944	5.51	729.5
Passenger Cars on Business Use	320	1.24	397	5.51	36.5
Light Single Unit Trucks	382	1.05	401	5.51	36.8
Heavy Single Unit Trucks	67	1	67	5.51	6.2
Combination Trucks	395	1.12	442	5.51	40.6
				Travel Time (Hours) Per Calendar Day:	**849.6**
				Travel Time (Hours) Per Calendar Year:	**310104**

Total Travel Time For Alternative C3

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	4757	1.67	7944	6.08	805
Passenger Cars on Business Use	320	1.24	397	6.08	40.2
Light Single Unit Trucks	382	1.05	401	6.08	40.6
Heavy Single Unit Trucks	67	1	67	6.08	6.8
Combination Trucks	395	1.12	442	6.08	44.8
				Travel Time (Hours) Per Calendar Day:	**937.4**
				Travel Time (Hours) Per Calendar Year:	**342151**

Travel Time Cost for Alternative W4

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	4757	1.67	7944	6.31	835.4
Passenger Cars on Business Use	320	1.24	397	6.31	41.8
Light Single Unit Trucks	382	1.05	401	6.31	42.2
Heavy Single Unit Trucks	67	1	67	6.31	7
Combination Trucks	395	1.12	442	6.31	46.5
				Travel Time (Hours) Per Calendar Day:	**972.9**
				Travel Time (Hours) Per Calendar Year:	**355108.5**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

2036

Total Travel Time For No Action Alternative					
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	6329	1.67	10569	6.82	1201.3
Passenger Cars on Business Use	426	1.24	528	6.82	60
Light Single Unit Trucks	584	1.05	613	6.82	69.7
Heavy Single Unit Trucks	102	1	102	6.82	11.6
Combination Trucks	603	1.12	675	6.82	76.7
				Travel Time (Hours) Per Calendar Day:	**1419.3**
				Travel Time (Hours) Per Calendar Year:	**518044.5**

Total Travel Time For Alternative E2					
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	6329	1.67	10569	5.51	970.6
Passenger Cars on Business Use	426	1.24	528	5.51	48.5
Light Single Unit Trucks	584	1.05	613	5.51	56.3
Heavy Single Unit Trucks	102	1	102	5.51	9.4
Combination Trucks	603	1.12	675	5.51	62
				Travel Time (Hours) Per Calendar Day:	**1146.8**
				Travel Time (Hours) Per Calendar Year:	**418582**

Total Travel Time For Alternative C3					
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	6329	1.67	10569	6.08	1071
Passenger Cars on Business Use	426	1.24	528	6.08	53.5
Light Single Unit Trucks	584	1.05	613	6.08	62.1
Heavy Single Unit Trucks	102	1	102	6.08	10.3
Combination Trucks	603	1.12	675	6.08	68.4
				Travel Time (Hours) Per Calendar Day:	**1265.3**
				Travel Time (Hours) Per Calendar Year:	**461834.5**

Total Travel Time For Alternative W4					
Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time (Minutes)	Hours Per Calendar Day
Passenger Cars on Personal Use	6329	1.67	10569	6.31	1111.5
Passenger Cars on Business Use	426	1.24	528	6.31	55.5
Light Single Unit Trucks	584	1.05	613	6.31	64.5
Heavy Single Unit Trucks	102	1	102	6.31	10.7
Combination Trucks	603	1.12	675	6.31	71
				Travel Time (Hours) Per Calendar Day:	**1313.2**
				Travel Time (Hours) Per Calendar Year:	**479318**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

20 Year Period From 2017 Through 2036

Total Travel Time For No Action Alternative

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time Per Trip (Minutes)	Total Hours
Passenger Cars on Personal Use	110187	1.67	184012	6.82	20916
Passenger Cars on Business Use	7409	1.24	9187	6.82	1044.3
Light Single Unit Trucks	9523	1.05	9999	6.82	1136.6
Heavy Single Unit Trucks	1661	1	1661	6.82	188.8
Combination Trucks	9838	1.12	11019	6.82	1252.5
				Total Travel Time (Hours):	**8956443**

Total Travel Time For Alternative E2

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time Per Trip (Minutes)	Total Hours
Passenger Cars on Personal Use	110187	1.67	184012	5.51	16898.4
Passenger Cars on Business Use	7409	1.24	9187	5.51	843.7
Light Single Unit Trucks	9523	1.05	9999	5.51	918.2
Heavy Single Unit Trucks	1661	1	1661	5.51	152.5
Combination Trucks	9838	1.12	11019	5.51	1011.9
				Total Travel Time (Hours):	**7236015.5**

Total Travel Time For Alternative C3

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time Per Trip (Minutes)	Total Hours
Passenger Cars on Personal Use	110187	1.67	184012	6.08	18646.5
Passenger Cars on Business Use	7409	1.24	9187	6.08	930.9
Light Single Unit Trucks	9523	1.05	9999	6.08	1013.2
Heavy Single Unit Trucks	1661	1	1661	6.08	168.3
Combination Trucks	9838	1.12	11019	6.08	1116.6
				Total Travel Time (Hours):	**7984557.5**

Total Travel Time For Alternative W4

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Number of People	Travel Time Per Trip (Minutes)	Total Hours
Passenger Cars on Personal Use	110187	1.67	184012	6.31	19351.9
Passenger Cars on Business Use	7409	1.24	9187	6.31	966.2
Light Single Unit Trucks	9523	1.05	9999	6.31	1051.6
Heavy Single Unit Trucks	1661	1	1661	6.31	174.7
Combination Trucks	9838	1.12	11019	6.31	1158.8
				Total Travel Time (Hours):	**8286668**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

Travel Time Calculations

On the table titled "Length and Travel Time of Alternative", a free flow speed of the posted speed limit was assumed for all action alternatives. This is reasonable since the Level-of-Service is A. For the No Action Alternative, the speed is expected to be less than the action alternatives, because the two-way two-lane highway does not have nearly as many passing opportunities resulting in some delay due to slow moving vehicles and congestion in the rural section. The average speed of 57 miles per hour based on a speed study using traffic count data from 9/17/2012 through 9/20/12 was used for the rural segment. The posted speeds of 45mph and 35mph were used in the suburban segment.

On the three tables that calculate the travel time of the alternatives in 2017, 2036, and the 20 Year travel times, the percentage of different vehicle types was taken from the traffic count data from 9/17/12 through 9/20/12 shown in Appendix C.2. The total number of vehicles (AADT) and the number of trucks (CADT) were taken from the traffic volume projection reports. The average vehicle occupancy rate was taken from the FHWA manual titled, "Work Zone Road User Costs: Concepts and Applications."

Appendix A.3

Delay Calculations at

Northern Remaining US-95 Loop Intersection

Calculations for Delay at the Northern Remaining US-95 Intersection For Alternative E2 and Alternative W4

Calculated Delay to Slow from 45 mph to a Stop, Then Accelerate back to the 45 mph Speed Limit

Calculate time required to slow from 45mph to 0

45mph = 66 ft per second

V = U + a*t (V = initial velocity, U = final velocity, a = acceleration, t = time)

Given: U=0, V=66 ft per sec, a=11.2 ft per sec^2

(from AASHTO Green Book Section 3.3 for comfortable deceleration)

t = 5.89 Sec

Calculate time required to accelerate from 0 to 45 mph

Given: From 2-24 of Green Book a Car accelerates from 0 to 45mph in 600 feet

From AASHTO Green Book Section 3.3 and assume uniform acceleration

Distance = 1.075* (V(mph)^2/a)

600 ft = 1.075*(45^2)/a

a=3.63 ft/sec^2

V = U + a*t or 66 ft/sec= 0 + 3.63 ft/sec^2*t

t = 18.18 Sec

Total Time to Decelerate and Accelerate = 18.18 + 5.89 = 24.07sec

Time Required to Travel the acceleration and deceleration area at 45 mph

Distance required to slow from 45mph to 0

Distance = 1.075* (V(mph)^2/a)

D=1.075*(45^2/(11.2 ft/sec^2)) = 194 feet

Total Distance of Acceleration and Deceleration Area = 600 feet+194 feet = 794 feet

Time required to travel 794 feet at 45 mph = 794 feet/66 ft per sec = 12.03 Sec

Time Differential between Alternatives C3 and the No Action Alternative and Alternatives E2 and W4 as a Result of the Remaining US-95 Intersection = 24.07 sec – 12.03 sec = **12.04 sec**

Calculation for Delay of Vehicles from Southbound US-95 to the Southbound Remaining US-95 Loop

Assume 600 ADT

Total Delay time in 2017 = 600 cars*365 days*12.04 seconds*(1 hour/3600 sec)

= **732 Hours**

Calculation for Delay of Vehicles from Northbound US-95 to the Southbound Remaining US-95 Loop

Assume 150 ADT

and Acceleration Lane will be constructed from Remaining US-95 Loop to NB US-95.

Total Delay time in 2017 = 150 cars*365 days*12.04 seconds*(1 hour/3600 sec)

= **183 Hours**

Calculation for Delay of Vehicles from Northbound Remaining US-95 Loop to Northbound US-95

Assume 600 ADT and the average delay associated with traffic waiting for a gap to turn will be 75% of the Peak Hour Delay

Total Delay time in 2017 = 600 cars*365 days*(12.04 + 0.75*15.5) seconds*(1 hour/3600 sec)

= **1440 Hours**

Calculation for Delay of Vehicles from Northbound Remaining US-95 Loop to Southbound US-95

Assume 150 ADT and the average delay associated with traffic waiting for a gap to turn will be 75% of the Peak Hour Delay

Total Delay time in 2017 = 150 cars*365 days*(12.04 + 0.75*8.7) seconds*(1 hour/3600 sec)

= **282 Hours**

Total Delay Difference in 2017 Between Alternatives C3 and the No Action (Local Traffic Uses US-95) Alternative and Alternatives E2 and W4 (Local Traffic Turns on Remaining US-95 Loop) as a result of the Remaining US-95 Intersection

= 2637 Hours

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: Jared Hopkins
Agency/Co.: ITD
Date Performed: 3/5/2014
Analysis Time Period: Future
Intersection: Old and New 95
Jurisdiction: ITD
Units: U. S. Customary
Analysis Year: Future
Project ID: Thorn Cr to Moscow
East/West Street: Old 95
North/South Street: New 95
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	371			416	79
Peak-Hour Factor, PHF	0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR	22	421			472	89
Percent Heavy Vehicles	4	--	--		--	--
Median Type/Storage	TWLTL			/ 1		
RT Channelized?						No
Lanes	1	2			2	1
Configuration	L	T			T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				79		20
Peak Hour Factor, PHF				0.88		0.88
Hourly Flow Rate, HFR				89		22
Percent Heavy Vehicles				2		2
Percent Grade (%)		2			2	
Flared Approach: Exists?/Storage				/		/
Lanes				1		1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	22					89		22
C(m) (vph)	993					433		791
v/c	0.02					0.21		0.03
95% queue length	0.07					0.76		0.09
Control Delay	8.7					15.5		9.7
LOS	A					C		A
Approach Delay							14.3	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.6

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Jared Hopkins
Agency/Co.: ITD
Date Performed: 3/5/2014
Analysis Time Period: Future
Intersection: Old and New 95
Jurisdiction: ITD
Units: U. S. Customary
Analysis Year: Future
Project ID: Thorn Cr to Moscow
East/West Street: Old 95
North/South Street: New 95
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	20	371			416	79
Peak-Hour Factor, PHF	0.88	0.88			0.88	0.88
Peak-15 Minute Volume	6	105			118	22
Hourly Flow Rate, HFR	22	421			472	89
Percent Heavy Vehicles	4	--	--		--	--
Median Type/Storage	TWLTL			/ 1		
RT Channelized?						No
Lanes	1	2			2	1
Configuration	L	T			T	R
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				79		20
Peak Hour Factor, PHF				0.88		0.88
Peak-15 Minute Volume				22		6
Hourly Flow Rate, HFR				89		22
Percent Heavy Vehicles				2		2
Percent Grade (%)		2			2	
Flared Approach: Exists?/Storage				/		/
RT Channelized?						No
Lanes				1		1
Configuration				L		R

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	0	0	0	0

Upstream Signal Data

	Prog. Flow vph	Sat Flow vph	Arrival Type	Green Time sec	Cycle Length sec	Prog. Speed mph	Distance to Signal feet
S2 Left-Turn							
Through							
S5 Left-Turn							
Through							

Worksheet 3-Data for Computing Effect of Delay to Major Street Vehicles

	Movement 2	Movement 5
Shared ln volume, major th vehicles:		
Shared ln volume, major rt vehicles:		
Sat flow rate, major th vehicles:		
Sat flow rate, major rt vehicles:		
Number of major street through lanes:		

Worksheet 4-Critical Gap and Follow-up Time Calculation

Critical Gap Calculation

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(c,base)	4.1					7.5		6.2
t(c,hv)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
P(hv)	4					2		2
t(c,g)			0.20	0.20	0.10	0.20	0.20	0.10
Percent Grade			2.00	2.00	2.00	2.00	2.00	2.00
t(3,lt)	0.00					0.70		0.00
t(c,T): 1-stage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-stage	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
t(c) 1-stage	4.2					7.2		6.4
2-stage	4.2					6.2		6.4

Follow-Up Time Calculations

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(f,base)	2.20					3.50		3.30
t(f,HV)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P(HV)	4					2		2
t(f)	2.2					3.5		3.3

Worksheet 5-Effect of Upstream Signals

Computation 1-Queue Clearance Time at Upstream Signal

	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
V prog				

Total Saturation Flow Rate, s (vph)	
Arrival Type	
Effective Green, g (sec)	
Cycle Length, C (sec)	
Rp (from Exhibit 16-11)	
Proportion vehicles arriving on green P	
g(q1)	
g(q2)	
g(q)	

Computation 2-Proportion of TWSC Intersection Time blocked	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
alpha				
beta				
Travel time, t(a) (sec)				
Smoothing Factor, F				
Proportion of conflicting flow, f				
Max platooned flow, V(c,max)				
Min platooned flow, V(c,min)				
Duration of blocked period, t(p)				
Proportion time blocked, p	0.000		0.000	

Computation 3-Platoon Event Periods	Result
p(2)	0.000
p(5)	0.000
p(dom)	
p(subo)	
Constrained or unconstrained?	

