

APPENDIX

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TRAFFIC
ANALYSIS
OUTPUT FILES

US 127 2023 Build HCS Output

HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2023
Jurisdiction	KYTC	Time Analyzed	2023 AM
Project Description	US 127 NB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	62.5

Vehicle Results

Average Speed, mi/h	62.5	Percent Followers, %	34.5
Segment Travel Time, minutes	0.48	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.84057	Speed Power Coefficient (p)	0.92518
PF Slope Coefficient (m)	-1.10232	PF Power Coefficient (p)	0.86403
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	63.9

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	143	80
Percentage of Heavy Vehicles (HV%), %	5.20	26.96
Initial Average Speed (S _{int}), mi/h	76.4	76.1
Average Speed at Midpoint (S _{PLmid}), mi/h	78.1	74.4
Percent Followers at Midpoint (PF _{PLmid}), %	17.4	11.1

Vehicle Results

Average Speed, mi/h	63.9	Percent Followers, %	26.1
Segment Travel Time, minutes	1.03	Follower Density (FD), followers/mi/ln	0.9
Follower Density Mid-Point, followers/mi/ln	0.2	Vehicle LOS	A

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	15.1	%Improvement to Speed	0.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	56.0

Vehicle Results

Average Speed, mi/h	56.3	Percent Followers, %	48.8
Segment Travel Time, minutes	2.24	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.56197	Speed Power Coefficient (p)	0.55823
PF Slope Coefficient (m)	-1.32097	PF Power Coefficient (p)	0.75965
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	13.3	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	62.0

Vehicle Results

Average Speed, mi/h	62.0	Percent Followers, %	37.4
Segment Travel Time, minutes	0.68	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.6

%Improvement to Percent Followers	7.4	%Improvement to Speed	0.0
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Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	65.9

Vehicle Results

Average Speed, mi/h	65.9	Percent Followers, %	40.4
Segment Travel Time, minutes	3.46	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 6

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	8.84480	Speed Power Coefficient (p)	1.34187
PF Slope Coefficient (m)	-0.87977	PF Power Coefficient (p)	0.97547
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	69.3

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	159	91
Percentage of Heavy Vehicles (HV%), %	5.20	26.56
Initial Average Speed (S _{int}), mi/h	75.8	71.9
Average Speed at Midpoint (S _{PLmid}), mi/h	77.5	70.2
Percent Followers at Midpoint (PF _{PLmid}), %	13.5	5.5

Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	20.4
Segment Travel Time, minutes	1.73	Follower Density (FD), followers/mi/ln	0.7
Follower Density Mid-Point, followers/mi/ln	0.2	Vehicle LOS	A

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1584
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	20.7	%Improvement to Speed	2.5

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	67.9

Vehicle Results

Average Speed, mi/h	69.6	Percent Followers, %	35.8
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	14.85552	Speed Power Coefficient (p)	0.79311
PF Slope Coefficient (m)	-1.31329	PF Power Coefficient (p)	0.77908
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	17.3	%Improvement to Speed	1.6

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	66.7

Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	36.0
Segment Travel Time, minutes	0.97	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	330	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	15.0	%Improvement to Speed	0.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	61.3

Vehicle Results

Average Speed, mi/h	61.8	Percent Followers, %	43.7
Segment Travel Time, minutes	0.58	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	A		

Segment 10

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.25

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	9.06430	Speed Power Coefficient (p)	0.90074
PF Slope Coefficient (m)	-1.11166	PF Power Coefficient (p)	0.78834
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	67.2

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	229	143
Percentage of Heavy Vehicles (HV%), %	3.20	15.69
Initial Average Speed (S _{int}), mi/h	74.8	72.4
Average Speed at Midpoint (S _{PLmid}), mi/h	76.4	70.8
Percent Followers at Midpoint (PF _{PLmid}), %	34.4	21.9

Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	40.0
Segment Travel Time, minutes	0.54	Follower Density (FD), followers/mi/ln	2.2
Follower Density Mid-Point, followers/mi/ln	0.7	Vehicle LOS	A

Segment 11

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	468	Opposing Demand Flow Rate, veh/h	255
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.40376	Speed Power Coefficient (p)	0.52506
PF Slope Coefficient (m)	-1.18947	PF Power Coefficient (p)	0.81679
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.5
%Improvement to Percent Followers	16.3	%Improvement to Speed	1.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	62.4

Vehicle Results

Average Speed, mi/h	63.0	Percent Followers, %	47.3
Segment Travel Time, minutes	1.24	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

Segment 12

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	468	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.31

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.16123	Speed Power Coefficient (p)	0.85065
PF Slope Coefficient (m)	-1.14890	PF Power Coefficient (p)	0.85274
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	61.9

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	282	186
Percentage of Heavy Vehicles (HV%), %	3.20	15.25
Initial Average Speed (S _{int}), mi/h	75.3	75.5
Average Speed at Midpoint (S _{PLmid}), mi/h	76.9	73.8
Percent Followers at Midpoint (PF _{PLmid}), %	31.7	23.7

Vehicle Results

Average Speed, mi/h	61.9	Percent Followers, %	45.2
Segment Travel Time, minutes	0.87	Follower Density (FD), followers/mi/ln	3.4
Follower Density Mid-Point, followers/mi/ln	0.9	Vehicle LOS	A

Segment 13

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	468	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.0		
%Improvement to Percent Followers	23.7	%Improvement to Speed	2.3		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	62.0
Vehicle Results					
Average Speed, mi/h	63.4	Percent Followers, %	53.4		
Segment Travel Time, minutes	0.09	Follower Density (FD), followers/mi/ln	3.0		
Vehicle LOS	B				
Segment 14					
Vehicle Inputs					
Segment Type	Passing Constrained	Length, ft	6336		
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0		
Demand and Capacity					
Directional Demand Flow Rate, veh/h	622	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.63499	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.24695	PF Power Coefficient (p)	0.77221		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	5.9		
%Improvement to Percent Followers	15.2	%Improvement to Speed	0.5		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	61.5
Vehicle Results					
Average Speed, mi/h	61.8	Percent Followers, %	57.9		
Segment Travel Time, minutes	1.17	Follower Density (FD), followers/mi/ln	4.9		
Vehicle LOS	C				

Segment 15

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	622	Opposing Demand Flow Rate, veh/h	229
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.37632	Speed Power Coefficient (p)	0.53156
PF Slope Coefficient (m)	-1.19294	PF Power Coefficient (p)	0.82301
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	5.6
%Improvement to Percent Followers	12.2	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	61.9

Vehicle Results

Average Speed, mi/h	61.9	Percent Followers, %	55.4
Segment Travel Time, minutes	0.89	Follower Density (FD), followers/mi/ln	4.9
Vehicle LOS	C		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	670	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	6.6
%Improvement to Percent Followers	7.9	%Improvement to Speed	0.0

Subsegment Data

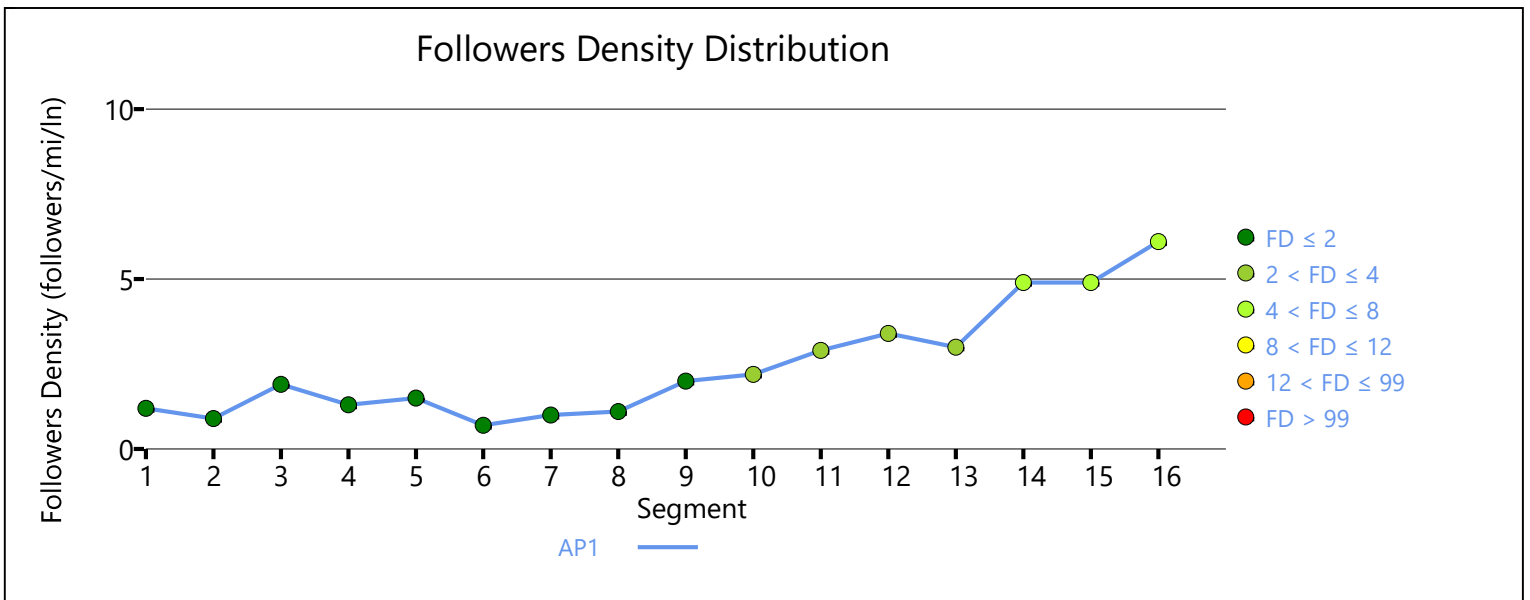
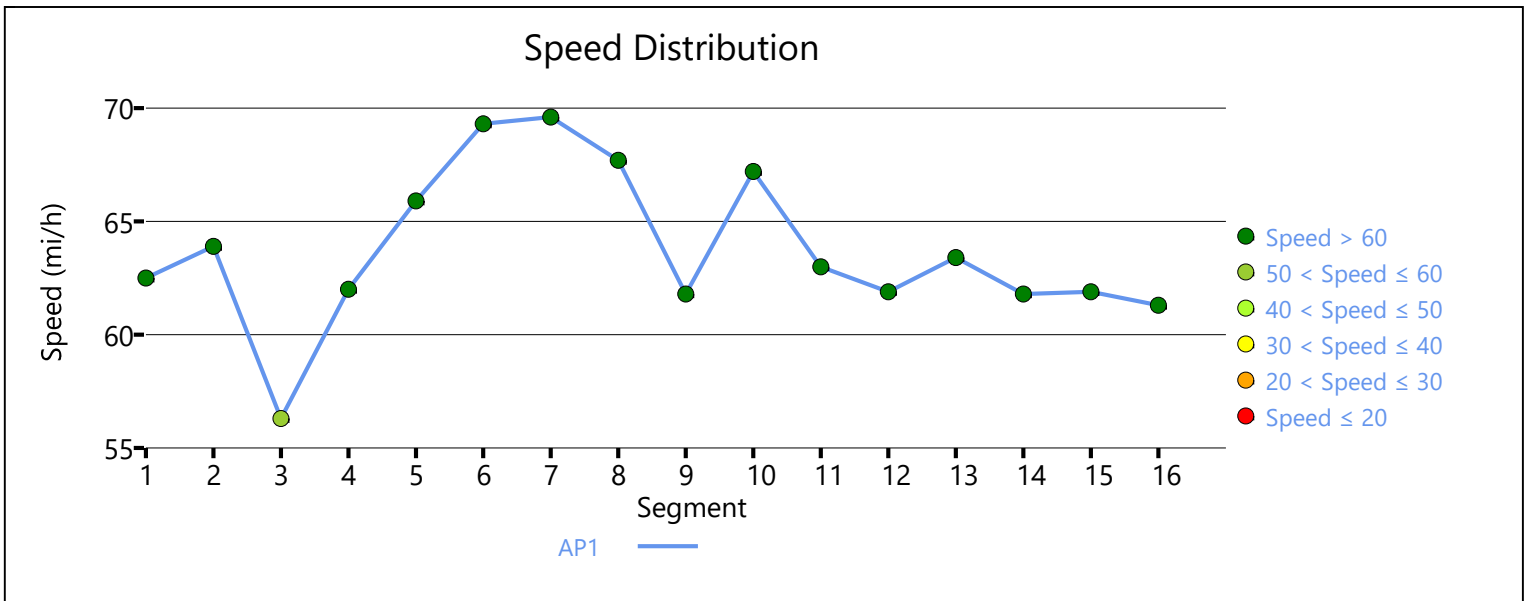
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	61.3

Vehicle Results

Average Speed, mi/h	61.3	Percent Followers, %	60.2
Segment Travel Time, minutes	1.63	Follower Density (FD), followers/mi/ln	6.1
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1605	1.32	2.1	B



HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2023
Jurisdiction	KYTC	Time Analyzed	2023 PM
Project Description	US 127 NB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	62.5

Vehicle Results

Average Speed, mi/h	62.5	Percent Followers, %	34.5
Segment Travel Time, minutes	0.48	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.84057	Speed Power Coefficient (p)	0.92518
PF Slope Coefficient (m)	-1.10232	PF Power Coefficient (p)	0.86403
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	63.9

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	143	80
Percentage of Heavy Vehicles (HV%), %	5.20	26.96
Initial Average Speed (S _{int}), mi/h	76.4	76.1
Average Speed at Midpoint (S _{PLmid}), mi/h	78.1	74.4
Percent Followers at Midpoint (PF _{PLmid}), %	17.4	11.1

Vehicle Results

Average Speed, mi/h	63.9	Percent Followers, %	26.1
Segment Travel Time, minutes	1.03	Follower Density (FD), followers/mi/ln	0.9
Follower Density Mid-Point, followers/mi/ln	0.2	Vehicle LOS	A

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	15.4	%Improvement to Speed	0.6

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	57.0

Vehicle Results

Average Speed, mi/h	57.4	Percent Followers, %	45.4
Segment Travel Time, minutes	2.20	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	213	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.56197	Speed Power Coefficient (p)	0.55823
PF Slope Coefficient (m)	-1.32097	PF Power Coefficient (p)	0.75965
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	13.7	%Improvement to Speed	0.1

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	62.5

Vehicle Results

Average Speed, mi/h	62.5	Percent Followers, %	33.5
Segment Travel Time, minutes	0.67	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	213	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.2

%Improvement to Percent Followers	7.8	%Improvement to Speed	0.0
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Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	66.6

Vehicle Results

Average Speed, mi/h	66.6	Percent Followers, %	36.6
Segment Travel Time, minutes	3.42	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Segment 6

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	191	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	8.84480	Speed Power Coefficient (p)	1.34187
PF Slope Coefficient (m)	-0.87977	PF Power Coefficient (p)	0.97547
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	69.6

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	125	67
Percentage of Heavy Vehicles (HV%), %	5.20	27.52
Initial Average Speed (S _{int}), mi/h	76.0	71.7
Average Speed at Midpoint (S _{PLmid}), mi/h	77.6	70.1
Percent Followers at Midpoint (PF _{PLmid}), %	10.8	3.8

Vehicle Results

Average Speed, mi/h	69.6	Percent Followers, %	16.1
Segment Travel Time, minutes	1.72	Follower Density (FD), followers/mi/ln	0.4
Follower Density Mid-Point, followers/mi/ln	0.1	Vehicle LOS	A

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1584
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	191	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	20.9	%Improvement to Speed	2.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	68.3

Vehicle Results

Average Speed, mi/h	69.9	Percent Followers, %	30.3
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	191	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	14.85552	Speed Power Coefficient (p)	0.79311
PF Slope Coefficient (m)	-1.31329	PF Power Coefficient (p)	0.77908
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	17.5	%Improvement to Speed	1.5

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	67.8

Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	30.4
Segment Travel Time, minutes	0.96	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	234	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	15.6	%Improvement to Speed	0.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	62.5

Vehicle Results

Average Speed, mi/h	63.0	Percent Followers, %	35.7
Segment Travel Time, minutes	0.57	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Segment 10

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	9.06430	Speed Power Coefficient (p)	0.90074
PF Slope Coefficient (m)	-1.11166	PF Power Coefficient (p)	0.78834
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	68.3

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	163	93
Percentage of Heavy Vehicles (HV%), %	3.20	16.44
Initial Average Speed (S _{int}), mi/h	75.4	72.7
Average Speed at Midpoint (S _{PLmid}), mi/h	77.0	71.1
Percent Followers at Midpoint (PF _{PLmid}), %	27.5	16.5

Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	31.5
Segment Travel Time, minutes	0.53	Follower Density (FD), followers/mi/ln	1.2
Follower Density Mid-Point, followers/mi/ln	0.4	Vehicle LOS	A

Segment 11

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	319	Opposing Demand Flow Rate, veh/h	532
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.47720	Speed Power Coefficient (p)	0.47794
PF Slope Coefficient (m)	-1.22380	PF Power Coefficient (p)	0.80145
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	17.0	%Improvement to Speed	0.9

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	62.8

Vehicle Results

Average Speed, mi/h	63.4	Percent Followers, %	38.7
Segment Travel Time, minutes	1.23	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

Segment 12

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	319	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.16123	Speed Power Coefficient (p)	0.85065
PF Slope Coefficient (m)	-1.14890	PF Power Coefficient (p)	0.85274
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	16.8	%Improvement to Speed	1.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	63.0

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	199	120
Percentage of Heavy Vehicles (HV%), %	3.20	15.99
Initial Average Speed (S _{int}), mi/h	75.9	76.2
Average Speed at Midpoint (S _{PLmid}), mi/h	77.5	74.6
Percent Followers at Midpoint (PF _{PLmid}), %	24.6	16.7

Vehicle Results

Average Speed, mi/h	63.0	Percent Followers, %	35.2
Segment Travel Time, minutes	0.86	Follower Density (FD), followers/mi/ln	1.8
Follower Density Mid-Point, followers/mi/ln	0.5	Vehicle LOS	A

Segment 13

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	319	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.2		
%Improvement to Percent Followers	24.3	%Improvement to Speed	2.2		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	62.6
Vehicle Results					
Average Speed, mi/h	63.9	Percent Followers, %	43.6		
Segment Travel Time, minutes	0.09	Follower Density (FD), followers/mi/ln	1.6		
Vehicle LOS	A				
Segment 14					
Vehicle Inputs					
Segment Type	Passing Constrained	Length, ft	6336		
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0		
Demand and Capacity					
Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.63499	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.24695	PF Power Coefficient (p)	0.77221		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.6		
%Improvement to Percent Followers	16.9	%Improvement to Speed	0.9		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	62.3
Vehicle Results					
Average Speed, mi/h	62.9	Percent Followers, %	44.1		
Segment Travel Time, minutes	1.15	Follower Density (FD), followers/mi/ln	2.2		
Vehicle LOS	B				

Segment 15

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	686
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.49109	Speed Power Coefficient (p)	0.46098
PF Slope Coefficient (m)	-1.24333	PF Power Coefficient (p)	0.79950
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.6
%Improvement to Percent Followers	13.8	%Improvement to Speed	0.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	62.5

Vehicle Results

Average Speed, mi/h	62.7	Percent Followers, %	43.1
Segment Travel Time, minutes	0.88	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	394	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	9.9	%Improvement to Speed	0.0

Subsegment Data

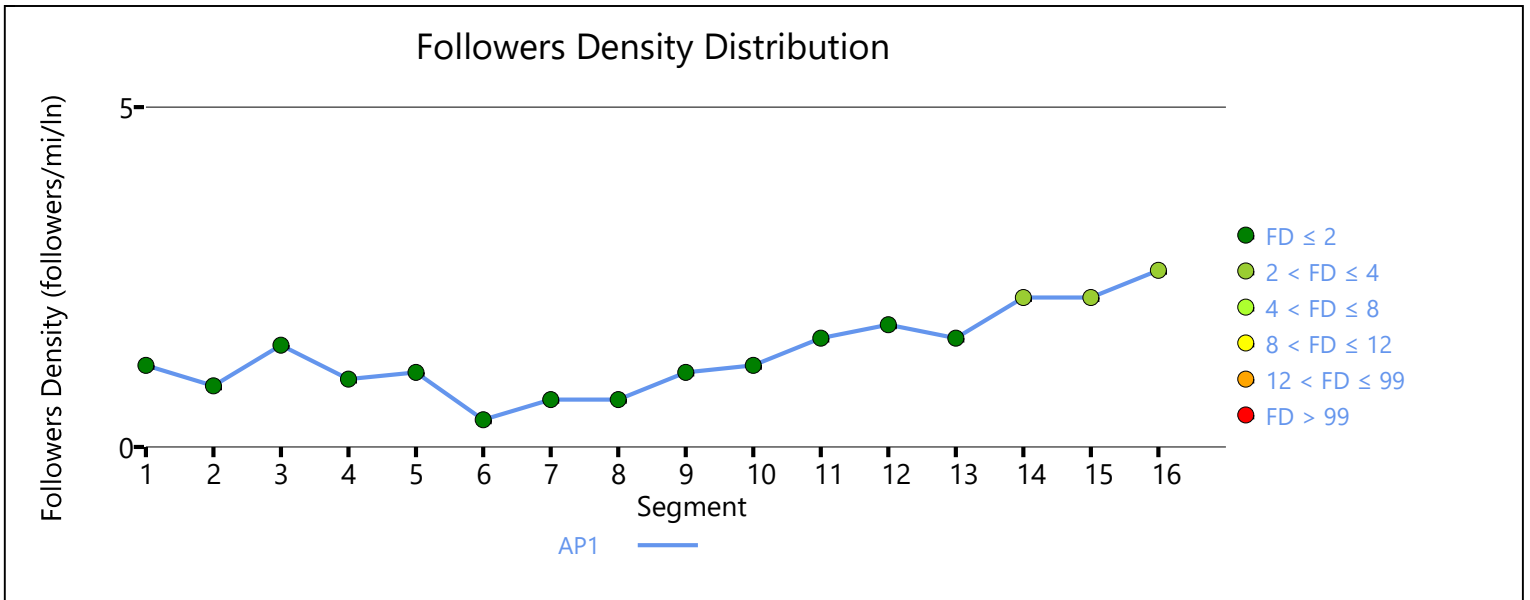
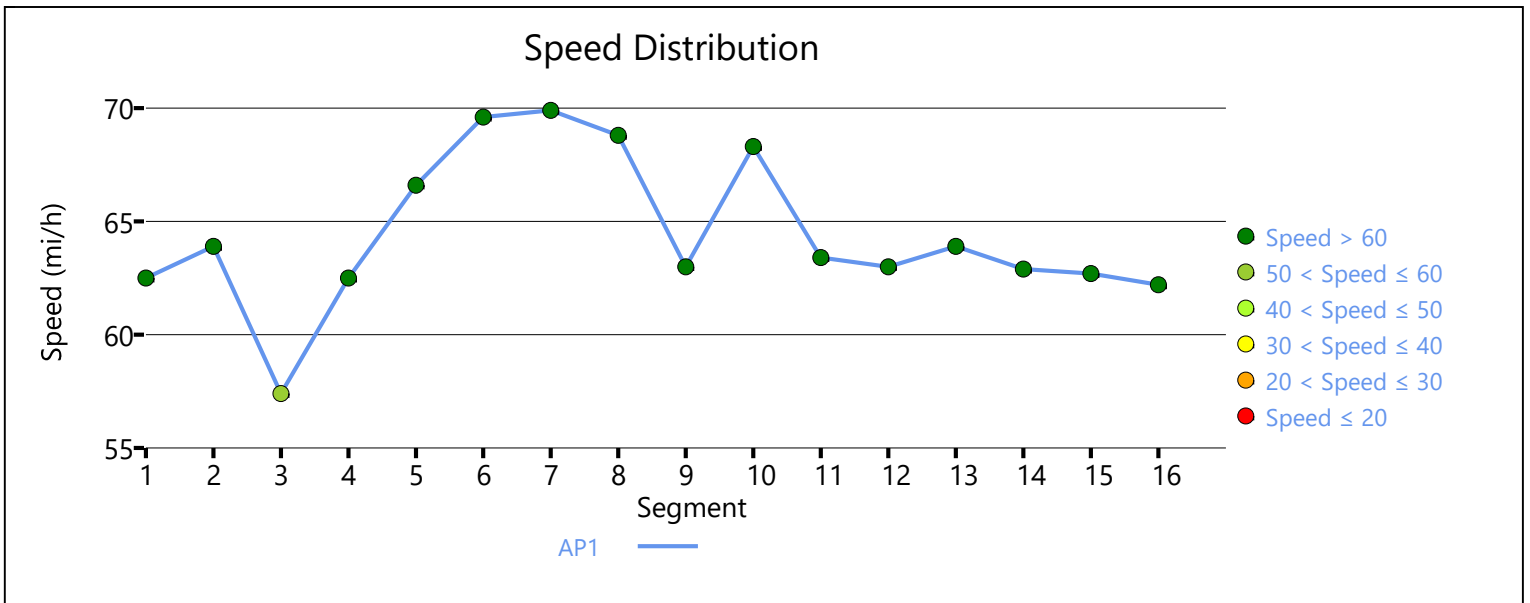
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	62.2

Vehicle Results

Average Speed, mi/h	62.2	Percent Followers, %	46.0
Segment Travel Time, minutes	1.61	Follower Density (FD), followers/mi/ln	2.6
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1154	0.74	1.2	A



HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2023
Jurisdiction	KYTC	Time Analyzed	2023 AM
Project Description	US 127 SB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	181	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	63.4

Vehicle Results

Average Speed, mi/h	63.4	Percent Followers, %	28.9
Segment Travel Time, minutes	1.58	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	229	Opposing Demand Flow Rate, veh/h	622
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.47815	Speed Power Coefficient (p)	0.46745
PF Slope Coefficient (m)	-1.23946	PF Power Coefficient (p)	0.80204
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	63.3

Vehicle Results

Average Speed, mi/h	63.3	Percent Followers, %	31.6
Segment Travel Time, minutes	0.87	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	6336
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	229	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.24124	Speed Power Coefficient (p)	0.95118
PF Slope Coefficient (m)	-1.09010	PF Power Coefficient (p)	0.88259
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	64.0

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	147	82
Percentage of Heavy Vehicles (HV%), %	3.20	16.66
Initial Average Speed (Sint), mi/h	76.5	76.4
Average Speed at Midpoint (SPLmid), mi/h	78.1	74.9
Percent Followers at Midpoint (PFPLmid), %	17.6	10.6

Vehicle Results

Average Speed, mi/h	64.0	Percent Followers, %	25.7
Segment Travel Time, minutes	1.13	Follower Density (FD), followers/mi/ln	0.9
Follower Density Mid-Point, followers/mi/ln	0.2	Vehicle LOS	A

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	22.9	%Improvement to Speed	1.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	62.9

Vehicle Results

Average Speed, mi/h	64.0	Percent Followers, %	38.4
Segment Travel Time, minutes	0.09	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.61989	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.25608	PF Power Coefficient (p)	0.77475

In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	18.3	%Improvement to Speed	1.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	62.9

Vehicle Results

Average Speed, mi/h	63.5	Percent Followers, %	35.3
Segment Travel Time, minutes	0.85	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	468
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.46239	Speed Power Coefficient (p)	0.48646
PF Slope Coefficient (m)	-1.21803	PF Power Coefficient (p)	0.80444
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	14.3	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	63.2

Vehicle Results

Average Speed, mi/h	63.2	Percent Followers, %	33.4
Segment Travel Time, minutes	1.23	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	234	Opposing Demand Flow Rate, veh/h	-
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Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.32850	PF Power Coefficient (p)	0.77991
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	13.1	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	67.5

Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	34.8
Segment Travel Time, minutes	0.53	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	149	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	12.8	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	63.8

Vehicle Results

Average Speed, mi/h	63.8	Percent Followers, %	26.8
Segment Travel Time, minutes	0.56	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

Segment 9

Vehicle Inputs					
Segment Type		Passing Lanes	Length, ft	5808	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		144	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1400	Demand/Capacity (D/C)		0.10
Intermediate Results					
Segment Vertical Class		3	Free-Flow Speed, mi/h		70.0
Speed Slope Coefficient (m)		10.66380	Speed Power Coefficient (p)		1.16305
PF Slope Coefficient (m)		-0.93134	PF Power Coefficient (p)		0.80987
In Passing Lane Effective Length?		No	Total Segment Density, veh/mi/ln		0.4
%Improvement to Percent Followers		0.0	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	69.7
Passing Lane Results					
		Faster Lane		Slower Lane	
Flow Rate, veh/h		96		48	
Percentage of Heavy Vehicles (HV%), %		5.20		28.61	
Initial Average Speed (S _{int}), mi/h		75.6		69.5	
Average Speed at Midpoint (S _{PLmid}), mi/h		77.3		67.9	
Percent Followers at Midpoint (PF _{PLmid}), %		14.4		7.5	
Vehicle Results					
Average Speed, mi/h		69.7		Percent Followers, %	
Segment Travel Time, minutes		0.95		Follower Density (FD), followers/mi/ln	
Follower Density Mid-Point, followers/mi/ln		0.1		Vehicle LOS	
				A	
Segment 10					
Vehicle Inputs					
Segment Type		Passing Constrained	Length, ft	1584	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		144	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1700	Demand/Capacity (D/C)		0.08
Intermediate Results					

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	23.0	%Improvement to Speed	2.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	68.8

Vehicle Results

Average Speed, mi/h	70.1	Percent Followers, %	25.2
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

Segment 11

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	144	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	11.18487	Speed Power Coefficient (p)	0.58463
PF Slope Coefficient (m)	-1.26753	PF Power Coefficient (p)	0.75322
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	15.2	%Improvement to Speed	0.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	68.2

Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	25.5
Segment Travel Time, minutes	1.75	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

Segment 12

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	191	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	8.1	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	67.0

Vehicle Results			
Average Speed, mi/h	67.0	Percent Followers, %	34.5
Segment Travel Time, minutes	3.40	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

Segment 13

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	191	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.14

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.26253	Speed Power Coefficient (p)	0.95385
PF Slope Coefficient (m)	-1.10603	PF Power Coefficient (p)	0.82389
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	64.2

Passing Lane Results		
	Faster Lane	Slower Lane
Flow Rate, veh/h	125	67

Percentage of Heavy Vehicles (HV%), %	5.20	27.52
Initial Average Speed (Sint), mi/h	75.9	72.3
Average Speed at Midpoint (SPLmid), mi/h	77.6	70.6
Percent Followers at Midpoint (PFPLmid), %	16.2	8.3

Vehicle Results

Average Speed, mi/h	64.2	Percent Followers, %	24.7
Segment Travel Time, minutes	0.65	Follower Density (FD), followers/mi/ln	0.7
Follower Density Mid-Point, followers/mi/ln	0.2	Vehicle LOS	A

Segment 14

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	213	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	15.1	%Improvement to Speed	0.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	57.4

Vehicle Results

Average Speed, mi/h	57.8	Percent Followers, %	44.2
Segment Travel Time, minutes	2.18	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

Segment 15

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	213	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13
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Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.63019	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24824	PF Power Coefficient (p)	0.77439
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	12.2	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	63.1

Vehicle Results

Average Speed, mi/h	63.1	Percent Followers, %	31.4
Segment Travel Time, minutes	1.05	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	213	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	11.1	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	62.6

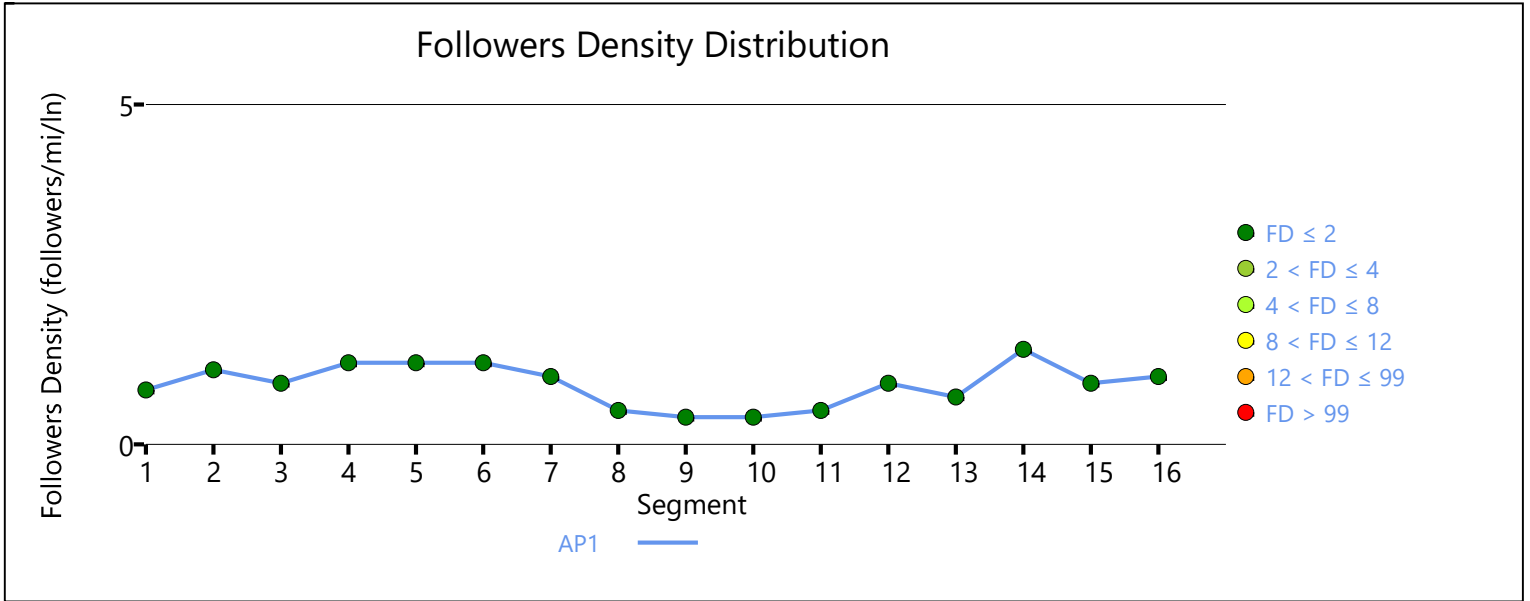
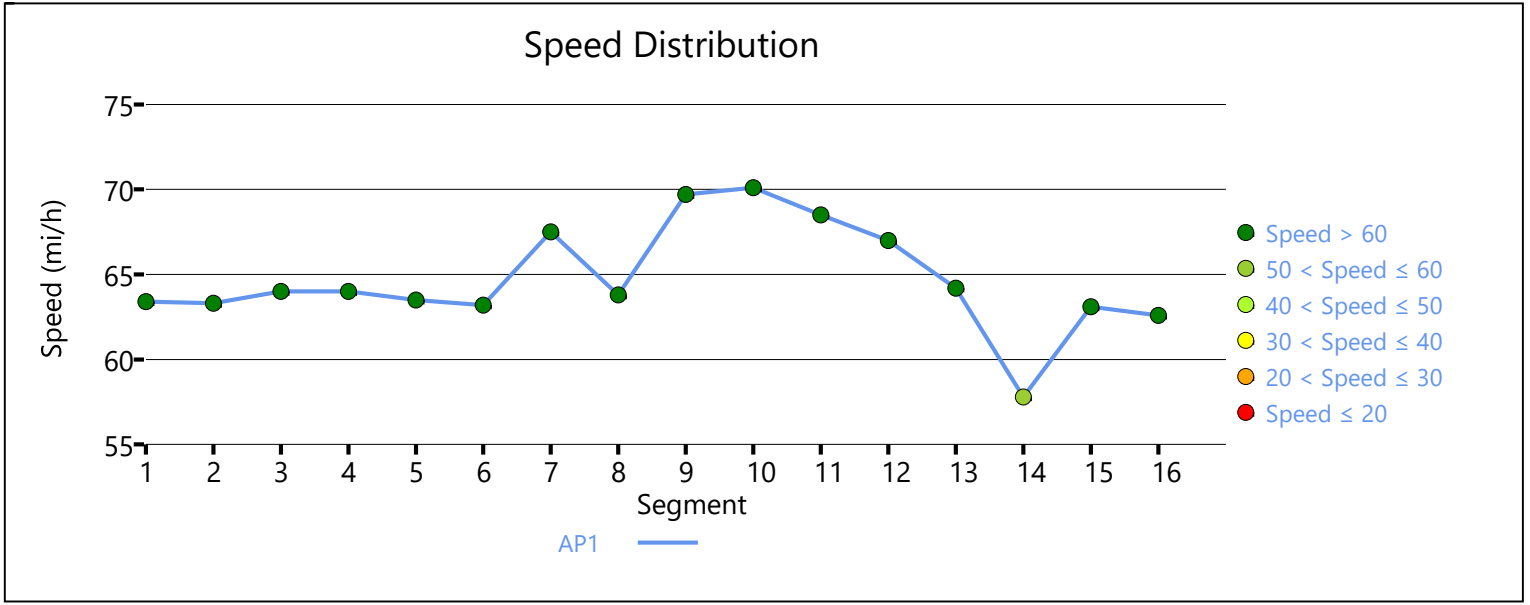
Vehicle Results

Average Speed, mi/h	62.6	Percent Followers, %	33.4
Segment Travel Time, minutes	0.48	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

Facility Results

T	VMT	VHD	Follower Density, followers/	LOS
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	veh-mi/AP	veh-h/p	mi/ln	
1	879	0.52	0.8	A



HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2023
Jurisdiction	KYTC	Time Analyzed	2023 PM
Project Description	US 127 SB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	734	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	61.1

Vehicle Results

Average Speed, mi/h	61.1	Percent Followers, %	62.8
Segment Travel Time, minutes	1.64	Follower Density (FD), followers/mi/ln	7.5
Vehicle LOS	C		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	686	Opposing Demand Flow Rate, veh/h	372
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.41958	Speed Power Coefficient (p)	0.50149
PF Slope Coefficient (m)	-1.21608	PF Power Coefficient (p)	0.81382
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	61.6

Vehicle Results

Average Speed, mi/h	61.6	Percent Followers, %	59.1
Segment Travel Time, minutes	0.90	Follower Density (FD), followers/mi/ln	6.6
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	6336
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	686	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.46

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.24124	Speed Power Coefficient (p)	0.95118
PF Slope Coefficient (m)	-1.09010	PF Power Coefficient (p)	0.88259
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	60.6

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	396	290
Percentage of Heavy Vehicles (HV%), %	3.20	14.56
Initial Average Speed (Sint), mi/h	74.7	74.8
Average Speed at Midpoint (SPLmid), mi/h	76.4	73.1
Percent Followers at Midpoint (PFPLmid), %	37.7	28.4

Vehicle Results

Average Speed, mi/h	60.6	Percent Followers, %	54.2
Segment Travel Time, minutes	1.19	Follower Density (FD), followers/mi/ln	6.1
Follower Density Mid-Point, followers/mi/ln	1.5	Vehicle LOS	A

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	532	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.9
%Improvement to Percent Followers	22.9	%Improvement to Speed	3.1

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	61.8

Vehicle Results

Average Speed, mi/h	63.7	Percent Followers, %	56.8
Segment Travel Time, minutes	0.09	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	532	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.61989	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.25608	PF Power Coefficient (p)	0.77475

In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.6
%Improvement to Percent Followers	18.3	%Improvement to Speed	2.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	61.7

Vehicle Results

Average Speed, mi/h	63.2	Percent Followers, %	53.7
Segment Travel Time, minutes	0.85	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	532	Opposing Demand Flow Rate, veh/h	319
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.42331	Speed Power Coefficient (p)	0.51133
PF Slope Coefficient (m)	-1.19998	PF Power Coefficient (p)	0.81257
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.4
%Improvement to Percent Followers	14.3	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	62.1

Vehicle Results

Average Speed, mi/h	63.0	Percent Followers, %	51.2
Segment Travel Time, minutes	1.24	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
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Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.32850	PF Power Coefficient (p)	0.77991
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.4
%Improvement to Percent Followers	13.8	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	65.1

Vehicle Results

Average Speed, mi/h	66.0	Percent Followers, %	50.1
Segment Travel Time, minutes	0.55	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	13.3	%Improvement to Speed	1.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	60.8

Vehicle Results

Average Speed, mi/h	61.6	Percent Followers, %	46.8
Segment Travel Time, minutes	0.58	Follower Density (FD), followers/mi/ln	2.5
Vehicle LOS	B		

Segment 9

Vehicle Inputs					
Segment Type		Passing Lanes	Length, ft	5808	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		314	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1400	Demand/Capacity (D/C)		0.22
Intermediate Results					
Segment Vertical Class		3	Free-Flow Speed, mi/h		70.0
Speed Slope Coefficient (m)		10.66380	Speed Power Coefficient (p)		1.16305
PF Slope Coefficient (m)		-0.93134	PF Power Coefficient (p)		0.80987
In Passing Lane Effective Length?		No	Total Segment Density, veh/mi/ln		1.4
%Improvement to Percent Followers		0.0	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	68.2
Passing Lane Results					
		Faster Lane		Slower Lane	
Flow Rate, veh/h		195		119	
Percentage of Heavy Vehicles (HV%), %		5.20		25.77	
Initial Average Speed (S _{int}), mi/h		75.1		70.1	
Average Speed at Midpoint (S _{PLmid}), mi/h		76.8		68.4	
Percent Followers at Midpoint (PF _{PLmid}), %		24.8		14.7	
Vehicle Results					
Average Speed, mi/h		68.2	Percent Followers, %		30.5
Segment Travel Time, minutes		0.97	Follower Density (FD), followers/mi/ln		1.4
Follower Density Mid-Point, followers/mi/ln		0.4	Vehicle LOS		A
Segment 10					
Vehicle Inputs					
Segment Type		Passing Constrained	Length, ft	1584	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		314	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1700	Demand/Capacity (D/C)		0.18
Intermediate Results					

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	22.9	%Improvement to Speed	2.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	67.6

Vehicle Results

Average Speed, mi/h	69.5	Percent Followers, %	41.0
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

Segment 11

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	11.18487	Speed Power Coefficient (p)	0.58463
PF Slope Coefficient (m)	-1.26753	PF Power Coefficient (p)	0.75322
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	15.2	%Improvement to Speed	1.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	65.5

Vehicle Results

Average Speed, mi/h	66.3	Percent Followers, %	41.1
Segment Travel Time, minutes	1.81	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 12

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	319	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	8.5	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	65.0

Vehicle Results			
Average Speed, mi/h	65.0	Percent Followers, %	45.5
Segment Travel Time, minutes	3.51	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	B		

Segment 13

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.22

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.26253	Speed Power Coefficient (p)	0.95385
PF Slope Coefficient (m)	-1.10603	PF Power Coefficient (p)	0.82389
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	63.1

Passing Lane Results		
	Faster Lane	Slower Lane
Flow Rate, veh/h	192	117

Percentage of Heavy Vehicles (HV%), %	5.20	25.83
Initial Average Speed (Sint), mi/h	75.3	72.4
Average Speed at Midpoint (SPLmid), mi/h	77.0	70.7
Percent Followers at Midpoint (PFPLmid), %	22.7	13.7

Vehicle Results

Average Speed, mi/h	63.1	Percent Followers, %	34.3
Segment Travel Time, minutes	0.67	Follower Density (FD), followers/mi/ln	1.7
Follower Density Mid-Point, followers/mi/ln	0.4	Vehicle LOS	A

Segment 14

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.0
%Improvement to Percent Followers	15.2	%Improvement to Speed	1.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	54.6

Vehicle Results

Average Speed, mi/h	55.3	Percent Followers, %	53.9
Segment Travel Time, minutes	2.28	Follower Density (FD), followers/mi/ln	2.6
Vehicle LOS	B		

Segment 15

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16
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Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.63019	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24824	PF Power Coefficient (p)	0.77439
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	12.7	%Improvement to Speed	0.6

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	62.8

Vehicle Results

Average Speed, mi/h	63.2	Percent Followers, %	36.1
Segment Travel Time, minutes	1.04	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	11.7	%Improvement to Speed	0.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	61.8

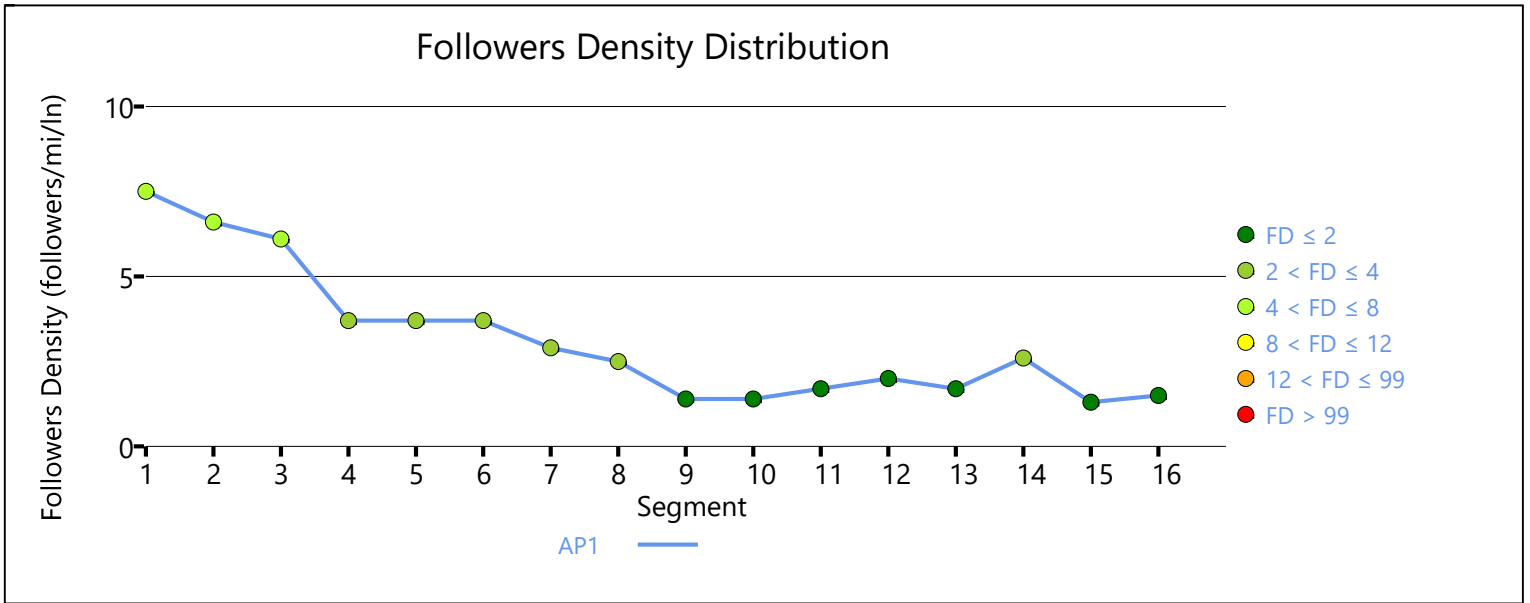
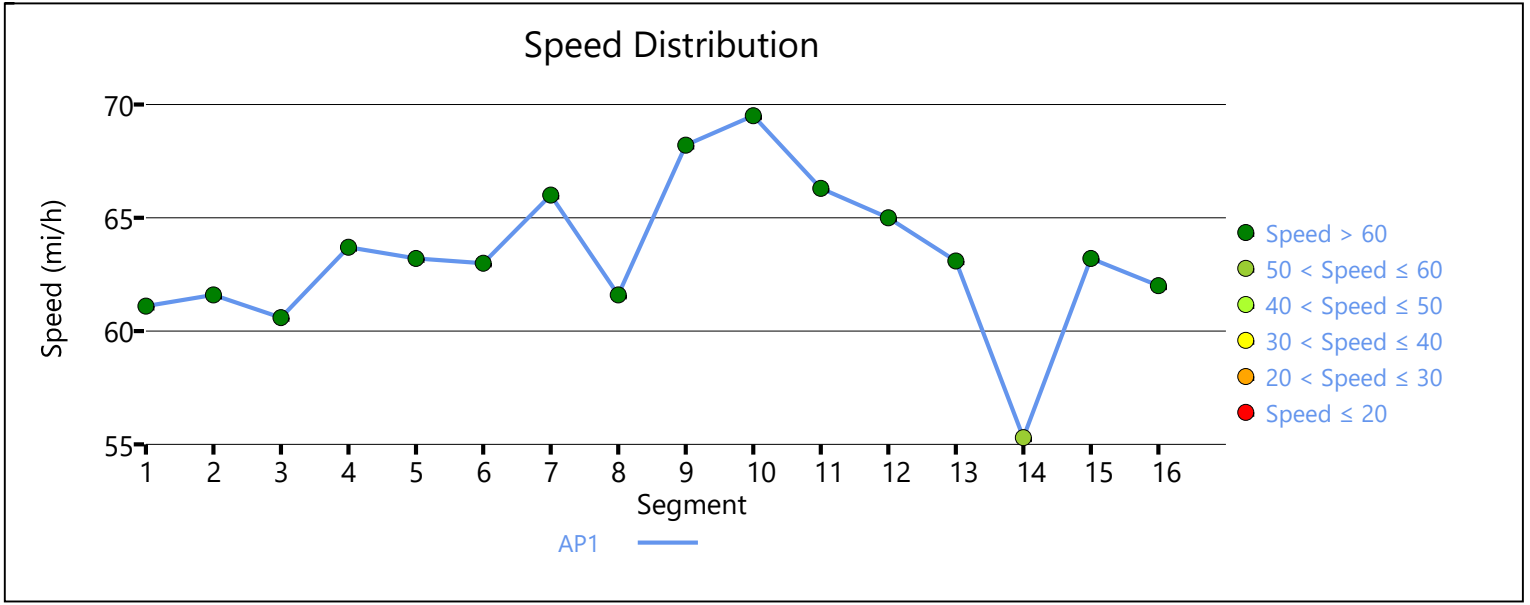
Vehicle Results

Average Speed, mi/h	62.0	Percent Followers, %	38.4
Segment Travel Time, minutes	0.48	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Facility Results

T	VMT	VHD	Follower Density, followers/	LOS
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	veh-mi/AP	veh-h/p	mi/ln	
1	1870	1.81	2.8	B



US 127 2045 Build HCS Output

HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2045
Jurisdiction	KYTC	Time Analyzed	2045 AM
Project Description	US 127 NB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	61.8

Vehicle Results

Average Speed, mi/h	61.8	Percent Followers, %	38.4
Segment Travel Time, minutes	0.49	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.84057	Speed Power Coefficient (p)	0.92518
PF Slope Coefficient (m)	-1.10232	PF Power Coefficient (p)	0.86403
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	63.5

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	168	98
Percentage of Heavy Vehicles (HV%), %	5.20	26.34
Initial Average Speed (S _{int}), mi/h	76.2	76.1
Average Speed at Midpoint (S _{PLmid}), mi/h	77.9	74.4
Percent Followers at Midpoint (PF _{PLmid}), %	19.8	13.3

Vehicle Results

Average Speed, mi/h	63.5	Percent Followers, %	29.6
Segment Travel Time, minutes	1.04	Follower Density (FD), followers/mi/ln	1.2
Follower Density Mid-Point, followers/mi/ln	0.3	Vehicle LOS	A

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.0
%Improvement to Percent Followers	14.9	%Improvement to Speed	0.6

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	54.6

Vehicle Results

Average Speed, mi/h	54.9	Percent Followers, %	53.9
Segment Travel Time, minutes	2.30	Follower Density (FD), followers/mi/ln	2.6
Vehicle LOS	B		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.56197	Speed Power Coefficient (p)	0.55823
PF Slope Coefficient (m)	-1.32097	PF Power Coefficient (p)	0.75965
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	13.2	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	61.4

Vehicle Results

Average Speed, mi/h	61.4	Percent Followers, %	41.8
Segment Travel Time, minutes	0.68	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.0

%Improvement to Percent Followers	7.3	%Improvement to Speed	0.0
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Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	65.3

Vehicle Results

Average Speed, mi/h	65.3	Percent Followers, %	43.9
Segment Travel Time, minutes	3.49	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Segment 6

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	8.84480	Speed Power Coefficient (p)	1.34187
PF Slope Coefficient (m)	-0.87977	PF Power Coefficient (p)	0.97547
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	69.0

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	186	112
Percentage of Heavy Vehicles (HV%), %	5.20	25.95
Initial Average Speed (S _{int}), mi/h	75.7	72.0
Average Speed at Midpoint (S _{PLmid}), mi/h	77.4	70.3
Percent Followers at Midpoint (PF _{PLmid}), %	15.6	7.0

Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.7
Segment Travel Time, minutes	1.74	Follower Density (FD), followers/mi/ln	1.0
Follower Density Mid-Point, followers/mi/ln	0.2	Vehicle LOS	A

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1584
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	20.5	%Improvement to Speed	2.6

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	67.7

Vehicle Results

Average Speed, mi/h	69.4	Percent Followers, %	39.7
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	14.85552	Speed Power Coefficient (p)	0.79311
PF Slope Coefficient (m)	-1.31329	PF Power Coefficient (p)	0.77908
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	17.1	%Improvement to Speed	1.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	65.9

Vehicle Results

Average Speed, mi/h	67.0	Percent Followers, %	40.0
Segment Travel Time, minutes	0.99	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	394	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.1
%Improvement to Percent Followers	14.7	%Improvement to Speed	0.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	60.6

Vehicle Results

Average Speed, mi/h	61.0	Percent Followers, %	48.2
Segment Travel Time, minutes	0.59	Follower Density (FD), followers/mi/ln	2.7
Vehicle LOS	B		

Segment 10

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.29

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	9.06430	Speed Power Coefficient (p)	0.90074
PF Slope Coefficient (m)	-1.11166	PF Power Coefficient (p)	0.78834
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	66.6

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	264	172
Percentage of Heavy Vehicles (HV%), %	3.20	15.39
Initial Average Speed (S _{int}), mi/h	74.5	72.1
Average Speed at Midpoint (S _{PLmid}), mi/h	76.2	70.5
Percent Followers at Midpoint (PF _{PLmid}), %	37.6	24.7

Vehicle Results

Average Speed, mi/h	66.6	Percent Followers, %	43.9
Segment Travel Time, minutes	0.54	Follower Density (FD), followers/mi/ln	2.9
Follower Density Mid-Point, followers/mi/ln	1.0	Vehicle LOS	A

Segment 11

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	553	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.41703	Speed Power Coefficient (p)	0.51565
PF Slope Coefficient (m)	-1.19671	PF Power Coefficient (p)	0.81392
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.7
%Improvement to Percent Followers	15.9	%Improvement to Speed	1.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	62.1

Vehicle Results

Average Speed, mi/h	62.7	Percent Followers, %	52.2
Segment Travel Time, minutes	1.24	Follower Density (FD), followers/mi/ln	3.9
Vehicle LOS	B		

Segment 12

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	553	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.16123	Speed Power Coefficient (p)	0.85065
PF Slope Coefficient (m)	-1.14890	PF Power Coefficient (p)	0.85274
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.5
%Improvement to Percent Followers	12.5	%Improvement to Speed	0.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	61.3

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	327	226
Percentage of Heavy Vehicles (HV%), %	3.20	14.95
Initial Average Speed (S _{int}), mi/h	74.9	75.1
Average Speed at Midpoint (S _{PLmid}), mi/h	76.6	73.4
Percent Followers at Midpoint (PF _{PLmid}), %	35.3	25.5

Vehicle Results

Average Speed, mi/h	61.3	Percent Followers, %	50.0
Segment Travel Time, minutes	0.88	Follower Density (FD), followers/mi/ln	4.5
Follower Density Mid-Point, followers/mi/ln	1.1	Vehicle LOS	A

Segment 13

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	553	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	5.2		
%Improvement to Percent Followers	23.3	%Improvement to Speed	2.3		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	61.7
Vehicle Results					
Average Speed, mi/h	63.2	Percent Followers, %	57.9		
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	3.9		
Vehicle LOS	B				
Segment 14					
Vehicle Inputs					
Segment Type	Passing Constrained	Length, ft	6336		
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0		
Demand and Capacity					
Directional Demand Flow Rate, veh/h	734	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.63499	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.24695	PF Power Coefficient (p)	0.77221		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	7.5		
%Improvement to Percent Followers	14.6	%Improvement to Speed	0.5		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	61.2
Vehicle Results					
Average Speed, mi/h	61.5	Percent Followers, %	62.5		
Segment Travel Time, minutes	1.17	Follower Density (FD), followers/mi/ln	6.4		
Vehicle LOS	C				

Segment 15

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	734	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.39846	Speed Power Coefficient (p)	0.51565
PF Slope Coefficient (m)	-1.20538	PF Power Coefficient (p)	0.81824
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	7.3
%Improvement to Percent Followers	11.6	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	61.5

Vehicle Results

Average Speed, mi/h	61.5	Percent Followers, %	60.8
Segment Travel Time, minutes	0.90	Follower Density (FD), followers/mi/ln	6.4
Vehicle LOS	C		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	798	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.47

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	8.5
%Improvement to Percent Followers	7.2	%Improvement to Speed	0.0

Subsegment Data

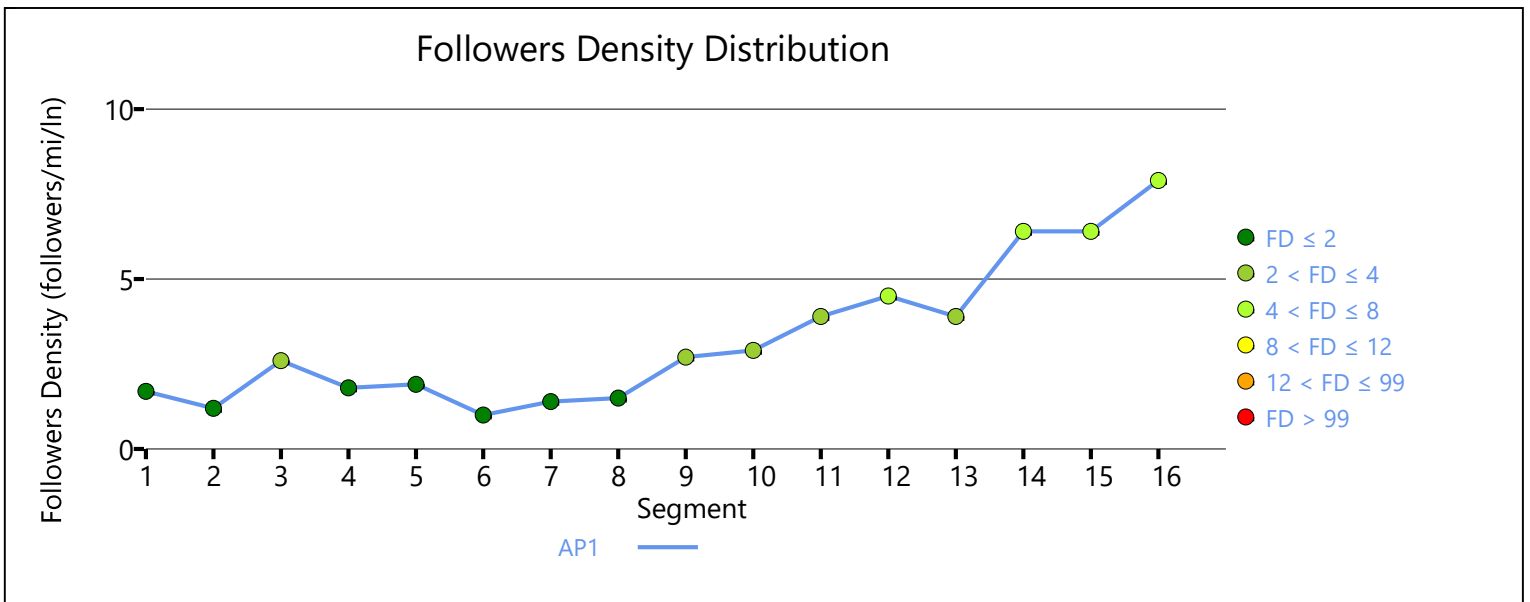
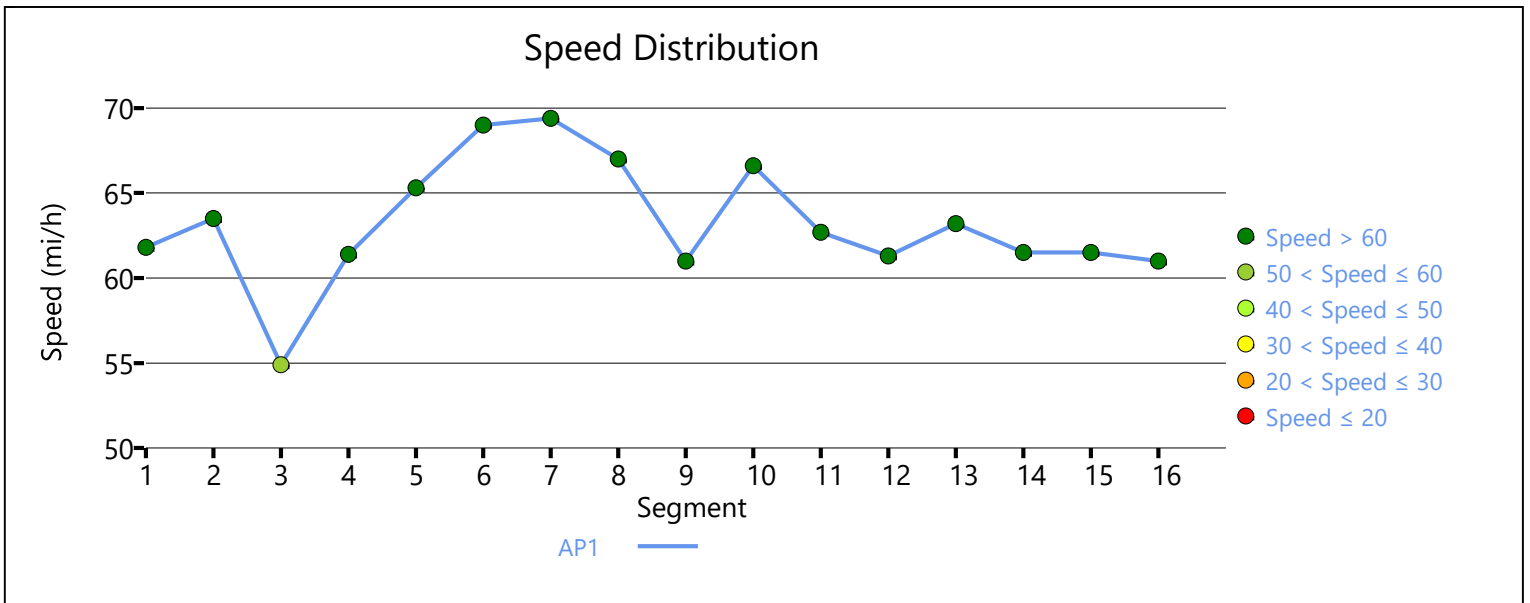
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	61.0

Vehicle Results

Average Speed, mi/h	61.0	Percent Followers, %	65.1
Segment Travel Time, minutes	1.64	Follower Density (FD), followers/mi/ln	7.9
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1902	1.83	2.8	B



HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2045
Jurisdiction	KYTC	Time Analyzed	2045 PM
Project Description	US 127 NB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	61.8

Vehicle Results

Average Speed, mi/h	61.8	Percent Followers, %	38.4
Segment Travel Time, minutes	0.49	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.84057	Speed Power Coefficient (p)	0.92518
PF Slope Coefficient (m)	-1.10232	PF Power Coefficient (p)	0.86403
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	63.5

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	168	98
Percentage of Heavy Vehicles (HV%), %	5.20	26.34
Initial Average Speed (S _{int}), mi/h	76.2	76.1
Average Speed at Midpoint (S _{PLmid}), mi/h	77.9	74.4
Percent Followers at Midpoint (PF _{PLmid}), %	19.8	13.3

Vehicle Results

Average Speed, mi/h	63.5	Percent Followers, %	29.6
Segment Travel Time, minutes	1.04	Follower Density (FD), followers/mi/ln	1.2
Follower Density Mid-Point, followers/mi/ln	0.3	Vehicle LOS	A

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	15.3	%Improvement to Speed	0.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	55.7

Vehicle Results

Average Speed, mi/h	56.2	Percent Followers, %	49.9
Segment Travel Time, minutes	2.24	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	B		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.56197	Speed Power Coefficient (p)	0.55823
PF Slope Coefficient (m)	-1.32097	PF Power Coefficient (p)	0.75965
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	13.8	%Improvement to Speed	0.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	62.1

Vehicle Results

Average Speed, mi/h	62.3	Percent Followers, %	36.5
Segment Travel Time, minutes	0.67	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	234	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.4

%Improvement to Percent Followers	8.0	%Improvement to Speed	0.0
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Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	66.3

Vehicle Results

Average Speed, mi/h	66.3	Percent Followers, %	38.6
Segment Travel Time, minutes	3.44	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Segment 6

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	8.84480	Speed Power Coefficient (p)	1.34187
PF Slope Coefficient (m)	-0.87977	PF Power Coefficient (p)	0.97547
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	69.5

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	143	80
Percentage of Heavy Vehicles (HV%), %	5.20	26.96
Initial Average Speed (S _{int}), mi/h	75.9	71.9
Average Speed at Midpoint (S _{PLmid}), mi/h	77.6	70.2
Percent Followers at Midpoint (PF _{PLmid}), %	12.3	4.7

Vehicle Results

Average Speed, mi/h	69.5	Percent Followers, %	18.4
Segment Travel Time, minutes	1.73	Follower Density (FD), followers/mi/ln	0.6
Follower Density Mid-Point, followers/mi/ln	0.1	Vehicle LOS	A

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1584
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	20.8	%Improvement to Speed	2.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	68.1

Vehicle Results

Average Speed, mi/h	69.7	Percent Followers, %	33.4
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	14.85552	Speed Power Coefficient (p)	0.79311
PF Slope Coefficient (m)	-1.31329	PF Power Coefficient (p)	0.77908
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	17.3	%Improvement to Speed	1.5

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	67.2

Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	33.5
Segment Travel Time, minutes	0.97	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	277	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	15.4	%Improvement to Speed	0.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	62.0

Vehicle Results

Average Speed, mi/h	62.5	Percent Followers, %	39.5
Segment Travel Time, minutes	0.58	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 10

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	9.06430	Speed Power Coefficient (p)	0.90074
PF Slope Coefficient (m)	-1.11166	PF Power Coefficient (p)	0.78834
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	67.8

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	193	115
Percentage of Heavy Vehicles (HV%), %	3.20	16.05
Initial Average Speed (S _{int}), mi/h	75.1	72.6
Average Speed at Midpoint (S _{PLmid}), mi/h	76.8	71.0
Percent Followers at Midpoint (PF _{PLmid}), %	30.8	19.0

Vehicle Results

Average Speed, mi/h	67.8	Percent Followers, %	35.6
Segment Travel Time, minutes	0.53	Follower Density (FD), followers/mi/ln	1.6
Follower Density Mid-Point, followers/mi/ln	0.5	Vehicle LOS	A

Segment 11

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	383	Opposing Demand Flow Rate, veh/h	628
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.49782	Speed Power Coefficient (p)	0.46689
PF Slope Coefficient (m)	-1.23082	PF Power Coefficient (p)	0.79733
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.7
%Improvement to Percent Followers	16.7	%Improvement to Speed	1.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	62.5

Vehicle Results

Average Speed, mi/h	63.1	Percent Followers, %	43.6
Segment Travel Time, minutes	1.24	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

Segment 12

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	383	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.16123	Speed Power Coefficient (p)	0.85065
PF Slope Coefficient (m)	-1.14890	PF Power Coefficient (p)	0.85274
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	62.6

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	235	148
Percentage of Heavy Vehicles (HV%), %	3.20	15.63
Initial Average Speed (S _{int}), mi/h	75.6	75.9
Average Speed at Midpoint (S _{PLmid}), mi/h	77.2	74.2
Percent Followers at Midpoint (PF _{PLmid}), %	27.8	19.8

Vehicle Results

Average Speed, mi/h	62.6	Percent Followers, %	39.8
Segment Travel Time, minutes	0.86	Follower Density (FD), followers/mi/ln	2.4
Follower Density Mid-Point, followers/mi/ln	0.6	Vehicle LOS	A

Segment 13

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	383	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.0		
%Improvement to Percent Followers	24.2	%Improvement to Speed	2.3		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	62.3
Vehicle Results					
Average Speed, mi/h	63.7	Percent Followers, %	48.2		
Segment Travel Time, minutes	0.09	Follower Density (FD), followers/mi/ln	2.2		
Vehicle LOS	B				
Segment 14					
Vehicle Inputs					
Segment Type	Passing Constrained	Length, ft	6336		
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0		
Demand and Capacity					
Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	4.63499	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.24695	PF Power Coefficient (p)	0.77221		
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.4		
%Improvement to Percent Followers	16.7	%Improvement to Speed	1.1		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	62.1
Vehicle Results					
Average Speed, mi/h	62.7	Percent Followers, %	48.2		
Segment Travel Time, minutes	1.15	Follower Density (FD), followers/mi/ln	2.8		
Vehicle LOS	B				

Segment 15

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	809
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.51430	Speed Power Coefficient (p)	0.45029
PF Slope Coefficient (m)	-1.24906	PF Power Coefficient (p)	0.79500
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.3
%Improvement to Percent Followers	13.7	%Improvement to Speed	0.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	62.2

Vehicle Results

Average Speed, mi/h	62.5	Percent Followers, %	47.6
Segment Travel Time, minutes	0.88	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	457	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.7
%Improvement to Percent Followers	9.7	%Improvement to Speed	0.0