Proportion unblocked for minor movements, p(x)	(1) Single-stage Process	(2) Two-Stage Process Stage I	(3) Stage II
p(1)			
p(4)			
p(7)			
p(8)			
p(9)			
p(10)			
p(11)			
p(12)			

Computation 4 and 5 Single-Stage Process								
Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
V c,x	561					726		236
s								
Px								
V c,u,x								
C r,x								
C plat,x								

Two-Stage Process				
	7	8	10	11

	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2
V(c,x)					472	254		
s						3000		
P(x)								
V(c,u,x)								
C(r,x)								
C(plat,x)								

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows		236
Potential Capacity		791
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity		791
Probability of Queue free St.	1.00	0.97
Step 2: LT from Major St.	4	1
Conflicting Flows		561
Potential Capacity		993
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity		993
Probability of Queue free St.	1.00	0.98
Maj L-Shared Prob Q free St.		
Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.98	0.98
Movement Capacity		
Probability of Queue free St.	1.00	1.00
Step 4: LT from Minor St.	7	10
Conflicting Flows		726
Potential Capacity		332
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.98	
Maj. L, Min T Adj. Imp Factor.	0.98	
Cap. Adj. factor due to Impeding mvmnt	0.96	0.98
Movement Capacity		325

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity	531	526
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.98	1.00
Movement Capacity	519	526
Probability of Queue free St.	1.00	1.00

Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity	475	531
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	1.00	0.98
Movement Capacity	475	519
Part 3 - Single Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.98	0.98
Movement Capacity		
Result for 2 stage process:		
a	0.91	0.91
y		
C t		
Probability of Queue free St.	1.00	1.00
Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		472
Potential Capacity	574	563
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.98	1.00
Movement Capacity	561	563
Part 2 - Second Stage		
Conflicting Flows		254
Potential Capacity	767	744
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.97	0.98
Movement Capacity	746	728
Part 3 - Single Stage		
Conflicting Flows		726
Potential Capacity		332
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.98	
Maj. L, Min T Adj. Imp Factor.	0.98	
Cap. Adj. factor due to Impeding mvmnt	0.96	0.98
Movement Capacity		325
Results for Two-stage process:		
a	0.91	0.91
y		0.59
C t		433

Worksheet 8-Shared Lane Calculations

Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume (vph)				89		22
Movement Capacity (vph)				433		791
Shared Lane Capacity (vph)						

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
C sep				433		791
Volume				89		22
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						
n max						
C sh						
SUM C sep						
n						
C act						

Worksheet 10-Delay, Queue Length, and Level of Service

Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	22					89		22
C(m) (vph)	993					433		791
v/c	0.02					0.21		0.03
95% queue length	0.07					0.76		0.09
Control Delay	8.7					15.5		9.7
LOS	A					C		A
Approach Delay							14.3	
Approach LOS							B	

Worksheet 11-Shared Major LT Impedance and Delay

	Movement 2	Movement 5
p(oj)	0.98	1.00
v(il), Volume for stream 2 or 5		
v(i2), Volume for stream 3 or 6		
s(il), Saturation flow rate for stream 2 or 5		
s(i2), Saturation flow rate for stream 3 or 6		
P*(oj)		
d(M,LT), Delay for stream 1 or 4	8.7	
N, Number of major street through lanes		
d(rank,1) Delay for stream 2 or 5		

APPENDIX B – ROAD USER COST (ECONOMICS)

Appendix B.1

Travel Time Cost Calculations

2017

Travel Time Cost for No Action Alternative

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	4757	1.67	$11.89	6.82	1.051	$11,284.11
Passenger Cars on Business Use	320	1.24	$29.75	6.82	1.051	$1,410.24
Light Single Unit Trucks	382	1.05	$23.06	6.82	1.051	$1,104.96
Heavy Single Unit Trucks	67	1	$29.65	6.82	1.051	$237.32
Combination Trucks	395	1.12	$29.65	6.82	1.051	$1,567.02
					**Cost Per Day:	**$15,603.66**
					**Cost Per Year:	**$5,695,336.85**

Travel Time Cost for Alternative E2

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	4757	1.67	$11.89	5.51	1.051	$9,116.63
Passenger Cars on Business Use	320	1.24	$29.75	5.51	1.051	$1,139.36
Light Single Unit Trucks	382	1.05	$23.06	5.51	1.051	$892.72
Heavy Single Unit Trucks	67	1	$29.65	5.51	1.051	$191.74
Combination Trucks	395	1.12	$29.65	5.51	1.051	$1,266.03
					**Cost Per Day:	**$12,606.48**
					**Cost Per Year:	**$4,601,364.53**

Travel Time Cost for Alternative C3

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	4757	1.67	$11.89	6.08	1.051	$10,059.73
Passenger Cars on Business Use	320	1.24	$29.75	6.08	1.051	$1,257.23
Light Single Unit Trucks	382	1.05	$23.06	6.08	1.051	$985.07
Heavy Single Unit Trucks	67	1	$29.65	6.08	1.051	$211.57
Combination Trucks	395	1.12	$29.65	6.08	1.051	$1,397.00
					**Cost Per Day:	**$13,910.60**
					**Cost Per Year:	**$5,077,367.75**

Travel Time Cost for Alternative W4

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	4757	1.67	$11.89	6.31	1.051	$10,440.28
Passenger Cars on Business Use	320	1.24	$29.75	6.31	1.051	$1,304.79
Light Single Unit Trucks	382	1.05	$23.06	6.31	1.051	$1,022.33
Heavy Single Unit Trucks	67	1	$29.65	6.31	1.051	$219.57
Combination Trucks	395	1.12	$29.65	6.31	1.051	$1,449.84
					**Cost Per Day:	**$14,436.82**
					**Cost Per Year:	**$5,269,439.23**

* Small Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All travel time costs were adjusted to July 1, 2013, using the Employment Cost Index.

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Travel Time Cost for No Action Alternative

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	6329	1.67	$11.89	6.82	1.051	$15,013.06
Passenger Cars on Business Use	426	1.24	$29.75	6.82	1.051	$1,877.39
Light Single Unit Trucks	584	1.05	$23.06	6.82	1.051	$1,689.26
Heavy Single Unit Trucks	102	1	$29.65	6.82	1.051	$361.29
Combination Trucks	603	1.12	$29.65	6.82	1.051	$2,392.19
					**Cost Per Day:	**$21,333.20**
					**Cost Per Year:	**$7,786,617.21**

Travel Time Cost for Alternative E2

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	6329	1.67	$11.89	5.51	1.051	$12,129.32
Passenger Cars on Business Use	426	1.24	$29.75	5.51	1.051	$1,516.78
Light Single Unit Trucks	584	1.05	$23.06	5.51	1.051	$1,364.79
Heavy Single Unit Trucks	102	1	$29.65	5.51	1.051	$291.90
Combination Trucks	603	1.12	$29.65	5.51	1.051	$1,932.69
					**Cost Per Day:	**$17,235.47**
					**Cost Per Year:	**$6,290,947.34**

Travel Time Cost for Alternative C3

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	6329	1.67	$11.89	6.08	1.051	$13,384.08
Passenger Cars on Business Use	426	1.24	$29.75	6.08	1.051	$1,673.68
Light Single Unit Trucks	584	1.05	$23.06	6.08	1.051	$1,505.97
Heavy Single Unit Trucks	102	1	$29.65	6.08	1.051	$322.09
Combination Trucks	603	1.12	$29.65	6.08	1.051	$2,132.63
					**Cost Per Day:	**$19,018.45**
					**Cost Per Year:	**$6,941,734.99**

Travel Time Cost for Alternative W4

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs Per Day
Passenger Cars on Personal Use	6329	1.67	$11.89	6.31	1.051	$13,890.38
Passenger Cars on Business Use	426	1.24	$29.75	6.31	1.051	$1,737.00
Light Single Unit Trucks	584	1.05	$23.06	6.31	1.051	$1,562.94
Heavy Single Unit Trucks	102	1	$29.65	6.31	1.051	$334.28
Combination Trucks	603	1.12	$29.65	6.31	1.051	$2,213.30
					**Cost Per Day:	**$19,737.90**
					**Cost Per Year:	**$7,204,333.52**

* Small Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All travel time costs were adjusted to July 1, 2013, using the Employment Cost Index.

20 Year Period From 2017 Through 2036

Travel Time Cost for No Action Alternative

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs
Passenger Cars on Personal Use	110187	1.67	$11.89	6.82	1.051	$95,401,980.26
Passenger Cars on Business Use	7409	1.24	$29.75	6.82	1.051	$11,917,823.65
Light Single Unit Trucks	9523	1.05	$23.06	6.82	1.051	$10,054,282.67
Heavy Single Unit Trucks	1661	1	$29.65	6.82	1.051	$2,147,449.87
Combination Trucks	9838	1.12	$29.65	6.82	1.051	$14,245,517.92
					**Total Cost:	**$133,767,054.37**

Travel Time Cost for Alternative E2

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs
Passenger Cars on Personal Use	110187	1.67	$11.89	5.51	1.051	$77,076,966.46
Passenger Cars on Business Use	7409	1.24	$29.75	5.51	1.051	$9,628,622.92
Light Single Unit Trucks	9523	1.05	$23.06	5.51	1.051	$8,123,034.83
Heavy Single Unit Trucks	1661	1	$29.65	5.51	1.051	$1,734,963.17
Combination Trucks	9838	1.12	$29.65	5.51	1.051	$11,509,208.76
					**Total Cost:	**$108,072,796.13**

Travel Time Cost for Alternative C3

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs
Passenger Cars on Personal Use	110187	1.67	$11.89	6.08	1.051	$85,050,445.75
Passenger Cars on Business Use	7409	1.24	$29.75	6.08	1.051	$10,624,687.36
Light Single Unit Trucks	9523	1.05	$23.06	6.08	1.051	$8,963,348.78
Heavy Single Unit Trucks	1661	1	$29.65	6.08	1.051	$1,914,442.11
Combination Trucks	9838	1.12	$29.65	6.08	1.051	$12,699,816.56
					**Total Cost:	**$119,252,740.56**

Travel Time Cost for Alternative W4

Vehicle Type	Number of Vehicles*	Average Vehicle Occupancy	Hourly Cost	Travel Time (Minutes)	ECI Adjustment (July 1, 2013)	Travel Time Costs
Passenger Cars on Personal Use	110187	1.67	$11.89	6.31	1.051	$88,267,814.58
Passenger Cars on Business Use	7409	1.24	$29.75	6.31	1.051	$11,026,608.10
Light Single Unit Trucks	9523	1.05	$23.06	6.31	1.051	$9,302,422.83
Heavy Single Unit Trucks	1661	1	$29.65	6.31	1.051	$1,986,863.44
Combination Trucks	9838	1.12	$29.65	6.31	1.051	$13,180,237.25
					**Total Cost:	**$123,763,946.20**

* Small Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All travel time costs were adjusted to July 1, 2013, using the Employment Cost Index.

Travel Time Cost Calculations

On the tables that calculate travel time costs for the alternatives, the percentage of different vehicle types was taken from the traffic count data from 9/17/12 through 9/20/12 and the total number of vehicles (AADT) and the number of trucks (CADT) were taken from the traffic volume projection reports. The Average Vehicle Occupancy and the Hourly Cost for December 2010 were taken from the FHWA manual titled, "Work Zone Road User Costs: Concepts and Applications." A factor based on the Employment Cost Index was then applied to account for inflation to July 1, 2013.

Appendix B.2

Time Related Vehicle Depreciation Cost Calculations

2017

Time-Related Vehicle Depreciation Cost For No Action Alternative					
Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	3721	6.82	$1.05	1.019	$452.54
Medium to Large Autos	1354	6.82	$1.40	1.048	$225.81
Four Tire SU	54	6.82	$2.58	1.054	$16.69
6 Tire Trucks	339	6.82	$3.60	1.054	$146.21
3 or 4 axles	65	6.82	$9.06	1.069	$71.56
5+ Axles	387	6.82	$10.12	1.069	$475.89
				Total Daily Cost:	**$1,388.69**
				****Cost Per Year:**	**$506,872.35**

Time-Related Vehicle Depreciation for Alternative E2					
Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	3721	5.51	$1.05	1.019	$365.61
Medium to Large Autos	1354	5.51	$1.40	1.048	$182.44
Four Tire SU	54	5.51	$2.58	1.054	$13.49
6 Tire Trucks	339	5.51	$3.60	1.054	$118.13
3 or 4 axles	65	5.51	$9.06	1.069	$57.81
5+ Axles	387	5.51	$10.12	1.069	$384.48
				Total Daily Cost:	**$1,121.95**
				****Cost Per Year:**	**$409,511.24**

Time-Related Vehicle Depreciation for Alternative C3					
Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	3721	6.08	$1.05	1.019	$403.44
Medium to Large Autos	1354	6.08	$1.40	1.048	$201.31
Four Tire SU	54	6.08	$2.58	1.054	$14.88
6 Tire Trucks	339	6.08	$3.60	1.054	$130.35
3 or 4 axles	65	6.08	$9.06	1.069	$63.79
5+ Axles	387	6.08	$10.12	1.069	$424.25
				Total Daily Cost:	**$1,238.01**
				****Cost Per Year:**	**$451,874.47**

Time-Related Vehicle Depreciation for Alternative W4					
Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	3721	6.31	$1.05	1.019	$418.70
Medium to Large Autos	1354	6.31	$1.40	1.048	$208.92
Four Tire SU	54	6.31	$2.58	1.054	$15.44
6 Tire Trucks	339	6.31	$3.60	1.054	$135.28
3 or 4 axles	65	6.31	$9.06	1.069	$66.21
5+ Axles	387	6.31	$10.12	1.069	$440.30
				Total Daily Cost:	**$1,284.84**
				****Cost Per Year:**	**$468,968.40**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate Producer Price Index.

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Time-Related Vehicle Depreciation
Cost For No Action Alternative

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	5056	6.82	$1.05	1.019	$614.90
Medium to Large Autos	1840	6.82	$1.40	1.048	$306.86
Four Tire SU	73	6.82	$2.58	1.054	$22.56
6 Tire Trucks	461	6.82	$3.60	1.054	$198.83
3 or 4 axles	88	6.82	$9.06	1.069	$96.88
5+ Axles	526	6.82	$10.12	1.069	$646.81
				Total Daily Cost:	**$1,886.84**
				****Cost Per Year:**	**$688,696.03**

Time-Related Vehicle Depreciation for Alternative E2

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	5056	5.51	$1.05	1.019	$496.79
Medium to Large Autos	1840	5.51	$1.40	1.048	$247.92
Four Tire SU	73	5.51	$2.58	1.054	$18.23
6 Tire Trucks	461	5.51	$3.60	1.054	$160.64
3 or 4 axles	88	5.51	$9.06	1.069	$78.27
5+ Axles	526	5.51	$10.12	1.069	$522.57
				Total Daily Cost:	**$1,524.41**
				****Cost Per Year:**	**$556,409.84**

Time-Related Vehicle Depreciation for Alternative C3

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	5056	6.08	$1.05	1.019	$548.18
Medium to Large Autos	1840	6.08	$1.40	1.048	$273.56
Four Tire SU	73	6.08	$2.58	1.054	$20.12
6 Tire Trucks	461	6.08	$3.60	1.054	$177.25
3 or 4 axles	88	6.08	$9.06	1.069	$86.37
5+ Axles	526	6.08	$10.12	1.069	$576.63
				Total Daily Cost:	**$1,682.11**
				****Cost Per Year:**	**$613,969.48**

Time-Related Vehicle Depreciation for Alternative W4

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Daily Cost
Small Autos	5056	6.31	$1.05	1.019	$568.92
Medium to Large Autos	1840	6.31	$1.40	1.048	$283.91
Four Tire SU	73	6.31	$2.58	1.054	$20.88
6 Tire Trucks	461	6.31	$3.60	1.054	$183.96
3 or 4 axles	88	6.31	$9.06	1.069	$89.63
5+ Axles	526	6.31	$10.12	1.069	$598.44
				Total Daily Cost:	**$1,745.74**
				****Cost Per Year:**	**$637,195.30**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate Producer Price Index.

20 Year Period From 2017 Through 2036

Time-Related Vehicle Depreciation
Cost For No Action Alternative

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Cost
Small Autos	87127	6.82	$1.05	1.019	$3,867,606.06
Medium to Large Autos	31704	6.82	$1.40	1.048	$1,929,875.83
Four Tire SU	1264	6.82	$2.58	1.054	$142,604.55
6 Tire Trucks	7938	6.82	$3.60	1.054	$1,249,626.41
3 or 4 axles	1522	6.82	$9.06	1.069	$611,570.52
5+ Axles	9062	6.82	$10.12	1.069	$4,067,319.27
				Total Cost:	**$11,868,602.64**

Time-Related Vehicle Depreciation for Alternative E2

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Cost
Small Autos	87127	5.51	$1.05	1.019	$3,124,708.12
Medium to Large Autos	31704	5.51	$1.40	1.048	$1,559,181.20
Four Tire SU	1264	5.51	$2.58	1.054	$115,212.77
6 Tire Trucks	7938	5.51	$3.60	1.054	$1,009,595.53
3 or 4 axles	1522	5.51	$9.06	1.069	$494,098.76
5+ Axles	9062	5.51	$10.12	1.069	$3,286,060.00
				Total Cost:	**$9,588,856.38**

Time-Related Vehicle Depreciation for Alternative C3

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Cost
Small Autos	87127	6.08	$1.05	1.019	$3,447,953.79
Medium to Large Autos	31704	6.08	$1.40	1.048	$1,720,475.81
Four Tire SU	1264	6.08	$2.58	1.054	$127,131.33
6 Tire Trucks	7938	6.08	$3.60	1.054	$1,114,036.45
3 or 4 axles	1522	6.08	$9.06	1.069	$545,212.43
5+ Axles	9062	6.08	$10.12	1.069	$3,625,997.24
				Total Cost:	**$10,580,807.05**

Time-Related Vehicle Depreciation for Alternative W4

Vehicle Type	Number of Vehicles*	Travel Time (Minutes)	Hourly Cost	PPI Adjustment (July 1, 2013)	Cost
Small Autos	87127	6.31	$1.05	1.019	$3,578,386.25
Medium to Large Autos	31704	6.31	$1.40	1.048	$1,785,559.60
Four Tire SU	1264	6.31	$2.58	1.054	$131,940.57
6 Tire Trucks	7938	6.31	$3.60	1.054	$1,156,179.27
3 or 4 axles	1522	6.31	$9.06	1.069	$565,837.24
5+ Axles	9062	6.31	$10.12	1.069	$3,763,164.90
				Total Cost:	**$10,981,067.84**

* Differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate Producer Price Index.

Time-Related Vehicle Depreciation Cost Calculations

On the tables that calculate time-related vehicle depreciation for the alternatives, the percentage of different vehicle types was taken from the traffic count data from 9/17/12 through 9/20/12 and the total number of vehicles (AADT) and the number of trucks (CADT) were taken from the traffic volume projection reports. The hourly costs were taken from the FHWA manual titled, "Work Zone Road User Costs: Concepts and Applications." A factor based on different Producer Price Indexes was then applied to account for inflation to July 1, 2013.