Subsegment Data

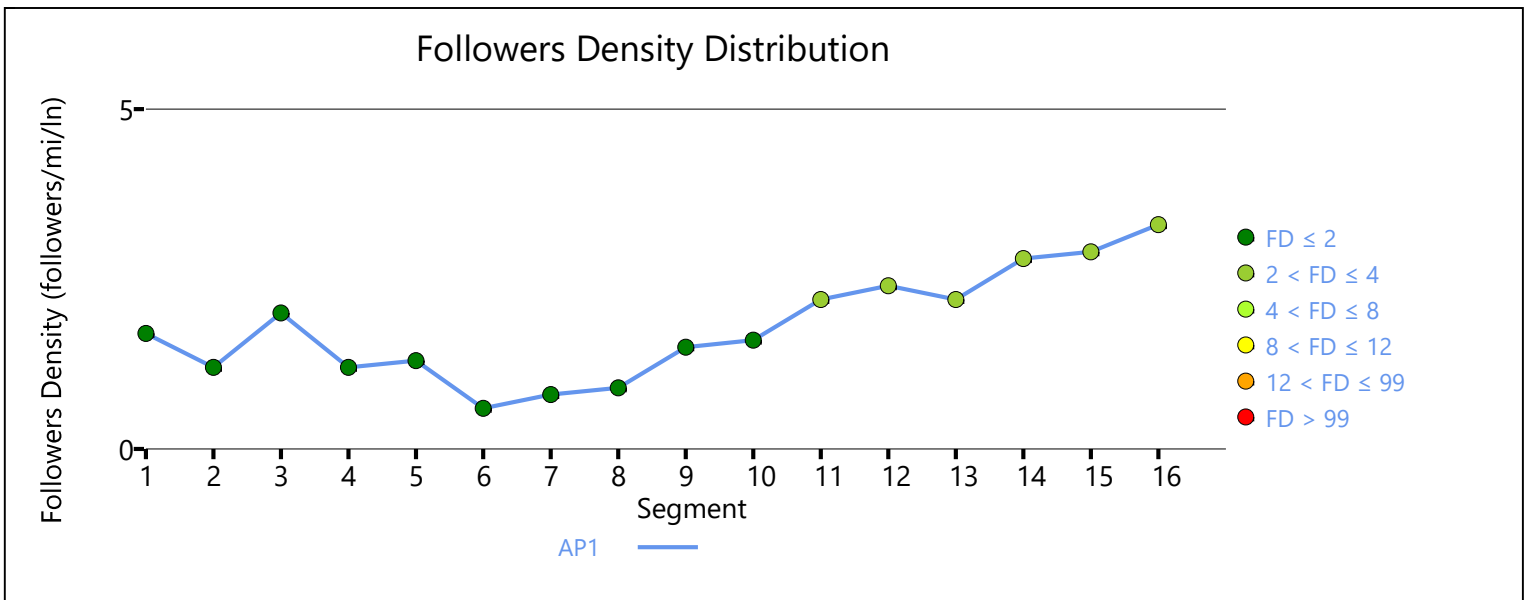
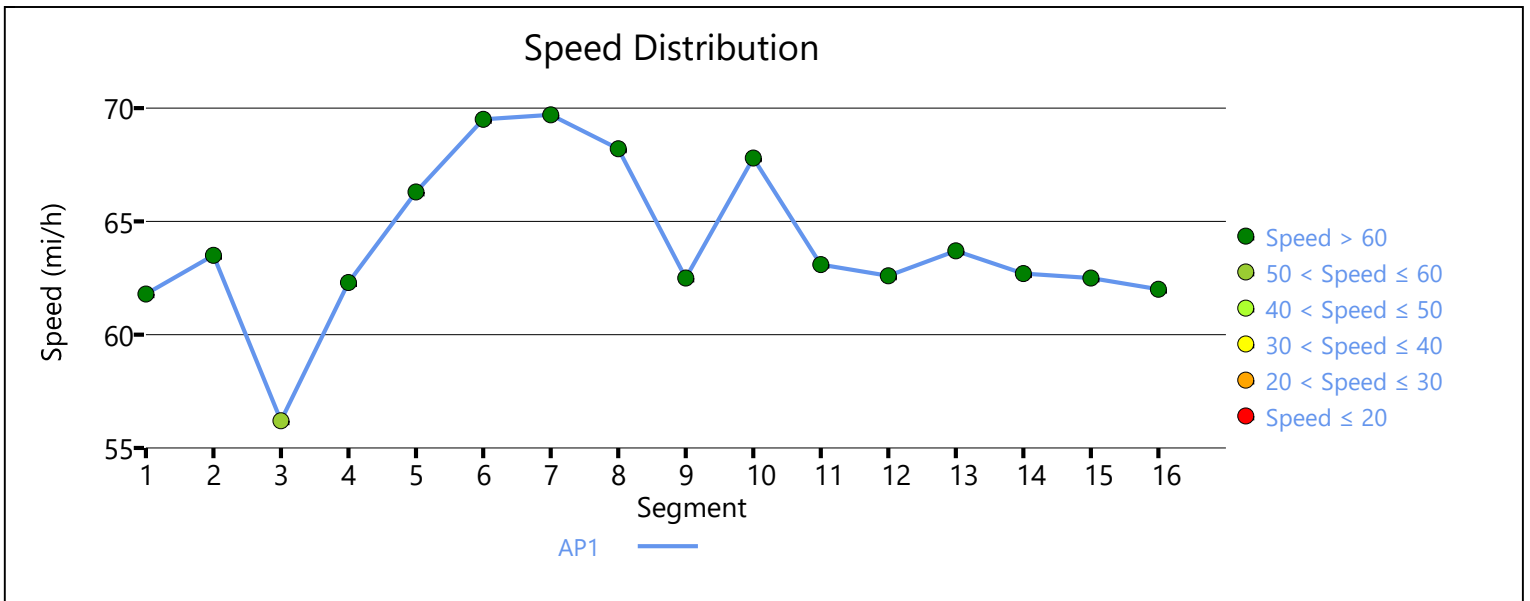
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	62.0

Vehicle Results

Average Speed, mi/h	62.0	Percent Followers, %	49.8
Segment Travel Time, minutes	1.62	Follower Density (FD), followers/mi/ln	3.3
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1345	1.01	1.5	A



HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2045
Jurisdiction	KYTC	Time Analyzed	2045 AM
Project Description	US 127 SB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	63.1

Vehicle Results

Average Speed, mi/h	63.1	Percent Followers, %	33.0
Segment Travel Time, minutes	1.59	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	734
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.50040	Speed Power Coefficient (p)	0.45654
PF Slope Coefficient (m)	-1.24582	PF Power Coefficient (p)	0.79769
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	62.9

Vehicle Results

Average Speed, mi/h	62.9	Percent Followers, %	37.8
Segment Travel Time, minutes	0.88	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	6336
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.24124	Speed Power Coefficient (p)	0.95118
PF Slope Coefficient (m)	-1.09010	PF Power Coefficient (p)	0.88259
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	63.4

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	187	111
Percentage of Heavy Vehicles (HV%), %	3.20	16.12
Initial Average Speed (Sint), mi/h	76.2	76.4
Average Speed at Midpoint (SPLmid), mi/h	77.8	74.7
Percent Followers at Midpoint (PFPLmid), %	21.4	13.9

Vehicle Results

Average Speed, mi/h	63.4	Percent Followers, %	31.2
Segment Travel Time, minutes	1.13	Follower Density (FD), followers/mi/ln	1.5
Follower Density Mid-Point, followers/mi/ln	0.4	Vehicle LOS	A

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	23.1	%Improvement to Speed	2.1

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	62.7

Vehicle Results

Average Speed, mi/h	64.0	Percent Followers, %	42.0
Segment Travel Time, minutes	0.09	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.61989	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.25608	PF Power Coefficient (p)	0.77475

In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	18.5	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	62.6

Vehicle Results

Average Speed, mi/h	63.5	Percent Followers, %	38.8
Segment Travel Time, minutes	0.85	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	553
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.48193	Speed Power Coefficient (p)	0.47532
PF Slope Coefficient (m)	-1.22551	PF Power Coefficient (p)	0.80050
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	14.5	%Improvement to Speed	0.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	62.9

Vehicle Results

Average Speed, mi/h	63.2	Percent Followers, %	37.2
Segment Travel Time, minutes	1.23	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	277	Opposing Demand Flow Rate, veh/h	-
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Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.32850	PF Power Coefficient (p)	0.77991
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	13.3	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	67.0

Vehicle Results

Average Speed, mi/h	67.0	Percent Followers, %	38.6
Segment Travel Time, minutes	0.54	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	170	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	13.2	%Improvement to Speed	0.1

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	63.5

Vehicle Results

Average Speed, mi/h	63.5	Percent Followers, %	29.3
Segment Travel Time, minutes	0.57	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Segment 9

Vehicle Inputs					
Segment Type		Passing Lanes	Length, ft	5808	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		170	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1400	Demand/Capacity (D/C)		0.12
Intermediate Results					
Segment Vertical Class		3	Free-Flow Speed, mi/h		70.0
Speed Slope Coefficient (m)		10.66380	Speed Power Coefficient (p)		1.16305
PF Slope Coefficient (m)		-0.93134	PF Power Coefficient (p)		0.80987
In Passing Lane Effective Length?		No	Total Segment Density, veh/mi/ln		0.5
%Improvement to Percent Followers		0.0	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	69.5
Passing Lane Results					
		Faster Lane		Slower Lane	
Flow Rate, veh/h		112		58	
Percentage of Heavy Vehicles (HV%), %		5.20		27.95	
Initial Average Speed (S _{int}), mi/h		75.6		69.7	
Average Speed at Midpoint (S _{PLmid}), mi/h		77.3		68.0	
Percent Followers at Midpoint (PF _{PLmid}), %		16.2		8.7	
Vehicle Results					
Average Speed, mi/h		69.5	Percent Followers, %		19.9
Segment Travel Time, minutes		0.95	Follower Density (FD), followers/mi/ln		0.5
Follower Density Mid-Point, followers/mi/ln		0.2	Vehicle LOS		A
Segment 10					
Vehicle Inputs					
Segment Type		Passing Constrained	Length, ft	1584	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		170	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1700	Demand/Capacity (D/C)		0.10
Intermediate Results					

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	22.7	%Improvement to Speed	1.9

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	68.5

Vehicle Results

Average Speed, mi/h	69.8	Percent Followers, %	28.1
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

Segment 11

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	170	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	11.18487	Speed Power Coefficient (p)	0.58463
PF Slope Coefficient (m)	-1.26753	PF Power Coefficient (p)	0.75322
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	14.9	%Improvement to Speed	0.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	67.6

Vehicle Results

Average Speed, mi/h	67.8	Percent Followers, %	28.4
Segment Travel Time, minutes	1.77	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

Segment 12

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	181	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	8.3	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	67.2

Vehicle Results			
Average Speed, mi/h	67.2	Percent Followers, %	33.3
Segment Travel Time, minutes	3.39	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

Segment 13

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.16

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.26253	Speed Power Coefficient (p)	0.95385
PF Slope Coefficient (m)	-1.10603	PF Power Coefficient (p)	0.82389
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	63.9

Passing Lane Results		
	Faster Lane	Slower Lane
Flow Rate, veh/h	143	80

Percentage of Heavy Vehicles (HV%), %	5.20	26.96
Initial Average Speed (Sint), mi/h	75.7	72.4
Average Speed at Midpoint (SPLmid), mi/h	77.4	70.7
Percent Followers at Midpoint (PFPLmid), %	18.1	9.8

Vehicle Results

Average Speed, mi/h	63.9	Percent Followers, %	27.5
Segment Travel Time, minutes	0.66	Follower Density (FD), followers/mi/ln	1.0
Follower Density Mid-Point, followers/mi/ln	0.2	Vehicle LOS	A

Segment 14

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	14.5	%Improvement to Speed	0.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	56.0

Vehicle Results

Average Speed, mi/h	56.2	Percent Followers, %	48.8
Segment Travel Time, minutes	2.24	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Segment 15

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15
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Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.63019	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24824	PF Power Coefficient (p)	0.77439
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	11.6	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	62.9

Vehicle Results

Average Speed, mi/h	62.9	Percent Followers, %	35.2
Segment Travel Time, minutes	1.05	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	10.6	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	62.0

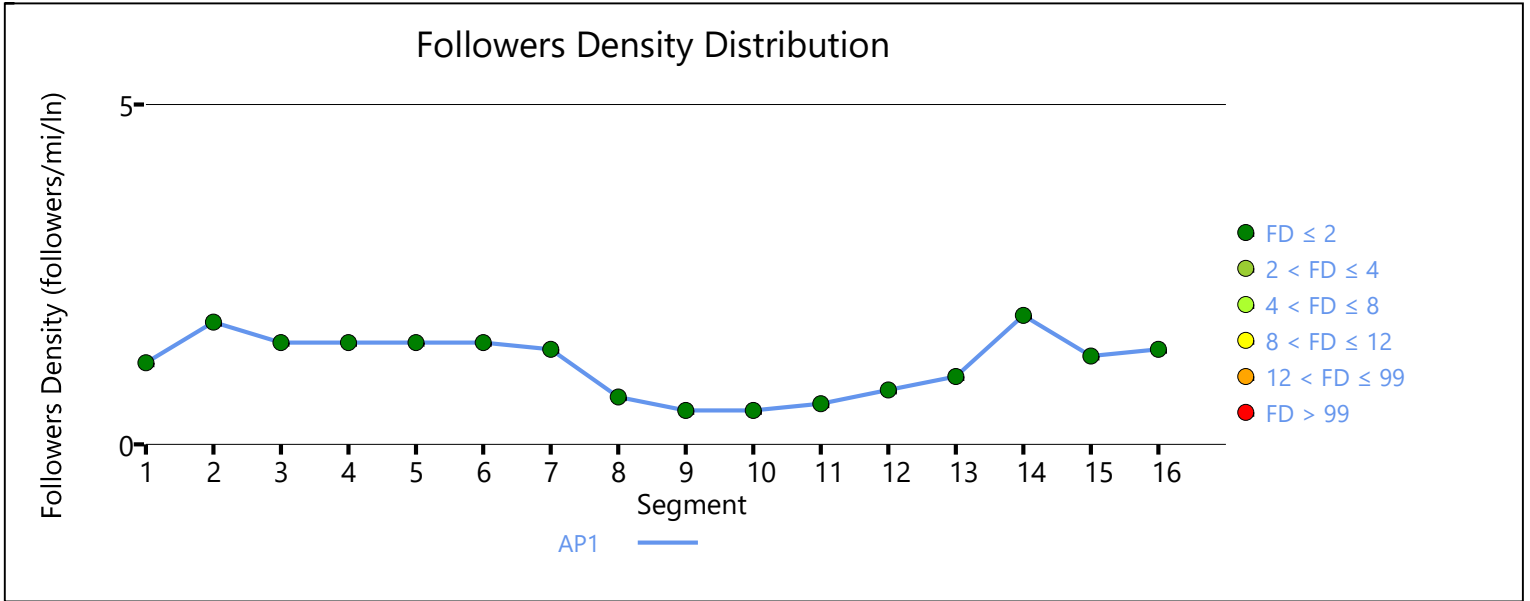
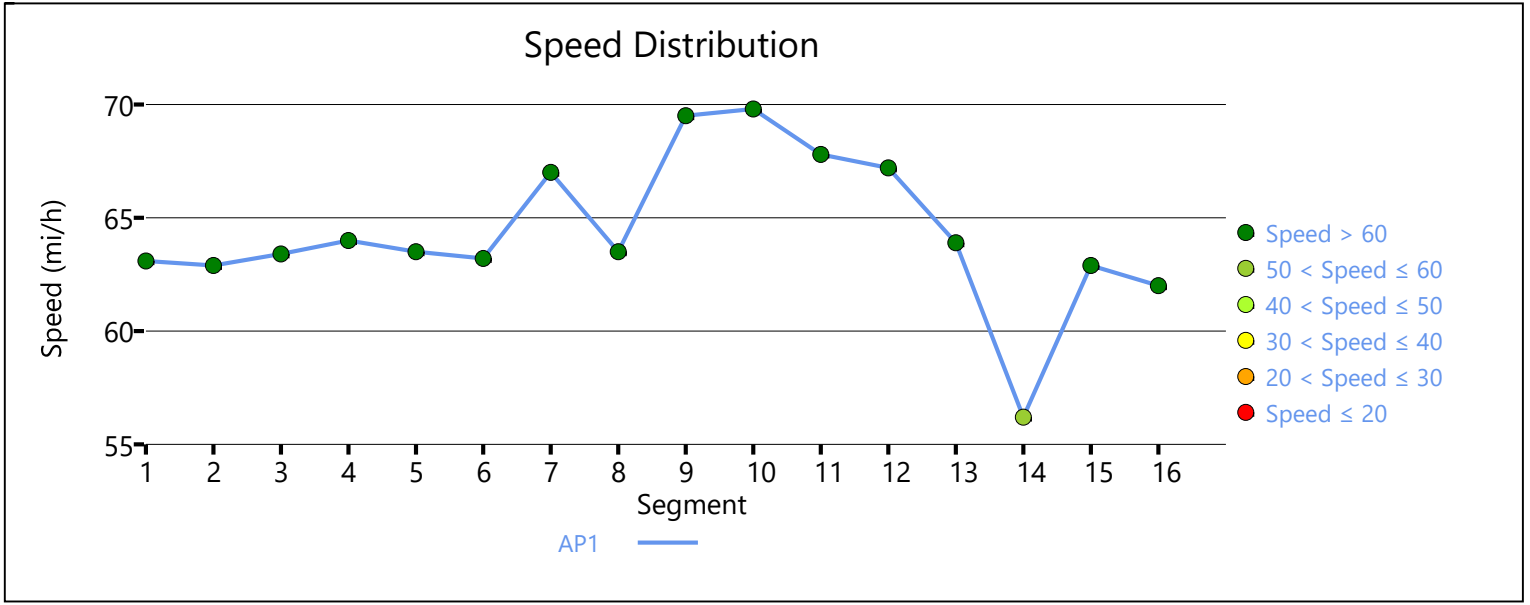
Vehicle Results

Average Speed, mi/h	62.0	Percent Followers, %	37.4
Segment Travel Time, minutes	0.48	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

Facility Results

T	VMT	VHD	Follower Density, followers/	LOS
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	veh-mi/AP	veh-h/p	mi/ln	
1	1016	0.71	1.0	A



HCS Two-Lane Highway Report

Project Information

Analyst	K. Luljak	Date	8/23/2023
Agency	HDR	Analysis Year	2045
Jurisdiction	KYTC	Time Analyzed	2045 PM
Project Description	US 127 SB	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8812
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	872	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.51

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.65521	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24954	PF Power Coefficient (p)	0.75957
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8812	-	-	60.8

Vehicle Results

Average Speed, mi/h	60.8	Percent Followers, %	67.6
Segment Travel Time, minutes	1.65	Follower Density (FD), followers/mi/ln	9.7
Vehicle LOS	D		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4863
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	809	Opposing Demand Flow Rate, veh/h	436
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.43604	Speed Power Coefficient (p)	0.49114
PF Slope Coefficient (m)	-1.22361	PF Power Coefficient (p)	0.81044
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4863	-	-	61.3

Vehicle Results

Average Speed, mi/h	61.3	Percent Followers, %	64.3
Segment Travel Time, minutes	0.90	Follower Density (FD), followers/mi/ln	8.5
Vehicle LOS	D		

Segment 3

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	6336
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	809	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.54

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.24124	Speed Power Coefficient (p)	0.95118
PF Slope Coefficient (m)	-1.09010	PF Power Coefficient (p)	0.88259
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6336	-	-	59.8

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	458	351
Percentage of Heavy Vehicles (HV%), %	3.20	14.26
Initial Average Speed (Sint), mi/h	74.3	74.3
Average Speed at Midpoint (SPLmid), mi/h	76.0	72.6
Percent Followers at Midpoint (PFPLmid), %	41.7	32.9

Vehicle Results

Average Speed, mi/h	59.8	Percent Followers, %	59.5
Segment Travel Time, minutes	1.20	Follower Density (FD), followers/mi/ln	8.0
Follower Density Mid-Point, followers/mi/ln	2.0	Vehicle LOS	B

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	528
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	628	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.34675	PF Power Coefficient (p)	0.74795
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	6.3
%Improvement to Percent Followers	22.5	%Improvement to Speed	3.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	528	-	-	61.5

Vehicle Results

Average Speed, mi/h	63.4	Percent Followers, %	61.3
Segment Travel Time, minutes	0.09	Follower Density (FD), followers/mi/ln	4.7
Vehicle LOS	C		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4752
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	628	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.61989	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.25608	PF Power Coefficient (p)	0.77475

In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	6.0
%Improvement to Percent Followers	17.9	%Improvement to Speed	2.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4752	-	-	61.5

Vehicle Results

Average Speed, mi/h	63.0	Percent Followers, %	58.3
Segment Travel Time, minutes	0.86	Follower Density (FD), followers/mi/ln	4.8
Vehicle LOS	C		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	6864
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	628	Opposing Demand Flow Rate, veh/h	383
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.44098	Speed Power Coefficient (p)	0.49966
PF Slope Coefficient (m)	-1.20864	PF Power Coefficient (p)	0.80885
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	5.7
%Improvement to Percent Followers	13.8	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6864	-	-	61.8

Vehicle Results

Average Speed, mi/h	62.6	Percent Followers, %	56.4
Segment Travel Time, minutes	1.25	Follower Density (FD), followers/mi/ln	4.9
Vehicle LOS	C		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	511	Opposing Demand Flow Rate, veh/h	-
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Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.32850	PF Power Coefficient (p)	0.77991
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.3
%Improvement to Percent Followers	13.6	%Improvement to Speed	1.5

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	64.4

Vehicle Results

Average Speed, mi/h	65.3	Percent Followers, %	54.5
Segment Travel Time, minutes	0.55	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

Segment 8

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3168
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.85846	Speed Power Coefficient (p)	0.73915
PF Slope Coefficient (m)	-1.34530	PF Power Coefficient (p)	0.76678
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	3.7
%Improvement to Percent Followers	13.2	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3168	-	-	60.1

Vehicle Results

Average Speed, mi/h	61.0	Percent Followers, %	50.9
Segment Travel Time, minutes	0.59	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

Segment 9

Vehicle Inputs					
Segment Type		Passing Lanes	Length, ft	5808	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		372	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1400	Demand/Capacity (D/C)		0.27
Intermediate Results					
Segment Vertical Class		3	Free-Flow Speed, mi/h		70.0
Speed Slope Coefficient (m)		10.66380	Speed Power Coefficient (p)		1.16305
PF Slope Coefficient (m)		-0.93134	PF Power Coefficient (p)		0.80987
In Passing Lane Effective Length?		No	Total Segment Density, veh/mi/ln		1.9
%Improvement to Percent Followers		0.0	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	67.7
Passing Lane Results					
		Faster Lane		Slower Lane	
Flow Rate, veh/h		227		145	
Percentage of Heavy Vehicles (HV%), %		5.20		25.20	
Initial Average Speed (S _{int}), mi/h		74.9		70.1	
Average Speed at Midpoint (S _{PLmid}), mi/h		76.6		68.3	
Percent Followers at Midpoint (PF _{PLmid}), %		27.7		17.0	
Vehicle Results					
Average Speed, mi/h		67.7	Percent Followers, %		34.2
Segment Travel Time, minutes		0.98	Follower Density (FD), followers/mi/ln		1.9
Follower Density Mid-Point, followers/mi/ln		0.6	Vehicle LOS		A
Segment 10					
Vehicle Inputs					
Segment Type		Passing Constrained	Length, ft	1584	
Measured FFS		Measured	Free-Flow Speed, mi/h	70.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h		372	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.94	Total Trucks, %		13.00
Segment Capacity, veh/h		1700	Demand/Capacity (D/C)		0.22
Intermediate Results					

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57863	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27849	PF Power Coefficient (p)	0.76483
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.5
%Improvement to Percent Followers	22.8	%Improvement to Speed	2.9

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1584	-	-	67.3

Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	45.1
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Segment 11

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	10560
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	11.18487	Speed Power Coefficient (p)	0.58463
PF Slope Coefficient (m)	-1.26753	PF Power Coefficient (p)	0.75322
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.6
%Improvement to Percent Followers	15.0	%Improvement to Speed	1.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10560	-	-	64.8

Vehicle Results

Average Speed, mi/h	65.6	Percent Followers, %	45.2
Segment Travel Time, minutes	1.83	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

Segment 12

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	12.62830	Speed Power Coefficient (p)	0.60494
PF Slope Coefficient (m)	-1.36292	PF Power Coefficient (p)	0.70869
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.8
%Improvement to Percent Followers	8.4	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20069	-	-	64.3

Vehicle Results			
Average Speed, mi/h	64.3	Percent Followers, %	49.2
Segment Travel Time, minutes	3.55	Follower Density (FD), followers/mi/ln	2.6
Vehicle LOS	B		

Segment 13

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	3696
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	362	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.26253	Speed Power Coefficient (p)	0.95385
PF Slope Coefficient (m)	-1.10603	PF Power Coefficient (p)	0.82389
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3696	-	-	62.7

Passing Lane Results		
	Faster Lane	Slower Lane
Flow Rate, veh/h	221	140

Percentage of Heavy Vehicles (HV%), %	5.20	25.30
Initial Average Speed (Sint), mi/h	75.1	72.3
Average Speed at Midpoint (SPLmid), mi/h	76.8	70.6
Percent Followers at Midpoint (PFPLmid), %	25.3	16.2

Vehicle Results

Average Speed, mi/h	62.7	Percent Followers, %	38.0
Segment Travel Time, minutes	0.67	Follower Density (FD), followers/mi/ln	2.2
Follower Density Mid-Point, followers/mi/ln	0.5	Vehicle LOS	A

Segment 14

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	11088
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	362	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	23.32522	Speed Power Coefficient (p)	0.51393
PF Slope Coefficient (m)	-1.91200	PF Power Coefficient (p)	0.76801
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	4.0
%Improvement to Percent Followers	15.0	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	11088	-	-	53.3

Vehicle Results

Average Speed, mi/h	54.0	Percent Followers, %	58.3
Segment Travel Time, minutes	2.33	Follower Density (FD), followers/mi/ln	3.3
Vehicle LOS	B		

Segment 15

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5808
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18
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Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.63019	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.24824	PF Power Coefficient (p)	0.77439
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	12.7	%Improvement to Speed	0.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5808	-	-	62.6

Vehicle Results

Average Speed, mi/h	63.1	Percent Followers, %	39.5
Segment Travel Time, minutes	1.05	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 16

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2640
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	12.43125	Speed Power Coefficient (p)	0.75892
PF Slope Coefficient (m)	-1.34725	PF Power Coefficient (p)	0.77319
In Passing Lane Effective Length?	Yes	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	11.6	%Improvement to Speed	0.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2640	-	-	61.2

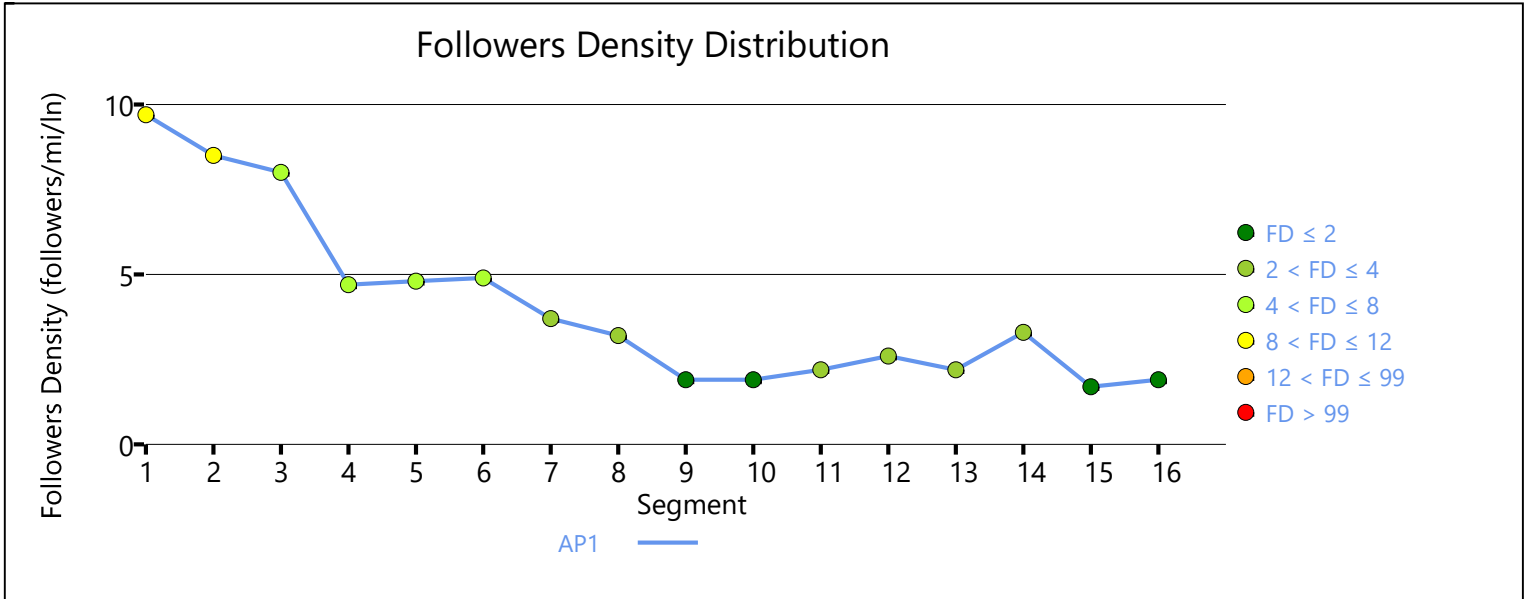
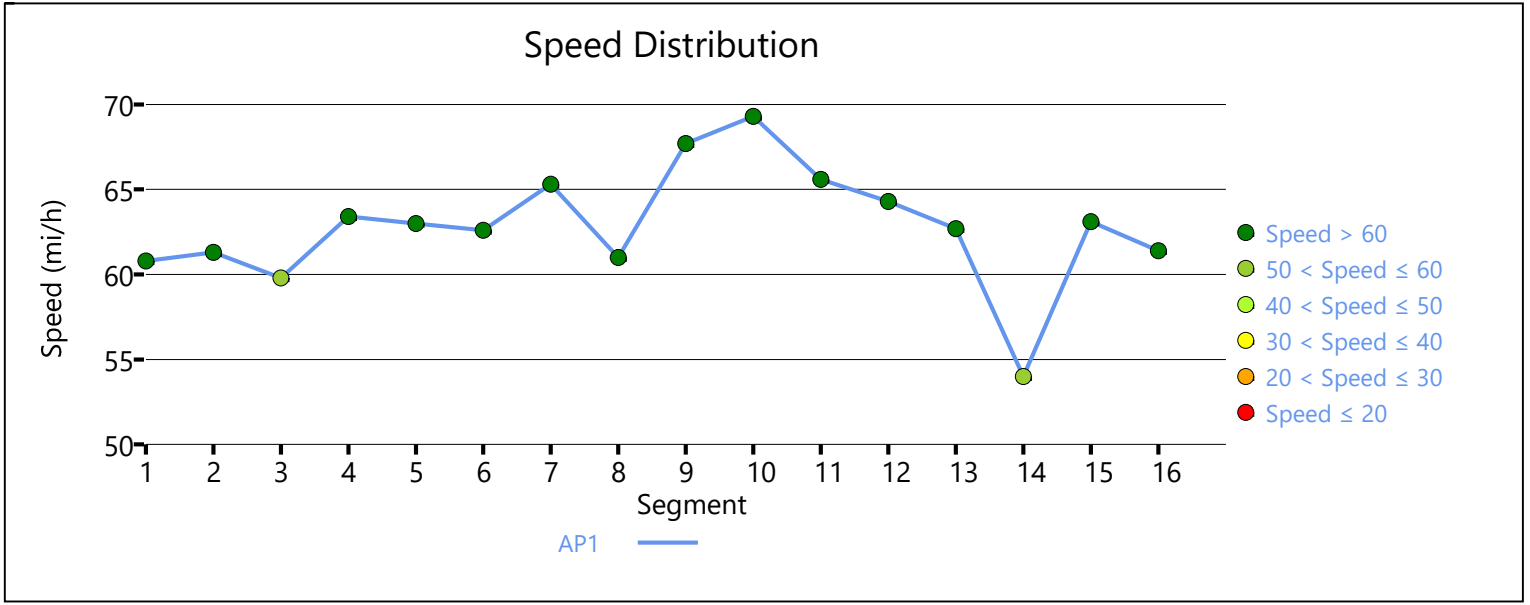
Vehicle Results

Average Speed, mi/h	61.4	Percent Followers, %	41.9
Segment Travel Time, minutes	0.49	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Facility Results

T	VMT	VHD	Follower Density, followers/	LOS
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	veh-mi/AP	veh-h/p	mi/ln	
1	2202	2.46	3.6	B



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5870
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	20.40067	Speed Power Coefficient (p)	0.64277
PF Slope Coefficient (m)	-1.68820	PF Power Coefficient (p)	0.77140
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5870	-	-	53.6

Vehicle Results

Average Speed, mi/h	53.6	Percent Followers, %	45.5
Segment Travel Time, minutes	1.25	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	9105
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	255
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	21.00478	Speed Power Coefficient (p)	0.73560
PF Slope Coefficient (m)	-1.44453	PF Power Coefficient (p)	0.85031
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	9105	-	-	59.4

Vehicle Results

Average Speed, mi/h	59.4	Percent Followers, %	37.4
Segment Travel Time, minutes	1.74	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1155
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	255
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.33788	Speed Power Coefficient (p)	0.52506
PF Slope Coefficient (m)	-1.31478	PF Power Coefficient (p)	0.78009
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1155	-	-	58.3

Vehicle Results

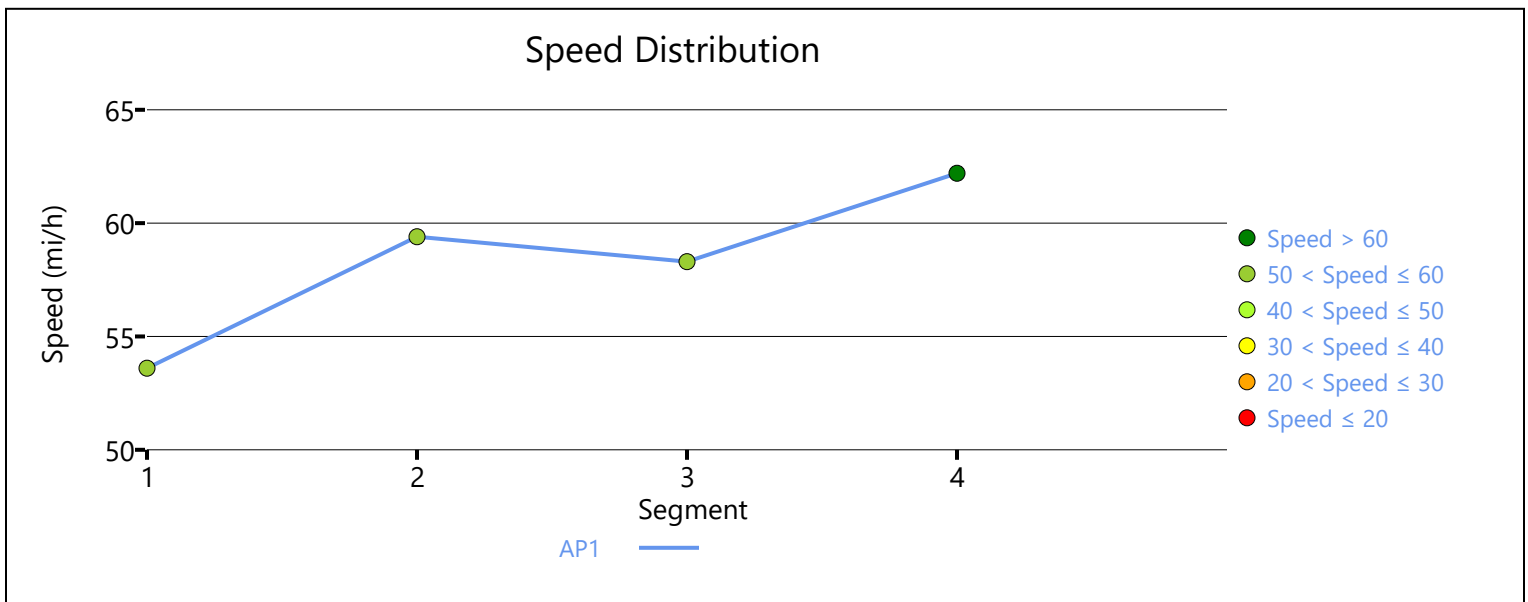
Average Speed, mi/h	58.3	Percent Followers, %	37.4
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 4