Appendix B.3

Vehicle Operating Cost Calculations

2017

Vehicle Operating Costs on No Action Alternative				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	3721	6.34	$0.43	$10,259.33
Medium to Large Autos	1354	6.34	$0.56	$4,847.49
Four Tire SU	54	6.34	$0.94	$321.33
6 Tire Trucks	339	6.34	$1.23	$2,639.56
3 or 4 axles	65	6.34	$1.45	$597.91
5+ Axles	387	6.34	$1.59	$3,903.56
			Total Daily Cost:	**$22,569.18**
			****Cost Per Year:**	**$8,237,751.81**

Vehicle Operating Costs on Alternative E2				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	3721	5.85	$0.43	$9,466.41
Medium to Large Autos	1354	5.85	$0.56	$4,472.84
Four Tire SU	54	5.85	$0.94	$296.50
6 Tire Trucks	339	5.85	$1.23	$2,435.56
3 or 4 axles	65	5.85	$1.45	$551.70
5+ Axles	387	5.85	$1.59	$3,601.87
			Total Daily Cost:	**$20,824.88**
			****Cost Per Year:**	**$7,601,080.14**

Vehicle Operating Costs on Alternative C3				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	3721	5.94	$0.43	$9,612.05
Medium to Large Autos	1354	5.94	$0.56	$4,541.65
Four Tire SU	54	5.94	$0.94	$301.06
6 Tire Trucks	339	5.94	$1.23	$2,473.03
3 or 4 axles	65	5.94	$1.45	$560.18
5+ Axles	387	5.94	$1.59	$3,657.28
			Total Daily Cost:	**$21,145.26**
			****Cost Per Year:**	**$7,718,019.83**

Vehicle Operating Costs on Alternative W4				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	3721	6.69	$0.43	$10,825.69
Medium to Large Autos	1354	6.69	$0.56	$5,115.10
Four Tire SU	54	6.69	$0.94	$339.07
6 Tire Trucks	339	6.69	$1.23	$2,785.28
3 or 4 axles	65	6.69	$1.45	$630.91
5+ Axles	387	6.69	$1.59	$4,119.06
			Total Daily Cost:	**$23,815.12**
			****Cost Per Year:**	**$8,692,517.29**

* Small differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate PPI and CPI Indexes.

2036

Vehicle Operating Costs on No Action Alternative				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	5056	6.34	$0.43	$13,940.11
Medium to Large Autos	1840	6.34	$0.56	$6,587.43
Four Tire SU	73	6.34	$0.94	$434.40
6 Tire Trucks	461	6.34	$1.23	$3,589.49
3 or 4 axles	88	6.34	$1.45	$809.47
5+ Axles	526	6.34	$1.59	$5,305.62
			Total Daily Cost:	**$30,666.52**
			****Cost Per Year:**	**$11,193,281.29**

Vehicle Operating Costs on Alternative E2				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	5056	5.85	$0.43	$12,862.72
Medium to Large Autos	1840	5.85	$0.56	$6,078.31
Four Tire SU	73	5.85	$0.94	$400.82
6 Tire Trucks	461	5.85	$1.23	$3,312.07
3 or 4 axles	88	5.85	$1.45	$746.91
5+ Axles	526	5.85	$1.59	$4,895.56
			Total Daily Cost:	**$28,296.40**
			****Cost Per Year:**	**$10,328,185.42**

Vehicle Operating Costs on Alternative C3				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	5056	5.94	$0.43	$13,060.61
Medium to Large Autos	1840	5.94	$0.56	$6,171.82
Four Tire SU	73	5.94	$0.94	$406.99
6 Tire Trucks	461	5.94	$1.23	$3,363.03
3 or 4 axles	88	5.94	$1.45	$758.40
5+ Axles	526	5.94	$1.59	$4,970.88
			Total Daily Cost:	**$28,731.73**
			****Cost Per Year:**	**$10,487,080.58**

Vehicle Operating Costs on Alternative W4				
Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	5056	6.69	$0.43	$14,709.68
Medium to Large Autos	1840	6.69	$0.56	$6,951.09
Four Tire SU	73	6.69	$0.94	$458.38
6 Tire Trucks	461	6.69	$1.23	$3,787.65
3 or 4 axles	88	6.69	$1.45	$854.16
5+ Axles	526	6.69	$1.59	$5,598.51
			Total Daily Cost:	**$32,359.47**
			****Cost Per Year:**	**$11,811,206.91**

* Small differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate PPI and CPI Indexes.

20 Year Period From 2017 Through 2036

Vehicle Operating Costs on No Action Alternative

Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	87127	6.34	$0.43	$87,680,871.65
Medium to Large Autos	31704	6.34	$0.56	$41,429,066.90
Four Tire SU	1264	6.34	$0.94	$2,745,382.89
6 Tire Trucks	7938	6.34	$1.23	$22,559,856.18
3 or 4 axles	1522	6.34	$1.45	$5,110,067.07
5+ Axles	9062	6.34	$1.59	$33,363,158.11
			Total Cost:	**$192,888,402.79**

Vehicle Operating Costs on Alternative E2

Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	87127	5.85	$0.43	$80,904,274.31
Medium to Large Autos	31704	5.85	$0.56	$38,227,135.86
Four Tire SU	1264	5.85	$0.94	$2,533,200.30
6 Tire Trucks	7938	5.85	$1.23	$20,816,271.08
3 or 4 axles	1522	5.85	$1.45	$4,715,124.97
5+ Axles	9062	5.85	$1.59	$30,784,617.49
			Total Cost:	**$177,980,624.02**

Vehicle Operating Costs on Alternative C3

Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	87127	5.94	$0.43	$82,148,955.45
Medium to Large Autos	31704	5.94	$0.56	$38,815,245.65
Four Tire SU	1264	5.94	$0.94	$2,572,172.61
6 Tire Trucks	7938	5.94	$1.23	$21,136,521.40
3 or 4 axles	1522	5.94	$1.45	$4,787,665.36
5+ Axles	9062	5.94	$1.59	$31,258,226.99
			Total Cost:	**$180,718,787.47**

Vehicle Operating Costs on Alternative W4

Vehicle Type	Number of Vehicles*	Milage	Vehicle Operating Cost (VOC) Per Mile	Daily VOC Cost
Small Autos	87127	6.69	$0.43	$92,521,298.31
Medium to Large Autos	31704	6.69	$0.56	$43,716,160.50
Four Tire SU	1264	6.69	$0.94	$2,896,941.88
6 Tire Trucks	7938	6.69	$1.23	$23,805,274.11
3 or 4 axles	1522	6.69	$1.45	$5,392,168.56
5+ Axles	9062	6.69	$1.59	$35,204,972.83
			Total Cost:	**$203,536,816.19**

* Small differences between the number of vehicles listed in the chart and the actual traffic count are due to rounding.

** All costs were adjusted to July 1, 2013 using the appropriate PPI and CPI Indexes.

HERS-ST Unit Costs of VOC Resource Components in December 2010 Dollars						
Cost Component	Small Autos	Medium/Large Auto	4 Tire Truck	6 Tire Truck	3-4 Axle Combination	5+ Axle Combination
Fuel	$2.89	$2.89	$2.89	$2.89	$2.84	$2.84
Oil	$8.27	$8.27	$8.27	$3.31	$3.31	$3.31
Tire (single)	$55.70	$88.07	$97.06	$234.28	$580.11	$580.11
Maintenance and Repair	$128.21	$155.59	$197.71	$370.03	$542.09	$542.09
Depreciation	$19,303.00	$23,569.00	$25,399.00	$47,069.00	$116,979.00	$127,196.00

Adjustment for Inflation (July 1, 2013)						
Cost Component	Small Autos	Medium/Large Auto	4 Tire Truck	6 Tire Truck	3-4 Axle Combination	5+ Axle Combination
Fuel	1.223	1.223	1.223	1.223	1.188	1.188
Oil	1.153	1.153	1.153	1.153	1.153	1.153
Tire (single)	1.038	1.038	1.038	1.038	1.038	1.038
Maintenance and Repair	1.045	1.045	1.045	1.045	1.045	1.045
Depreciation	1.019	1.048	1.054	1.054	1.069	1.069

Adjustment for Inflation (July 1, 2013)						
Cost Component	Small Autos	Medium/Large Auto	4 Tire Truck	6 Tire Truck	3-4 Axle Combination	5+ Axle Combination
Fuel	$3.53	$3.53	$3.53	$3.53	$3.37	$3.37
Oil	$9.54	$9.54	$9.54	$3.82	$3.82	$3.82
Tire (single)	$57.82	$91.42	$100.75	$243.18	$602.15	$602.15
Maintenance and Repair	$133.98	$162.59	$206.61	$386.68	$566.48	$566.48
Depreciation	$19,669.76	$24,700.31	$26,770.55	$49,610.73	$125,050.55	$135,972.52

Frequency of Consumption For Vehicle Operating Cost Components						
Cost Component	Small Autos	Medium/Large Auto	4 Tire Truck	6 Tire Truck	3-4 Axle Combination	5+ Axle Combination
Fuel (Miles Per Gallon)	24	17	6	6	5	4.5
Oil (Miles Per Change)	3000	3000	7000	7000	10000	10000
Tire (single) (Miles Per Change)	35000	35000	40000	40000	100000	100000
Maintenance and Repair (Per 1000 Miles)	1000	1000	1000	1000	1000	1000
Depreciation (Miles for Life Expectancy)	150000	150000	300000	250000	1000000	1000000

Vehicle Operating Cost Per Mile						
Cost Component	Small Autos	Medium/Large Auto	4 Tire Truck	6 Tire Truck	3-4 Axle Combination	5+ Axle Combination
Fuel	$0.15	$0.21	$0.59	$0.59	$0.67	$0.75
Oil	$0.02	$0.02	$0.04	$0.02	$0.02	$0.02
Tire	$0.01	$0.01	$0.01	$0.04	$0.07	$0.12
Maintenance and Repair	$0.13	$0.16	$0.21	$0.39	$0.57	$0.57
Depreciation	$0.13	$0.16	$0.09	$0.20	$0.13	$0.14
Total:	**$0.43**	**$0.56**	**$0.94**	**$1.23**	**$1.45**	**$1.59**

Vehicle Operating Cost Calculations

The HERS-ST Method was used to calculate vehicle operating costs. On the tables that calculate vehicle operating costs for the alternatives, the percentage of different vehicle types was taken from the traffic count data from 9/17/12 through 9/20/12 and the total number of vehicles (AADT) and the number of trucks (CADT) were taken from the traffic volume projection reports. Table 23 in the FHWA manual titled, "Work Zone Road User Costs: Concepts and Applications" was used as a basis for unit costs for the different components of vehicle operating costs. The unit costs were then adjusted for inflation to July 1, 2013 using the appropriate PPI or CPI indices. Fuel, oil, tires, maintenance and repairs, and mileage related depreciation are the components used to calculate vehicle operating costs.

The FHWA manual did not provide consumption rates of the different Vehicle Operating Costs. To find consumption rates, I interviewed experts in the trucking and tire industry and acquired information on-line.

Jim Marker, Owner of Idaho Truck Sales Company in Lewiston, Idaho, sells and services large trucks that fall into the 3 to 4 axle and 5+ axle configurations. He indicated that fuel efficiency for the trucks could be estimated at 4.5 to 5 miles per gallon and that the trucks typically have about 48 quarts of oil and they recommend oil changes every 10,000 miles. He indicated that larger trucks that haul on rural high-speed highways will typically on average last 1,000,000 miles.

Rich Muro, the service writer of Rush Trucking in Lewiston, Idaho, services smaller trucks that fit into the four tire truck and 6 tire truck classification. He indicated that 4 and 6 tire trucks were very similar and had about 6 miles per gallon fuel efficiency and typically last 250,000 – 300,000 miles. He indicated the trucks have about 32 quarts of oil and they last 7000 miles between oil changes. He estimates that tires last about 40,000 miles.

Eric Lustig, a tire professional at Les Schwab Tire in Lewiston Idaho indicated that large semi-truck tires last about 100,000 miles on average, smaller 4 and 6 tire truck tires last about 40,000 miles on average, and passenger car and pickup tires last about 35,000 miles on average.

Small auto and medium to large auto fuel efficiency was estimated using consumption rates listed on the Bureau of Transportation Statistic's web site.

Overall estimates of Vehicle Operating Cost per mile appear to be reasonable when compared with the vehicle operating costs listed in Table 14 of the FHWA manual. Numbers listed in the manual do not account for inflation to July 1, 2013 and they were developed for an assumed roadway grade of 1%. Actual grades will be larger leading to more costs. Inflation for fuel was significant over this time period.

APPENDIX C – SUPPORTING INFORMATION

Appendix C.1

Twenty Year Traffic Projections

ADT Volume Projection Report

Route US095 — Traffic Data 2010

Segment From 1540 — Milepost From 342.93 — Start Projection 2017

Segment To 1540 — Milepost To 344.11 — End Projection 2037

Year	Segment From	Segment To	Milepost From	Milepost To	AADT	CAADT	DHV	DHV %	CDHV	CDHV %	DIR	From Description	To Description
2010	001540	001540	342.933	344.116	6,500.	520	742	11.4	42	7.992	60/40%	CLYDE RD	PALOUSE RIVER DR
	2010	Weighted averages			6,500	520	742	11.4	42	7.99			
2017		001540	342.933	344.116	7,465	647	848	11.3	51	7.947	60/40%	CLYDE RD	PALOUSE RIVER DR
	2017	Weighted averages			7,465	647	848	11.3	51	7.95			
2037		001540	342.933	344.116	10,221	1,011	1,148	11.2	80	7.865	60/40%	CLYDE RD	PALOUSE RIVER DR
	2037	Weighted averages			10,221	1,011	1,148	11.2	80	7.87			

ADT Volume Projection Report

Route	US095			Traffic Data	2010
Segment From	1539	Milepost From	337.180	Start Projection	2017
Segment To	1540	Milepost To	342.930	End Projection	2037

Year	Segment From	Segment To	Milepost From	Milepost To	AADT	CAADT	DHV	DHV %	CDHV	CDHV %	DIR	From Description	To Description
2010	001539	001539	337.180	337.668	4,900	650	567	11.5	53	8.106	60/40%	THORN CREEK RD	END NEW ALIGNMENT
	001540	001540	337.668	339.620	4,900	680	567	11.5	55	8.106	60/40%	END NEW ALIGNMENT	EID RD
			339.620	342.930	5,300	680	611	11.5	55	8.071	60/40%	EID RD	
	2010		**Weighted**		**5,130**	**677**	**593**	**11.50**	**55**	**8.07**			
2017	001539	001539	337.180	337.668	5,654	809	650	11.4	65	8.044	60/40%	THORN CREEK RD	END NEW ALIGNMENT
	001540	001540	337.668	339.620	5,657	847	650	11.4	68	8.044	60/40%	END NEW ALIGNMENT	EID RD
			339.620	342.930	6,113	847	700	11.4	68	8.014	60/40%	EID RD	
	2017		**Weighted**		**5,920**	**843**	**679**	**11.40**	**68**	**8.01**			
2037	001539	001539	337.180	337.668	7,809	1,264	885	11.3	100	7.934	60/40%	THORN CREEK RD	END NEW ALIGNMENT
	001540	001540	337.668	339.620	7,821	1,323	886	11.3	105	7.933	60/40%	END NEW ALIGNMENT	EID RD
			339.620	342.930	8,437	1,323	954	11.3	105	7.912	60/40%	EID RD	
	2037		**Weighted**		**8,175**	**1,318**	**925**	**11.30**	**104**	**7.91**			

20 Year Traffic Projections - (2017 - 2036)

Year	AADT	CADT
2017	5920	843
2018	6016	862
2019	6114	882
2020	6214	901
2021	6315	922
2022	6418	943
2023	6522	964
2024	6628	986
2025	6736	1008
2026	6845	1031
2027	6957	1054
2028	7070	1078
2029	7185	1102
2030	7302	1127
2031	7421	1153
2032	7542	1179
2033	7664	1205
2034	7789	1233
2035	7916	1260
2036	8044	1289
Total:	138617	21021

Appendix C.2

Speed Study and Vehicle Classification Data

For US-95, MP 340

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound, Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/17/12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	**24**	0	**2**	0	0	0	1	11	29	147	140	11	1	**1**	367	56-65	287
14:00	15	0	0	0	0	0	**3**	**14**	42	154	155	12	**3**	1	399	56-65	309
15:00	14	**1**	0	0	**1**	**2**	0	5	43	185	152	**15**	0	0	418	56-65	337
16:00	14	0	0	**1**	0	0	0	4	**58**	**219**	**216**	14	1	0	**527**	56-65	435
17:00	16	0	0	0	0	0	0	8	42	178	206	11	0	0	461	56-65	384
18:00	8	0	0	0	0	2	0	7	32	128	98	9	1	0	285	56-65	226
19:00	5	0	0	0	0	0	2	13	40	75	63	8	0	0	206	56-65	138
20:00	3	0	0	0	0	1	0	4	19	67	46	5	0	0	145	56-65	113
21:00	6	0	0	0	0	0	1	6	22	48	23	3	0	0	109	54-63	73
22:00	2	0	0	0	0	1	0	1	6	19	17	3	0	0	49	56-65	36
23:00	1	0	0	0	0	0	0	2	3	6	13	2	0	0	27	56-65	19
Total	108	1	2	1	1	6	7	75	336	1226	1129	93	6	2	2993		
Percent	3.6%	0.0%	0.1%	0.0%	0.0%	0.2%	0.2%	2.5%	11.2%	41.0%	37.7%	3.1%	0.2%	0.1%			
AM Peak Vol.																	
PM Peak Vol.	13:00 24	15:00 1	13:00 2	16:00 1	15:00 1	15:00 2	14:00 3	14:00 14	16:00 58	16:00 219	16:00 216	15:00 15	14:00 3	13:00 1	16:00 527		

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound, Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/18/12	3	0	0	0	0	**1**	0	2	0	7	8	1	0	0	22	56-65	15
01:00	3	0	0	0	0	0	0	0	2	7	6	0	1	0	19	54-63	13
02:00	0	0	0	0	0	0	0	0	6	6	9	3	1	0	25	55-64	16
03:00	4	0	0	0	0	0	1	2	5	9	16	1	0	0	38	56-65	25
04:00	6	0	0	0	0	1	0	2	7	31	28	5	0	0	80	56-65	59
05:00	6	0	0	0	0	1	0	1	13	59	58	9	0	0	147	56-65	117
06:00	23	0	**1**	0	0	1	0	7	30	122	148	12	0	0	344	56-65	270
07:00	31	0	0	0	0	0	**14**	10	41	**205**	**204**	**16**	3	**2**	**526**	56-65	409
08:00	**32**	**1**	0	0	0	0	0	11	37	126	141	13	0	0	361	56-65	267
09:00	25	0	0	0	0	0	5	**23**	51	146	112	15	**4**	0	381	56-65	258
10:00	22	1	0	0	0	0	4	16	47	137	113	16	3	0	359	56-65	250
11:00	28	1	0	0	0	0	0	9	**60**	145	117	8	0	0	368	56-65	262
12 PM	17	0	0	0	0	0	2	15	40	150	117	17	1	0	359	56-65	267
13:00	18	0	**1**	0	**1**	0	1	14	52	172	125	14	0	2	400	56-65	297
14:00	**36**	0	0	0	0	**1**	0	3	**54**	196	185	**19**	**2**	1	497	56-65	381
15:00	20	**1**	0	0	0	0	1	11	46	196	191	15	0	1	482	56-65	387
16:00	16	0	0	0	0	0	**5**	**18**	48	**245**	**217**	13	0	0	**562**	56-65	462
17:00	20	0	0	0	0	0	0	1	38	231	162	18	0	**3**	473	56-65	393
18:00	13	0	0	0	0	0	2	5	37	165	86	9	0	0	317	56-65	251
19:00	11	0	0	**1**	0	1	3	17	42	68	70	7	0	0	220	56-65	138
20:00	5	0	1	0	0	0	3	9	32	73	57	6	0	0	186	56-65	130
21:00	6	1	0	0	0	0	0	3	11	47	43	5	0	0	116	56-65	90
22:00	0	0	0	0	0	0	1	2	9	24	14	4	0	1	55	55-64	38
23:00	0	0	0	0	0	0	0	1	4	12	15	0	0	0	32	56-65	27
Total	345	5	3	1	1	6	42	182	712	2579	2242	226	15	10	6369		
Percent	5.4%	0.1%	0.0%	0.0%	0.0%	0.1%	0.7%	2.9%	11.2%	40.5%	35.2%	3.5%	0.2%	0.2%			
AM Peak	08:00	08:00	06:00			00:00	07:00	09:00	11:00	07:00	07:00	07:00	09:00	07:00	07:00		
Vol.	32	1	1			1	14	23	60	205	204	16	4	2	526		
PM Peak	14:00	15:00	13:00	19:00	13:00	14:00	16:00	16:00	14:00	16:00	16:00	14:00	14:00	17:00	16:00		
Vol.	36	1	1	1	1	1	5	18	54	245	217	19	2	3	562		

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound, Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/19/12	0	0	0	0	0	1	0	0	3	8	5	3	1	0	21	53-62	13
01:00	1	0	0	0	0	0	0	5	1	5	8	0	1	0	21	55-64	13
02:00	2	0	0	0	0	0	0	1	3	7	5	2	0	0	20	53-62	12
03:00	4	0	0	0	0	0	2	1	5	13	12	2	2	0	41	56-65	25
04:00	10	0	0	0	0	0	0	4	5	34	30	4	1	0	88	56-65	64
05:00	12	0	0	0	0	1	1	5	15	65	65	9	0	0	173	56-65	130
06:00	27	0	**1**	0	0	1	0	13	33	149	159	11	2	**2**	398	56-65	308
07:00	**37**	0	0	**1**	0	0	3	12	**53**	**172**	**226**	9	0	1	**514**	56-65	398
08:00	30	0	0	0	0	1	**4**	7	41	142	145	13	1	0	384	56-65	287
09:00	28	0	0	0	0	0	2	6	51	152	108	**17**	1	0	365	56-65	260
10:00	19	**1**	0	0	**1**	**2**	2	**15**	45	152	105	12	**4**	1	359	56-65	257
11:00	19	0	0	0	1	1	1	7	47	123	109	14	3	0	325	56-65	232
12 PM	14	1	0	0	0	**3**	1	9	**68**	156	108	13	**2**	0	375	56-65	264
13:00	**33**	0	**1**	0	0	1	2	5	63	225	137	20	1	0	488	56-65	362
14:00	23	0	0	0	0	2	1	**15**	41	194	143	**21**	1	1	442	56-65	337
15:00	22	**2**	0	0	0	3	0	7	49	205	171	21	1	**2**	483	56-65	376
16:00	17	0	0	0	0	1	0	12	39	240	**219**	15	2	0	**545**	56-65	459
17:00	10	0	0	0	0	1	1	14	45	**259**	176	11	0	0	517	56-65	435
18:00	13	0	0	0	0	0	0	9	45	155	85	14	1	1	323	56-65	240
19:00	8	0	0	0	0	0	4	7	41	94	56	3	1	0	214	56-65	150
20:00	6	0	0	0	0	3	**6**	11	26	72	51	3	1	0	179	56-65	123
21:00	5	0	0	0	0	0	2	5	15	42	31	8	0	1	109	56-65	73
22:00	4	0	0	0	0	0	1	2	10	27	19	3	0	0	66	56-65	46
23:00	3	0	0	0	0	0	1	3	10	20	9	2	1	0	49	51-60	30
Total	347	4	2	1	2	21	34	175	754	2711	2182	230	27	9	6499		
Percent	5.3%	0.1%	0.0%	0.0%	0.0%	0.3%	0.5%	2.7%	11.6%	41.7%	33.6%	3.5%	0.4%	0.1%			
AM Peak	07:00	10:00	06:00	07:00	10:00	10:00	08:00	10:00	07:00	07:00	07:00	09:00	10:00	06:00	07:00		
Vol.	37	1	1	1	1	2	4	15	53	172	226	17	4	2	514		
PM Peak	13:00	15:00	13:00			12:00	20:00	14:00	12:00	17:00	16:00	14:00	12:00	15:00	16:00		
Vol.	33	2	1			3	6	15	68	259	219	21	2	2	545		

Idaho Transportation Department
District 2
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Lewiston, ID 83501
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Site Code: US 95 MP 340
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Northbound, Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/20/12	2	0	0	0	0	0	0	1	7	17	5	1	1	0	34	51-60	24
01:00	1	0	0	0	0	0	2	4	4	7	5	0	0	0	23	52-61	12
02:00	1	0	0	0	0	**2**	0	2	1	4	5	1	0	0	16	57-66	10
03:00	7	0	0	0	0	1	2	0	6	18	19	4	0	0	57	56-65	37
04:00	10	0	0	**1**	**1**	0	1	3	6	28	31	5	**3**	0	89	56-65	59
05:00	17	0	1	0	0	0	2	2	14	63	69	9	1	**1**	179	56-65	132
06:00	30	0	0	0	0	0	0	6	32	130	179	13	1	0	391	56-65	309
07:00	32	0	0	0	0	2	0	11	49	**194**	**215**	**14**	0	0	**517**	56-65	409
08:00	**39**	**1**	**2**	1	0	2	**5**	**12**	**68**	177	136	10	1	0	454	56-65	313
09:00	18	0	0	0	0	2	1	6	57	138	111	6	0	0	339	56-65	249
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	157	1	3	2	1	9	13	47	244	776	775	63	7	1	2099		
Percent	7.5%	0.0%	0.1%	0.1%	0.0%	0.4%	0.6%	2.2%	11.6%	37.0%	36.9%	3.0%	0.3%	0.0%			
AM Peak	08:00	08:00	08:00	04:00	04:00	02:00	08:00	08:00	08:00	07:00	07:00	07:00	04:00	05:00	07:00		
Vol.	39	1	2	1	1	2	5	12	68	194	215	14	3	1	517		
PM Peak Vol.																	
Total	957	11	10	5	5	42	96	479	2046	7292	6328	612	55	22	17960		
Percent	5.3%	0.1%	0.1%	0.0%	0.0%	0.2%	0.5%	2.7%	11.4%	40.6%	35.2%	3.4%	0.3%	0.1%			

	15th Percentile :	53 MPH
	50th Percentile :	59 MPH
	85th Percentile :	64 MPH
	95th Percentile :	65 MPH
Stats	10 MPH Pace Speed :	56-65 MPH
	Number in Pace :	13620
	Percent in Pace :	75.8%
	Number of Vehicles > 60 MPH :	7017
	Percent of Vehicles > 60 MPH :	39.1%
	Mean Speed(Average) :	57 MPH

Idaho Transportation Department
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2600 Frontage Road
Lewiston, ID 83501
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Site Code: US 95 MP 340
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Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/17/12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	**13**	0	**1**	0	0	0	0	2	9	51	69	7	1	**1**	154	56-65	120
14:00	9	0	0	0	0	0	**1**	1	21	73	77	6	**3**	1	192	56-65	150
15:00	8	**1**	0	0	0	**1**	0	1	9	69	83	**9**	0	0	181	56-65	152
16:00	7	0	0	0	0	0	0	2	**27**	**81**	**99**	6	1	0	**223**	56-65	180
17:00	7	0	0	0	0	0	0	**6**	20	81	87	6	0	0	207	56-65	168
18:00	3	0	0	0	0	0	0	1	10	56	56	6	1	0	133	56-65	112
19:00	2	0	0	0	0	0	0	4	12	35	43	7	0	0	103	56-65	78
20:00	2	0	0	0	0	1	0	2	5	35	28	3	0	0	76	56-65	63
21:00	1	0	0	0	0	0	1	2	7	19	12	3	0	0	45	54-63	31
22:00	1	0	0	0	0	1	0	0	3	10	14	2	0	0	31	56-65	24
23:00	1	0	0	0	0	0	0	0	1	1	10	1	0	0	14	57-66	12
Total	54	1	1	0	0	3	2	21	124	511	578	56	6	2	1359		
Percent	4.0%	0.1%	0.1%	0.0%	0.0%	0.2%	0.1%	1.5%	9.1%	37.6%	42.5%	4.1%	0.4%	0.1%			
AM Peak Vol.																	
PM Peak Vol.	13:00 13	15:00 1	13:00 1			15:00 1	14:00 1	17:00 6	16:00 27	16:00 81	16:00 99	15:00 9	14:00 3	13:00 1	16:00 223		

Idaho Transportation Department
District 2

2600 Frontage Road
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Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/18/12	3	0	0	0	0	0	0	2	0	2	7	1	0	0	15	57-66	10
01:00	1	0	0	0	0	0	0	0	2	4	6	0	1	0	14	54-63	10
02:00	0	0	0	0	0	0	0	0	1	3	5	2	1	0	12	58-67	10
03:00	4	0	0	0	0	0	1	0	1	3	10	1	0	0	20	57-66	14
04:00	2	0	0	0	0	**1**	0	1	3	15	18	5	0	0	45	56-65	33
05:00	6	0	0	0	0	1	0	0	4	34	38	9	0	0	92	56-65	72
06:00	13	0	0	0	0	1	0	1	8	71	113	10	0	0	217	56-65	184
07:00	19	0	0	0	0	0	**11**	3	15	**117**	**148**	10	3	**2**	**328**	56-65	265
08:00	**20**	0	0	0	0	0	0	0	15	68	96	13	0	0	212	56-65	164
09:00	15	0	0	0	0	0	0	1	**18**	69	78	10	**4**	0	195	56-65	147
10:00	14	**1**	0	0	0	0	0	**4**	13	63	68	**14**	2	0	179	56-65	131
11:00	13	1	0	0	0	0	0	2	11	63	78	8	0	0	176	56-65	141
12 PM	8	0	0	0	0	0	1	5	11	67	62	9	1	0	164	56-65	129
13:00	11	0	0	0	0	0	1	5	20	81	65	10	0	0	193	56-65	146
14:00	**20**	0	0	0	0	0	0	2	16	67	**102**	**12**	**2**	0	221	56-65	169
15:00	14	**1**	0	0	0	0	0	**7**	**24**	79	100	8	0	0	**233**	56-65	179
16:00	11	0	0	0	0	0	0	2	17	94	92	5	0	0	221	56-65	186
17:00	13	0	0	0	0	0	0	0	22	**107**	74	9	0	**2**	227	56-65	181
18:00	8	0	0	0	0	0	**2**	2	17	64	55	4	0	0	152	56-65	119
19:00	3	0	0	0	0	0	2	4	10	34	49	5	0	0	107	56-65	83
20:00	4	0	**1**	0	0	0	0	1	16	19	31	4	0	0	76	56-65	50
21:00	5	0	0	0	0	0	0	1	4	24	23	3	0	0	60	56-65	47
22:00	0	0	0	0	0	0	0	0	1	11	11	4	0	1	28	56-65	22
23:00	0	0	0	0	0	0	0	0	4	7	7	0	0	0	18	53-62	14
Total	207	3	1	0	0	3	18	43	253	1166	1336	156	14	5	3205		
Percent	6.5%	0.1%	0.0%	0.0%	0.0%	0.1%	0.6%	1.3%	7.9%	36.4%	41.7%	4.9%	0.4%	0.2%			
AM Peak	08:00	10:00				04:00	07:00	10:00	09:00	07:00	07:00	10:00	09:00	07:00	07:00		
Vol.	20	1				1	11	4	18	117	148	14	4	2	328		
PM Peak	14:00	15:00	20:00				18:00	15:00	15:00	17:00	14:00	14:00	14:00	17:00	15:00		
Vol.	20	1	1				2	7	24	107	102	12	2	2	233		

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District 2

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Latitude: 0' 0.000 South

Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/19/12	0	0	0	0	0	0	0	0	1	3	5	1	0	0	10	57-66	9
01:00	1	0	0	0	0	0	0	3	1	3	6	0	1	0	15	55-64	9
02:00	2	0	0	0	0	0	0	0	2	3	3	1	0	0	11	54-63	8
03:00	1	0	0	0	0	0	1	0	2	4	7	2	1	0	18	57-66	12
04:00	4	0	0	0	0	0	0	2	1	15	20	2	1	0	45	56-65	35
05:00	10	0	0	0	0	**1**	1	2	3	36	47	7	0	0	107	56-65	83
06:00	16	0	**1**	0	0	0	0	0	6	73	121	8	2	**2**	229	56-65	194
07:00	**25**	0	0	**1**	0	0	2	0	7	**99**	**177**	7	0	0	**318**	56-65	276
08:00	18	0	0	0	0	1	**3**	0	10	78	96	12	1	0	219	56-65	174
09:00	17	0	0	0	0	0	1	**4**	**15**	73	69	**14**	1	0	194	56-65	142
10:00	12	**1**	0	0	0	1	0	1	9	64	63	8	2	0	161	56-65	127
11:00	13	0	0	0	**1**	1	0	0	13	50	73	9	**3**	0	163	56-65	123
12 PM	10	0	0	0	0	2	1	4	16	73	65	8	**2**	0	181	56-65	138
13:00	**19**	0	0	0	0	0	**2**	0	25	**113**	71	**15**	0	0	**245**	56-65	184
14:00	14	0	0	0	0	2	1	5	8	71	66	12	1	**1**	181	56-65	137
15:00	14	**1**	0	0	0	**3**	0	2	18	83	80	12	0	0	213	56-65	163
16:00	7	0	0	0	0	0	0	4	13	83	**111**	7	1	0	226	56-65	194
17:00	5	0	0	0	0	0	0	4	20	96	97	5	0	0	227	56-65	193
18:00	8	0	0	0	0	0	0	**6**	**31**	68	55	12	0	0	180	56-65	123
19:00	6	0	0	0	0	0	1	2	18	52	37	2	1	0	119	56-65	89
20:00	4	0	0	0	0	3	0	5	7	37	37	1	0	0	94	56-65	74
21:00	3	0	0	0	0	0	2	0	4	17	19	7	0	0	52	56-65	36
22:00	2	0	0	0	0	0	1	0	3	17	13	2	0	0	38	56-65	30
23:00	2	0	0	0	0	0	0	1	3	9	7	2	0	0	24	53-62	16
Total	213	2	1	1	1	14	16	45	236	1220	1345	156	17	3	3270		
Percent	6.5%	0.1%	0.0%	0.0%	0.0%	0.4%	0.5%	1.4%	7.2%	37.3%	41.1%	4.8%	0.5%	0.1%			
AM Peak	07:00	10:00	06:00	07:00	11:00	05:00	08:00	09:00	09:00	07:00	07:00	09:00	11:00	06:00	07:00		
Vol.	25	1	1	1	1	1	3	4	15	99	177	14	3	2	318		
PM Peak	13:00	15:00				15:00	13:00	18:00	18:00	13:00	16:00	13:00	12:00	14:00	13:00		
Vol.	19	1				3	2	6	31	113	111	15	2	1	245		