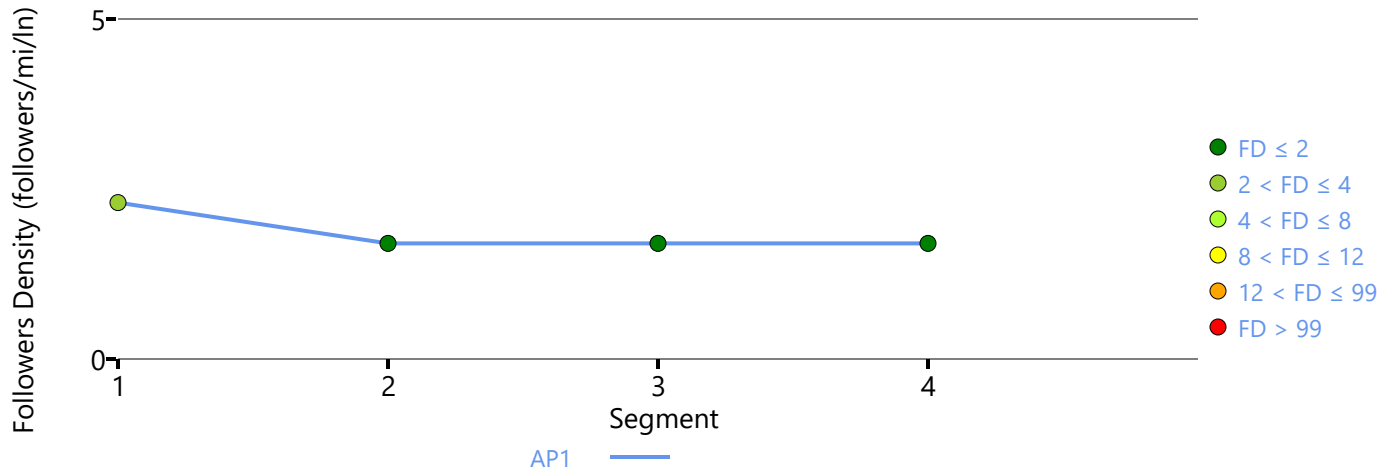
Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2065
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity					
Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	13.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16		
Intermediate Results					
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	7.60245	Speed Power Coefficient (p)	0.55196		
PF Slope Coefficient (m)	-1.38515	PF Power Coefficient (p)	0.74786		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2065	-	-	62.2
Vehicle Results					
Average Speed, mi/h	62.2	Percent Followers, %	40.2		
Segment Travel Time, minutes	0.38	Follower Density (FD), followers/mi/ln	1.7		
Vehicle LOS	A				
Facility Results					
T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS	
1	215	0.32	1.9	A	



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1800
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	7.41397	Speed Power Coefficient (p)	0.55094
PF Slope Coefficient (m)	-1.44941	PF Power Coefficient (p)	0.73363
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1800	-	-	56.9

Vehicle Results

Average Speed, mi/h	56.9	Percent Followers, %	45.8
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	2.5
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4320
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.61535	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26013	PF Power Coefficient (p)	0.77511
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

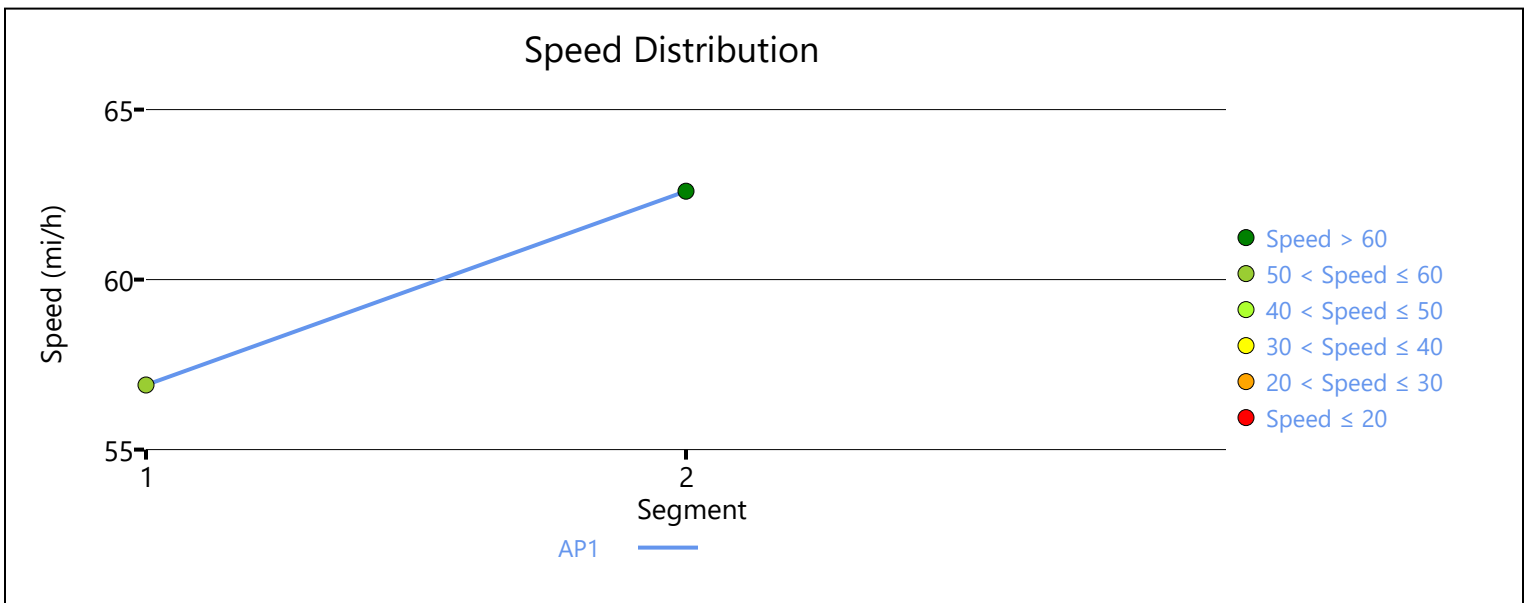
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4320	-	-	62.6

Vehicle Results

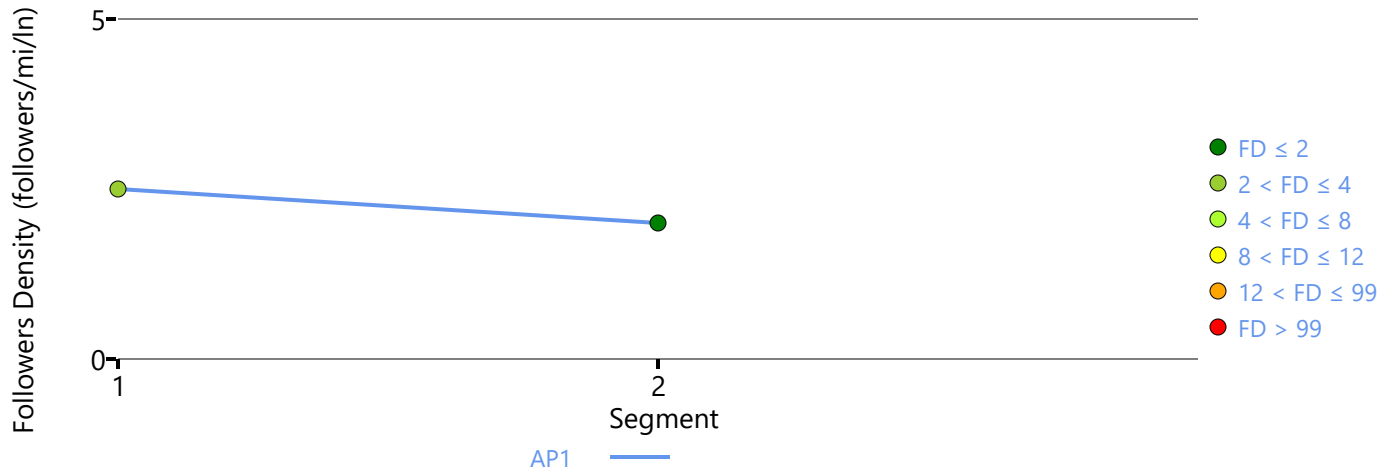
Average Speed, mi/h	62.6	Percent Followers, %	39.7
Segment Travel Time, minutes	0.78	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	84	0.06	2.1	A



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8660
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	287	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.57846	Speed Power Coefficient (p)	0.57732
PF Slope Coefficient (m)	-1.29399	PF Power Coefficient (p)	0.75228
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8660	-	-	61.0

Vehicle Results

Average Speed, mi/h	61.0	Percent Followers, %	39.7
Segment Travel Time, minutes	1.61	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	111	0.11	1.9	A

HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5655
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	9.46227	Speed Power Coefficient (p)	0.56577
PF Slope Coefficient (m)	-1.29188	PF Power Coefficient (p)	0.76223
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5655	-	-	61.2

Vehicle Results

Average Speed, mi/h	61.2	Percent Followers, %	40.1
Segment Travel Time, minutes	1.05	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	75	0.07	2.0	A

HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2045
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4745
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	170
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.35359	Speed Power Coefficient (p)	0.54810
PF Slope Coefficient (m)	-1.18016	PF Power Coefficient (p)	0.82853
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4745	-	-	63.2

Vehicle Results

Average Speed, mi/h	63.2	Percent Followers, %	35.1
Segment Travel Time, minutes	0.85	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	17145
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	170
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	5	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	33.97834	Speed Power Coefficient (p)	0.57207
PF Slope Coefficient (m)	-1.47545	PF Power Coefficient (p)	0.89904
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16980	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	39.1
Segment Travel Time, minutes	3.78	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1005
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39545	PF Power Coefficient (p)	0.73788
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

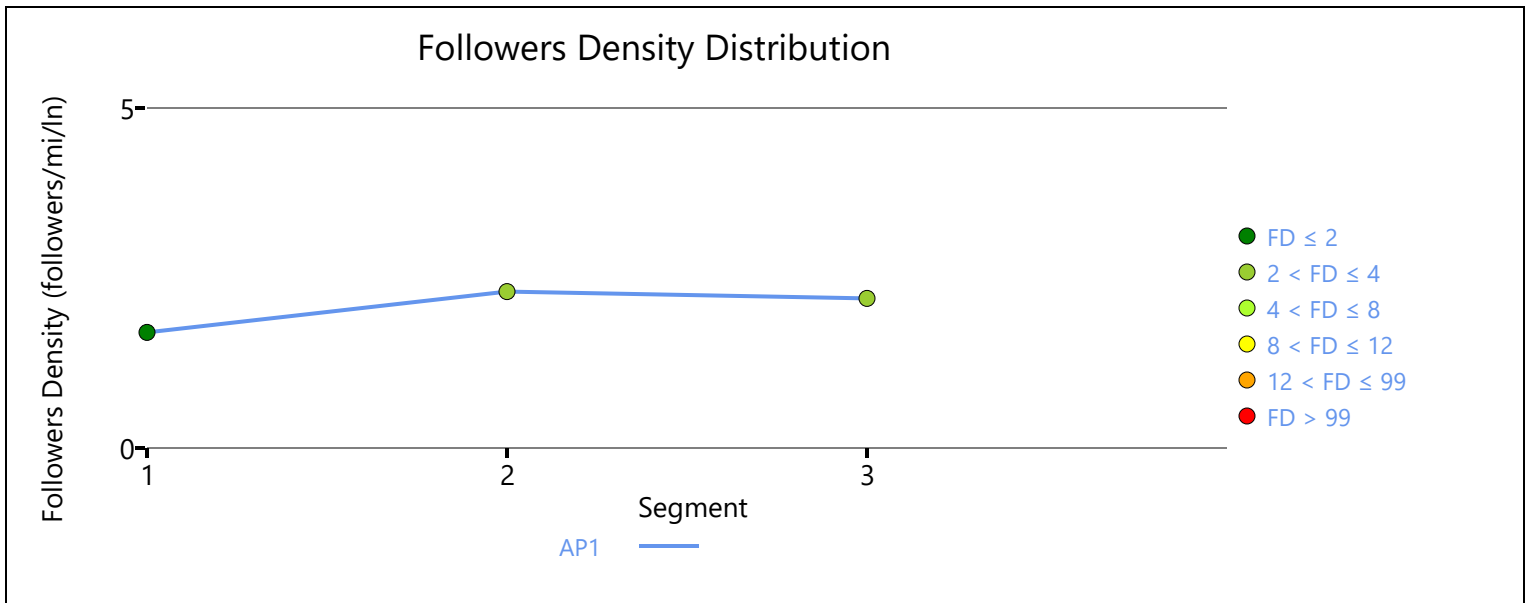
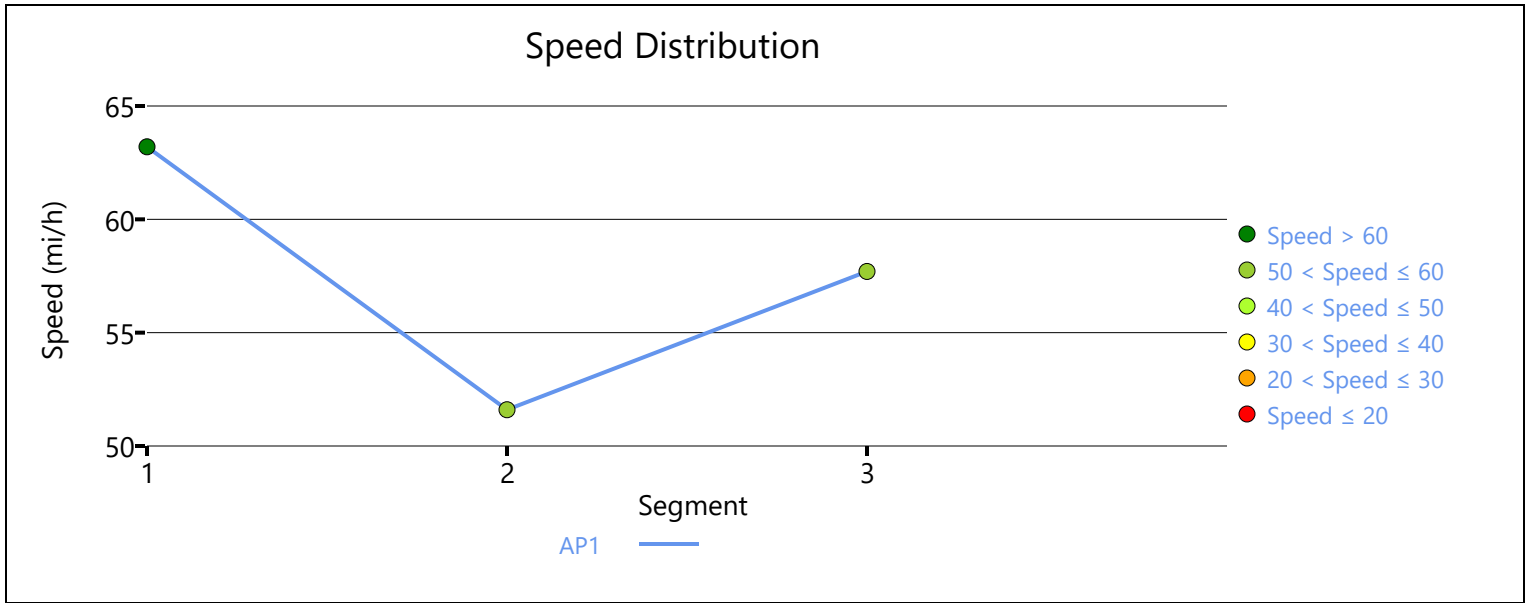
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1165	-	-	57.7

Vehicle Results

Average Speed, mi/h	57.7	Percent Followers, %	43.5
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	304	0.95	2.1	B



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1230
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	394	Opposing Demand Flow Rate, veh/h	170
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	5.52754	Speed Power Coefficient (p)	0.69824
PF Slope Coefficient (m)	-1.30103	PF Power Coefficient (p)	0.77848
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1230	-	-	57.7

Vehicle Results

Average Speed, mi/h	57.7	Percent Followers, %	46.7
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2005
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	394	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	9.73487	Speed Power Coefficient (p)	0.72660
PF Slope Coefficient (m)	-1.38882	PF Power Coefficient (p)	0.76267
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2005	-	-	61.0

Vehicle Results

Average Speed, mi/h	61.0	Percent Followers, %	49.4
Segment Travel Time, minutes	0.37	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	810
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	394	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.06943	Speed Power Coefficient (p)	0.54600
PF Slope Coefficient (m)	-1.36072	PF Power Coefficient (p)	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

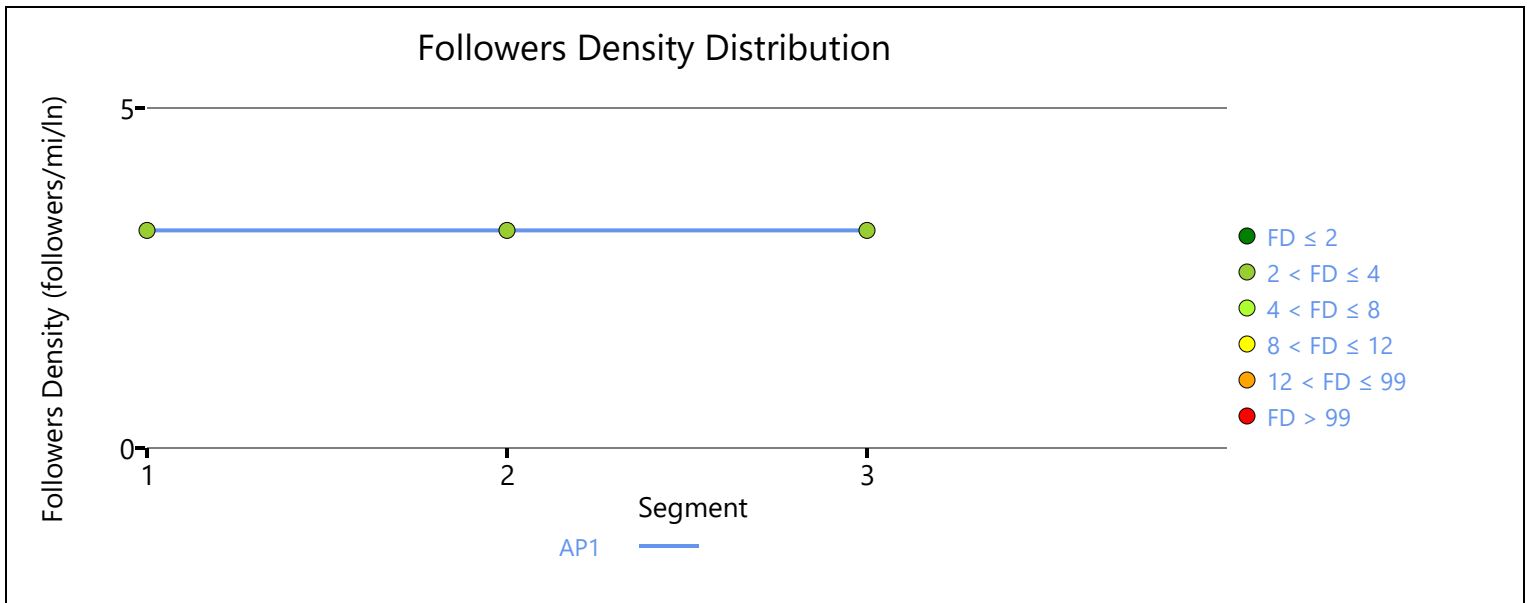
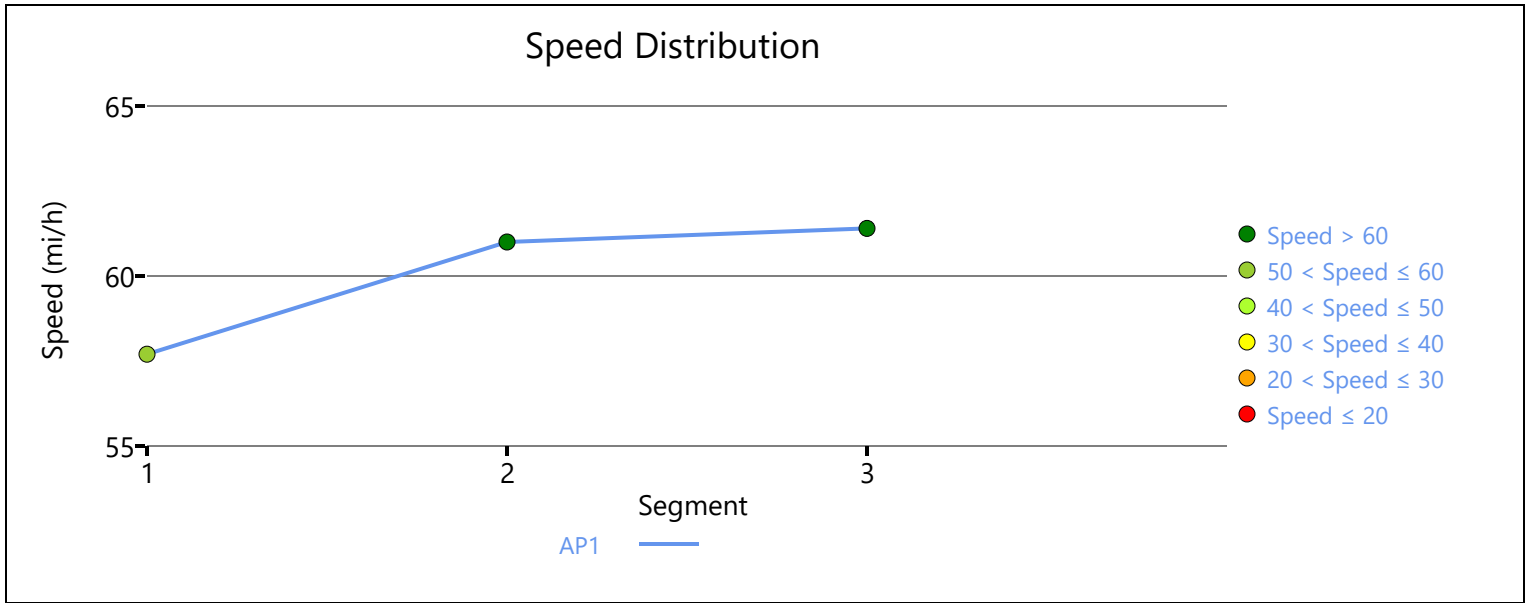
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	810	-	-	61.4

Vehicle Results

Average Speed, mi/h	61.4	Percent Followers, %	49.1
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	3.2
Follower Density Mid-Point, followers/mi/ln	0.0	Vehicle LOS	B

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	71	0.06	3.2	B



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	2/20/2023
Agency	WSP	Analysis Year	2023
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	2255
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.37964	Speed Power Coefficient (p)	0.73345
PF Slope Coefficient (m)	-1.35989	PF Power Coefficient (p)	0.76573
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2255	-	-	60.3

Vehicle Results

Average Speed, mi/h	60.3	Percent Followers, %	51.3
Segment Travel Time, minutes	0.42	Follower Density (FD), followers/mi/ln	3.7
Follower Density Mid-Point, followers/mi/ln	0.0	Vehicle LOS	B

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5880
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	15.61923	Speed Power Coefficient (p)	0.78694
PF Slope Coefficient (m)	-1.36403	PF Power Coefficient (p)	0.85271
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

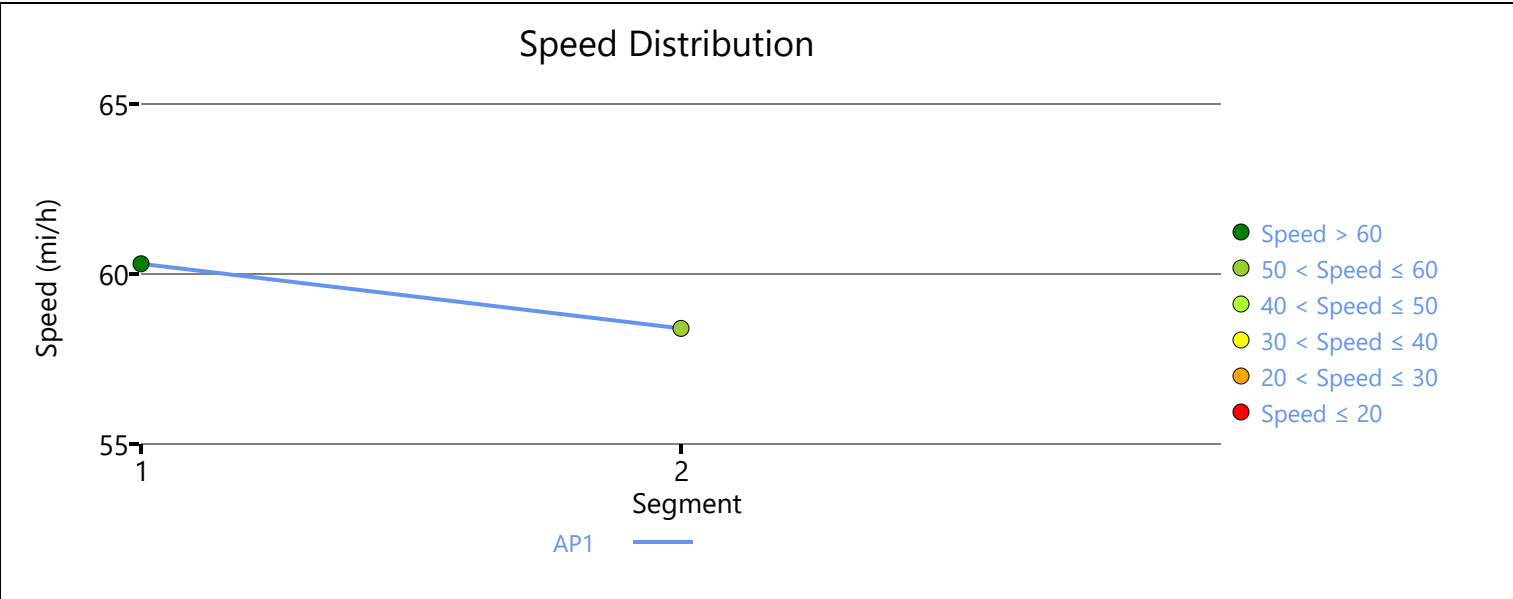
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5880	-	-	58.4

Vehicle Results

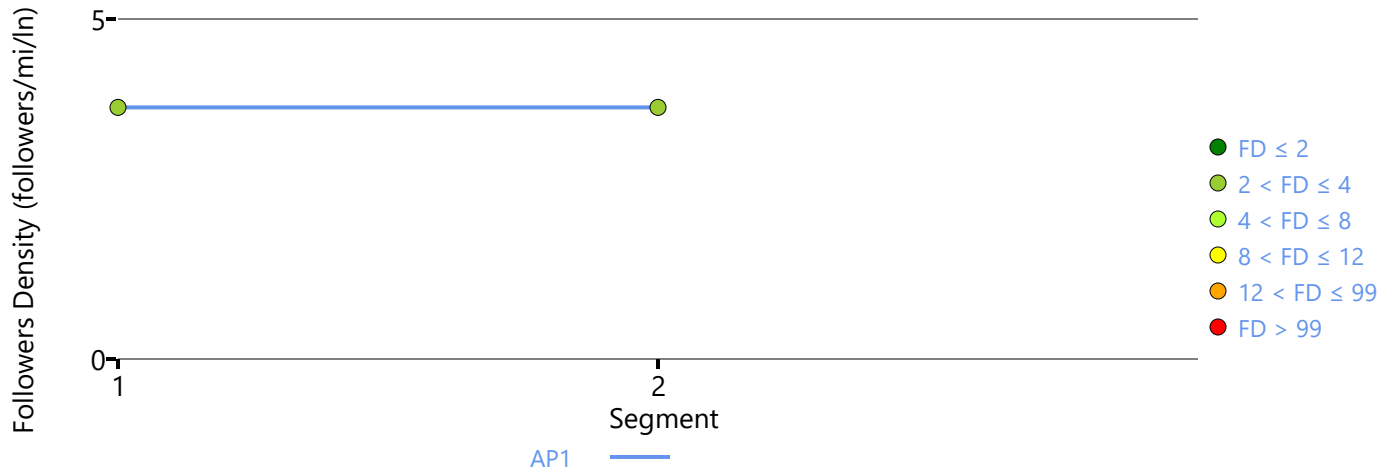
Average Speed, mi/h	58.4	Percent Followers, %	48.9
Segment Travel Time, minutes	1.14	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	158	0.25	3.7	B



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	6310
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	553	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	8.82281	Speed Power Coefficient (p)	0.56011
PF Slope Coefficient (m)	-1.33530	PF Power Coefficient (p)	0.74431
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6310	-	-	54.3

Vehicle Results

Average Speed, mi/h	54.3	Percent Followers, %	57.7
Segment Travel Time, minutes	1.32	Follower Density (FD), followers/mi/ln	5.9
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	155	0.27	5.9	C

HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	325
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	734	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39609	PF Power Coefficient (p)	0.73717
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	325	-	-	56.2

Vehicle Results

Average Speed, mi/h	56.2	Percent Followers, %	67.1
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	8.8
Vehicle LOS	D		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	6595
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	734	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.93369	Speed Power Coefficient (p)	0.56121
PF Slope Coefficient (m)	-1.29247	PF Power Coefficient (p)	0.75694
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6595	-	-	58.1

Vehicle Results

Average Speed, mi/h	58.1	Percent Followers, %	64.0
Segment Travel Time, minutes	1.29	Follower Density (FD), followers/mi/ln	8.1
Vehicle LOS	D		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1510
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	734	Opposing Demand Flow Rate, veh/h	574
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.42428	Speed Power Coefficient (p)	0.47280
PF Slope Coefficient (m)	-1.35141	PF Power Coefficient (p)	0.76858
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1510	-	-	56.4

Vehicle Results

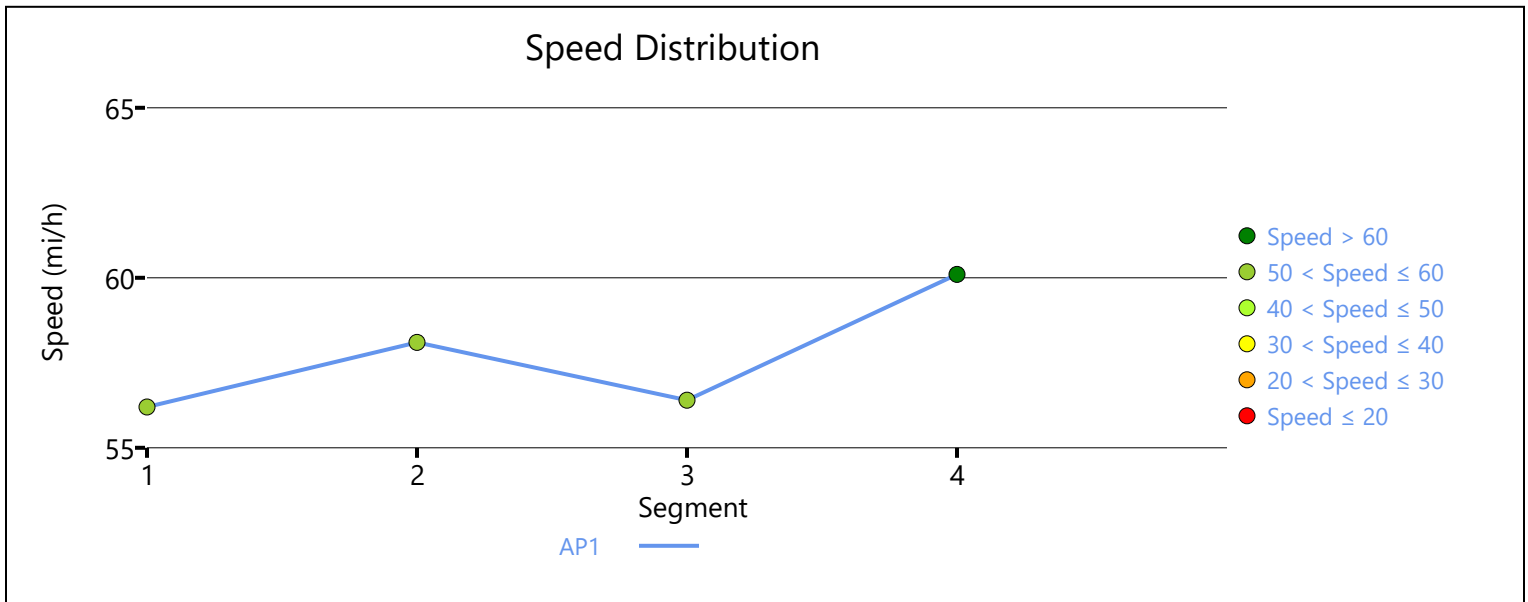
Average Speed, mi/h	56.4	Percent Followers, %	65.5
Segment Travel Time, minutes	0.30	Follower Density (FD), followers/mi/ln	8.5
Vehicle LOS	D		

Segment 4

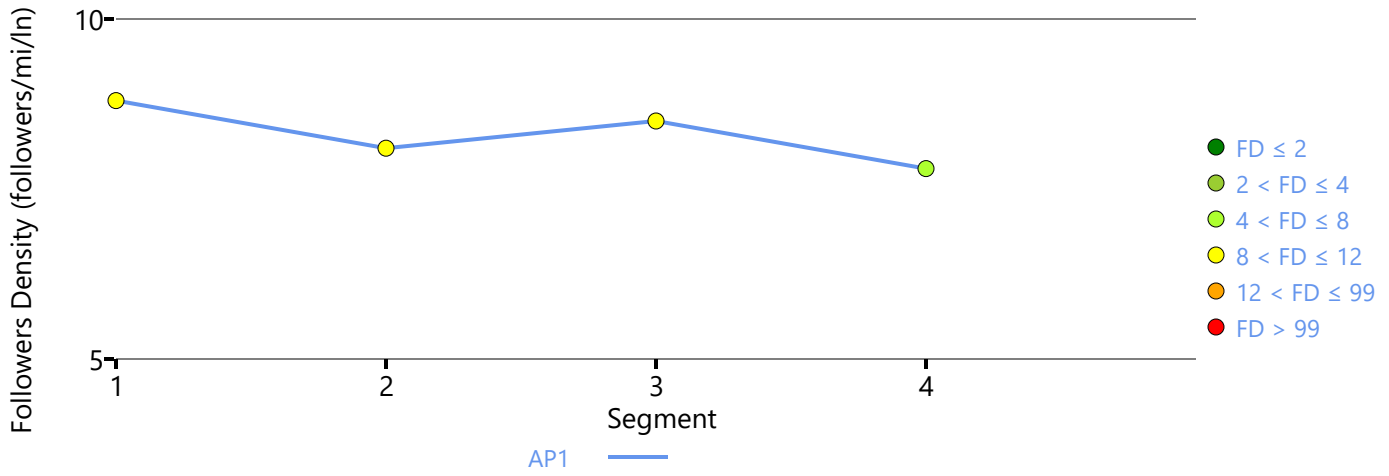
Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2250
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity					
Directional Demand Flow Rate, veh/h	734	Opposing Demand Flow Rate, veh/h	574		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43		
Intermediate Results					
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	6.47714	Speed Power Coefficient (p)	0.61088		
PF Slope Coefficient (m)	-1.29646	PF Power Coefficient (p)	0.78421		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2250	-	-	60.1
Vehicle Results					
Average Speed, mi/h	60.1	Percent Followers, %	63.8		
Segment Travel Time, minutes	0.43	Follower Density (FD), followers/mi/ln	7.8		
Vehicle LOS	C				
Facility Results					
T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS	
1	349	0.55	8.1	D	



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3420
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	766	Opposing Demand Flow Rate, veh/h	223
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.45

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.35855	Speed Power Coefficient (p)	0.53293
PF Slope Coefficient (m)	-1.21020	PF Power Coefficient (p)	0.81968
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3420	-	-	61.5

Vehicle Results

Average Speed, mi/h	61.5	Percent Followers, %	62.2
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	7.7
Vehicle LOS	C		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4080
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	766	Opposing Demand Flow Rate, veh/h	223
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.45

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.29344	Speed Power Coefficient (p)	0.69048
PF Slope Coefficient (m)	-1.17390	PF Power Coefficient (p)	0.82145
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4080	-	-	59.5

Vehicle Results

Average Speed, mi/h	59.5	Percent Followers, %	61.1
Segment Travel Time, minutes	0.78	Follower Density (FD), followers/mi/ln	7.9
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3390
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	798	Opposing Demand Flow Rate, veh/h	202
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.47

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	6.92317	Speed Power Coefficient (p)	0.69475
PF Slope Coefficient (m)	-1.21178	PF Power Coefficient (p)	0.80292
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

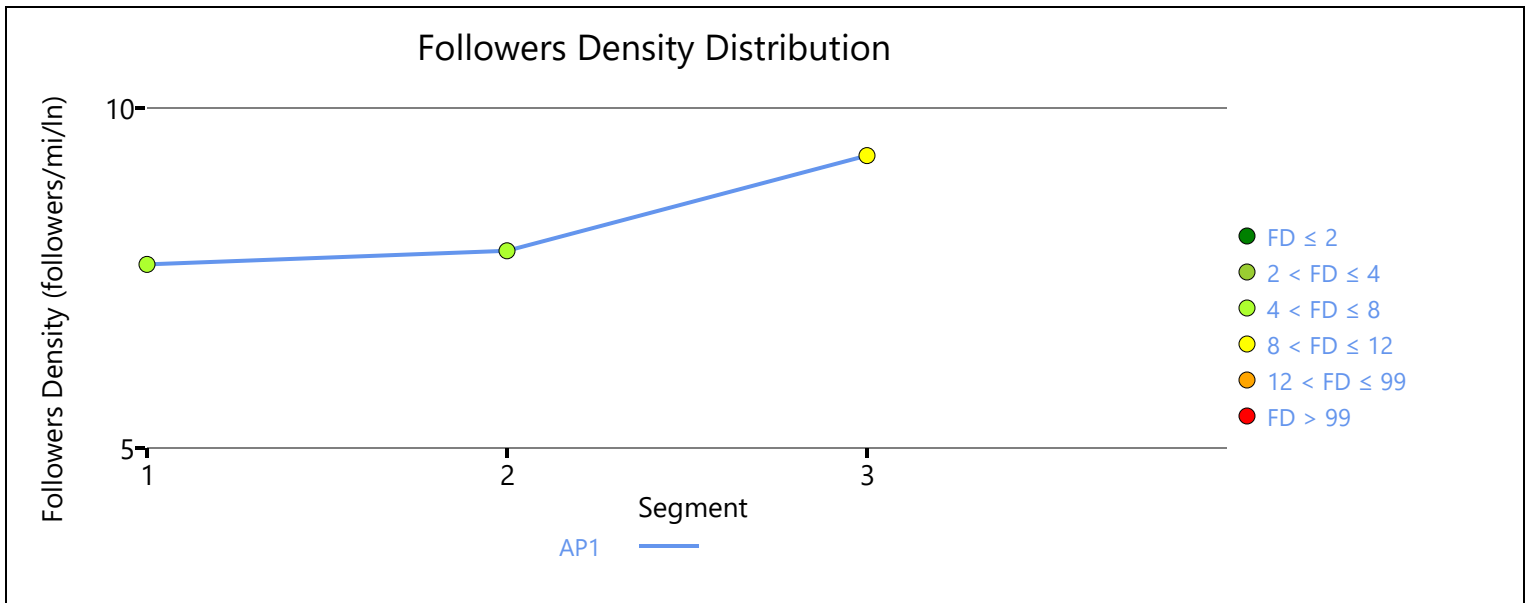
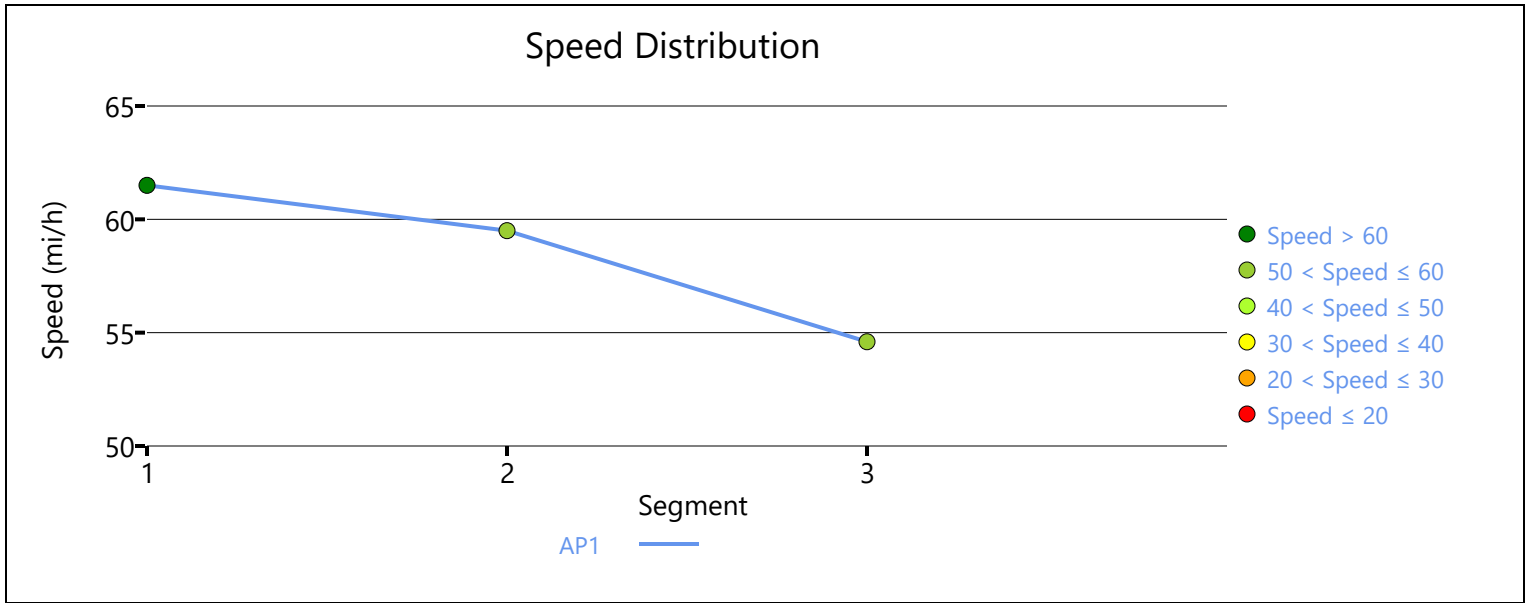
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3390	-	-	54.6

Vehicle Results

Average Speed, mi/h	54.6	Percent Followers, %	63.6
Segment Travel Time, minutes	0.71	Follower Density (FD), followers/mi/ln	9.3
Vehicle LOS	D		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	376	0.50	8.3	D



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5870
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	20.40067	Speed Power Coefficient (p)	0.64277
PF Slope Coefficient (m)	-1.68820	PF Power Coefficient (p)	0.77140
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5870	-	-	53.6

Vehicle Results

Average Speed, mi/h	53.6	Percent Followers, %	45.5
Segment Travel Time, minutes	1.25	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	9105
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	309
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	21.09630	Speed Power Coefficient (p)	0.71494
PF Slope Coefficient (m)	-1.46906	PF Power Coefficient (p)	0.84571
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	9105	-	-	59.2

Vehicle Results

Average Speed, mi/h	59.2	Percent Followers, %	38.1
Segment Travel Time, minutes	1.75	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1155
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	309
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.35432	Speed Power Coefficient (p)	0.51346
PF Slope Coefficient (m)	-1.32554	PF Power Coefficient (p)	0.77717
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1155	-	-	58.3

Vehicle Results

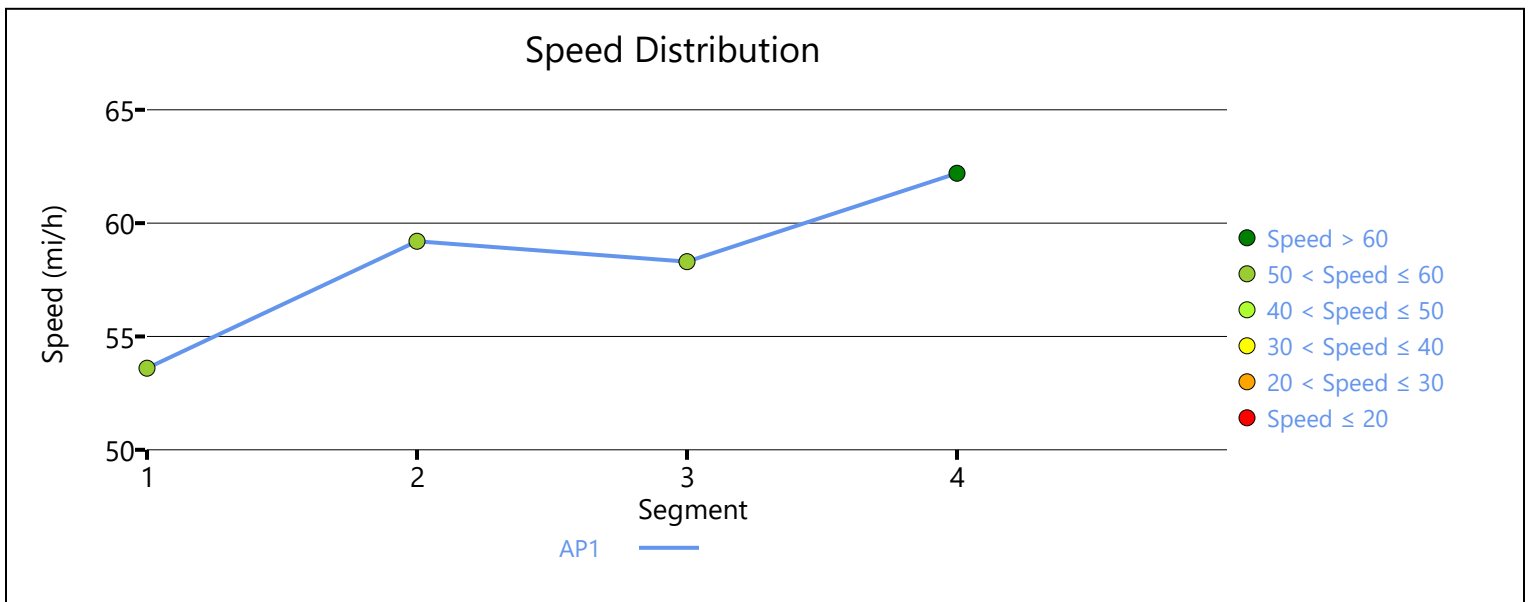
Average Speed, mi/h	58.3	Percent Followers, %	37.7
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 4

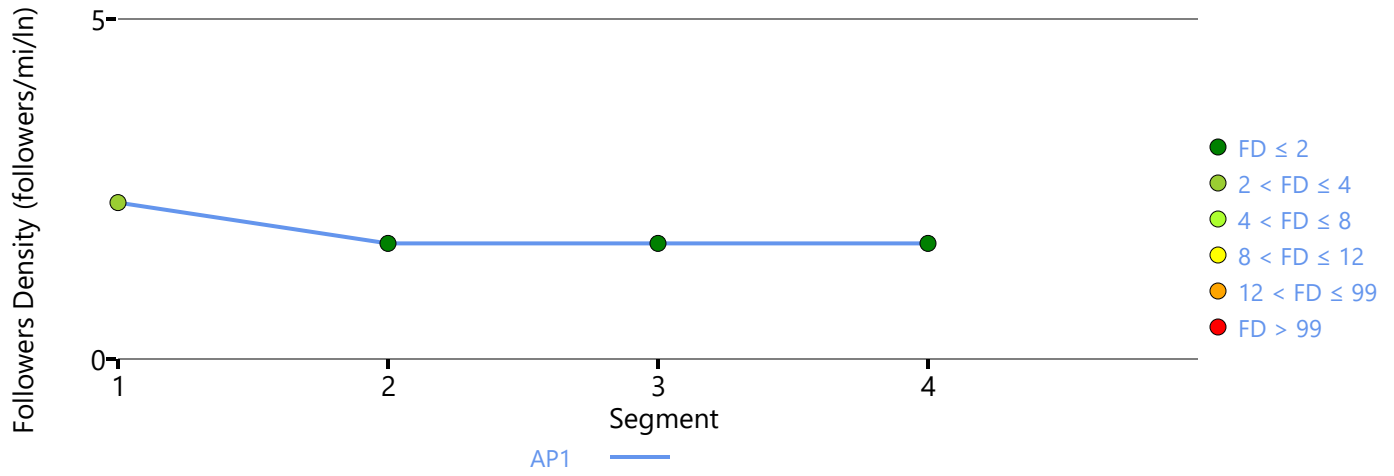
Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2065
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity					
Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.94	Total Trucks, %	13.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16		
Intermediate Results					
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	7.60245	Speed Power Coefficient (p)	0.55196		
PF Slope Coefficient (m)	-1.38515	PF Power Coefficient (p)	0.74786		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2065	-	-	62.2
Vehicle Results					
Average Speed, mi/h	62.2	Percent Followers, %	40.2		
Segment Travel Time, minutes	0.38	Follower Density (FD), followers/mi/ln	1.7		
Vehicle LOS	A				
Facility Results					
T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS	
1	215	0.33	1.9	A	



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1800
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	7.41397	Speed Power Coefficient (p)	0.55094
PF Slope Coefficient (m)	-1.44941	PF Power Coefficient (p)	0.73363
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1800	-	-	57.4

Vehicle Results

Average Speed, mi/h	57.4	Percent Followers, %	40.3
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4320
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.61535	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26013	PF Power Coefficient (p)	0.77511
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

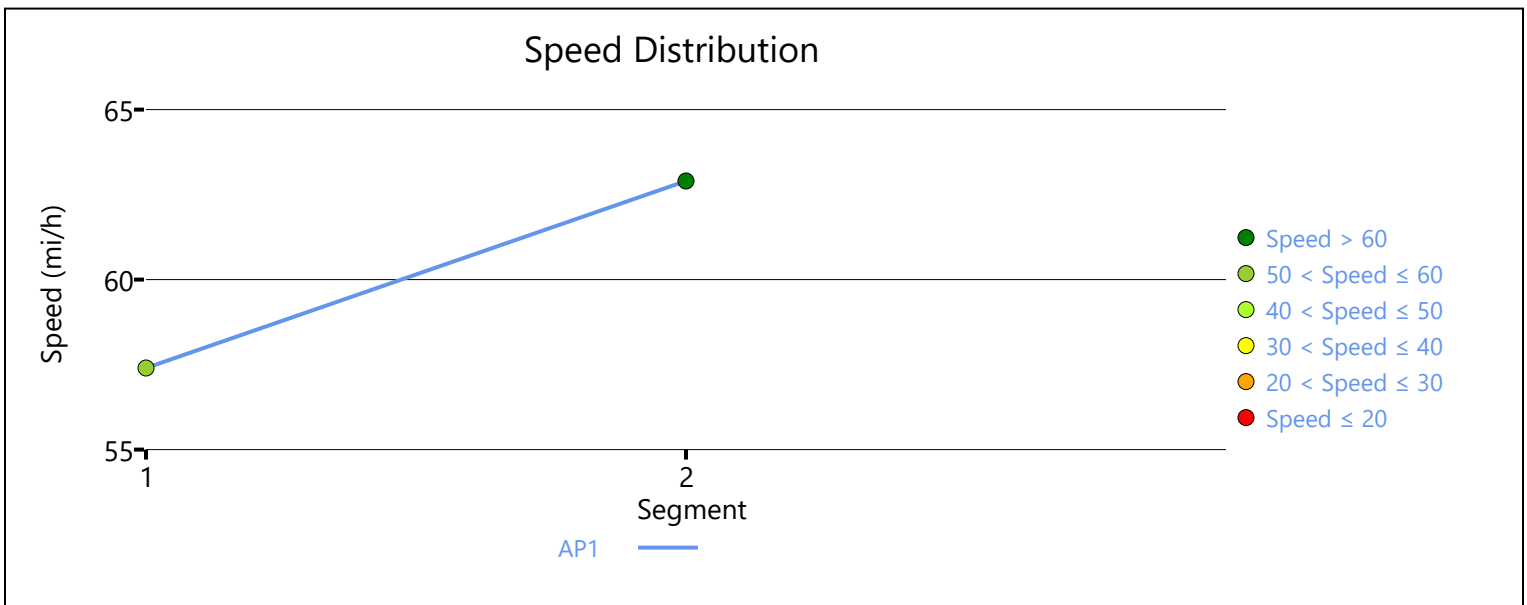
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4320	-	-	62.9

Vehicle Results

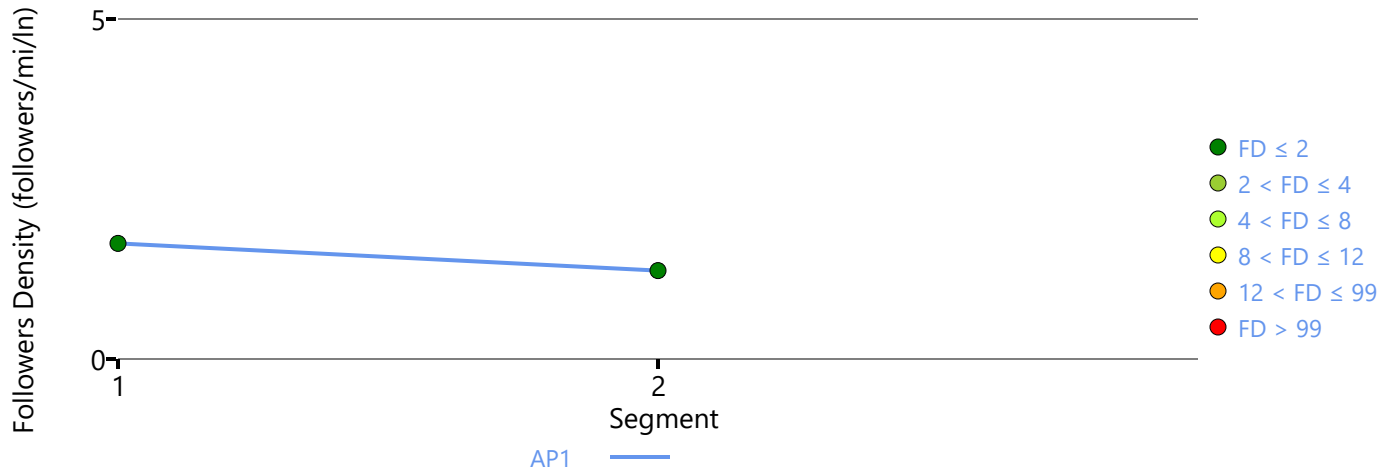
Average Speed, mi/h	62.9	Percent Followers, %	34.5
Segment Travel Time, minutes	0.78	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	67	0.04	1.5	A



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8660
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.57846	Speed Power Coefficient (p)	0.57732
PF Slope Coefficient (m)	-1.29399	PF Power Coefficient (p)	0.75228
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8660	-	-	61.8

Vehicle Results

Average Speed, mi/h	61.8	Percent Followers, %	34.2
Segment Travel Time, minutes	1.59	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	86	0.07	1.2	A

HCS Two-Lane Highway Report

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Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5655
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	234	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	9.46227	Speed Power Coefficient (p)	0.56577
PF Slope Coefficient (m)	-1.29188	PF Power Coefficient (p)	0.76223
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5655	-	-	62.0

Vehicle Results

Average Speed, mi/h	62.0	Percent Followers, %	34.8
Segment Travel Time, minutes	1.04	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	59	0.04	1.3	A

HCS Two-Lane Highway Report

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Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4745
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	372
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.41837	Speed Power Coefficient (p)	0.50149
PF Slope Coefficient (m)	-1.21659	PF Power Coefficient (p)	0.81454
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4745	-	-	63.5

Vehicle Results

Average Speed, mi/h	63.5	Percent Followers, %	30.2
Segment Travel Time, minutes	0.85	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	17145
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	372
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	5	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	34.36319	Speed Power Coefficient (p)	0.48301
PF Slope Coefficient (m)	-1.60402	PF Power Coefficient (p)	0.88014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16980	-	-	52.5

Vehicle Results

Average Speed, mi/h	52.5	Percent Followers, %	34.9
Segment Travel Time, minutes	3.71	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1005
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39545	PF Power Coefficient (p)	0.73788
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

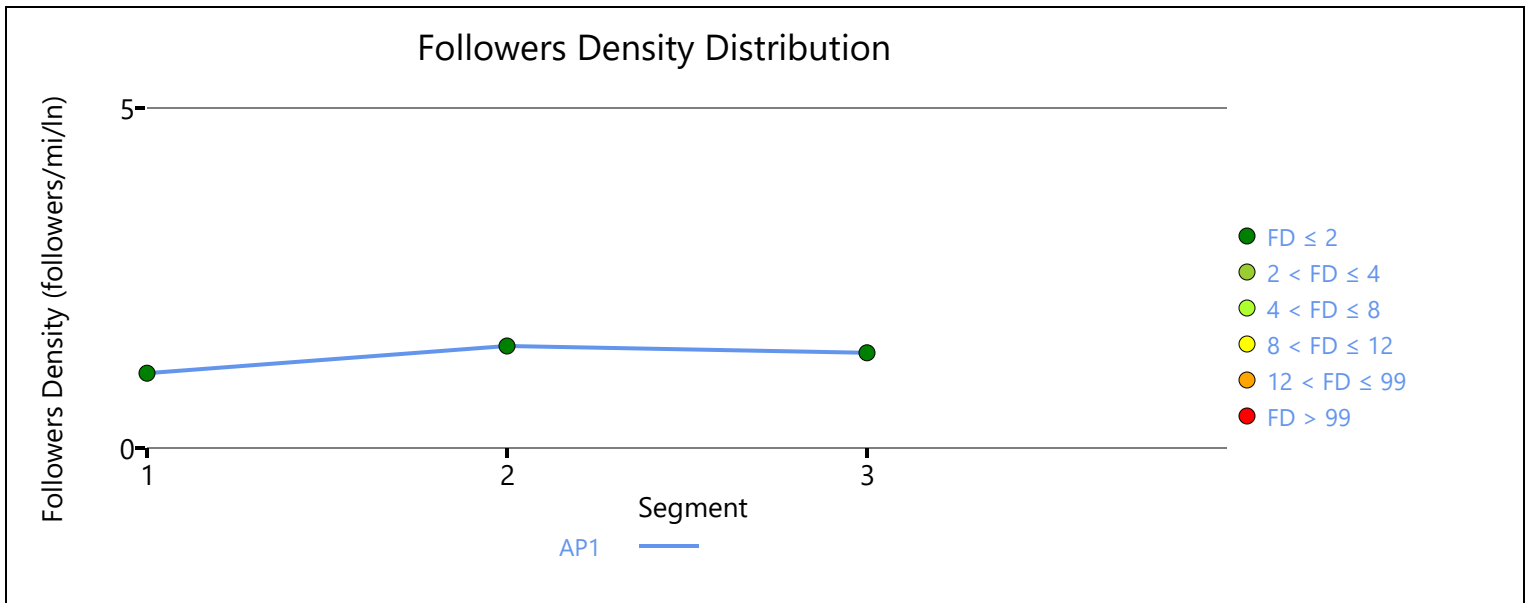
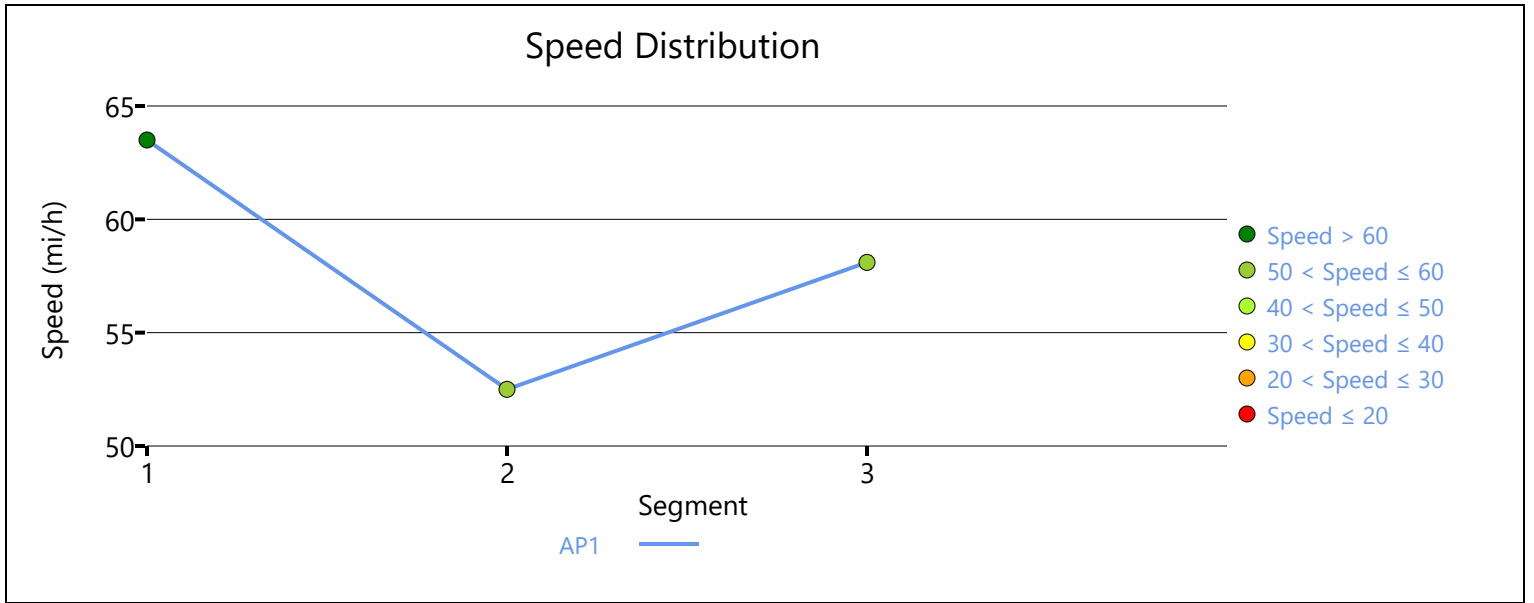
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1165	-	-	58.1

Vehicle Results

Average Speed, mi/h	58.1	Percent Followers, %	37.0
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	228	0.65	1.4	A



HCS Two-Lane Highway Report

Project Information

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Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1230
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	277	Opposing Demand Flow Rate, veh/h	436
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	5.71106	Speed Power Coefficient (p)	0.62937
PF Slope Coefficient (m)	-1.37079	PF Power Coefficient (p)	0.76263
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1230	-	-	58.1

Vehicle Results

Average Speed, mi/h	58.1	Percent Followers, %	40.2
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2005
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	277	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	9.73487	Speed Power Coefficient (p)	0.72660
PF Slope Coefficient (m)	-1.38882	PF Power Coefficient (p)	0.76267
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2005	-	-	62.2

Vehicle Results

Average Speed, mi/h	62.2	Percent Followers, %	40.6
Segment Travel Time, minutes	0.37	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	810
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	277	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.06943	Speed Power Coefficient (p)	0.54600
PF Slope Coefficient (m)	-1.36072	PF Power Coefficient (p)	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

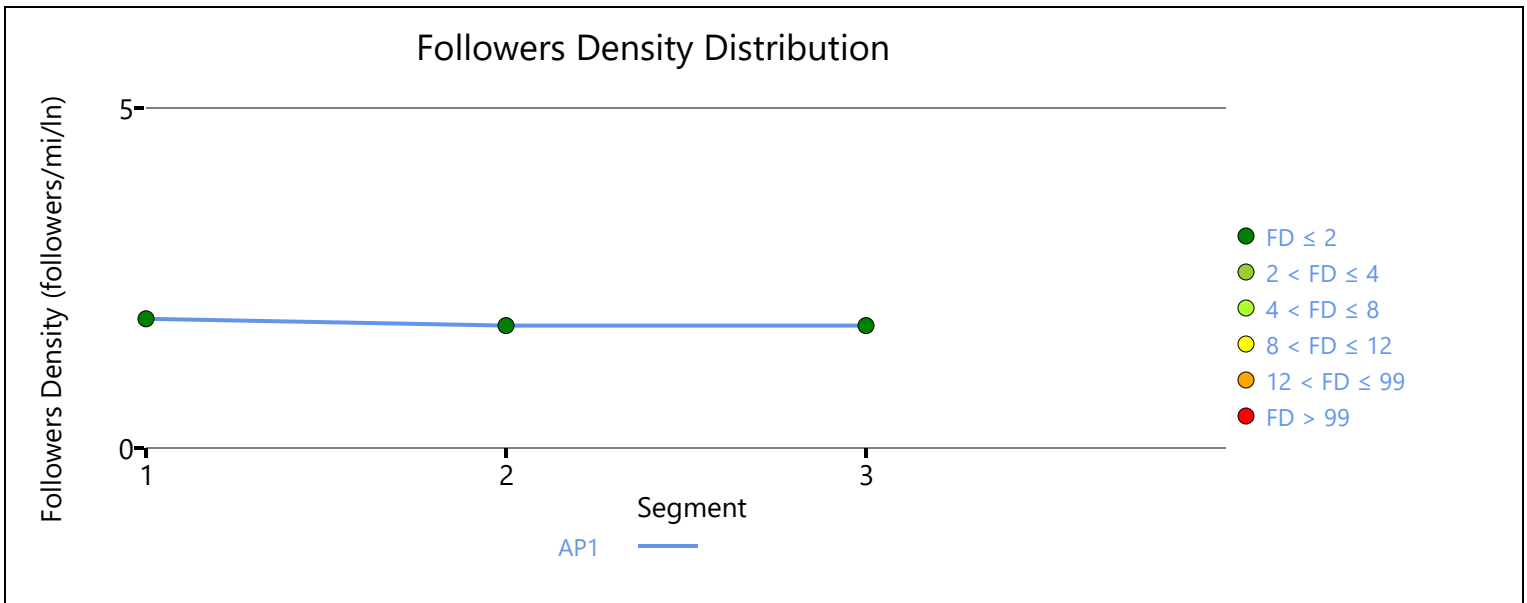
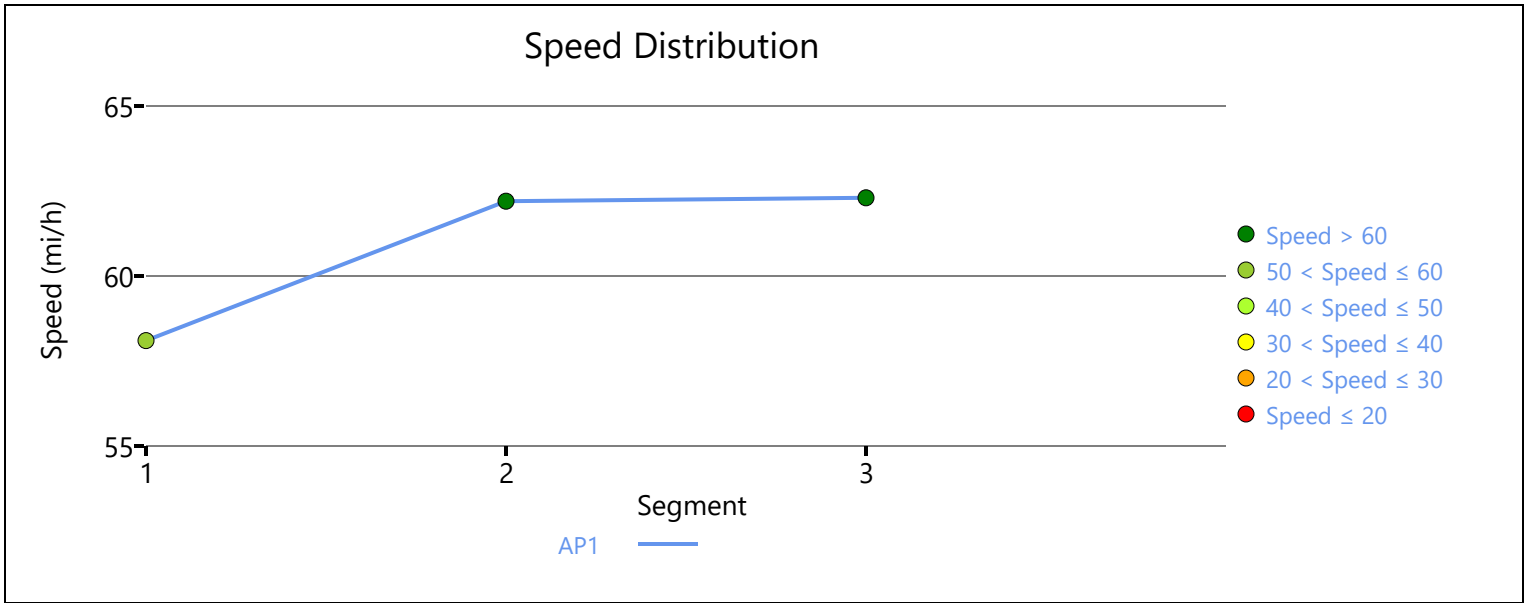
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	810	-	-	62.3

Vehicle Results

Average Speed, mi/h	62.3	Percent Followers, %	40.5
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	1.8
Follower Density Mid-Point, followers/mi/ln	0.0	Vehicle LOS	A

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	50	0.03	1.8	A



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2045
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	2255
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.37964	Speed Power Coefficient (p)	0.73345
PF Slope Coefficient (m)	-1.35989	PF Power Coefficient (p)	0.76573
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2255	-	-	61.7

Vehicle Results

Average Speed, mi/h	61.7	Percent Followers, %	42.5
Segment Travel Time, minutes	0.42	Follower Density (FD), followers/mi/ln	2.1
Follower Density Mid-Point, followers/mi/ln	0.0	Vehicle LOS	B

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5880
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	511
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	15.96358	Speed Power Coefficient (p)	0.71792
PF Slope Coefficient (m)	-1.44862	PF Power Coefficient (p)	0.83120
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