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/20/12	0	0	0	0	0	0	0	0	1	5	4	1	0	0	11	55-64	10
01:00	0	0	0	0	0	0	1	1	2	2	3	0	0	0	9	54-63	7
02:00	1	0	0	0	0	1	0	1	0	3	4	1	0	0	11	57-66	8
03:00	6	0	0	0	0	1	1	0	2	7	13	3	0	0	33	56-65	20
04:00	5	0	0	**1**	**1**	0	1	1	1	13	26	5	**3**	0	57	56-65	39
05:00	10	0	**1**	0	0	0	1	0	5	40	51	9	1	0	118	56-65	91
06:00	20	0	0	0	0	0	0	2	6	59	138	**12**	1	0	238	56-65	197
07:00	**26**	0	0	0	0	**2**	0	3	17	**112**	**163**	10	0	0	**333**	56-65	275
08:00	23	**1**	1	0	0	2	**2**	**7**	**21**	84	93	9	0	0	243	56-65	177
09:00	10	0	0	0	0	2	1	1	15	78	77	3	0	0	187	56-65	155
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	101	1	2	1	1	8	7	16	70	403	572	53	5	0	1240		
Percent	8.1%	0.1%	0.2%	0.1%	0.1%	0.6%	0.6%	1.3%	5.6%	32.5%	46.1%	4.3%	0.4%	0.0%			
AM Peak	07:00	08:00	05:00	04:00	04:00	07:00	08:00	08:00	08:00	07:00	07:00	06:00	04:00		07:00		
Vol.	26	1	1	1	1	2	2	7	21	112	163	12	3		333		
PM Peak Vol.																	
Total	575	7	5	2	2	28	43	125	683	3300	3831	421	42	10	9074		
Percent	6.3%	0.1%	0.1%	0.0%	0.0%	0.3%	0.5%	1.4%	7.5%	36.4%	42.2%	4.6%	0.5%	0.1%			

	15th Percentile :	55 MPH
	50th Percentile :	60 MPH
	85th Percentile :	64 MPH
	95th Percentile :	66 MPH
Stats	10 MPH Pace Speed :	56-65 MPH
	Number in Pace :	7131
	Percent in Pace :	78.6%
	Number of Vehicles > 60 MPH :	4304
	Percent of Vehicles > 60 MPH :	47.4%
	Mean Speed(Average) :	57 MPH

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/17/12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	**11**	0	**1**	0	0	0	1	9	20	96	71	4	0	0	213	56-65	167
14:00	6	0	0	0	0	0	**2**	**13**	21	81	78	6	0	0	207	56-65	159
15:00	6	0	0	0	**1**	1	0	4	**34**	116	69	6	0	0	237	56-65	185
16:00	7	0	0	**1**	0	0	0	2	31	**138**	117	**8**	0	0	**304**	56-65	255
17:00	9	0	0	0	0	0	0	2	22	97	**119**	5	0	0	254	56-65	216
18:00	5	0	0	0	0	**2**	0	6	22	72	42	3	0	0	152	56-65	114
19:00	3	0	0	0	0	0	2	9	28	40	20	1	0	0	103	51-60	68
20:00	1	0	0	0	0	0	0	2	14	32	18	2	0	0	69	54-63	50
21:00	5	0	0	0	0	0	0	4	15	29	11	0	0	0	64	51-60	44
22:00	1	0	0	0	0	0	0	1	3	9	3	1	0	0	18	53-62	14
23:00	0	0	0	0	0	0	0	2	2	5	3	1	0	0	13	54-63	10
Total	54	0	1	1	1	3	5	54	212	715	551	37	0	0	1634		
Percent	3.3%	0.0%	0.1%	0.1%	0.1%	0.2%	0.3%	3.3%	13.0%	43.8%	33.7%	2.3%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	13:00 11		13:00 1	16:00 1	15:00 1	18:00 2	14:00 2	14:00 13	15:00 34	16:00 138	17:00 119	16:00 8			16:00 304		

Idaho Transportation Department
District 2

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(208) 799-5090

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Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/18/12	0	0	0	0	0	**1**	0	0	0	5	1	0	0	0	7	52-61	6
01:00	2	0	0	0	0	0	0	0	0	3	0	0	0	0	5	49-58	3
02:00	0	0	0	0	0	0	0	0	5	3	4	1	0	0	13	51-60	8
03:00	0	0	0	0	0	0	0	2	4	6	6	0	0	0	18	52-61	12
04:00	4	0	0	0	0	0	0	1	4	16	10	0	0	0	35	56-65	26
05:00	0	0	0	0	0	0	0	1	9	25	20	0	0	0	55	56-65	45
06:00	10	0	**1**	0	0	0	0	6	22	51	35	2	0	0	127	56-65	86
07:00	12	0	0	0	0	0	3	7	26	**88**	**56**	**6**	0	0	**198**	56-65	144
08:00	12	**1**	0	0	0	0	0	11	22	58	45	0	0	0	149	56-65	103
09:00	10	0	0	0	0	0	**5**	**22**	33	77	34	5	0	0	186	53-62	112
10:00	8	0	0	0	0	0	4	12	34	74	45	2	**1**	0	180	56-65	119
11:00	**15**	0	0	0	0	0	0	7	**49**	82	39	0	0	0	192	51-60	131
12 PM	9	0	0	0	0	0	1	10	29	83	55	8	0	0	195	56-65	138
13:00	7	0	**1**	0	**1**	0	0	9	32	91	60	4	0	**2**	207	56-65	151
14:00	**16**	0	0	0	0	**1**	0	1	**38**	129	83	7	0	1	276	56-65	212
15:00	6	0	0	0	0	0	1	4	22	117	91	7	0	1	249	56-65	208
16:00	5	0	0	0	0	0	**5**	**16**	31	**151**	**125**	8	0	0	**341**	56-65	276
17:00	7	0	0	0	0	0	0	1	16	124	88	**9**	0	1	246	56-65	212
18:00	5	0	0	0	0	0	0	3	20	101	31	5	0	0	165	56-65	132
19:00	8	0	0	**1**	0	1	1	13	32	34	21	2	0	0	113	51-60	66
20:00	1	0	0	0	0	0	3	8	16	54	26	2	0	0	110	56-65	80
21:00	1	**1**	0	0	0	0	0	2	7	23	20	2	0	0	56	56-65	43
22:00	0	0	0	0	0	0	1	2	8	13	3	0	0	0	27	51-60	21
23:00	0	0	0	0	0	0	0	1	0	5	8	0	0	0	14	56-65	13
Total	138	2	2	1	1	3	24	139	459	1413	906	70	1	5	3164		
Percent	4.4%	0.1%	0.1%	0.0%	0.0%	0.1%	0.8%	4.4%	14.5%	44.7%	28.6%	2.2%	0.0%	0.2%			
AM Peak	11:00	08:00	06:00			00:00	09:00	09:00	11:00	07:00	07:00	07:00	10:00		07:00		
Vol.	15	1	1			1	5	22	49	88	56	6	1		198		
PM Peak	14:00	21:00	13:00	19:00	13:00	14:00	16:00	16:00	14:00	16:00	16:00	17:00		13:00	16:00		
Vol.	16	1	1	1	1	1	5	16	38	151	125	9		2	341		

Idaho Transportation Department
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(208) 799-5090

Site Code: US 95 MP 340
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Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/19/12	0	0	0	0	0	**1**	0	0	2	5	0	2	1	0	11	51-60	7
01:00	0	0	0	0	0	0	0	2	0	2	2	0	0	0	6	53-62	4
02:00	0	0	0	0	0	0	0	1	1	4	2	1	0	0	9	53-62	7
03:00	3	0	0	0	0	0	1	1	3	9	5	0	1	0	23	53-62	14
04:00	6	0	0	0	0	0	0	2	4	19	10	2	0	0	43	56-65	29
05:00	2	0	0	0	0	0	0	3	12	29	18	2	0	0	66	54-63	47
06:00	11	0	0	0	0	1	0	13	27	76	38	3	0	0	169	56-65	114
07:00	**12**	0	0	0	0	0	1	12	**46**	73	**49**	2	0	**1**	196	55-64	123
08:00	12	0	0	0	0	0	1	7	31	64	49	1	0	0	165	56-65	113
09:00	11	0	0	0	0	0	1	2	36	79	39	3	0	0	171	55-64	119
10:00	7	0	0	0	**1**	1	**2**	**14**	36	**88**	42	4	**2**	1	**198**	55-64	130
11:00	6	0	0	0	0	0	1	7	34	73	36	**5**	0	0	162	52-61	109
12 PM	4	**1**	0	0	0	**1**	0	5	**52**	83	43	5	0	0	194	51-60	135
13:00	**14**	0	**1**	0	0	1	0	5	38	112	66	5	**1**	0	243	56-65	178
14:00	9	0	0	0	0	0	0	**10**	33	123	77	**9**	0	0	261	56-65	200
15:00	8	1	0	0	0	0	0	5	31	122	91	9	1	**2**	270	56-65	213
16:00	10	0	0	0	0	1	0	8	26	157	**108**	8	1	0	**319**	56-65	265
17:00	5	0	0	0	0	1	1	10	25	**163**	79	6	0	0	290	56-65	242
18:00	5	0	0	0	0	0	0	3	14	87	30	2	1	1	143	56-65	117
19:00	2	0	0	0	0	0	3	5	23	42	19	1	0	0	95	51-60	65
20:00	2	0	0	0	0	0	**6**	6	19	35	14	2	1	0	85	51-60	54
21:00	2	0	0	0	0	0	0	5	11	25	12	1	0	1	57	53-62	38
22:00	2	0	0	0	0	0	0	2	7	10	6	1	0	0	28	52-61	18
23:00	1	0	0	0	0	0	1	2	7	11	2	0	1	0	25	51-60	18
Total	134	2	1	0	1	7	18	130	518	1491	837	74	10	6	3229		
Percent	4.1%	0.1%	0.0%	0.0%	0.0%	0.2%	0.6%	4.0%	16.0%	46.2%	25.9%	2.3%	0.3%	0.2%			
AM Peak	07:00				10:00	00:00	10:00	10:00	07:00	10:00	07:00	11:00	10:00	07:00	10:00		
Vol.	12				1	1	2	14	46	88	49	5	2	1	198		
PM Peak	13:00	12:00	13:00			12:00	20:00	14:00	12:00	17:00	16:00	14:00	13:00	15:00	16:00		
Vol.	14	1	1			1	6	10	52	163	108	9	1	2	319		

Idaho Transportation Department
District 2

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Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
9/20/12	2	0	0	0	0	0	0	1	6	12	1	0	**1**	0	23	51-60	18
01:00	1	0	0	0	0	0	1	3	2	5	2	0	0	0	14	53-62	9
02:00	0	0	0	0	0	**1**	0	1	1	1	1	0	0	0	5	52-61	3
03:00	1	0	0	0	0	0	1	0	4	11	6	1	0	0	24	52-61	17
04:00	5	0	0	0	0	0	0	2	5	15	5	0	0	0	32	51-60	20
05:00	7	0	0	0	0	0	1	2	9	23	18	0	0	**1**	61	56-65	41
06:00	10	0	0	0	0	0	0	4	26	71	41	1	0	0	153	56-65	112
07:00	6	0	0	0	0	0	0	**8**	32	82	**52**	**4**	0	0	184	56-65	134
08:00	**16**	0	**1**	**1**	0	0	**3**	5	**47**	**93**	43	1	1	0	**211**	51-60	140
09:00	8	0	0	0	0	0	0	5	42	60	34	3	0	0	152	51-60	102
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	56	0	1	1	0	1	6	31	174	373	203	10	2	1	859		
Percent	6.5%	0.0%	0.1%	0.1%	0.0%	0.1%	0.7%	3.6%	20.3%	43.4%	23.6%	1.2%	0.2%	0.1%			
AM Peak	08:00		08:00	08:00		02:00	08:00	07:00	08:00	08:00	07:00	07:00	00:00	05:00	08:00		
Vol.	16		1	1		1	3	8	47	93	52	4	1	1	211		
PM Peak Vol.																	
Total	382	4	5	3	3	14	53	354	1363	3992	2497	191	13	12	8886		
Percent	4.3%	0.0%	0.1%	0.0%	0.0%	0.2%	0.6%	4.0%	15.3%	44.9%	28.1%	2.1%	0.1%	0.1%			

	15th Percentile :	52 MPH
	50th Percentile :	58 MPH
	85th Percentile :	63 MPH
	95th Percentile :	65 MPH
Stats	10 MPH Pace Speed :	56-65 MPH
	Number in Pace :	6489
	Percent in Pace :	73.0%
	Number of Vehicles > 60 MPH :	2713
	Percent of Vehicles > 60 MPH :	30.5%
	Mean Speed(Average) :	56 MPH

Idaho Transportation Department
District 2

2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound, Southbound

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
9/17/12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	6	172	93	6	29	4	0	7	13	8	0	1	2	26	367
14:00	9	220	81	1	34	4	0	19	5	5	0	0	3	18	399
15:00	9	248	87	6	25	9	0	7	5	2	0	0	3	17	418
16:00	6	355	111	2	20	0	0	3	5	8	0	0	2	15	527
17:00	4	292	97	4	27	3	0	5	2	5	0	0	3	19	461
18:00	3	181	63	1	14	1	0	0	2	6	1	1	1	11	285
19:00	4	127	50	2	8	0	0	2	4	2	0	0	1	6	206
20:00	1	99	20	0	9	1	0	5	1	1	0	0	2	6	145
21:00	0	69	19	0	6	1	0	2	0	2	0	0	3	7	109
22:00	1	31	7	1	2	0	0	1	1	1	0	0	1	3	49
23:00	0	10	7	1	0	0	0	1	2	4	0	0	0	2	27
Total	43	1804	635	24	174	23	0	52	40	44	1	2	21	130	2993
Percent	1.4%	60.3%	21.2%	0.8%	5.8%	0.8%	0.0%	1.7%	1.3%	1.5%	0.0%	0.1%	0.7%	4.3%	
AM Peak															
Vol.															
PM Peak	14:00	16:00	16:00	13:00	14:00	15:00		14:00	13:00	13:00	18:00	13:00	14:00	13:00	16:00
Vol.	9	355	111	6	34	9		19	13	8	1	1	3	26	527