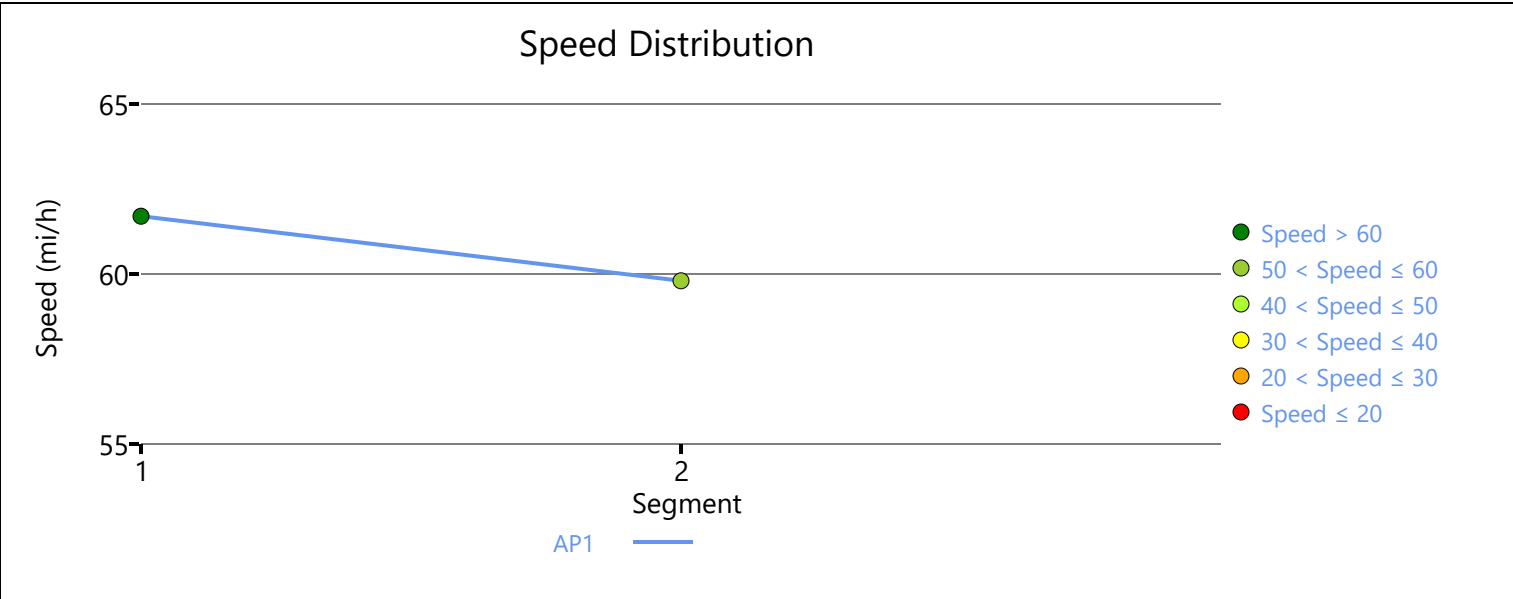
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8135	-	-	59.8

Vehicle Results

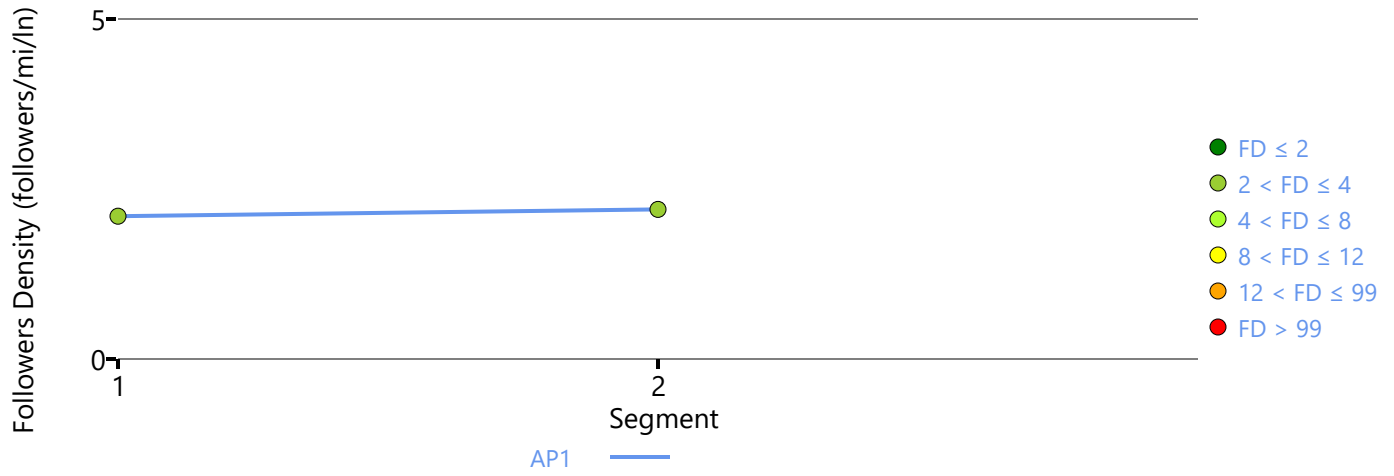
Average Speed, mi/h	59.8	Percent Followers, %	42.0
Segment Travel Time, minutes	1.12	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	112	0.13	2.2	B



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	6310
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	383	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	8.82281	Speed Power Coefficient (p)	0.56011
PF Slope Coefficient (m)	-1.33530	PF Power Coefficient (p)	0.74431
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6310	-	-	55.6

Vehicle Results

Average Speed, mi/h	55.6	Percent Followers, %	48.0
Segment Travel Time, minutes	1.29	Follower Density (FD), followers/mi/ln	3.3
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	108	0.14	3.3	B

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	325
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39609	PF Power Coefficient (p)	0.73717
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	325	-	-	57.1

Vehicle Results

Average Speed, mi/h	57.1	Percent Followers, %	53.1
Segment Travel Time, minutes	0.06	Follower Density (FD), followers/mi/ln	4.1
Vehicle LOS	C		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	6595
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.93369	Speed Power Coefficient (p)	0.56121
PF Slope Coefficient (m)	-1.29247	PF Power Coefficient (p)	0.75694
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6595	-	-	60.2

Vehicle Results

Average Speed, mi/h	60.2	Percent Followers, %	49.8
Segment Travel Time, minutes	1.25	Follower Density (FD), followers/mi/ln	3.6
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1510
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	809
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.47058	Speed Power Coefficient (p)	0.45029
PF Slope Coefficient (m)	-1.36902	PF Power Coefficient (p)	0.76040
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1720	-	-	57.3

Vehicle Results

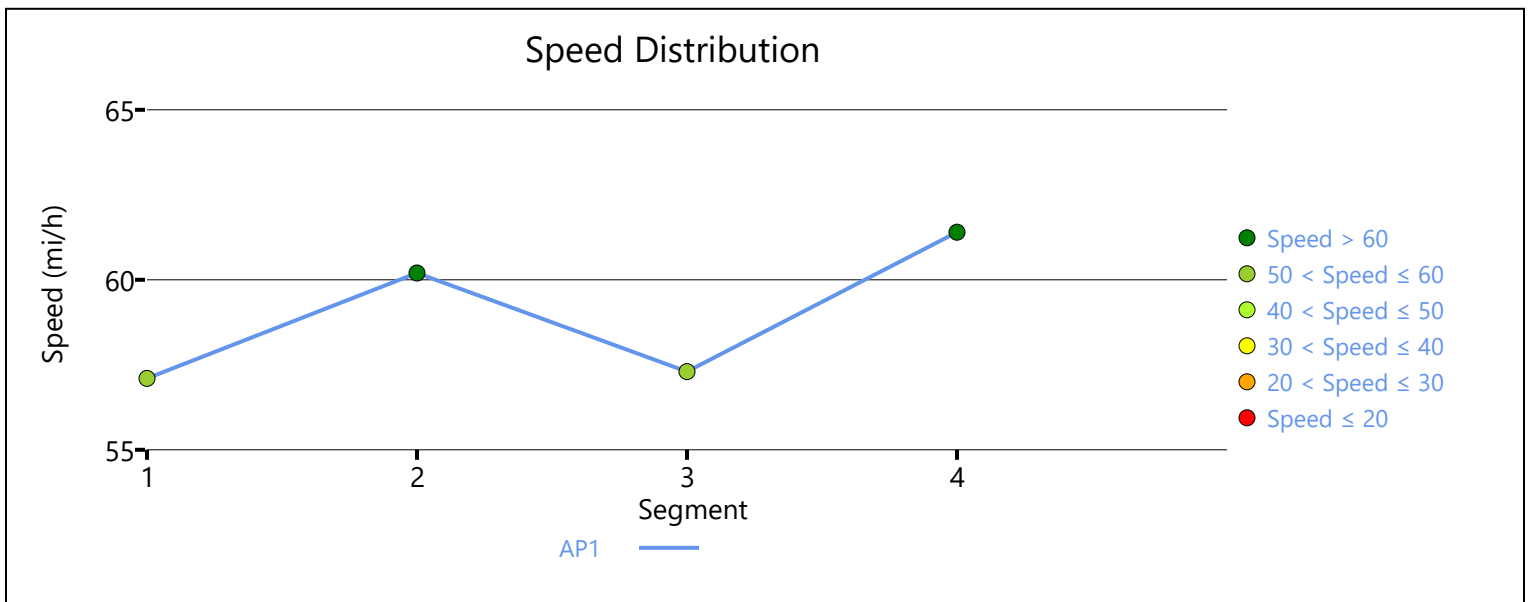
Average Speed, mi/h	57.3	Percent Followers, %	51.7
Segment Travel Time, minutes	0.30	Follower Density (FD), followers/mi/ln	3.9
Vehicle LOS	B		

Segment 4

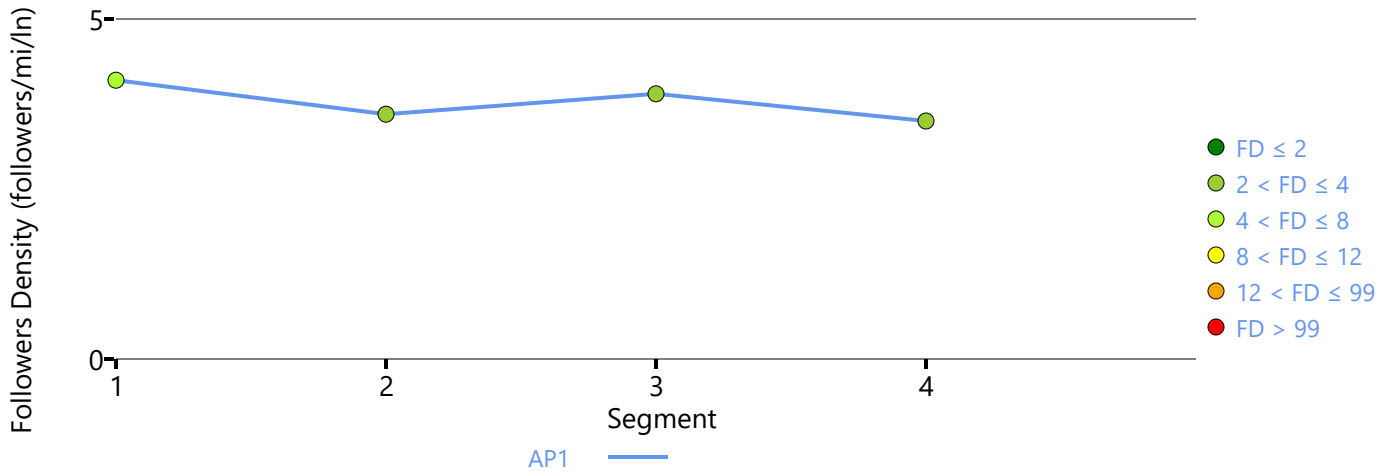
Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2550
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity					
Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	809		
Peak Hour Factor	0.94	Total Trucks, %	8.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26		
Intermediate Results					
Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0		
Speed Slope Coefficient (m)	6.77316	Speed Power Coefficient (p)	0.58509		
PF Slope Coefficient (m)	-1.31155	PF Power Coefficient (p)	0.77632		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.5		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2340	-	-	61.4
Vehicle Results					
Average Speed, mi/h	61.4	Percent Followers, %	49.8		
Segment Travel Time, minutes	0.47	Follower Density (FD), followers/mi/ln	3.5		
Vehicle LOS	B				
Facility Results					
T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS	
1	213	0.23	3.7	B	



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2045
Agency	WSP	Analysis Year	2045
Jurisdiction	KYTC District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3420
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	457	Opposing Demand Flow Rate, veh/h	830
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.50222	Speed Power Coefficient (p)	0.44864
PF Slope Coefficient (m)	-1.26926	PF Power Coefficient (p)	0.79111
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3420	-	-	62.2

Vehicle Results

Average Speed, mi/h	62.2	Percent Followers, %	49.5
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	3.6
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4030
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	457	Opposing Demand Flow Rate, veh/h	830
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.50930	Speed Power Coefficient (p)	0.44864
PF Slope Coefficient (m)	-1.25929	PF Power Coefficient (p)	0.79329
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4030	-	-	62.2

Vehicle Results

Average Speed, mi/h	62.2	Percent Followers, %	49.2
Segment Travel Time, minutes	0.74	Follower Density (FD), followers/mi/ln	3.6
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3390
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	457	Opposing Demand Flow Rate, veh/h	872
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	7.28182	Speed Power Coefficient (p)	0.58259
PF Slope Coefficient (m)	-1.32575	PF Power Coefficient (p)	0.76559
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

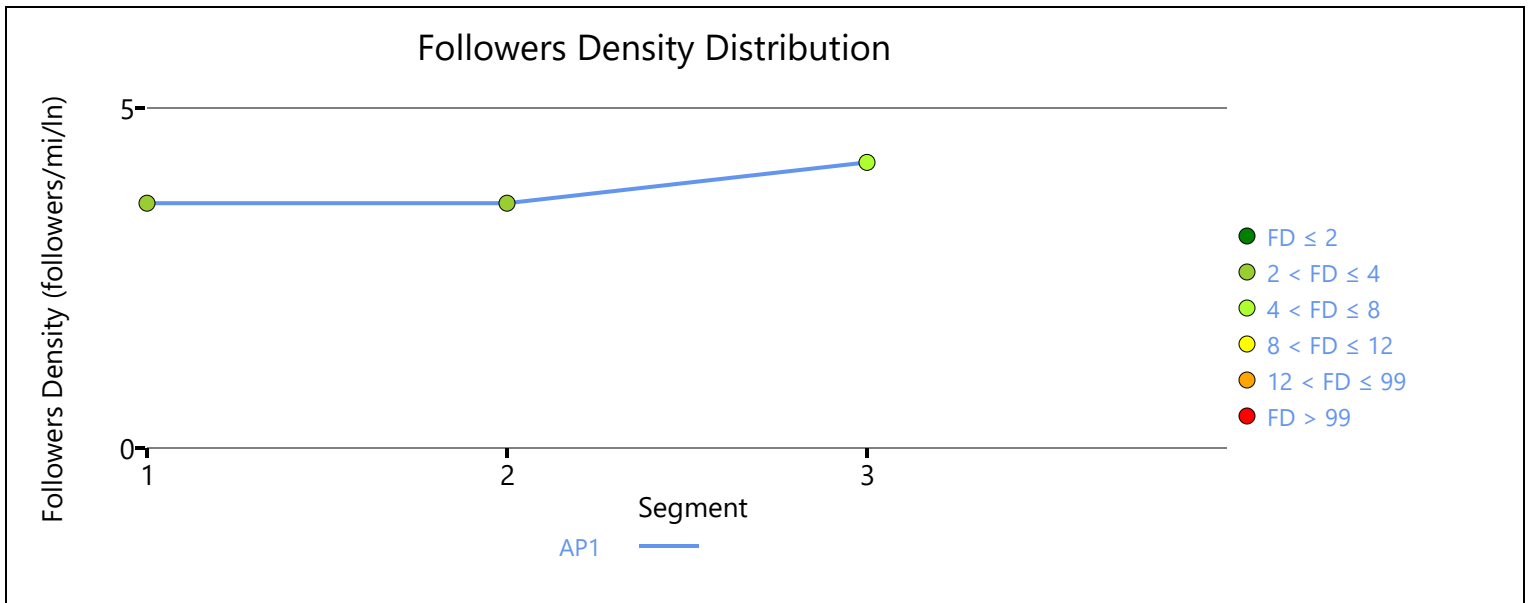
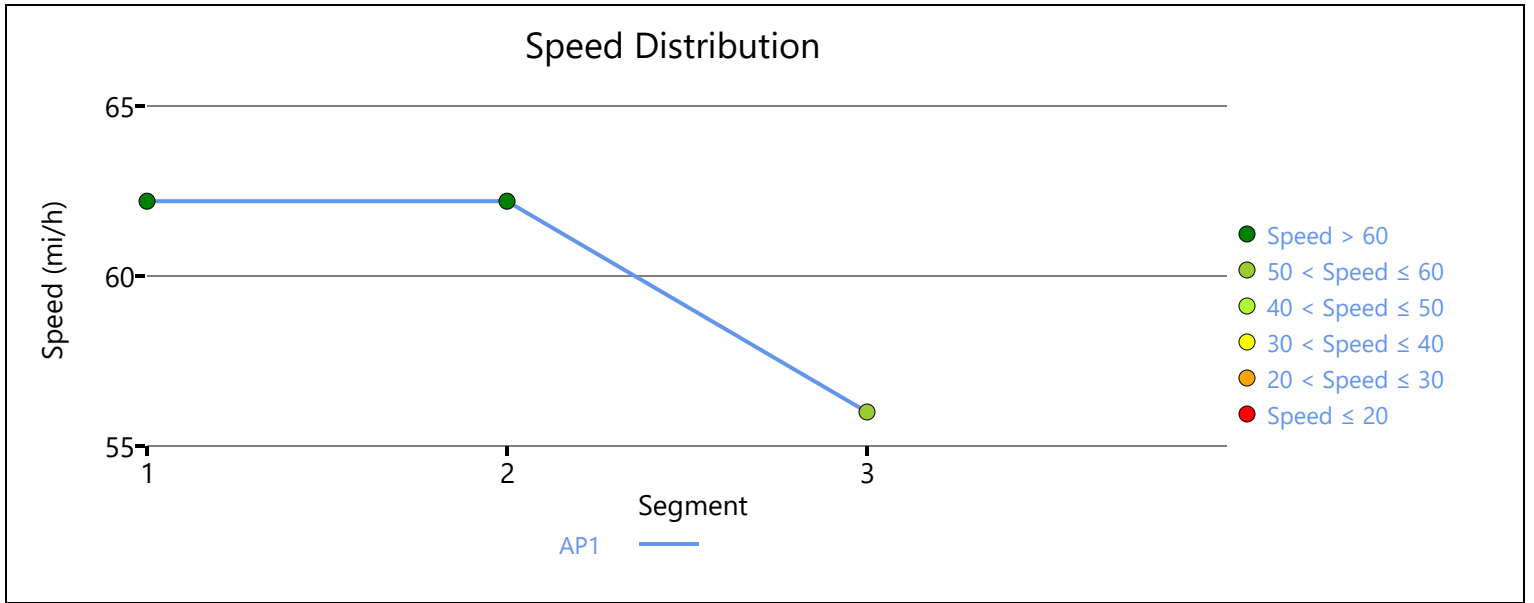
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4260	-	-	56.0

Vehicle Results

Average Speed, mi/h	56.0	Percent Followers, %	51.7
Segment Travel Time, minutes	0.69	Follower Density (FD), followers/mi/ln	4.2
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	221	0.19	3.8	B



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	670
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39545	PF Power Coefficient (p)	0.73788
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	670	-	-	57.9

Vehicle Results

Average Speed, mi/h	57.9	Percent Followers, %	39.9
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	12335
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	266
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	21.77235	Speed Power Coefficient (p)	0.69527
PF Slope Coefficient (m)	-1.49830	PF Power Coefficient (p)	0.83371
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	12335	-	-	59.0

Vehicle Results

Average Speed, mi/h	59.0	Percent Followers, %	38.1
Segment Travel Time, minutes	2.37	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5190
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	19.93428	Speed Power Coefficient (p)	0.65956
PF Slope Coefficient (m)	-1.66085	PF Power Coefficient (p)	0.76516
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

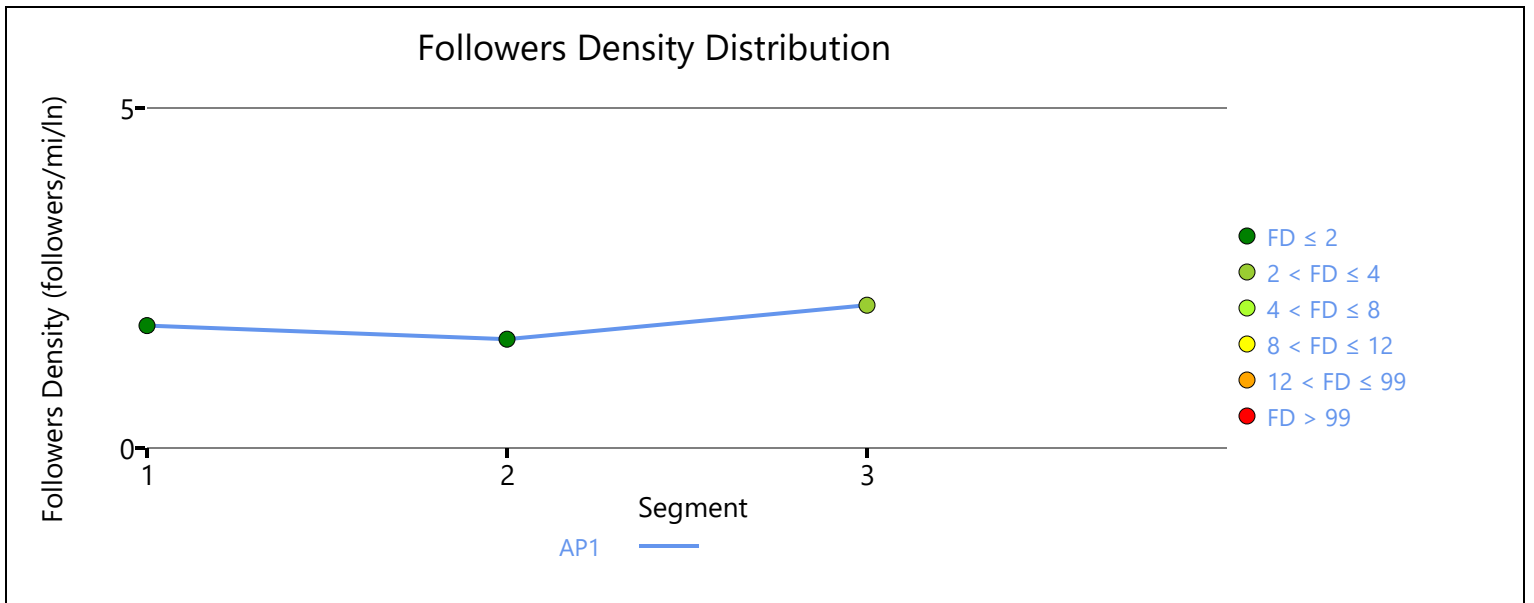
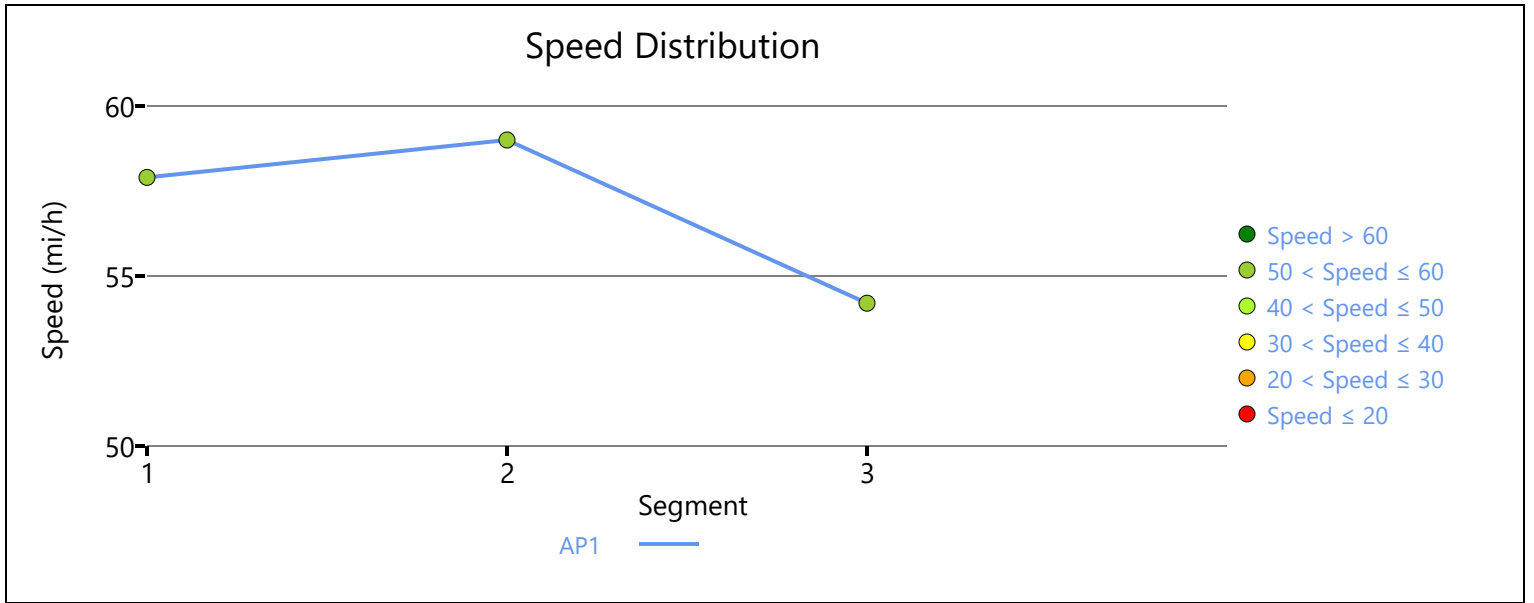
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5190	-	-	54.2

Vehicle Results

Average Speed, mi/h	54.2	Percent Followers, %	44.3
Segment Travel Time, minutes	1.09	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	207	0.33	1.8	A



HCS Two-Lane Highway Report

Project Information

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Agency	WSP	Analysis Year	2045
Jurisdiction	District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3485
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	309
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.95636	Speed Power Coefficient (p)	0.67280
PF Slope Coefficient (m)	-1.20216	PF Power Coefficient (p)	0.81518
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3485	-	-	63.1

Vehicle Results

Average Speed, mi/h	63.1	Percent Followers, %	29.8
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2635
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.59496	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.33880	PF Power Coefficient (p)	0.75516
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

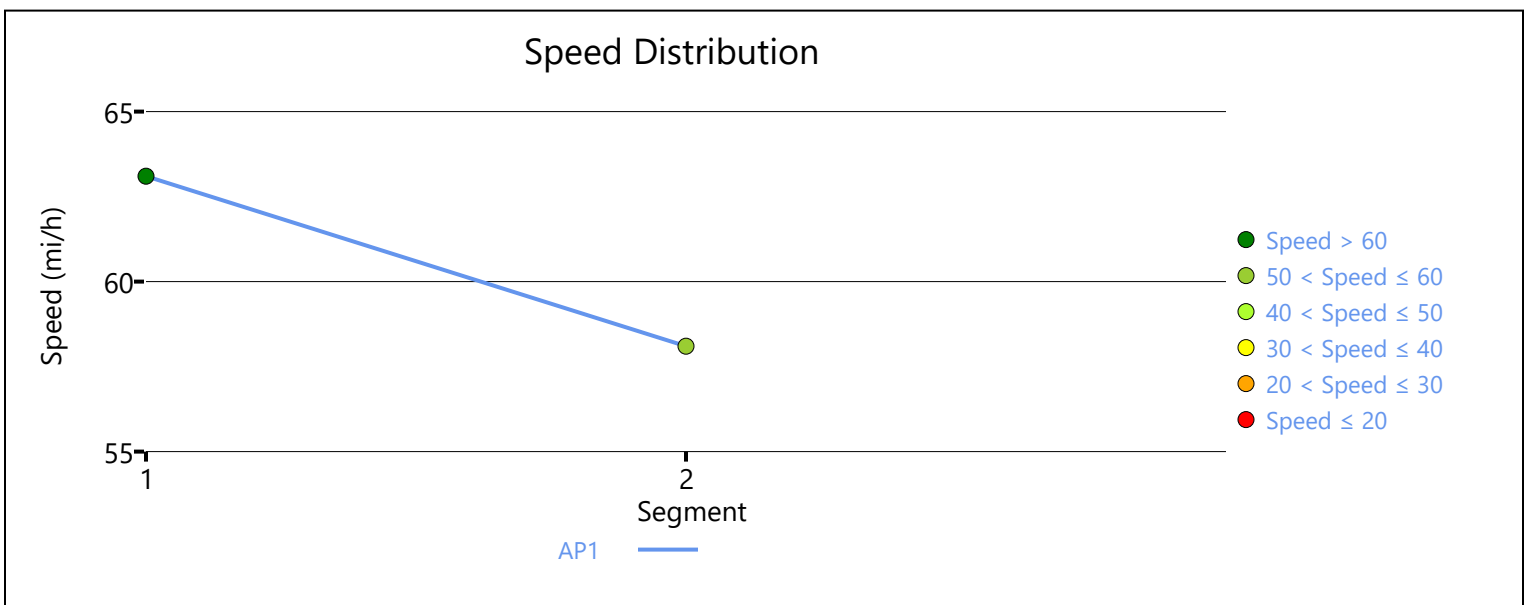
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2635	-	-	58.1

Vehicle Results

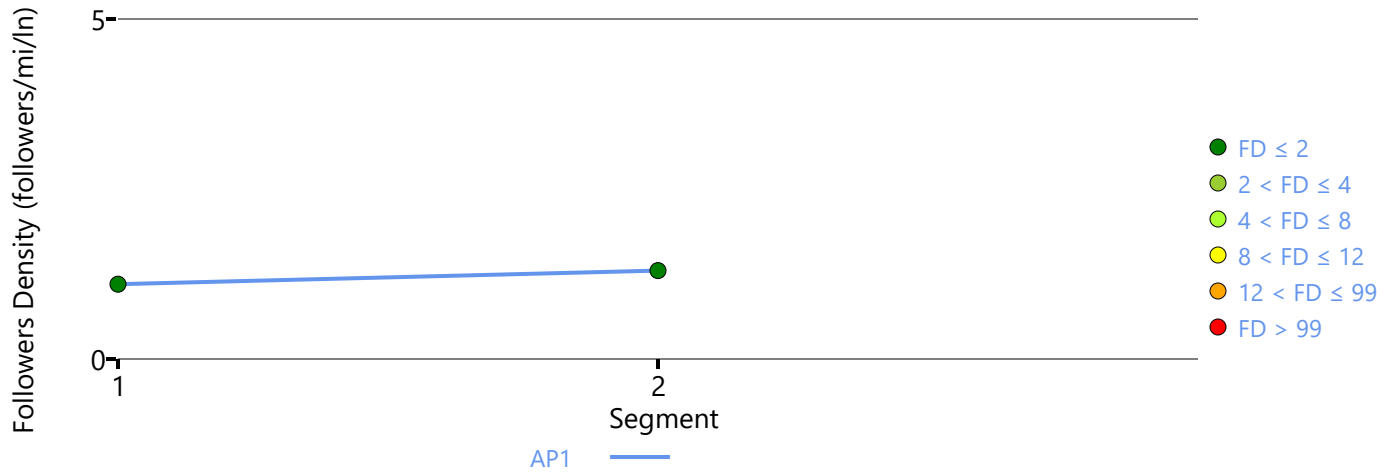
Average Speed, mi/h	58.1	Percent Followers, %	35.1
Segment Travel Time, minutes	0.52	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	61	0.03	1.2	A



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

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Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8660
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	181	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.57846	Speed Power Coefficient (p)	0.57732
PF Slope Coefficient (m)	-1.29399	PF Power Coefficient (p)	0.75228
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8660	-	-	62.5

Vehicle Results

Average Speed, mi/h	62.5	Percent Followers, %	30.1
Segment Travel Time, minutes	1.57	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	70	0.04	0.9	A

HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5655
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	181	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	9.46227	Speed Power Coefficient (p)	0.56577
PF Slope Coefficient (m)	-1.29188	PF Power Coefficient (p)	0.76223
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5655	-	-	62.7

Vehicle Results

Average Speed, mi/h	62.7	Percent Followers, %	29.6
Segment Travel Time, minutes	1.02	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	46	0.03	0.9	A

HCS Two-Lane Highway Report

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Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2175
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	170	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.58831	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.35401	PF Power Coefficient (p)	0.75077
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2175	-	-	58.5

Vehicle Results

Average Speed, mi/h	58.5	Percent Followers, %	30.1
Segment Travel Time, minutes	0.42	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	15970
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	170	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results

Segment Vertical Class	5	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	34.23774	Speed Power Coefficient (p)	0.51043
PF Slope Coefficient (m)	-1.56089	PF Power Coefficient (p)	0.88609
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	15970	-	-	56.2

Vehicle Results

Average Speed, mi/h	56.2	Percent Followers, %	27.8
Segment Travel Time, minutes	3.23	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4745
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	170	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	8.56483	Speed Power Coefficient (p)	0.68029
PF Slope Coefficient (m)	-1.20678	PF Power Coefficient (p)	0.80436
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