Idaho Transportation Department
District 2

2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound, Southbound

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
9/18/12	1	12	2	0	0	0	0	0	1	2	0	0	0	4	22
01:00	1	6	0	0	1	1	0	0	2	2	0	0	0	6	19
02:00	1	11	2	2	1	1	0	0	1	2	0	0	2	2	25
03:00	1	18	2	0	1	0	0	2	1	7	0	0	0	6	38
04:00	1	39	10	0	1	1	0	0	8	6	0	0	4	10	80
05:00	5	75	37	1	6	0	0	2	4	4	0	0	2	11	147
06:00	3	205	61	4	23	4	0	5	5	9	0	0	0	25	344
07:00	9	332	93	5	21	3	0	7	9	6	0	1	4	36	526
08:00	10	176	79	3	19	5	0	9	9	8	0	0	6	37	361
09:00	3	177	93	5	32	3	1	11	11	6	0	0	7	32	381
10:00	11	191	68	4	29	3	1	7	6	5	0	1	6	27	359
11:00	6	183	79	2	21	4	0	21	8	7	1	0	5	31	368
12 PM	2	181	99	4	22	0	1	10	14	3	0	0	4	19	359
13:00	7	219	91	4	21	5	0	12	10	8	0	0	3	20	400
14:00	9	271	96	7	28	9	0	12	4	11	0	1	6	43	497
15:00	9	279	115	4	23	5	1	4	7	8	0	0	5	22	482
16:00	7	351	121	3	36	6	0	9	4	4	0	0	1	20	562
17:00	8	314	92	0	22	1	0	7	2	2	0	0	2	23	473
18:00	4	198	71	0	17	1	0	2	6	3	1	0	1	13	317
19:00	7	127	51	3	6	4	0	3	4	0	0	0	0	15	220
20:00	3	130	34	1	7	0	0	1	0	1	0	0	3	6	186
21:00	3	77	19	1	5	1	0	0	0	1	0	0	1	8	116
22:00	0	38	10	0	2	1	0	0	1	1	0	0	1	1	55
23:00	0	20	5	0	1	0	0	2	1	2	0	0	0	1	32
Total	111	3630	1330	53	345	58	4	126	118	108	2	3	63	418	6369
Percent	1.7%	57.0%	20.9%	0.8%	5.4%	0.9%	0.1%	2.0%	1.9%	1.7%	0.0%	0.0%	1.0%	6.6%	
AM Peak	10:00	07:00	07:00	07:00	09:00	08:00	09:00	11:00	09:00	06:00	11:00	07:00	09:00	08:00	07:00
Vol.	11	332	93	5	32	5	1	21	11	9	1	1	7	37	526
PM Peak	14:00	16:00	16:00	14:00	16:00	14:00	12:00	13:00	12:00	14:00	18:00	14:00	14:00	14:00	16:00
Vol.	9	351	121	7	36	9	1	12	14	11	1	1	6	43	562

Idaho Transportation Department
District 2

2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound, Southbound

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
9/19/12	0	13	3	0	0	1	0	1	2	0	0	0	0	1	21
01:00	2	6	4	1	3	0	0	2	0	1	0	0	0	2	21
02:00	0	9	2	1	0	1	0	0	0	3	0	0	0	4	20
03:00	0	11	5	1	3	0	0	2	5	4	0	0	4	6	41
04:00	2	42	13	2	1	0	0	5	3	4	0	0	1	15	88
05:00	5	91	35	2	5	0	0	3	6	7	0	0	3	16	173
06:00	11	224	60	7	31	7	2	8	5	8	0	0	2	33	398
07:00	7	295	110	4	26	7	0	9	4	7	0	0	4	41	514
08:00	9	201	71	2	28	3	0	11	6	10	0	0	3	40	384
09:00	3	193	77	5	25	4	0	8	4	3	0	0	8	35	365
10:00	11	171	94	4	21	3	0	12	6	8	0	0	4	25	359
11:00	3	155	91	2	20	2	0	9	5	8	0	0	4	26	325
12 PM	4	201	85	4	25	2	0	10	5	13	0	0	4	22	375
13:00	9	262	99	9	28	5	2	16	9	6	0	0	4	39	488
14:00	9	244	84	7	32	9	0	12	8	7	0	1	2	27	442
15:00	10	273	98	3	27	5	1	19	7	8	0	2	4	26	483
16:00	6	331	135	1	29	6	0	10	2	3	0	0	4	18	545
17:00	15	350	94	4	28	2	0	5	4	0	0	0	1	14	517
18:00	7	203	68	4	11	1	1	8	2	1	0	1	0	16	323
19:00	4	135	40	1	15	2	0	3	2	2	0	0	0	10	214
20:00	3	117	31	1	10	2	0	0	1	2	0	0	2	10	179
21:00	1	70	21	1	3	0	0	2	3	2	0	0	0	6	109
22:00	0	39	12	0	3	1	0	1	1	4	0	0	0	5	66
23:00	0	28	8	0	1	0	0	2	1	2	0	0	2	5	49
Total	121	3664	1340	66	375	63	6	158	91	113	0	4	56	442	6499
Percent	1.9%	56.4%	20.6%	1.0%	5.8%	1.0%	0.1%	2.4%	1.4%	1.7%	0.0%	0.1%	0.9%	6.8%	
AM Peak	06:00	07:00	07:00	06:00	06:00	06:00	06:00	10:00	05:00	08:00			09:00	07:00	07:00
Vol.	11	295	110	7	31	7	2	12	6	10			8	41	514
PM Peak	17:00	17:00	16:00	13:00	14:00	14:00	13:00	15:00	13:00	12:00		15:00	12:00	13:00	16:00
Vol.	15	350	135	9	32	9	2	19	9	13		2	4	39	545

Idaho Transportation Department
District 2

2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Northbound, Southbound

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
9/20/12	0	21	6	0	0	0	0	2	2	0	0	0	0	3	34
01:00	0	14	2	0	1	1	0	0	1	3	0	0	0	1	23
02:00	1	8	0	1	0	0	0	0	1	3	0	0	0	2	16
03:00	1	14	9	2	3	0	0	1	7	8	0	0	1	11	57
04:00	3	35	12	1	4	2	0	2	3	6	0	0	4	17	89
05:00	4	88	38	0	6	2	0	3	8	7	0	0	0	23	179
06:00	10	224	65	1	21	7	0	4	5	11	0	0	6	37	391
07:00	13	303	98	1	31	6	0	12	8	3	0	0	3	39	517
08:00	23	199	97	7	28	18	0	6	8	8	0	1	9	50	454
09:00	4	169	69	6	34	5	0	11	4	11	0	0	4	22	339
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	59	1075	396	19	128	41	0	41	47	60	0	1	27	205	2099
Percent	2.8%	51.2%	18.9%	0.9%	6.1%	2.0%	0.0%	2.0%	2.2%	2.9%	0.0%	0.0%	1.3%	9.8%	
AM Peak	08:00	07:00	07:00	08:00	09:00	08:00		07:00	05:00	06:00		08:00	08:00	08:00	07:00
Vol.	23	303	98	7	34	18		12	8	11		1	9	50	517
PM Peak Vol.															
Grand Total	334	10173	3701	162	1022	185	10	377	296	325	3	10	167	1195	17960
Percent	1.9%	56.6%	20.6%	0.9%	5.7%	1.0%	0.1%	2.1%	1.6%	1.8%	0.0%	0.1%	0.9%	6.7%	

Idaho Transportation Department
District 2

2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Start Time	17-Sep-12 Mon	Northbound	Southboun	Total
12:00 AM		*	*	*
12:15		*	*	*
12:30		*	*	*
12:45		*	*	*
01:00		*	*	*
01:15		*	*	*
01:30		*	*	*
01:45		*	*	*
02:00		*	*	*
02:15		*	*	*
02:30		*	*	*
02:45		*	*	*
03:00		*	*	*
03:15		*	*	*
03:30		*	*	*
03:45		*	*	*
04:00		*	*	*
04:15		*	*	*
04:30		*	*	*
04:45		*	*	*
05:00		*	*	*
05:15		*	*	*
05:30		*	*	*
05:45		*	*	*
06:00		*	*	*
06:15		*	*	*
06:30		*	*	*
06:45		*	*	*
07:00		*	*	*
07:15		*	*	*
07:30		*	*	*
07:45		*	*	*
08:00		*	*	*
08:15		*	*	*
08:30		*	*	*
08:45		*	*	*
09:00		*	*	*
09:15		*	*	*
09:30		*	*	*
09:45		*	*	*
10:00		*	*	*
10:15		*	*	*
10:30		*	*	*
10:45		*	*	*
11:00		*	*	*
11:15		*	*	*
11:30		*	*	*
11:45		*	*	*
Total		0	0	0
Percent		0.0%	0.0%	
Peak Vol. P.H.F.				

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Start Time	17-Sep-12 Mon	Northbound	Southboun	Total
12:00 PM		*	*	*
12:15		42	55	97
12:30		47	42	89
12:45		50	43	93
01:00		50	49	99
01:15		39	54	93
01:30		38	50	88
01:45		27	60	87
02:00		42	63	105
02:15		50	52	102
02:30		48	46	94
02:45		52	46	98
03:00		38	48	86
03:15		47	64	111
03:30		50	55	105
03:45		46	70	116
04:00		49	50	99
04:15		58	77	135
04:30		**56**	**69**	**125**
04:45		**60**	**108**	**168**
05:00		**60**	**70**	**130**
05:15		**63**	**78**	**141**
05:30		48	48	96
05:45		36	58	94
06:00		36	39	75
06:15		34	47	81
06:30		32	32	64
06:45		31	34	65
07:00		26	27	53
07:15		26	29	55
07:30		27	21	48
07:45		24	26	50
08:00		24	25	49
08:15		16	12	28
08:30		18	13	31
08:45		18	19	37
09:00		19	18	37
09:15		16	21	37
09:30		6	13	19
09:45		4	12	16
10:00		7	4	11
10:15		7	5	12
10:30		8	5	13
10:45		9	4	13
11:00		6	6	12
11:15		4	3	7
11:30		4	2	6
11:45		0	2	2
Total		1498	1774	3272
Percent		45.8%	54.2%	
Peak		16:30	16:30	16:30
Vol.		239	325	564
P.H.F.		0.948	0.752	0.839

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Start Time	18-Sep-12 Tue	Northbound	Southboun	Total
12:00 AM		7	2	9
12:15		4	2	6
12:30		1	2	3
12:45		3	1	4
01:00		5	1	6
01:15		4	1	5
01:30		4	0	4
01:45		1	3	4
02:00		2	2	4
02:15		1	3	4
02:30		4	3	7
02:45		5	5	10
03:00		4	3	7
03:15		8	7	15
03:30		2	3	5
03:45		6	5	11
04:00		9	10	19
04:15		9	9	18
04:30		11	6	17
04:45		16	10	26
05:00		19	6	25
05:15		25	10	35
05:30		22	10	32
05:45		26	29	55
06:00		36	26	62
06:15		54	30	84
06:30		59	34	93
06:45		**68**	37	105
07:00		**92**	**56**	**148**
07:15		**100**	**46**	**146**
07:30		**74**	**46**	**120**
07:45		62	**50**	**112**
08:00		60	45	105
08:15		62	38	100
08:30		56	25	81
08:45		34	41	75
09:00		49	48	97
09:15		47	46	93
09:30		54	52	106
09:45		45	40	85
10:00		50	45	95
10:15		40	44	84
10:30		44	49	93
10:45		45	42	87
11:00		44	54	98
11:15		42	36	78
11:30		42	41	83
11:45		48	61	109
Total		1505	1165	2670
Percent		56.4%	43.6%	
Peak		06:45	07:00	07:00
Vol.		334	198	526
P.H.F.		0.835	0.884	0.889

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Start Time	18-Sep-12 Tue	Northbound	Southboun	Total
12:00 PM		43	55	98
12:15		37	53	90
12:30		38	42	80
12:45		46	45	91
01:00		52	50	102
01:15		42	46	88
01:30		54	46	100
01:45		45	65	110
02:00		51	65	116
02:15		60	70	130
02:30		52	71	123
02:45		58	70	128
03:00		46	55	101
03:15		63	45	108
03:30		48	68	116
03:45		**76**	81	157
04:00		**52**	**79**	131
04:15		**57**	**77**	**134**
04:30		**56**	**80**	**136**
04:45		56	**105**	**161**
05:00		68	78	**146**
05:15		56	74	130
05:30		60	50	110
05:45		43	44	87
06:00		44	49	93
06:15		38	41	79
06:30		36	46	82
06:45		34	29	63
07:00		31	40	71
07:15		28	31	59
07:30		25	21	46
07:45		23	21	44
08:00		22	28	50
08:15		23	17	40
08:30		11	26	37
08:45		20	39	59
09:00		29	22	51
09:15		12	11	23
09:30		9	15	24
09:45		10	8	18
10:00		12	8	20
10:15		7	6	13
10:30		3	7	10
10:45		6	6	12
11:00		5	4	9
11:15		2	3	5
11:30		5	4	9
11:45		6	3	9
Total		1700	1999	3699
Percent		46.0%	54.0%	
Peak		15:45	16:00	16:15
Vol.		241	341	577
P.H.F.		0.793	0.812	0.896

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Start Time	19-Sep-12 Wed	Northbound	Southboun	Total
12:00 AM		1	4	5
12:15		3	2	5
12:30		2	1	3
12:45		4	4	8
01:00		7	2	9
01:15		5	0	5
01:30		3	3	6
01:45		0	1	1
02:00		2	3	5
02:15		2	1	3
02:30		6	3	9
02:45		1	2	3
03:00		3	3	6
03:15		2	6	8
03:30		7	6	13
03:45		6	8	14
04:00		12	7	19
04:15		8	10	18
04:30		11	8	19
04:45		14	18	32
05:00		27	13	40
05:15		27	12	39
05:30		29	13	42
05:45		24	28	52
06:00		34	31	65
06:15		69	42	111
06:30		72	36	108
06:45		54	**60**	**114**
07:00		**82**	**63**	**145**
07:15		**93**	**40**	**133**
07:30		**87**	**41**	**128**
07:45		**56**	52	108
08:00		39	50	89
08:15		68	45	113
08:30		61	29	90
08:45		51	41	92
09:00		41	41	82
09:15		56	46	102
09:30		44	41	85
09:45		53	43	96
10:00		42	46	88
10:15		42	40	82
10:30		36	56	92
10:45		41	56	97
11:00		37	40	77
11:15		36	42	78
11:30		47	43	90
11:45		43	37	80
Total		1490	1219	2709
Percent		55.0%	45.0%	
Peak		07:00	06:45	06:45
Vol.		318	204	520
P.H.F.		0.855	0.810	0.897

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Start Time	19-Sep-12 Wed	Northbound	Southboun	Total
12:00 PM		48	50	98
12:15		46	45	91
12:30		37	55	92
12:45		50	44	94
01:00		75	63	138
01:15		55	64	119
01:30		64	57	121
01:45		51	59	110
02:00		45	51	96
02:15		52	64	116
02:30		46	61	107
02:45		38	85	123
03:00		49	51	100
03:15		53	69	122
03:30		54	69	123
03:45		57	81	138
04:00		52	58	110
04:15		57	75	132
04:30		63	95	158
04:45		54	91	145
05:00		66	88	154
05:15		58	79	137
05:30		49	51	100
05:45		54	72	126
06:00		46	48	94
06:15		63	29	92
06:30		41	34	75
06:45		30	32	62
07:00		39	26	65
07:15		32	25	57
07:30		26	30	56
07:45		22	14	36
08:00		18	18	36
08:15		27	33	60
08:30		27	15	42
08:45		22	19	41
09:00		23	18	41
09:15		16	16	32
09:30		6	17	23
09:45		7	6	13
10:00		7	7	14
10:15		11	9	20
10:30		10	6	16
10:45		10	6	16
11:00		7	5	12
11:15		6	8	14
11:30		4	7	11
11:45		7	5	12
Total		1780	2010	3790
Percent		47.0%	53.0%	
Peak		13:00	16:30	16:30
Vol.		245	353	594
P.H.F.		0.817	0.929	0.940

Idaho Transportation Department
District 2
2600 Frontage Road
Lewiston, ID 83501
(208) 799-5090

Site Code: US 95 MP 340
Station ID:

Latitude: 0' 0.000 South

Start Time	20-Sep-12 Thu	Northbound	Southboun	Total
12:00 AM		2	3	5
12:15		4	4	8
12:30		2	11	13
12:45		3	5	8
01:00		2	6	8
01:15		6	2	8
01:30		1	3	4
01:45		0	3	3
02:00		4	3	7
02:15		3	1	4
02:30		3	0	3
02:45		1	1	2
03:00		6	9	15
03:15		10	4	14
03:30		9	8	17
03:45		8	3	11
04:00		12	8	20
04:15		13	10	23
04:30		20	5	25
04:45		12	9	21
05:00		24	16	40
05:15		23	10	33
05:30		31	14	45
05:45		40	21	61
06:00		37	31	68
06:15		55	29	84
06:30		61	42	103
06:45		**85**	51	**136**
07:00		**87**	55	**142**
07:15		**89**	29	**118**
07:30		**82**	**48**	**130**
07:45		75	**52**	127
08:00		53	**61**	114
08:15		82	**60**	142
08:30		58	39	97
08:45		50	51	101
09:00		54	36	90
09:15		39	36	75
09:30		51	37	88
09:45		43	43	86
10:00		37	34	71
10:15		*	*	*
10:30		*	*	*
10:45		*	*	*
11:00		*	*	*
11:15		*	*	*
11:30		*	*	*
11:45		*	*	*
Total		1277	893	2170
Percent		58.8%	41.2%	
Peak		06:45	07:30	06:45
Vol.		343	221	526
P.H.F.		0.963	0.906	0.926
Grand Total		9250	9060	18310
Percent		50.5%	49.5%	