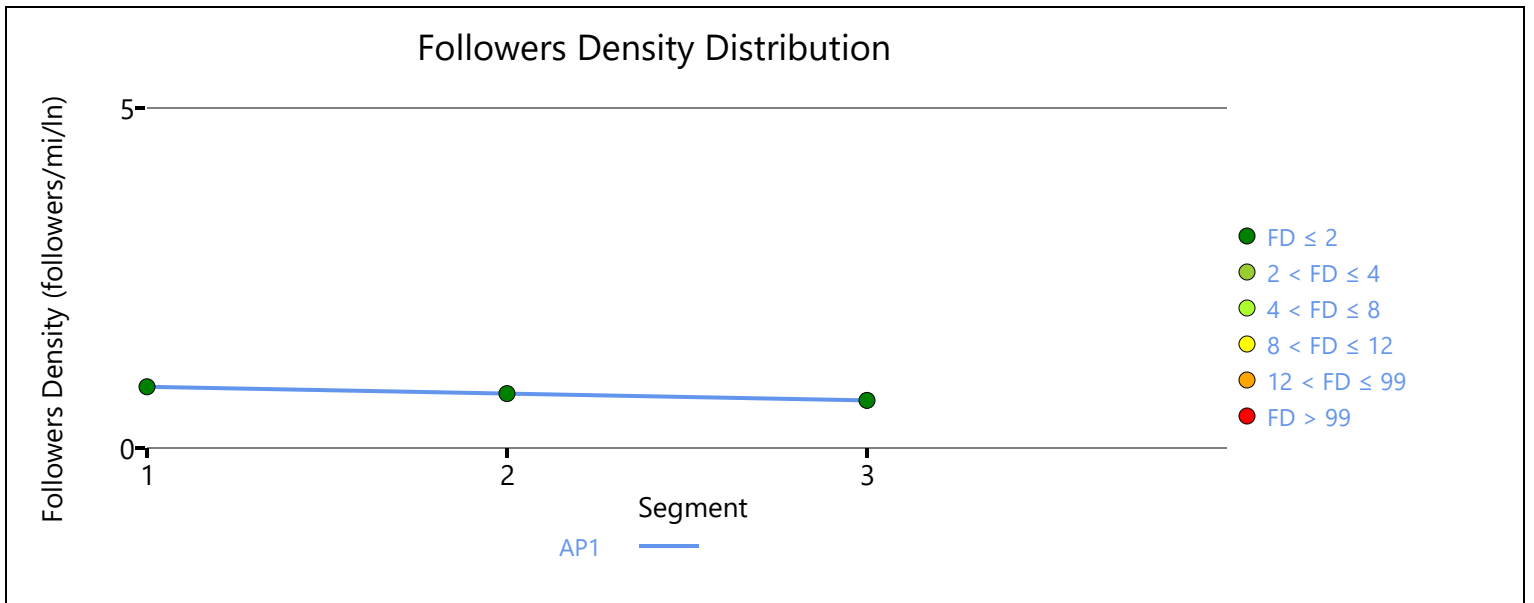
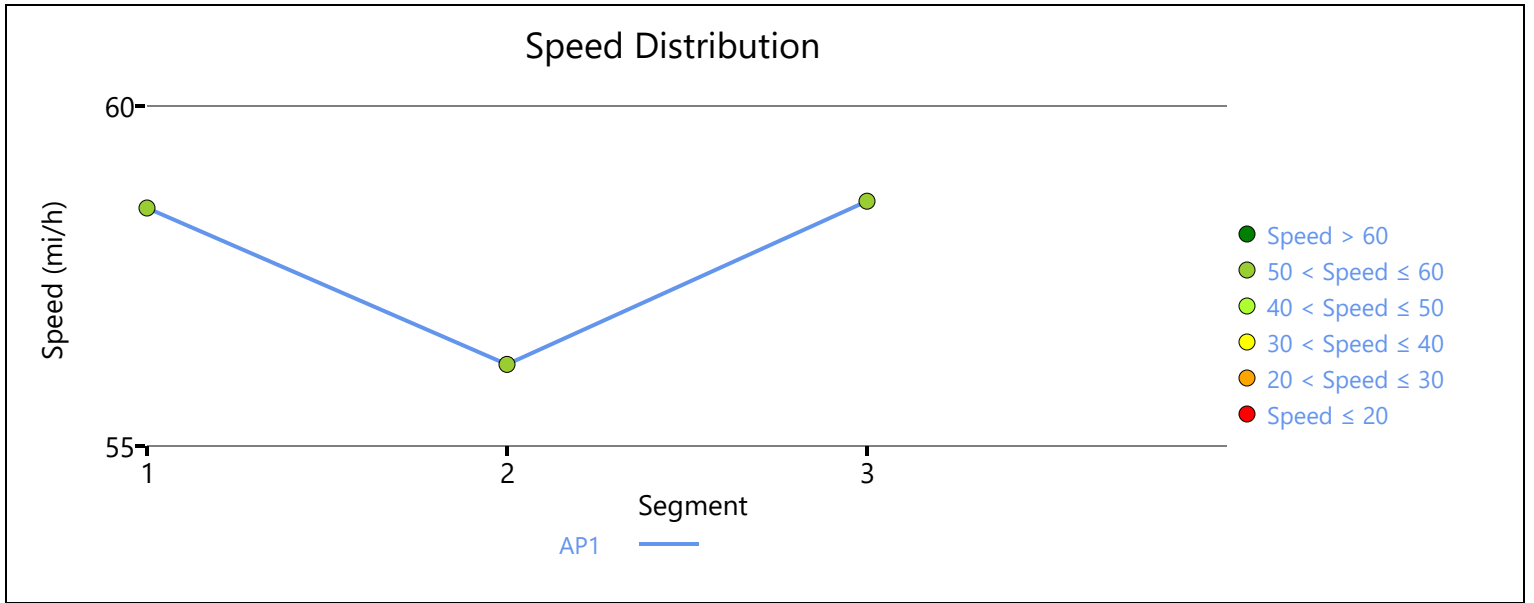
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4745	-	-	58.6

Vehicle Results

Average Speed, mi/h	58.6	Percent Followers, %	25.2
Segment Travel Time, minutes	0.92	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	173	0.31	0.8	A



HCS Two-Lane Highway Report

Project Information

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Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2455
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	170	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.20067	Speed Power Coefficient (p)	0.73145
PF Slope Coefficient (m)	-1.36682	PF Power Coefficient (p)	0.76506
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2455	-	-	63.5

Vehicle Results

Average Speed, mi/h	63.5	Percent Followers, %	29.7
Segment Travel Time, minutes	0.44	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1590
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	170	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	6.35031	Speed Power Coefficient (p)	0.54196
PF Slope Coefficient (m)	-1.47120	PF Power Coefficient (p)	0.72782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

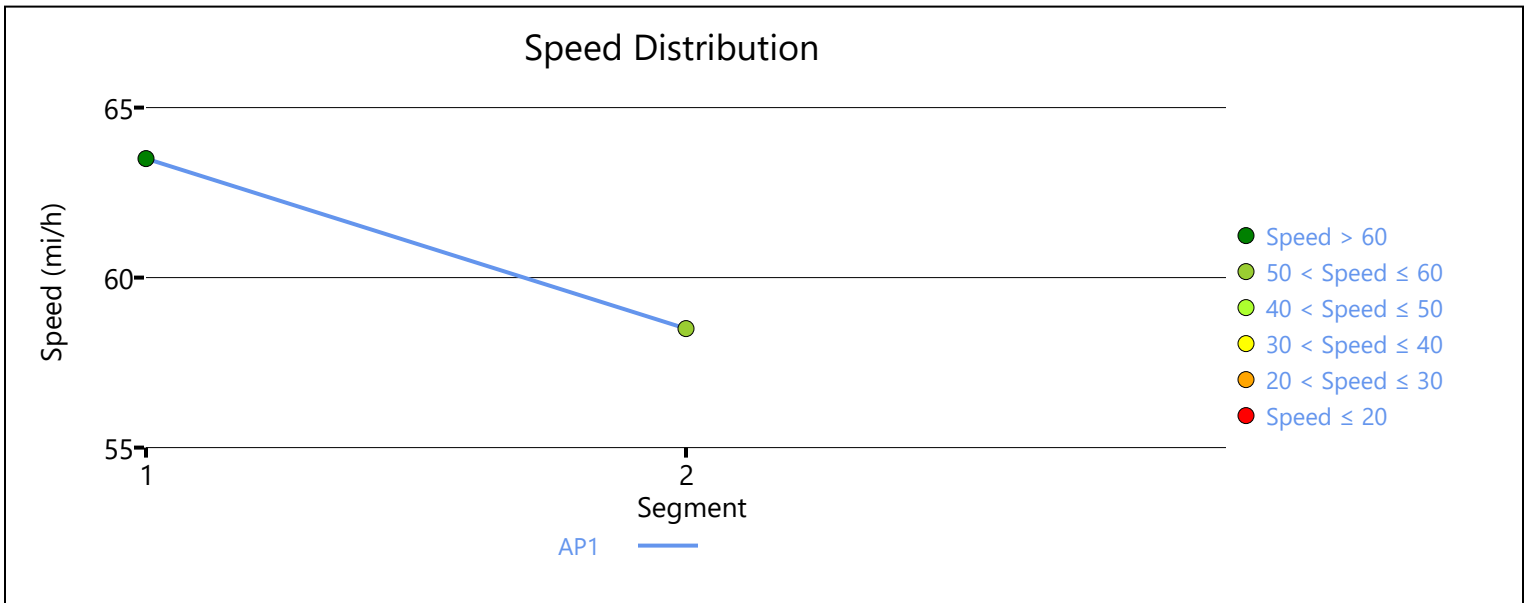
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1590	-	-	58.5

Vehicle Results

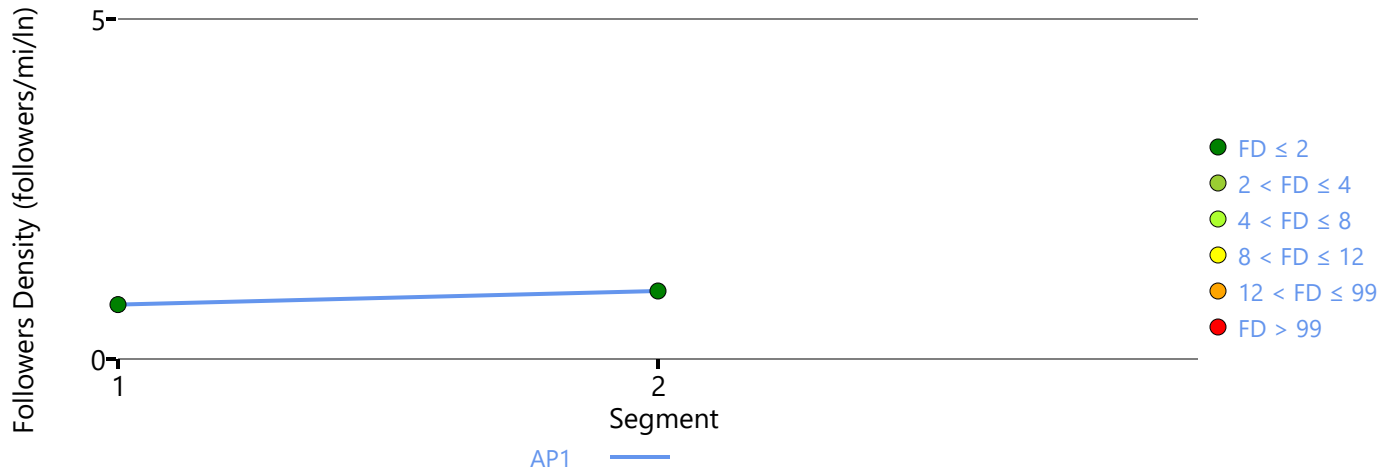
Average Speed, mi/h	58.5	Percent Followers, %	33.3
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	31	0.01	0.9	A



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

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Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	8135
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	277	Opposing Demand Flow Rate, veh/h	436
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	17.24251	Speed Power Coefficient (p)	0.68018
PF Slope Coefficient (m)	-1.49736	PF Power Coefficient (p)	0.83402
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8135	-	-	59.7

Vehicle Results

Average Speed, mi/h	59.7	Percent Followers, %	40.1
Segment Travel Time, minutes	1.55	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	100	0.14	1.9	A

HCS Two-Lane Highway Report

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Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2800
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	7.16531	Speed Power Coefficient (p)	0.54661
PF Slope Coefficient (m)	-1.39894	PF Power Coefficient (p)	0.73909
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2800	-	-	57.0

Vehicle Results

Average Speed, mi/h	57.0	Percent Followers, %	43.5
Segment Travel Time, minutes	0.56	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3510
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	298	Opposing Demand Flow Rate, veh/h	553
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.44851	Speed Power Coefficient (p)	0.47532
PF Slope Coefficient (m)	-1.25195	PF Power Coefficient (p)	0.80209
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

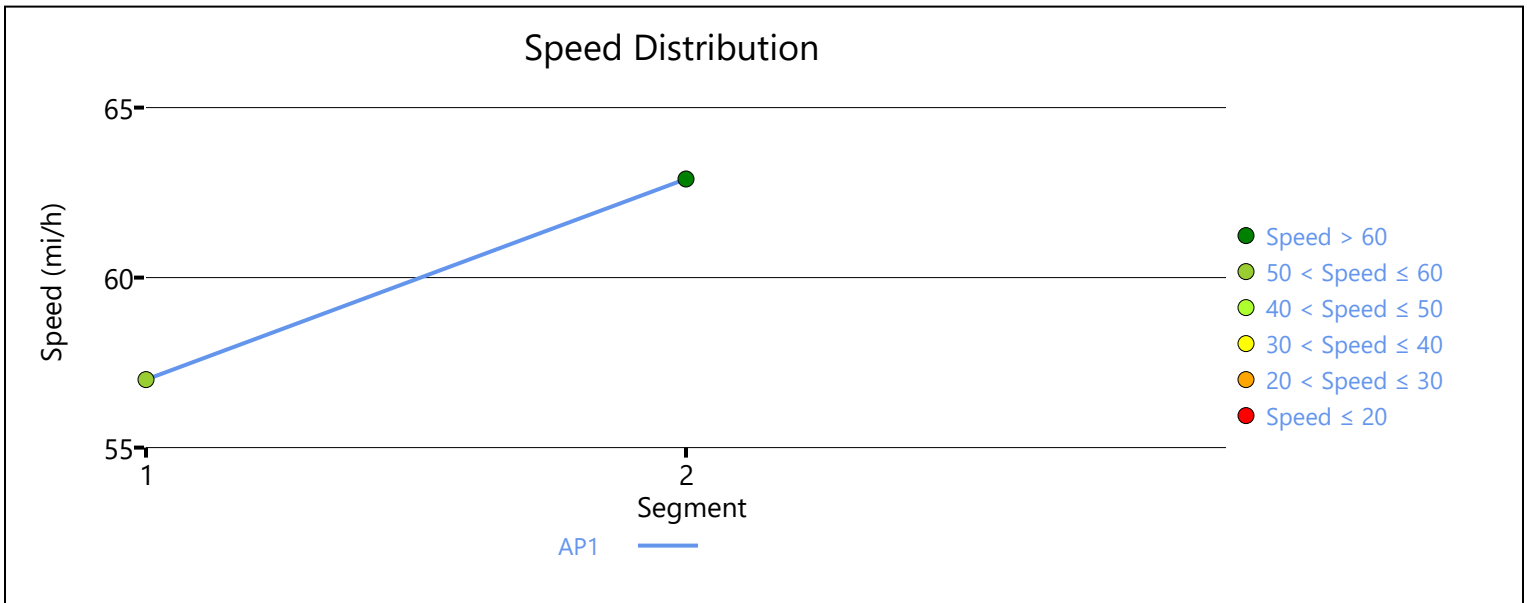
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3510	-	-	62.9

Vehicle Results

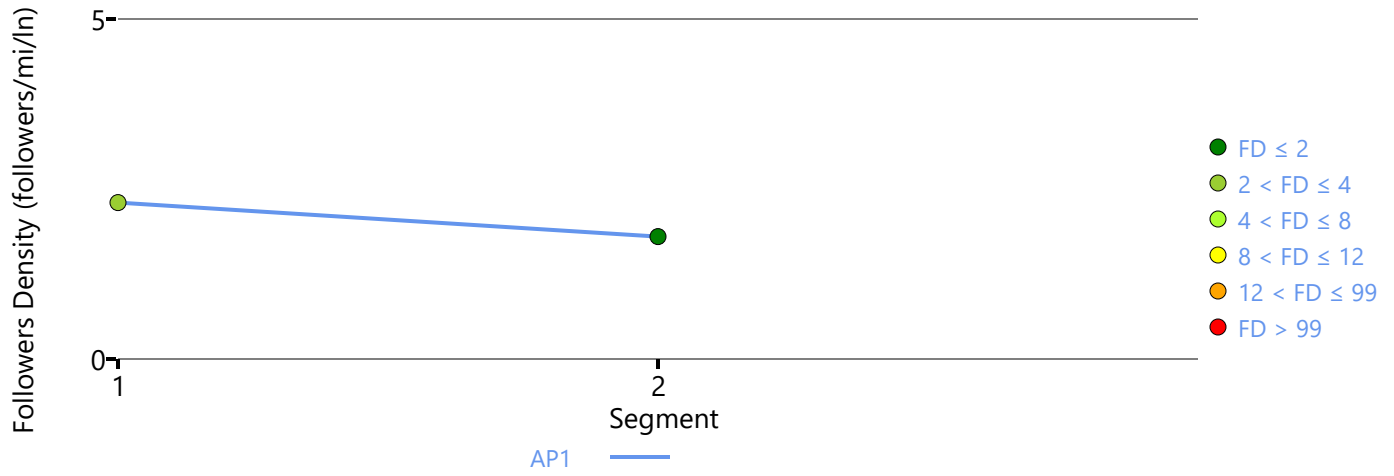
Average Speed, mi/h	62.9	Percent Followers, %	37.7
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	84	0.06	2.0	B



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

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Jurisdiction	District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4060
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	734
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.49188	Speed Power Coefficient (p)	0.45654
PF Slope Coefficient (m)	-1.25479	PF Power Coefficient (p)	0.79678
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4060	-	-	63.0

Vehicle Results

Average Speed, mi/h	63.0	Percent Followers, %	35.4
Segment Travel Time, minutes	0.73	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5605
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.53726	Speed Power Coefficient (p)	0.55740
PF Slope Coefficient (m)	-1.29677	PF Power Coefficient (p)	0.75868
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5605	-	-	61.9

Vehicle Results

Average Speed, mi/h	61.9	Percent Followers, %	37.8
Segment Travel Time, minutes	1.03	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1315
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	266	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39609	PF Power Coefficient (p)	0.73717
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

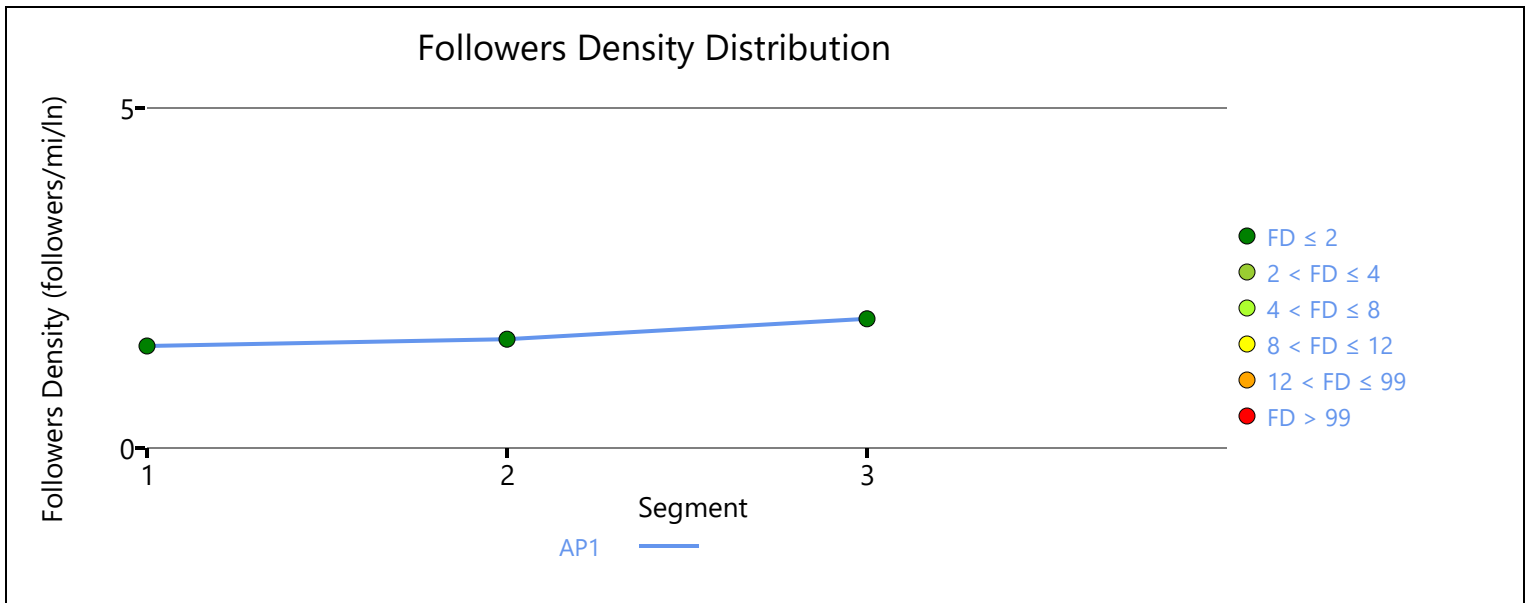
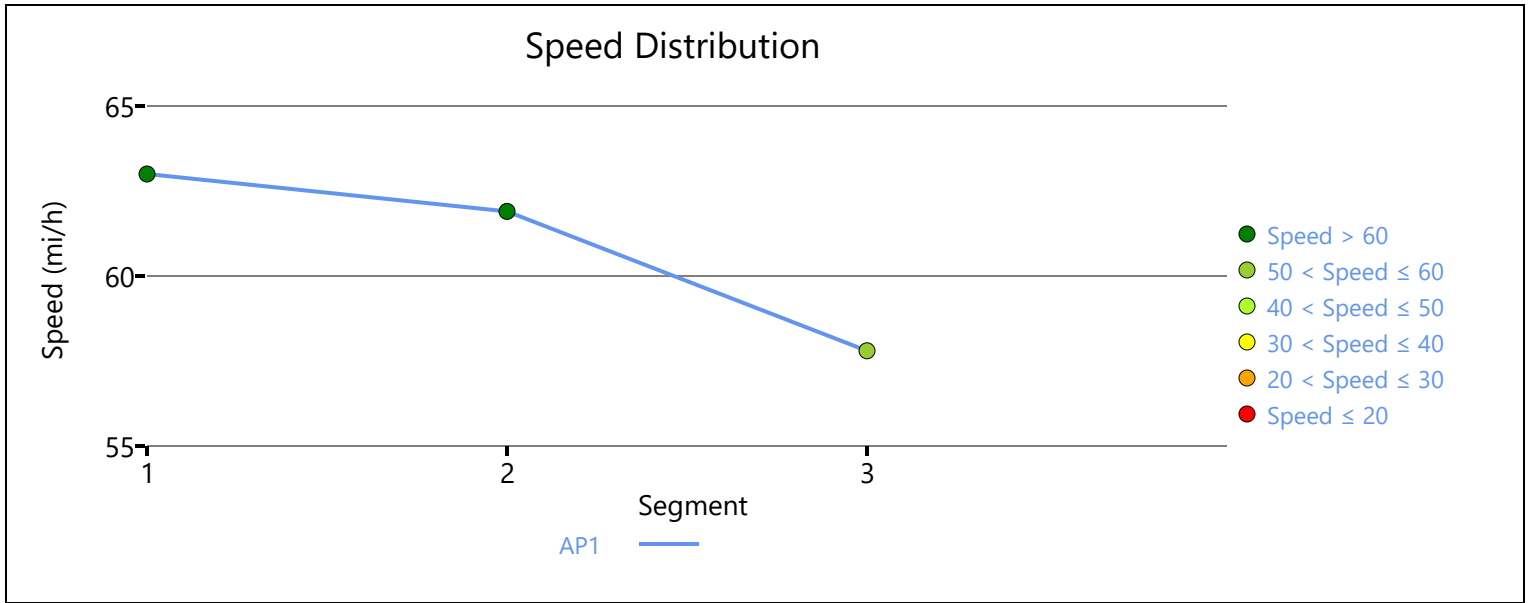
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1315	-	-	57.8

Vehicle Results

Average Speed, mi/h	57.8	Percent Followers, %	40.9
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	130	0.08	1.6	A



HCS Two-Lane Highway Report

Project Information

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Jurisdiction	District 8	Time Analyzed	AM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5330
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	798
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	8.17558	Speed Power Coefficient (p)	0.59680
PF Slope Coefficient (m)	-1.28299	PF Power Coefficient (p)	0.77307
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5330	-	-	57.9

Vehicle Results

Average Speed, mi/h	57.9	Percent Followers, %	31.1
Segment Travel Time, minutes	1.05	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3475
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	223	Opposing Demand Flow Rate, veh/h	766
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.28362	Speed Power Coefficient (p)	0.59280
PF Slope Coefficient (m)	-1.27532	PF Power Coefficient (p)	0.78506
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

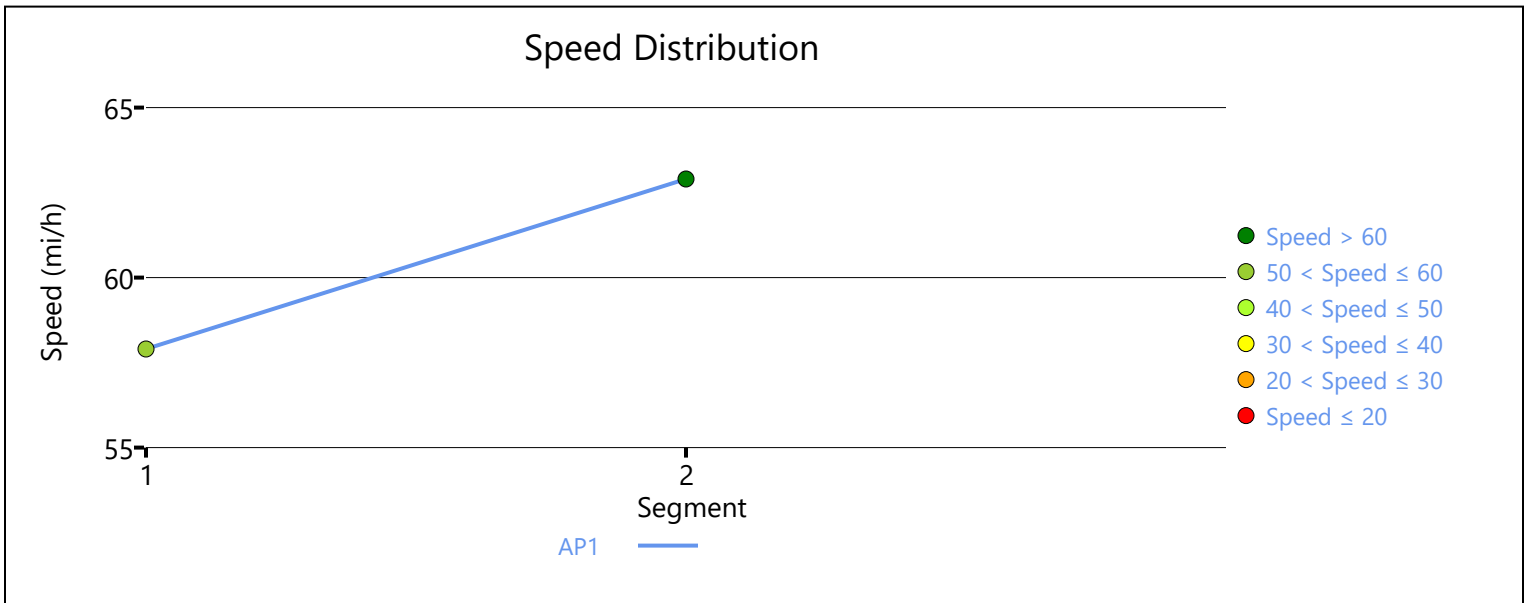
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3475	-	-	62.9

Vehicle Results

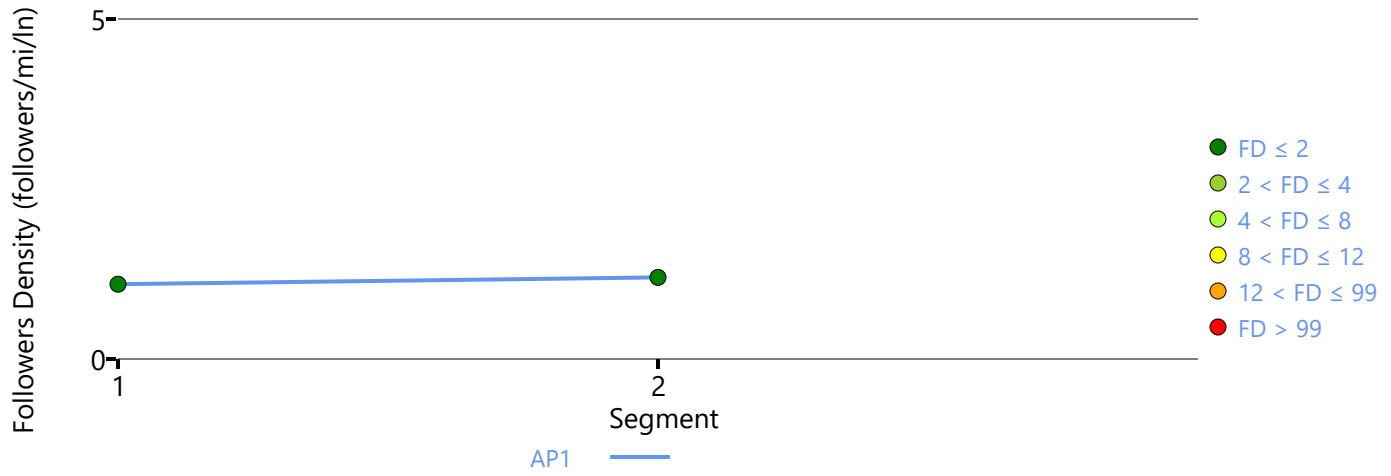
Average Speed, mi/h	62.9	Percent Followers, %	32.5
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	83	0.05	1.1	A



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

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Jurisdiction	District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	670
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39545	PF Power Coefficient (p)	0.73788
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	670	-	-	57.6

Vehicle Results

Average Speed, mi/h	57.6	Percent Followers, %	44.3
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	12335
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	266
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	21.77235	Speed Power Coefficient (p)	0.69527
PF Slope Coefficient (m)	-1.49830	PF Power Coefficient (p)	0.83371
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	12335	-	-	57.7

Vehicle Results

Average Speed, mi/h	57.7	Percent Followers, %	43.0
Segment Travel Time, minutes	2.43	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5190
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	19.93428	Speed Power Coefficient (p)	0.65956
PF Slope Coefficient (m)	-1.66085	PF Power Coefficient (p)	0.76516
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

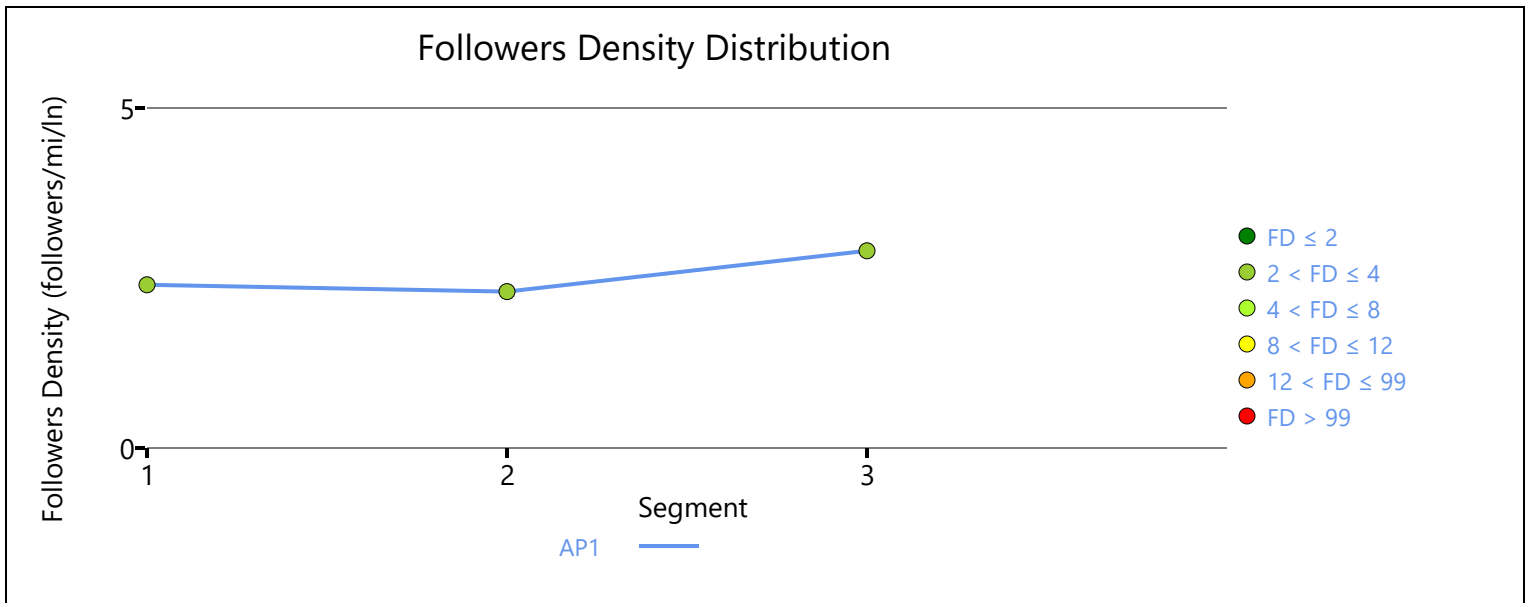
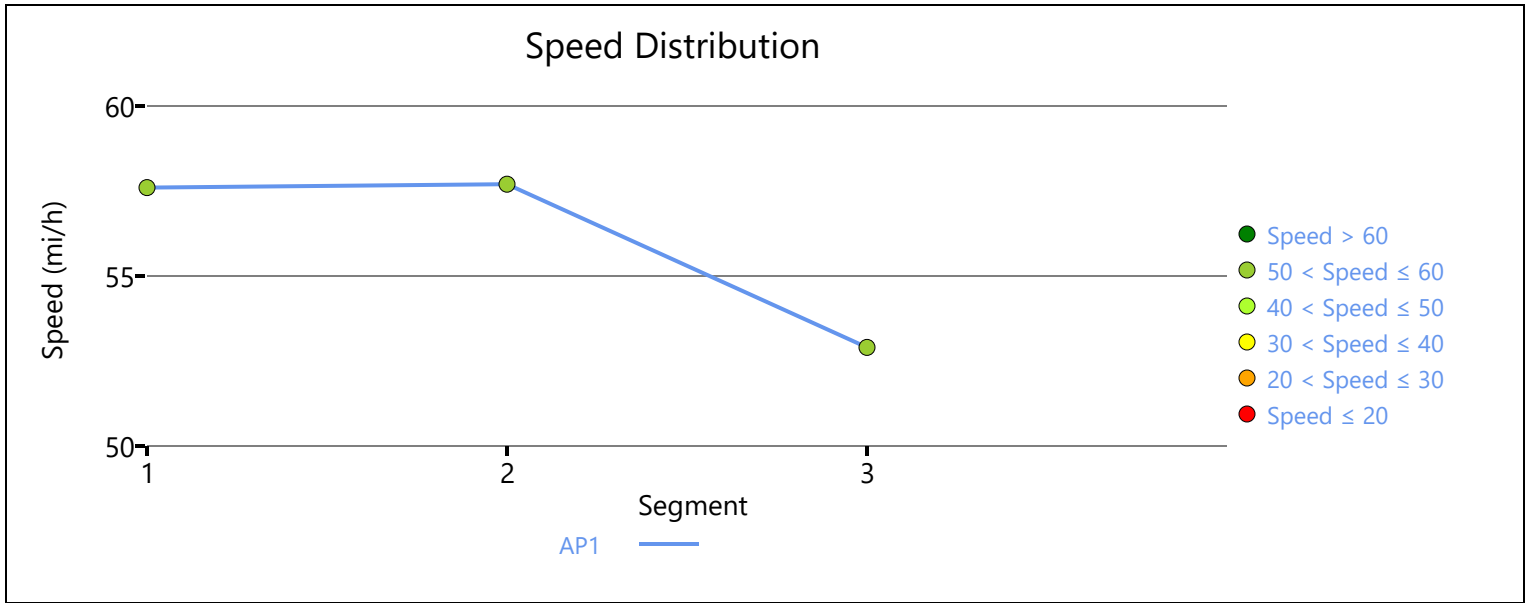
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5190	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	49.1
Segment Travel Time, minutes	1.11	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	250	0.50	2.5	B



HCS Two-Lane Highway Report

Project Information

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Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3485
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	362	Opposing Demand Flow Rate, veh/h	245
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.91136	Speed Power Coefficient (p)	0.68990
PF Slope Coefficient (m)	-1.18756	PF Power Coefficient (p)	0.82026
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3485	-	-	61.9

Vehicle Results

Average Speed, mi/h	61.9	Percent Followers, %	40.3
Segment Travel Time, minutes	0.64	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2635
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	362	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.59496	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.33880	PF Power Coefficient (p)	0.75516
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