ADT ADT 6,434 AADT 6,434

Appendix C.3

Consumer Price Indices, Producer Price Indices, and Employment Price Indices

>

9-17-2013

U.S. Department Of Labor
Bureau of Labor Statistics
Washington, D.C. 20212

Consumer Price Index

All Urban Consumers - (CPI-U)

U.S. city average

All items

1982-84=100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Avg.	Percent chang Dec- Dec	Avg- Avg
1913	9.8	9.8	9.8	9.8	9.7	9.8	9.9	9.9	10.0	10.0	10.1	10.0	9.9		
1914	10.0	9.9	9.9	9.8	9.9	9.9	10.0	10.2	10.2	10.1	10.2	10.1	10.0	1.0	1.0
1915	10.1	10.0	9.9	10.0	10.1	10.1	10.1	10.1	10.1	10.2	10.3	10.3	10.1	2.0	1.0
1916	10.4	10.4	10.5	10.6	10.7	10.8	10.8	10.9	11.1	11.3	11.5	11.6	10.9	12.6	7.9
1917	11.7	12.0	12.0	12.6	12.8	13.0	12.8	13.0	13.3	13.5	13.5	13.7	12.8	18.1	17.4
1918	14.0	14.1	14.0	14.2	14.5	14.7	15.1	15.4	15.7	16.0	16.3	16.5	15.1	20.4	18.0
1919	16.5	16.2	16.4	16.7	16.9	16.9	17.4	17.7	17.8	18.1	18.5	18.9	17.3	14.5	14.6
1920	19.3	19.5	19.7	20.3	20.6	20.9	20.8	20.3	20.0	19.9	19.8	19.4	20.0	2.6	15.6
1921	19.0	18.4	18.3	18.1	17.7	17.6	17.7	17.7	17.5	17.5	17.4	17.3	17.9	-10.8	-10.5
1922	16.9	16.9	16.7	16.7	16.7	16.7	16.8	16.6	16.6	16.7	16.8	16.9	16.8	-2.3	-6.1
1923	16.8	16.8	16.8	16.9	16.9	17.0	17.2	17.1	17.2	17.3	17.3	17.3	17.1	2.4	1.8
1924	17.3	17.2	17.1	17.0	17.0	17.0	17.1	17.0	17.1	17.2	17.2	17.3	17.1	0.0	0.0
1925	17.3	17.2	17.3	17.2	17.3	17.5	17.7	17.7	17.7	17.7	18.0	17.9	17.5	3.5	2.3
1926	17.9	17.9	17.8	17.9	17.8	17.7	17.5	17.4	17.5	17.6	17.7	17.7	17.7	-1.1	1.1
1927	17.5	17.4	17.3	17.3	17.4	17.6	17.3	17.2	17.3	17.4	17.3	17.3	17.4	-2.3	-1.7
1928	17.3	17.1	17.1	17.1	17.2	17.1	17.1	17.1	17.3	17.2	17.2	17.1	17.1	-1.2	-1.7
1929	17.1	17.1	17.0	16.9	17.0	17.1	17.3	17.3	17.3	17.3	17.3	17.2	17.1	0.6	0.0
1930	17.1	17.0	16.9	17.0	16.9	16.8	16.6	16.5	16.6	16.5	16.4	16.1	16.7	-6.4	-2.3
1931	15.9	15.7	15.6	15.5	15.3	15.1	15.1	15.1	15.0	14.9	14.7	14.6	15.2	-9.3	-9.0
1932	14.3	14.1	14.0	13.9	13.7	13.6	13.6	13.5	13.4	13.3	13.2	13.1	13.7	-10.3	-9.9
1933	12.9	12.7	12.6	12.6	12.6	12.7	13.1	13.2	13.2	13.2	13.2	13.2	13.0	0.8	-5.1
1934	13.2	13.3	13.3	13.3	13.3	13.4	13.4	13.4	13.6	13.5	13.5	13.4	13.4	1.5	3.1
1935	13.6	13.7	13.7	13.8	13.8	13.7	13.7	13.7	13.7	13.7	13.8	13.8	13.7	3.0	2.2
1936	13.8	13.8	13.7	13.7	13.7	13.8	13.9	14.0	14.0	14.0	14.0	14.0	13.9	1.4	1.5
1937	14.1	14.1	14.2	14.3	14.4	14.4	14.5	14.5	14.6	14.6	14.5	14.4	14.4	2.9	3.6
1938	14.2	14.1	14.1	14.2	14.1	14.1	14.1	14.1	14.1	14.0	14.0	14.0	14.1	-2.8	-2.1
1939	14.0	13.9	13.9	13.8	13.8	13.8	13.8	13.8	14.1	14.0	14.0	14.0	13.9	0.0	-1.4
1940	13.9	14.0	14.0	14.0	14.0	14.1	14.0	14.0	14.0	14.0	14.0	14.1	14.0	0.7	0.7
1941	14.1	14.1	14.2	14.3	14.4	14.7	14.7	14.9	15.1	15.3	15.4	15.5	14.7	9.9	5.0
1942	15.7	15.8	16.0	16.1	16.3	16.3	16.4	16.5	16.5	16.7	16.8	16.9	16.3	9.0	10.9
1943	16.9	16.9	17.2	17.4	17.5	17.5	17.4	17.3	17.4	17.4	17.4	17.4	17.3	3.0	6.1
1944	17.4	17.4	17.4	17.5	17.5	17.6	17.7	17.7	17.7	17.7	17.7	17.8	17.6	2.3	1.7
1945	17.8	17.8	17.8	17.8	17.9	18.1	18.1	18.1	18.1	18.1	18.1	18.2	18.0	2.2	2.3
1946	18.2	18.1	18.3	18.4	18.5	18.7	19.8	20.2	20.4	20.8	21.3	21.5	19.5	18.1	8.3
1947	21.5	21.5	21.9	21.9	21.9	22.0	22.2	22.5	23.0	23.0	23.1	23.4	22.3	8.8	14.4
1948	23.7	23.5	23.4	23.8	23.9	24.1	24.4	24.5	24.5	24.4	24.2	24.1	24.1	3.0	8.1
1949	24.0	23.8	23.8	23.9	23.8	23.9	23.7	23.8	23.9	23.7	23.8	23.6	23.8	-2.1	-1.2
1950	23.5	23.5	23.6	23.6	23.7	23.8	24.1	24.3	24.4	24.6	24.7	25.0	24.1	5.9	1.3
1951	25.4	25.7	25.8	25.8	25.9	25.9	25.9	25.9	26.1	26.2	26.4	26.5	26.0	6.0	7.9
1952	26.5	26.3	26.3	26.4	26.4	26.5	26.7	26.7	26.7	26.7	26.7	26.7	26.5	0.8	1.9
1953	26.6	26.5	26.6	26.6	26.7	26.8	26.8	26.9	26.9	27.0	26.9	26.9	26.7	0.7	0.8
1954	26.9	26.9	26.9	26.8	26.9	26.9	26.9	26.9	26.8	26.8	26.8	26.7	26.9	-0.7	0.7
1955	26.7	26.7	26.7	26.7	26.7	26.7	26.8	26.8	26.9	26.9	26.9	26.8	26.8	0.4	-0.4
1956	26.8	26.8	26.8	26.9	27.0	27.2	27.4	27.3	27.4	27.5	27.5	27.6	27.2	3.0	1.5
1957	27.6	27.7	27.8	27.9	28.0	28.1	28.3	28.3	28.3	28.3	28.4	28.4	28.1	2.9	3.3
1958	28.6	28.6	28.8	28.9	28.9	28.9	29.0	28.9	28.9	28.9	29.0	28.9	28.9	1.8	2.8
1959	29.0	28.9	28.9	29.0	29.0	29.1	29.2	29.2	29.3	29.4	29.4	29.4	29.1	1.7	0.7
1960	29.3	29.4	29.4	29.5	29.5	29.6	29.6	29.6	29.6	29.8	29.8	29.8	29.6	1.4	1.7
1961	29.8	29.8	29.8	29.8	29.8	29.8	30.0	29.9	30.0	30.0	30.0	30.0	29.9	0.7	1.0
1962	30.0	30.1	30.1	30.2	30.2	30.2	30.3	30.3	30.4	30.4	30.4	30.4	30.2	1.3	1.0
1963	30.4	30.4	30.5	30.5	30.5	30.6	30.7	30.7	30.7	30.8	30.8	30.9	30.6	1.6	1.3
1964	30.9	30.9	30.9	30.9	30.9	31.0	31.1	31.0	31.1	31.1	31.2	31.2	31.0	1.0	1.3
1965	31.2	31.2	31.3	31.4	31.4	31.6	31.6	31.6	31.6	31.7	31.7	31.8	31.5	1.9	1.6
1966	31.8	32.0	32.1	32.3	32.3	32.4	32.5	32.7	32.7	32.9	32.9	32.9	32.4	3.5	2.9
1967	32.9	32.9	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	33.4	3.0	3.1
1968	34.1	34.2	34.3	34.4	34.5	34.7	34.9	35.0	35.1	35.3	35.4	35.5	34.8	4.7	4.2
1969	35.6	35.8	36.1	36.3	36.4	36.6	36.8	37.0	37.1	37.3	37.5	37.7	36.7	6.2	5.5
1970	37.8	38.0	38.2	38.5	38.6	38.8	39.0	39.0	39.2	39.4	39.6	39.8	38.8	5.6	5.7
1971	39.8	39.9	40.0	40.1	40.3	40.6	40.7	40.8	40.8	40.9	40.9	41.1	40.5	3.3	4.4
1972	41.1	41.3	41.4	41.5	41.6	41.7	41.9	42.0	42.1	42.3	42.4	42.5	41.8	3.4	3.2
1973	42.6	42.9	43.3	43.6	43.9	44.2	44.3	45.1	45.2	45.6	45.9	46.2	44.4	8.7	6.2
1974	46.6	47.2	47.8	48.0	48.6	49.0	49.4	50.0	50.6	51.1	51.5	51.9	49.3	12.3	11.0
1975	52.1	52.5	52.7	52.9	53.2	53.6	54.2	54.3	54.6	54.9	55.3	55.5	53.8	6.9	9.1
1976	55.6	55.8	55.9	56.1	56.5	56.8	57.1	57.4	57.6	57.9	58.0	58.2	56.9	4.9	5.8
1977	58.5	59.1	59.5	60.0	60.3	60.7	61.0	61.2	61.4	61.6	61.9	62.1	60.6	6.7	6.5
1978	62.5	62.9	63.4	63.9	64.5	65.2	65.7	66.0	66.5	67.1	67.4	67.7	65.2	9.0	7.6
1979	68.3	69.1	69.8	70.6	71.5	72.3	73.1	73.8	74.6	75.2	75.9	76.7	72.6	13.3	11.3

1980	77.8	78.9	80.1	81.0	81.8	82.7	82.7	83.3	84.0	84.8	85.5	86.3	82.4	12.5	13.5
1981	87.0	87.9	88.5	89.1	89.8	90.6	91.6	92.3	93.2	93.4	93.7	94.0	90.9	8.9	10.3
1982	94.3	94.6	94.5	94.9	95.8	97.0	97.5	97.7	97.9	98.2	98.0	97.6	96.5	3.8	6.2
1983	97.8	97.9	97.9	98.6	99.2	99.5	99.9	100.2	100.7	101.0	101.2	101.3	99.6	3.8	3.2
1984	101.9	102.4	102.6	103.1	103.4	103.7	104.1	104.5	105.0	105.3	105.3	105.3	103.9	3.9	4.3
1985	105.5	106.0	106.4	106.9	107.3	107.6	107.8	108.0	108.3	108.7	109.0	109.3	107.6	3.8	3.6
1986	109.6	109.3	108.8	108.6	108.9	109.5	109.5	109.7	110.2	110.3	110.4	110.5	109.6	1.1	1.9
1987	111.2	111.6	112.1	112.7	113.1	113.5	113.8	114.4	115.0	115.3	115.4	115.4	113.6	4.4	3.6
1988	115.7	116.0	116.5	117.1	117.5	118.0	118.5	119.0	119.8	120.2	120.3	120.5	118.3	4.4	4.1
1989	121.1	121.6	122.3	123.1	123.8	124.1	124.4	124.6	125.0	125.6	125.9	126.1	124.0	4.6	4.8
1990	127.4	128.0	128.7	128.9	129.2	129.9	130.4	131.6	132.7	133.5	133.8	133.8	130.7	6.1	5.4
1991	134.6	134.8	135.0	135.2	135.6	136.0	136.2	136.6	137.2	137.4	137.8	137.9	136.2	3.1	4.2
1992	138.1	138.6	139.3	139.5	139.7	140.2	140.5	140.9	141.3	141.8	142.0	141.9	140.3	2.9	3.0
1993	142.6	143.1	143.6	144.0	144.2	144.4	144.4	144.8	145.1	145.7	145.8	145.8	144.5	2.7	3.0
1994	146.2	146.7	147.2	147.4	147.5	148.0	148.4	149.0	149.4	149.5	149.7	149.7	148.2	2.7	2.6
1995	150.3	150.9	151.4	151.9	152.2	152.5	152.5	152.9	153.2	153.7	153.6	153.5	152.4	2.5	2.8
1996	154.4	154.9	155.7	156.3	156.6	156.7	157.0	157.3	157.8	158.3	158.6	158.6	156.9	3.3	3.0
1997	159.1	159.6	160.0	160.2	160.1	160.3	160.5	160.8	161.2	161.6	161.5	161.3	160.5	1.7	2.3
1998	161.6	161.9	162.2	162.5	162.8	163.0	163.2	163.4	163.6	164.0	164.0	163.9	163.0	1.6	1.6
1999	164.3	164.5	165.0	166.2	166.2	166.2	166.7	167.1	167.9	168.2	168.3	168.3	166.6	2.7	2.2
2000	168.8	169.8	171.2	171.3	171.5	172.4	172.8	172.8	173.7	174.0	174.1	174.0	172.2	3.4	3.4
2001	175.1	175.8	176.2	176.9	177.7	178.0	177.5	177.5	178.3	177.7	177.4	176.7	177.1	1.6	2.8
2002	177.1	177.8	178.8	179.8	179.8	179.9	180.1	180.7	181.0	181.3	181.3	180.9	179.9	2.4	1.6
2003	181.7	183.1	184.2	183.8	183.5	183.7	183.9	184.6	185.2	185.0	184.5	184.3	184.0	1.9	2.3
2004	185.2	186.2	187.4	188.0	189.1	189.7	189.4	189.5	189.9	190.9	191.0	190.3	188.9	3.3	2.7
2005	190.7	191.8	193.3	194.6	194.4	194.5	195.4	196.4	198.8	199.2	197.6	196.8	195.3	3.4	3.4
2006	198.3	198.7	199.8	201.5	202.5	202.9	203.5	203.9	202.9	201.8	201.5	201.8	201.6	2.5	3.2
2007	202.416	203.499	205.352	206.686	207.949	208.352	208.299	207.917	208.490	208.936	210.177	210.036	207.342	4.1	2.8
2008	211.080	211.693	213.528	214.823	216.632	218.815	219.964	219.086	218.783	216.573	212.425	210.228	215.303	0.1	3.8
2009	211.143	212.193	212.709	213.240	213.856	215.693	215.351	215.834	215.969	216.177	216.330	215.949	214.537	2.7	-0.4
2010	216.687	216.741	217.631	218.009	218.178	217.965	218.011	218.312	218.439	218.711	218.803	219.179	218.056	1.5	1.6
2011	220.223	221.309	223.467	224.906	225.964	225.722	225.922	226.545	226.889	226.421	226.230	225.672	224.939	3.0	3.2
2012	226.665	227.663	229.392	230.085	229.815	229.478	229.104	230.379	231.407	231.317	230.221	229.601	229.594	1.7	2.1
2013	230.280	232.166	232.773	232.531	232.945	233.504	233.596	233.877							

Consumer Price Index - All Urban Consumers
Original Data Value

Series Id: CUUR0000SETB01
Not Seasonally Adjusted
Area: U.S. city average
Item: Gasoline (all types)
Base Period: 1982-84=100
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2003	125.7	139.7	147.4	139.9	130.6	129.5	130.0	138.4	146.5	136.0	130.6	127.2	135.1	135.5	134.8
2004	136.1	142.5	149.8	155.3	169.8	172.7	164.5	161.2	160.5	172.2	171.0	160.4	159.7	154.4	165.0
2005	155.6	163.4	175.0	192.9	187.3	184.6	196.5	211.7	248.5	235.9	198.6	186.2	194.7	176.5	212.9
2006	198.2	197.0	204.7	234.4	249.8	247.3	254.6	253.2	219.0	192.7	190.3	198.1	219.9	221.9	218.0
2007	192.806	194.282	219.473	241.897	264.830	259.686	251.883	237.108	237.993	237.819	260.943	256.790	237.959	228.829	247.089
2008	259.338	257.845	276.497	291.910	319.787	344.981	347.357	321.511	313.535	266.382	184.235	146.102	277.457	291.726	263.187
2009	154.488	166.118	167.826	176.704	193.727	225.526	217.945	225.179	220.542	218.683	227.665	224.260	201.555	180.731	222.379
2010	233.727	227.198	237.356	244.347	246.080	234.214	234.091	235.110	231.819	239.527	244.345	255.319	238.594	237.154	240.035
2011	264.979	270.822	302.574	325.282	336.999	317.543	312.760	311.269	309.018	295.877	292.486	280.713	301.694	303.033	300.354
2012	290.762	305.076	329.780	335.742	323.604	303.747	295.498	316.859	329.898	322.934	298.131	285.606	311.470	314.785	308.154
2013	286.417	315.243	319.523	307.814	310.352	312.212	310.886	309.355						308.594	

Consumer Price Index - All Urban Consumers
Original Data Value

Series Id: CUUR0000SETB02
Not Seasonally Adjusted
Area: U.S. city average
Item: Other motor fuels
Base Period: DECEMBER 1997=100
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2003	116.7	126.2	138.7	131.9	122.4	119.0	119.6	122.1	119.7	115.4	116.2	115.8	122.0		
2004	118.6	124.8	127.7	136.2	146.2	140.6	139.4	143.4	147.1	160.8	161.8	152.6	141.6		
2005	148.4	156.0	170.9	178.5	172.4	173.4	181.1	195.0	214.7	226.8	201.2	186.4	183.7		
2006	190.0	190.6	194.3	206.1	219.5	217.9	217.2	224.8	212.3	193.4	193.4	200.1	205.0		
2007	195.110	195.863	201.939	212.646	213.502	212.957	215.040	214.288	217.170	228.780	250.053	248.393	217.145		
2008	247.519	250.390	283.174	299.239	322.484	346.227	347.027	323.451	301.418	272.717	217.477	185.983	283.092		
2009	175.245	168.740	156.438	163.928	165.115	184.984	186.698	192.872	193.553	195.553	204.371	203.092	182.549		
2010	209.270	205.752	210.988	220.024	224.497	215.674	213.310	214.813	214.571	222.900	227.994	234.947	217.895		
2011	243.656	255.144	281.801	295.895	297.680	288.317	284.830	282.793	281.602	277.694	285.557	280.326	279.608		
2012	279.509	285.431	299.338	300.666	292.307	275.104	269.923	285.486	298.597	297.848	290.447	284.725	288.282		
2013	282.202	295.581	295.602	286.555	281.192	279.029	278.645	281.009							

Consumer Price Index - All Urban Consumers
Original Data Value

Series Id: CUUR0000SS47021
Not Seasonally Adjusted
Area: U.S. city average
Item: Motor oil, coolant, and fluids
Base Period: 1982-84=100
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2003	154.4	154.8	155.7	156.0	155.3	156.6	156.9	157.2	158.1	159.6	160.7	160.2	157.1		
2004	161.1	161.0	161.9	163.3	163.0	164.8	165.4	166.1	167.4	168.5	171.2	170.3	165.3		
2005	172.6	174.4	176.9	176.0	179.4	179.6	182.0	186.8	186.1	190.3	193.9	195.1	182.8		
2006	197.3	201.3	203.2	204.2	211.4	211.4	213.3	216.6	221.4	222.8	225.0	224.4	212.7		
2007	225.123	228.067	227.535	229.302	229.621	226.598	231.636	230.655	232.787	233.466	238.352	240.510	231.138		
2008	246.532	247.513	255.024	254.904	256.548	260.907	268.075	275.952	276.947	291.179	297.236	298.121	269.078		
2009	300.173	301.126	299.072	297.381	295.582	291.012	291.074	289.936	290.958	291.506	291.359	292.337	294.293		
2010	293.027	297.676	295.967	302.688	305.227	307.184	307.786	306.414	312.531	312.831	312.242	311.036	305.384		
2011	311.577	310.128	312.123	320.313	328.105	330.973	342.125	349.534	353.597	350.613	351.514	354.170	334.564		
2012	354.378	353.098	359.590	361.203	361.495	362.507	360.690	356.493	364.439	351.723	365.286	364.251	359.596		
2013	362.780	362.728	359.250	364.244	361.383	358.579	356.817	359.943							

Consumer Price Index - All Urban Consumers
Original Data Value

Series Id: CUUR0000SETD
Not Seasonally Adjusted
Area: U.S. city average
Item: Motor vehicle maintenance and repair
Base Period: 1982-84=100
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2003	193.7	194.5	194.3	194.6	194.9	195.1	196.0	195.7	196.2	196.9	197.2	198.0	195.6		
2004	198.2	198.2	198.5	198.6	199.0	199.7	200.3	200.8	200.7	201.7	202.9	203.3	200.2		
2005	204.0	203.9	204.7	205.0	205.6	206.1	206.7	207.3	208.7	209.8	210.5	210.7	206.9		
2006	211.2	212.9	213.4	213.9	214.9	215.5	216.7	216.2	217.0	218.5	218.5	218.8	215.6		
2007	219.262	220.530	221.160	221.508	221.999	222.553	223.487	224.019	224.302	224.939	225.672	226.120	222.963		
2008	227.732	228.731	229.765	230.528	231.730	233.162	234.788	236.125	237.121	238.227	239.048	239.356	233.859		
2009	241.076	241.689	242.118	242.649	242.488	242.683	243.031	243.494	244.493	245.393	245.511	245.417	243.337		
2010	245.567	245.969	246.624	247.355	247.311	247.635	247.536	248.390	249.231	249.824	249.872	250.134	247.954		
2011	250.726	250.851	250.820	251.458	252.376	252.529	252.769	253.337	255.244	255.774	255.663	255.644	253.099		
2012	256.405	256.968	256.616	256.544	257.372	257.629	257.423	257.641	258.024	258.578	258.943	258.845	257.582		
2013	259.752	260.234	260.156	260.341	261.065	261.360	262.229	262.497							

Consumer Price Index - All Urban Consumers
Original Data Value

Series Id: CUUR0000SETC01
Not Seasonally Adjusted
Area: U.S. city average
Item: Tires
Base Period: 1982-84=100
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2003	102.3	102.7	102.3	102.0	102.0	101.7	101.5	101.7	101.1	101.4	101.1	100.8	101.7		
2004	101.1	101.0	100.6	100.6	100.5	101.0	102.0	102.4	102.8	102.8	103.2	103.2	101.8		
2005	103.8	104.0	103.5	103.5	103.5	103.8	104.4	104.6	105.0	105.3	105.8	106.2	104.5		
2006	106.4	106.9	107.1	107.1	108.1	107.9	108.9	109.0	109.4	109.4	110.0	110.0	108.4		
2007	110.196	110.716	110.747	111.102	111.202	111.179	111.417	111.967	112.268	112.841	113.088	113.060	111.649		
2008	112.738	113.859	114.836	114.496	115.395	116.371	117.775	118.533	119.195	119.378	119.590	119.796	116.830		
2009	120.203	121.199	121.687	121.848	121.435	121.408	120.638	120.108	119.865	120.181	120.833	121.348	120.896		
2010	121.723	122.251	122.238	122.010	122.336	122.908	123.576	124.324	124.185	124.940	125.620	126.263	123.531		
2011	127.507	128.105	127.647	128.410	130.030	131.485	131.729	132.225	131.776	131.475	132.975	134.417	130.648		
2012	135.310	135.442	135.100	135.256	135.202	135.200	135.447	135.446	134.917	135.185	134.365	134.666	135.128		
2013	133.582	133.143	133.288	132.290	131.648	131.032	130.539	129.876							

Employment Cost Index
Original Data Value

Series Id: CIU1010000000000I
Not Seasonally Adjusted
compensation: Total compensation
sector: All Civilian
periodicity: Index number
Industryocc: All workers
Years: 2003 to 2013

Year	Qtr1	Qtr2	Qtr3	Qtr4	Annual
2003	91.2	92.0	93.0	93.5	
2004	94.6	95.5	96.5	97.0	
2005	98.0	98.6	99.4	100.0	
2006	100.7	101.6	102.7	103.3	
2007	104.2	105.0	106.1	106.7	
2008	107.6	108.3	109.2	109.5	
2009	109.9	110.2	110.8	111.0	
2010	111.8	112.3	112.9	113.2	
2011	114.0	114.8	115.2	115.5	
2012	116.2	116.8	117.4	117.7	
2013	118.4	119.0			

Producer Price Index-Commodities
Original Data Value

Series Id: WPU141101
Not Seasonally Adjusted
Group: Transportation equipment
Item: Passenger cars
Base Date: 198200
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2003	130.0	129.7	132.8	129.4	129.1	127.4	126.8	126.6	125.2	133.6	131.9	131.7	129.5
2004	131.7	131.8	131.8	131.5	132.4	132.4	128.6	128.6	128.6	135.2	134.4	134.0	131.7
2005	135.3	133.8	133.1	133.6	133.3	130.6	130.8	129.0	129.4	132.5	130.5	129.5	131.8
2006	130.7	130.2	130.0	129.2	128.7	127.9	123.0	123.6	125.5	128.6	129.9	129.1	128.0
2007	129.0	126.8	126.9	125.2	125.2	125.4	124.4	124.5	121.9	129.1	129.0	127.2	126.2
2008	128.6	128.3	127.5	128.1	126.8	127.2	127.3	128.8	127.7	133.1	131.4	131.9	128.9
2009	132.3	131.1	130.4	130.4	129.7	131.6	128.9	129.3	129.2	134.2	132.0	131.2	130.9
2010	131.5	131.1	129.2	129.0	128.8	128.2	127.6	127.8	127.5	129.8	129.2	128.2	129.0
2011	129.1	129.3	128.9	129.6	129.5	129.9	129.5	129.3	128.3	132.0	132.2	131.4	129.9
2012	131.2	131.0	130.8	131.0	130.7	130.8	131.5	131.4	130.3	132.1	131.8	131.8	131.2
2013	131.1	131.3	130.9	130.8	129.7	130.6	129.0	128.7					

Producer Price Index-Commodities
Original Data Value

Series Id: WPU141105
Not Seasonally Adjusted
Group: Transportation equipment
Item: Trucks, 14,000 lbs. and under
Base Date: 198200
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2003	151.0	151.6	155.0	147.5	147.1	145.0	145.0	146.0	143.7	158.9	157.1	153.9	150.2
2004	153.3	152.0	152.6	150.4	150.1	150.0	146.7	145.7	143.9	159.6	156.0	155.5	151.3
2005	154.9	151.1	150.6	149.5	148.2	144.2	144.4	144.0	143.9	153.7	149.4	146.4	148.4
2006	146.8	147.3	146.8	145.3	145.2	143.1	133.2	136.9	136.7	139.9	150.4	148.6	143.3
2007	146.6	147.7	146.4	145.1	144.3	143.6	143.1	141.2	140.0	148.5	149.9	147.5	145.3
2008	148.0	147.9	145.9	147.1	146.5	141.2	138.3	138.5	138.7	154.5	152.9	152.7	146.0
2009	151.0	151.7	150.6	152.0	151.5	153.2	149.5	152.0	147.5	152.3	156.4	154.1	151.8
2010	156.2	155.8	154.9	153.9	154.2	151.1	150.3	150.5	150.0	154.9	154.0	153.6	153.3
2011	154.0	153.9	153.4	154.3	153.0	153.1	152.9	152.7	151.9	158.7	158.6	158.5	154.6
2012	159.9	159.0	158.7	159.0	157.6	158.1	159.2	159.1	157.6	164.1	164.7	163.7	160.1
2013	163.7	163.5	162.4	162.1	161.7	161.0	160.1	159.7					

Producer Price Index-Commodities
Original Data Value

Series Id: WPU141106
Not Seasonally Adjusted
Group: Transportation equipment
Item: Trucks, over 14,000 lbs. GVW
Base Date: 198200
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2003	155.4	155.4	154.5	155.3	154.0	155.1	153.8	154.2	154.2	154.5	152.1	152.2	154.2
2004	154.1	154.3	154.4	154.7	154.7	155.3	155.2	156.1	157.1	157.8	157.1	157.4	155.7
2005	158.7	159.3	159.3	161.0	161.4	161.3	162.9	164.5	164.0	165.7	165.7	165.7	162.4
2006	165.7	166.1	166.4	168.8	168.8	168.8	168.8	169.3	169.0	170.6	173.5	173.5	169.1
2007	173.6	173.6	173.6	178.4	178.4	178.4	178.2	178.3	178.3	178.3	178.5	178.5	177.2
2008	180.6	180.6	180.7	181.1	181.1	181.8	181.9	181.9	182.3	184.7	184.8	184.8	182.2
2009	188.5	188.6	188.7	188.7	189.7	189.9	189.9	191.4	191.4	192.1	191.4	192.8	190.3
2010	192.8	192.9	192.9	192.9	192.9	197.8	197.9	197.4	197.7	197.7	197.9	198.1	195.7
2011	198.9	198.5	198.5	198.5	199.0	199.1	200.2	200.2	200.3	202.2	202.6	202.5	200.0
2012	203.9	204.4	204.5	205.2	205.5	205.9	206.3	206.3	206.3	206.2	207.2	207.7	205.8
2013	208.6	208.1	207.8	207.2	207.9	208.7	209.1	209.2					

Producer Price Index-Commodities
Original Data Value

Series Id: WPU141406
Not Seasonally Adjusted
Group: Transportation equipment
Item: Truck trailers
Base Date: 198612
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2003	133.0	133.0	133.0	135.4	135.4	135.4	135.4	135.4	135.4	135.4	135.4	135.4	134.8
2004	137.3	137.5	140.1	141.9	143.4	143.9	144.7	144.6	145.4	146.4	148.7	148.5	143.5
2005	149.0	149.3	150.4	151.7	151.8	151.8	152.6	153.6	153.9	154.1	154.4	154.9	152.3
2006	154.9	156.1	156.1	157.7	158.3	159.5	160.4	161.5	161.7	162.2	162.5	162.1	159.4
2007	162.6	162.2	162.8	162.9	162.8	164.5	165.1	165.4	165.5	165.7	165.7	165.7	164.2
2008	166.3	166.5	167.5	168.2	170.3	172.3	173.6	174.2	175.2	176.3	174.9	173.8	171.6
2009	172.7	171.8	171.9	171.5	171.5	172.4	171.7	172.7	172.6	172.6	172.5	172.7	172.2
2010	174.7	174.7	175.4	175.9	176.1	176.0	175.8	175.8	176.0	177.0	176.5	177.2	175.9
2011	181.3	181.8	183.0	183.2	184.3	186.0	184.5	184.5	185.5	185.9	185.6	185.5	184.2
2012	188.2	189.6	190.3	191.2	191.4	191.2	190.7	189.1	189.1	189.1	188.7	188.7	189.8
2013	188.5	188.6	188.7	188.9	189.4	189.4	189.5	189.4					

Producer Price Index-Commodities
Original Data Value

Series Id: WPU14
Not Seasonally Adjusted
Group: Transportation equipment
Item: Transportation equipment
Base Date: 198200
Years: 2003 to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2003	145.3	145.5	146.9	144.9	144.8	144.3	144.3	144.6	144.1	148.7	147.9	147.4	145.7
2004	147.8	147.7	148.0	147.7	148.0	148.4	147.2	147.4	147.3	151.8	151.1	151.3	148.6
2005	151.9	151.0	151.0	151.0	151.0	149.7	150.1	150.0	150.2	152.9	151.8	151.2	151.0
2006	152.1	152.4	152.7	152.8	152.8	152.5	149.9	150.9	151.4	153.0	155.5	155.1	152.6
2007	155.0	155.0	154.6	154.3	154.2	154.4	154.4	154.2	153.7	156.9	157.3	156.6	155.0
2008	157.5	157.5	156.8	157.6	157.5	156.7	156.7	157.6	157.8	162.8	162.4	162.8	158.6
2009	162.8	162.7	162.2	162.3	161.8	162.3	160.9	161.6	160.7	162.9	163.5	163.0	162.2
2010	163.7	163.6	163.1	163.4	163.4	162.9	162.5	162.9	162.8	164.4	164.2	164.0	163.4
2011	164.7	164.9	165.0	165.5	165.3	165.6	165.8	166.1	165.7	168.3	168.4	168.3	166.1
2012	169.0	168.8	168.9	169.1	168.9	169.1	169.8	169.9	169.5	171.5	171.8	171.5	169.8
2013	171.7	171.8	171.6	171.5	171.2	171.3	170.8	170.8					