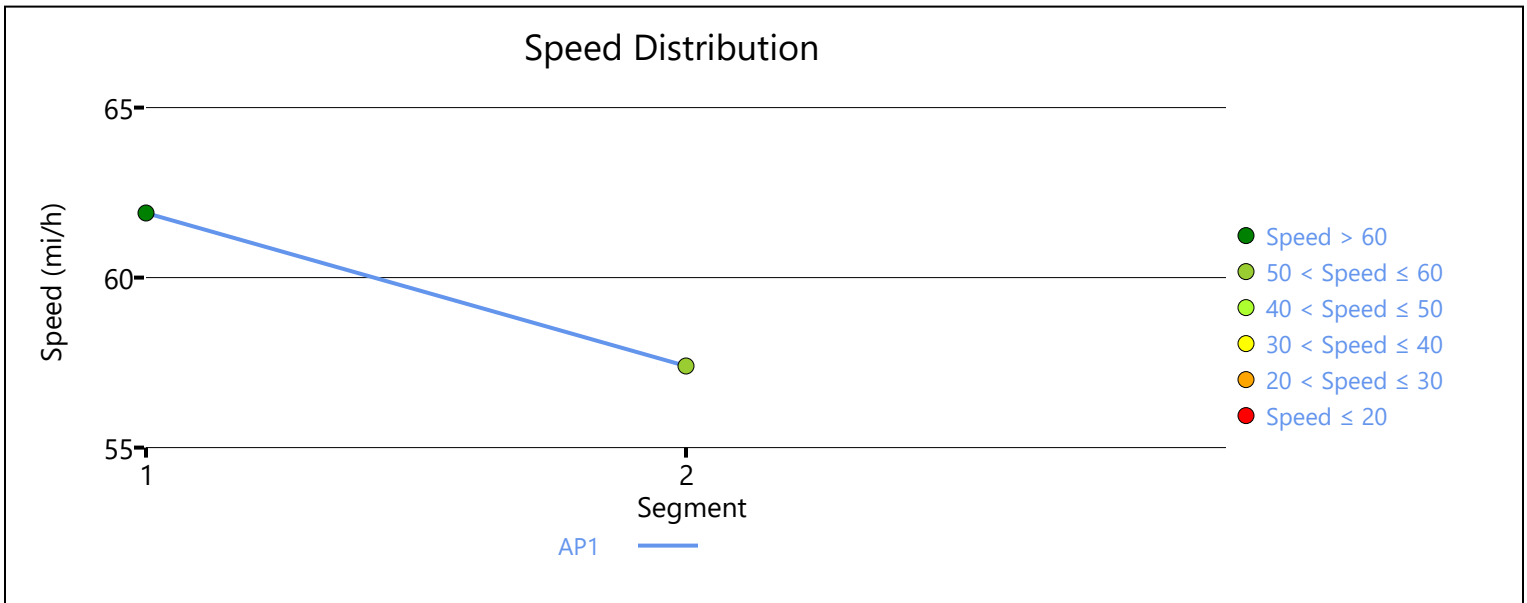
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2635	-	-	57.4

Vehicle Results

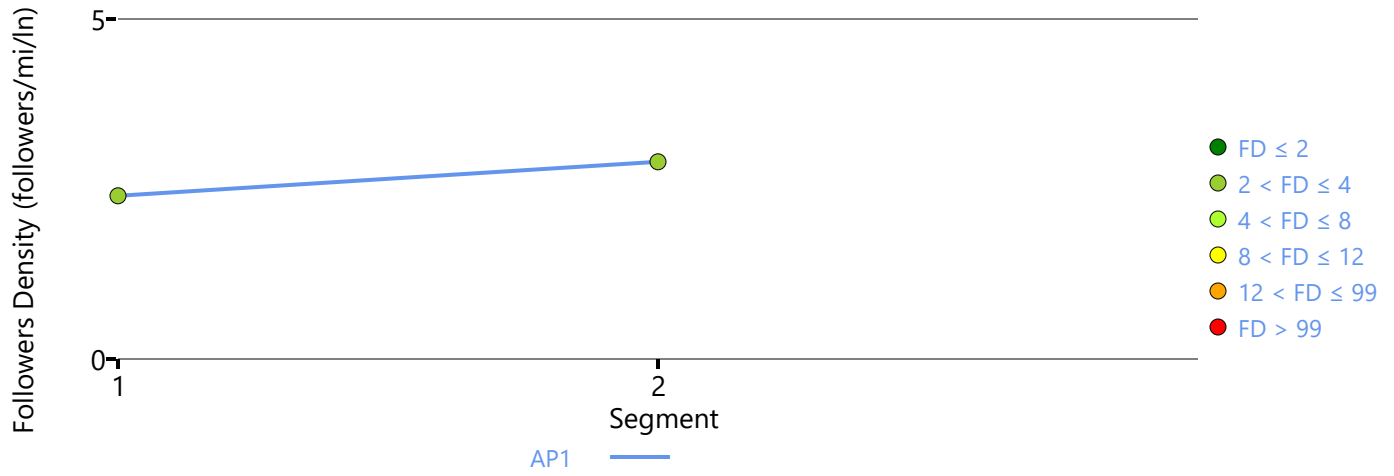
Average Speed, mi/h	57.4	Percent Followers, %	46.3
Segment Travel Time, minutes	0.52	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	99	0.08	2.6	B



Followers Density Distribution



HCS Two-Lane Highway Report

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Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	8660
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	351	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.57846	Speed Power Coefficient (p)	0.57732
PF Slope Coefficient (m)	-1.29399	PF Power Coefficient (p)	0.75228
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8660	-	-	60.2

Vehicle Results

Average Speed, mi/h	60.2	Percent Followers, %	44.5
Segment Travel Time, minutes	1.63	Follower Density (FD), followers/mi/ln	2.6
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	135	0.16	2.6	B

HCS Two-Lane Highway Report

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Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5655
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	9.46227	Speed Power Coefficient (p)	0.56577
PF Slope Coefficient (m)	-1.29188	PF Power Coefficient (p)	0.76223
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5655	-	-	60.5

Vehicle Results

Average Speed, mi/h	60.5	Percent Followers, %	45.6
Segment Travel Time, minutes	1.06	Follower Density (FD), followers/mi/ln	2.8
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	94	0.11	2.8	B

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Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2175
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.58831	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.35401	PF Power Coefficient (p)	0.75077
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2175	-	-	57.3

Vehicle Results

Average Speed, mi/h	57.3	Percent Followers, %	47.5
Segment Travel Time, minutes	0.43	Follower Density (FD), followers/mi/ln	3.1
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	15970
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	223
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	5	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	34.09535	Speed Power Coefficient (p)	0.54344
PF Slope Coefficient (m)	-1.51339	PF Power Coefficient (p)	0.89309
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	15970	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	46.5
Segment Travel Time, minutes	3.77	Follower Density (FD), followers/mi/ln	3.6
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4745
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	372	Opposing Demand Flow Rate, veh/h	223
Peak Hour Factor	0.94	Total Trucks, %	13.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.51069	Speed Power Coefficient (p)	0.70121
PF Slope Coefficient (m)	-1.16006	PF Power Coefficient (p)	0.82737
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

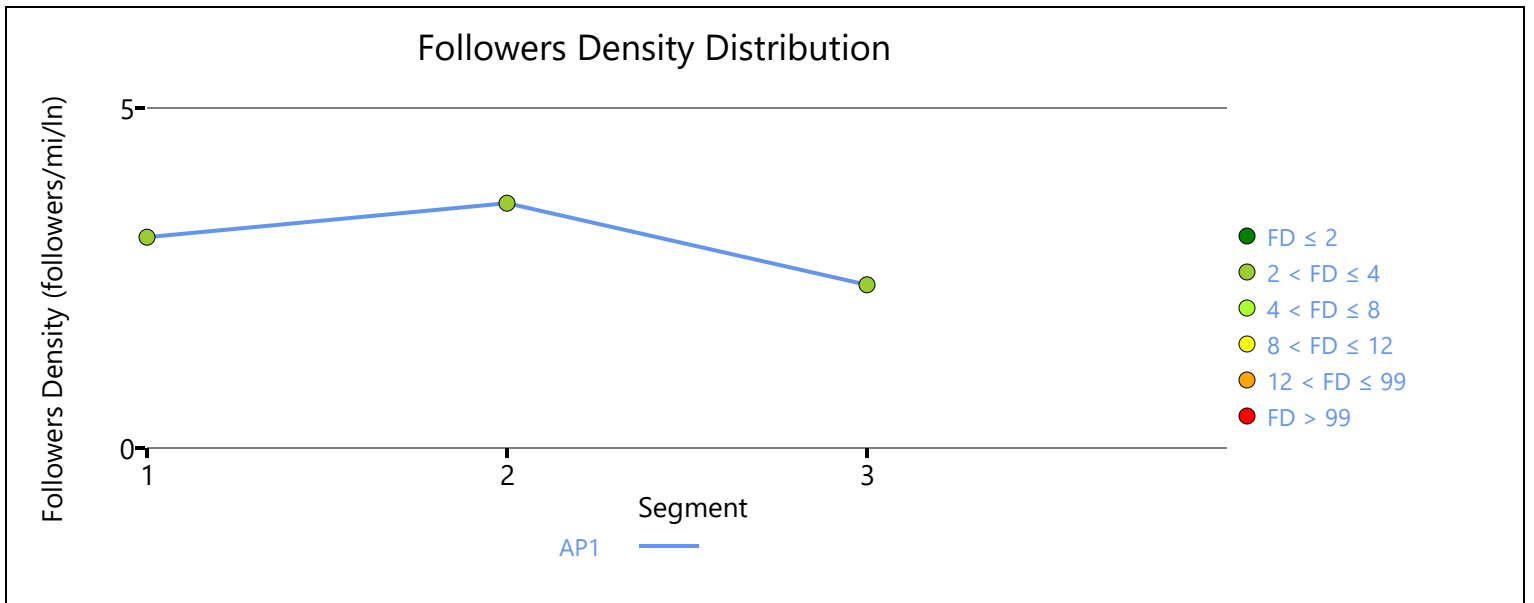
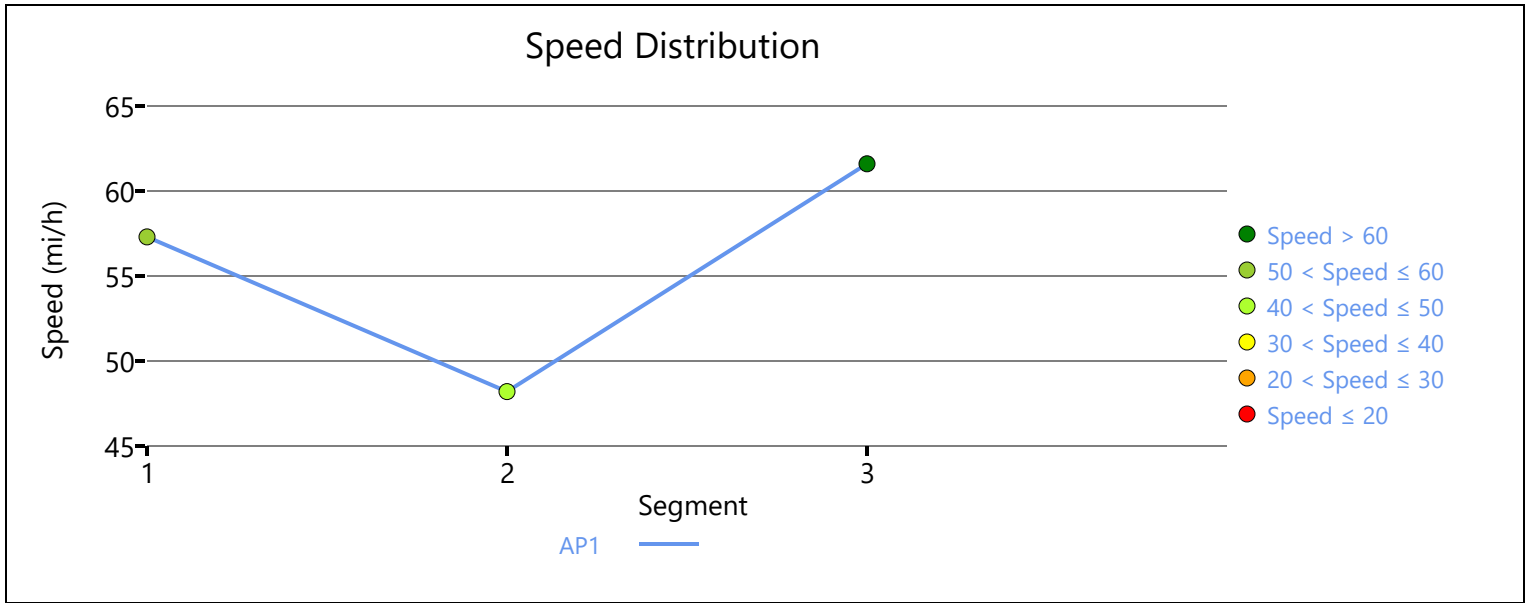
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4745	-	-	61.6

Vehicle Results

Average Speed, mi/h	61.6	Percent Followers, %	40.1
Segment Travel Time, minutes	0.88	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	379	1.52	3.3	B



HCS Two-Lane Highway Report

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Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2455
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	10.20067	Speed Power Coefficient (p)	0.73145
PF Slope Coefficient (m)	-1.36682	PF Power Coefficient (p)	0.76506
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2455	-	-	60.4

Vehicle Results

Average Speed, mi/h	60.4	Percent Followers, %	51.5
Segment Travel Time, minutes	0.46	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1590
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	436	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	6.35031	Speed Power Coefficient (p)	0.54196
PF Slope Coefficient (m)	-1.47120	PF Power Coefficient (p)	0.72782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

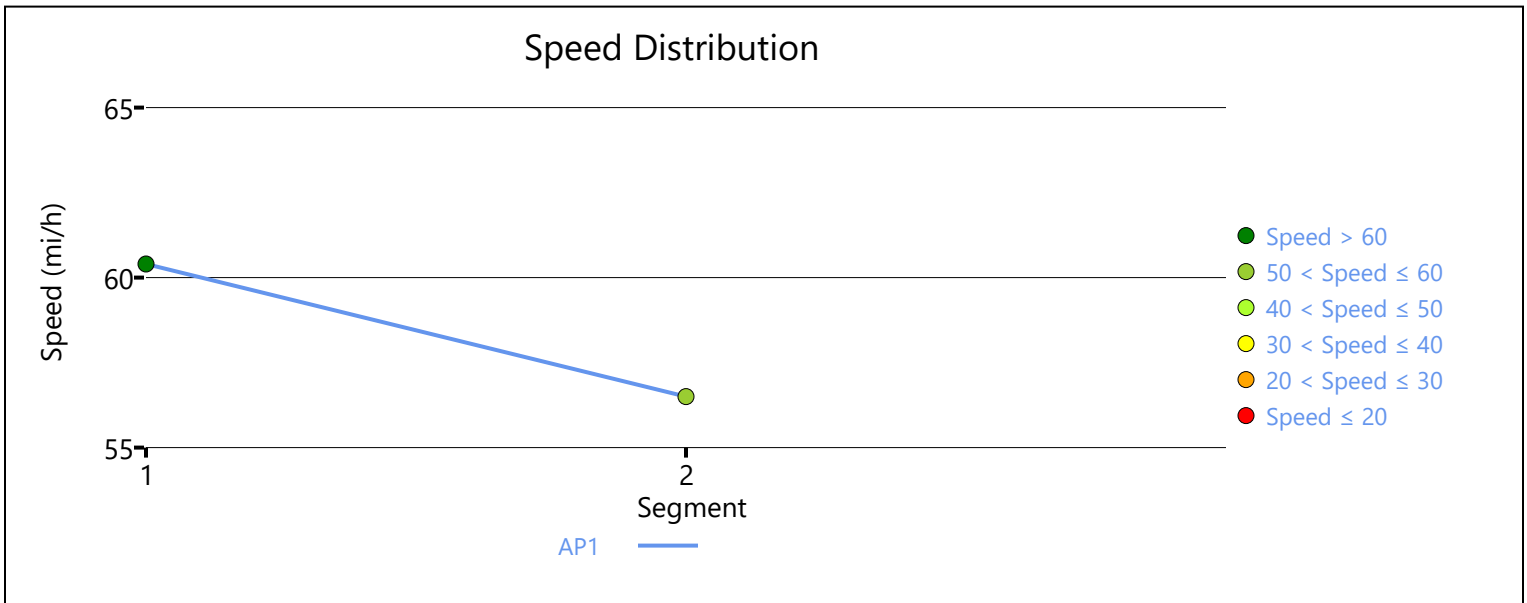
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1590	-	-	56.5

Vehicle Results

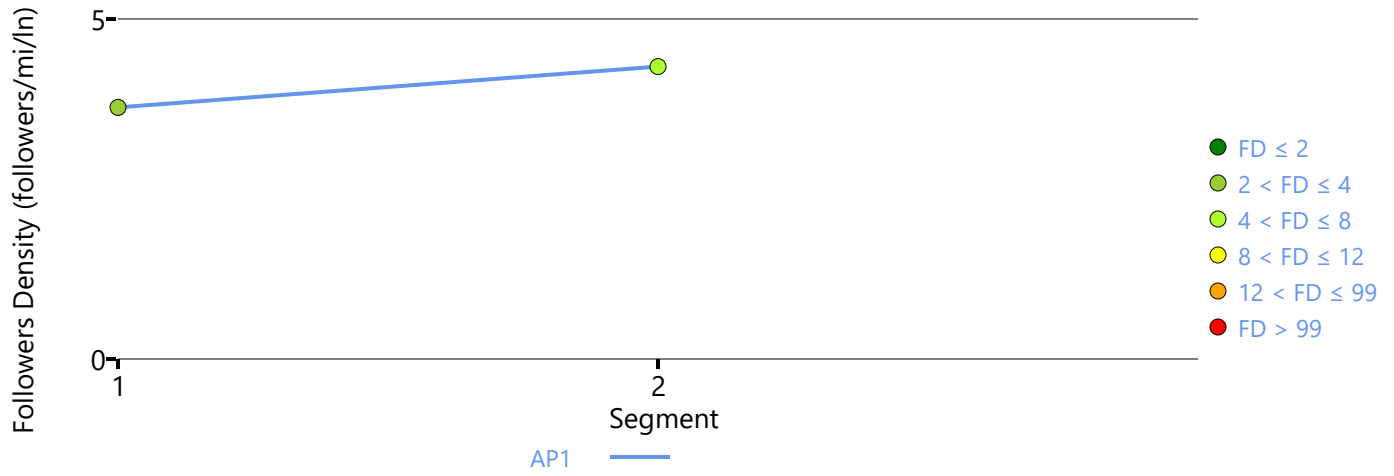
Average Speed, mi/h	56.5	Percent Followers, %	55.3
Segment Travel Time, minutes	0.32	Follower Density (FD), followers/mi/ln	4.3
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	79	0.09	3.9	B



Followers Density Distribution



HCS Two-Lane Highway Report

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Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	8135
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	511	Opposing Demand Flow Rate, veh/h	309
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	17.05088	Speed Power Coefficient (p)	0.71926
PF Slope Coefficient (m)	-1.44663	PF Power Coefficient (p)	0.84428
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8135	-	-	56.0

Vehicle Results

Average Speed, mi/h	56.0	Percent Followers, %	56.0
Segment Travel Time, minutes	1.65	Follower Density (FD), followers/mi/ln	5.1
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	185	0.46	5.1	C

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Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2800
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	628	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	7.16531	Speed Power Coefficient (p)	0.54661
PF Slope Coefficient (m)	-1.39894	PF Power Coefficient (p)	0.73909
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2800	-	-	54.9

Vehicle Results

Average Speed, mi/h	54.9	Percent Followers, %	62.9
Segment Travel Time, minutes	0.58	Follower Density (FD), followers/mi/ln	7.2
Vehicle LOS	C		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3510
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	628	Opposing Demand Flow Rate, veh/h	383
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.40756	Speed Power Coefficient (p)	0.49966
PF Slope Coefficient (m)	-1.23463	PF Power Coefficient (p)	0.81021
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

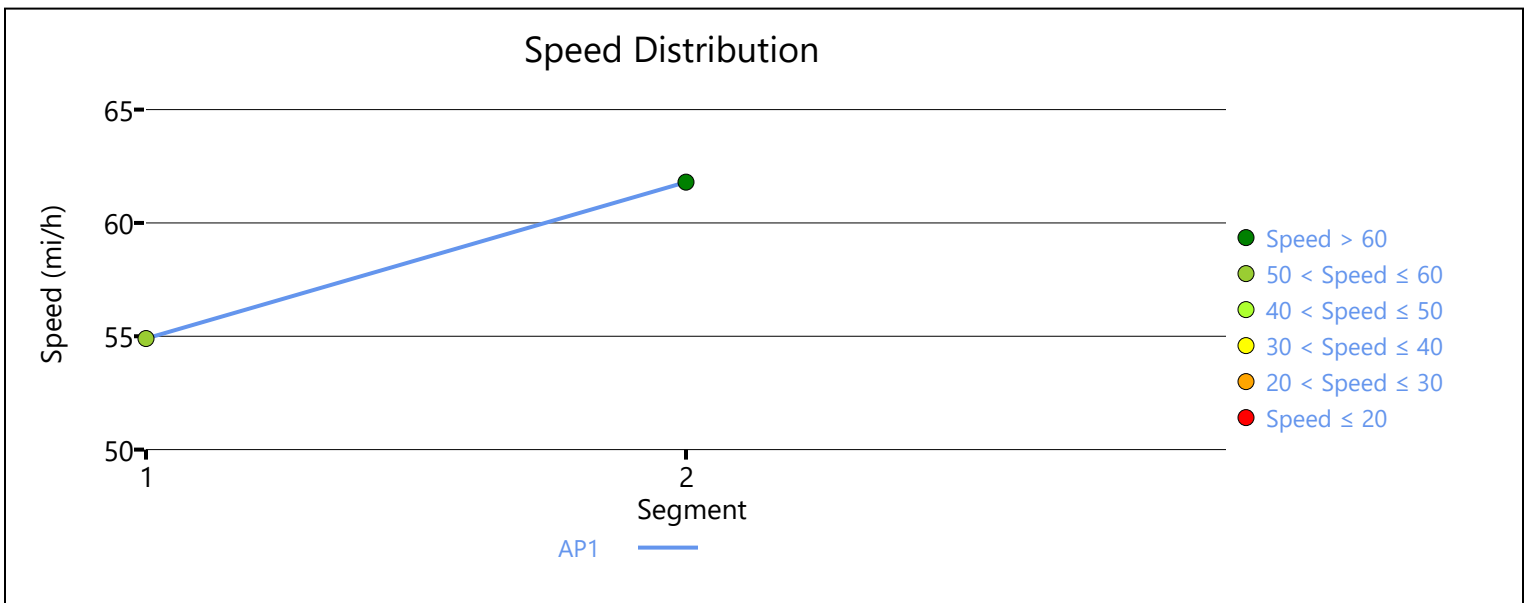
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3510	-	-	61.8

Vehicle Results

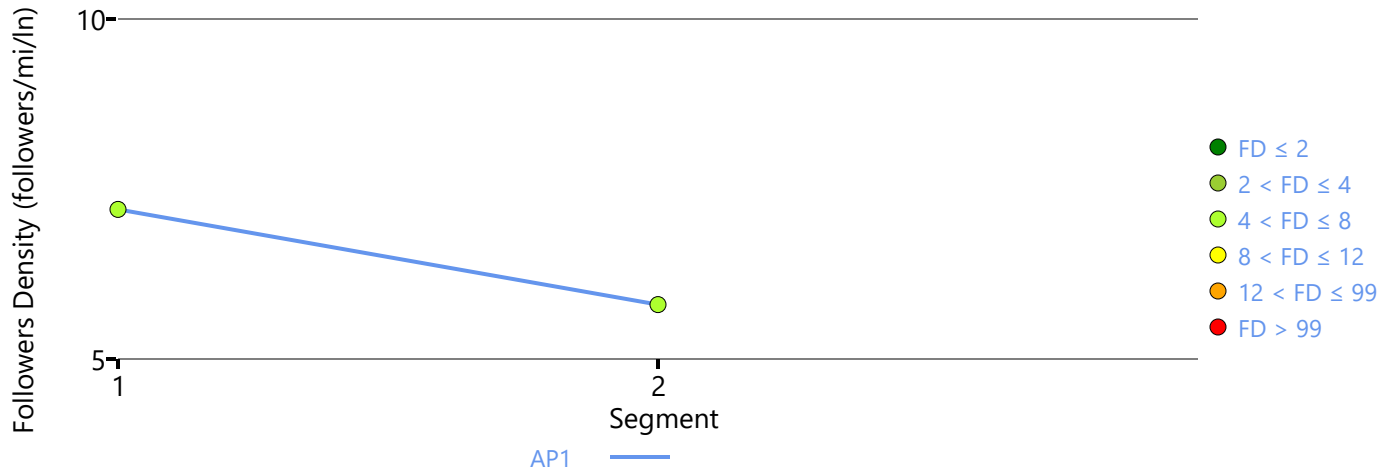
Average Speed, mi/h	61.8	Percent Followers, %	57.1
Segment Travel Time, minutes	0.65	Follower Density (FD), followers/mi/ln	5.8
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	176	0.20	6.4	C



Followers Density Distribution



HCS Two-Lane Highway Report

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Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4060
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	809	Opposing Demand Flow Rate, veh/h	436
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	4.42752	Speed Power Coefficient (p)	0.49114
PF Slope Coefficient (m)	-1.23240	PF Power Coefficient (p)	0.80943
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4060	-	-	61.3

Vehicle Results

Average Speed, mi/h	61.3	Percent Followers, %	64.6
Segment Travel Time, minutes	0.75	Follower Density (FD), followers/mi/ln	8.5
Vehicle LOS	D		

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5605
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	809	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	8.53726	Speed Power Coefficient (p)	0.55740
PF Slope Coefficient (m)	-1.29677	PF Power Coefficient (p)	0.75868
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5605	-	-	58.0

Vehicle Results

Average Speed, mi/h	58.0	Percent Followers, %	66.8
Segment Travel Time, minutes	1.10	Follower Density (FD), followers/mi/ln	9.3
Vehicle LOS	D		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1315
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	809	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39609	PF Power Coefficient (p)	0.73717
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	10.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1315	-	-	56.0

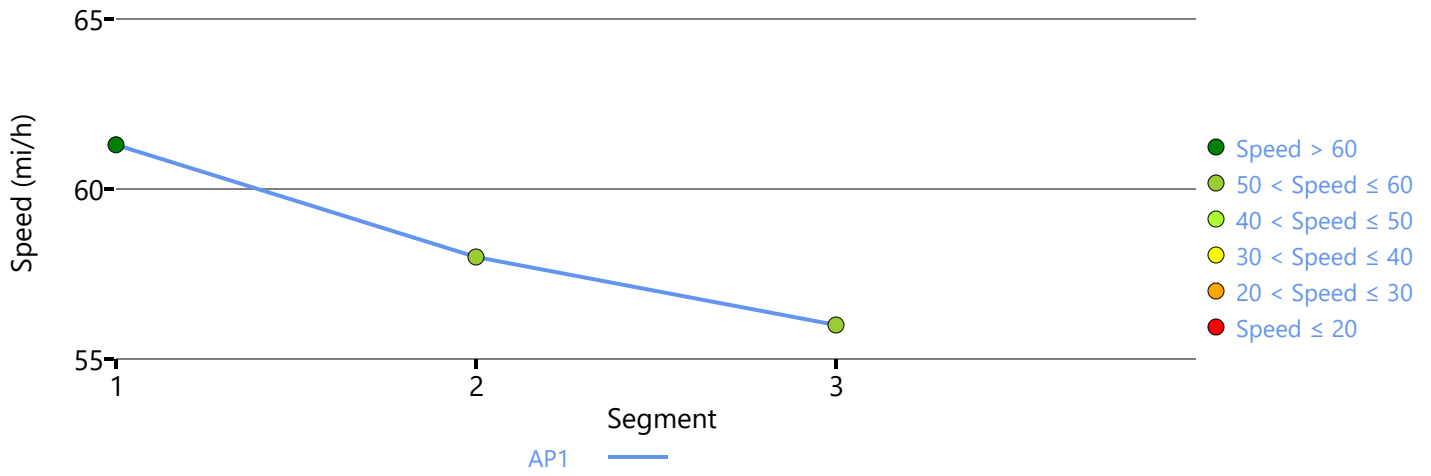
Vehicle Results

Average Speed, mi/h	56.0	Percent Followers, %	69.7
Segment Travel Time, minutes	0.27	Follower Density (FD), followers/mi/ln	10.1
Vehicle LOS	D		

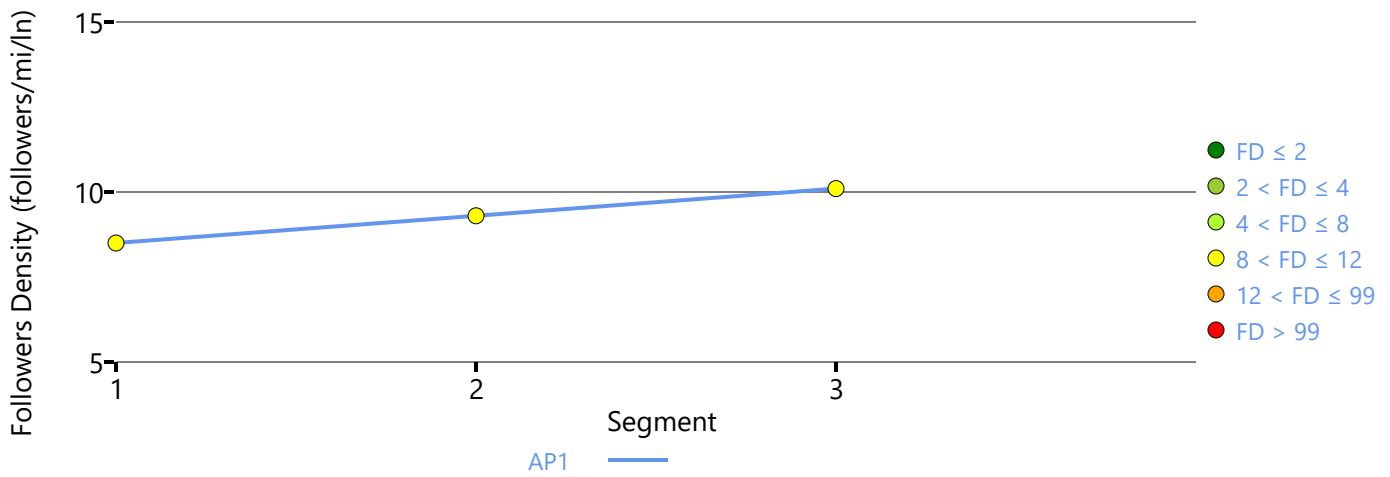
Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	395	0.57	9.1	D

Speed Distribution



Followers Density Distribution



HCS Two-Lane Highway Report

Project Information

Analyst	Cameron Manley	Date	7/11/2023
Agency	WSP	Analysis Year	2045
Jurisdiction	District 8	Time Analyzed	PM Peak
Project Description	US 127 2+1 Study	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5330
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	872	Opposing Demand Flow Rate, veh/h	457
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.51

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	8.01500	Speed Power Coefficient (p)	0.64100
PF Slope Coefficient (m)	-1.23600	PF Power Coefficient (p)	0.79049
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	11.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5330	-	-	53.2

Vehicle Results

Average Speed, mi/h	53.2	Percent Followers, %	67.0
Segment Travel Time, minutes	1.14	Follower Density (FD), followers/mi/ln	11.0
Vehicle LOS	D		

Segment 2

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3475
Measured FFS	Measured	Free-Flow Speed, mi/h	65.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	830	Opposing Demand Flow Rate, veh/h	457
Peak Hour Factor	0.94	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.49

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	65.0
Speed Slope Coefficient (m)	7.13640	Speed Power Coefficient (p)	0.63386
PF Slope Coefficient (m)	-1.23431	PF Power Coefficient (p)	0.80139
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

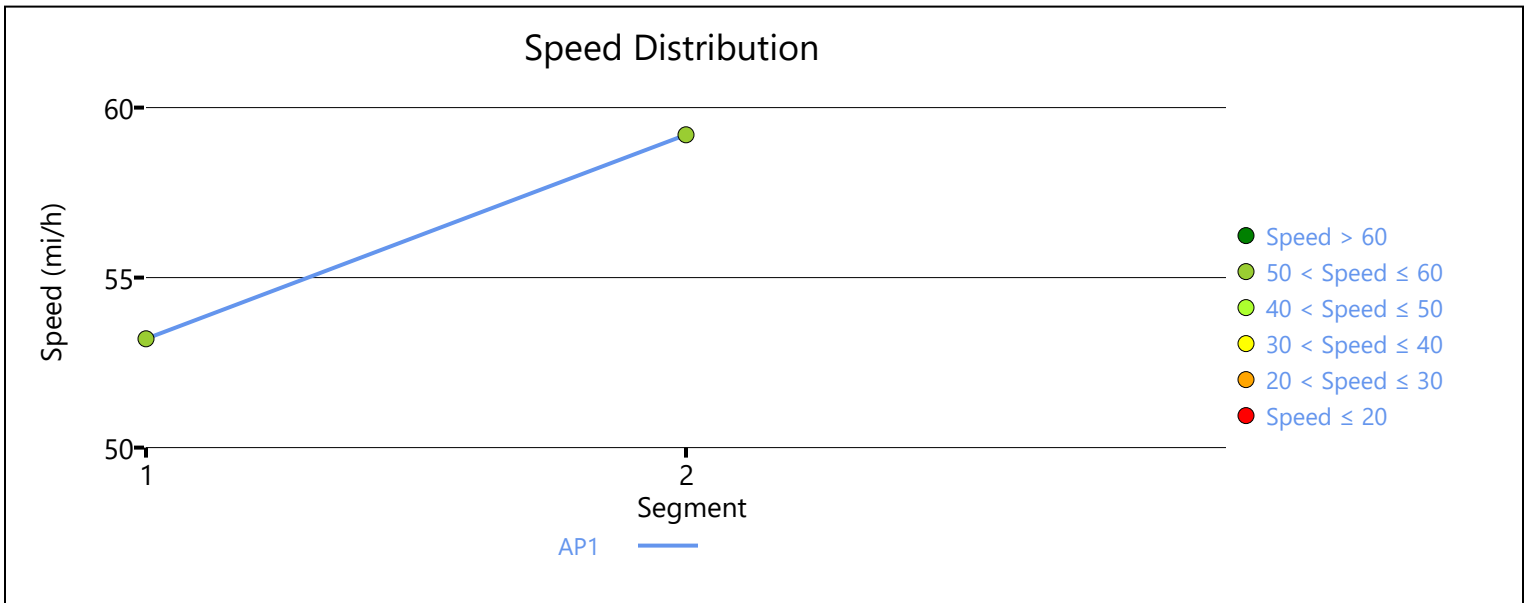
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3475	-	-	59.2

Vehicle Results

Average Speed, mi/h	59.2	Percent Followers, %	65.5
Segment Travel Time, minutes	0.67	Follower Density (FD), followers/mi/ln	9.2
Vehicle LOS	D		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	335	0.64	10.3	D



Followers Density Distribution

