

APPENDIX B

DIVERGE ANALYSIS WORKSHEETS

APPENDIX B-1

EXISTING TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1938	183
Peak Hour Factor (PHF)	0.95	0.78
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2090	241
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.31	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	11.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.450
Downstream Equilibrium Distance (LEQ), ft	389.8	Flow Outer Lanes (VOA), pc/mi/ln	560
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.697	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1530	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B	B-2	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2117	288
Peak Hour Factor (PHF)	0.93	0.76
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2323	388
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.34	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	15.1
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.463
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	611
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.684	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1712	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	B-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1034	425
Peak Hour Factor (PHF)	0.91	0.82
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1156	526
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.17	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	0.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.475
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	185
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.707	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	971	Ramp Junction Speed (S), mi/h	44.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.7
Level of Service (LOS)	A	B-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	818	384
Peak Hour Factor (PHF)	0.93	0.73
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	894	535
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.10	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	6.7
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.476
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	101
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	692	Ramp Junction Speed (S), mi/h	44.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	5.0
Level of Service (LOS)	A	B-5	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1114	126
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1216	163
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.18	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	6.6
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	263.8	Flow Outer Lanes (VOA), pc/mi/ln	293
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.722	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	923	Ramp Junction Speed (S), mi/h	44.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.0
Level of Service (LOS)	A	B-6	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1202	193
Peak Hour Factor (PHF)	0.83	0.71
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1478	277
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.22	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.1
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.453
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	348
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.710	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1130	Ramp Junction Speed (S), mi/h	44.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.0
Level of Service (LOS)	B	B-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2612	356
Peak Hour Factor (PHF)	0.96	0.98
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2785	371
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.41	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.461
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	789
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.673	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1996	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	A	B-8	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2228	615
Peak Hour Factor (PHF)	0.90	0.93
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2515	673
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.28	0.34

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.5
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.489
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	520
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1476	Ramp Junction Speed (S), mi/h	45.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.7
Level of Service (LOS)	B	B-9	

APPENDIX B-II

EXISTING PLUS PROJECT
TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1959	183
Peak Hour Factor (PHF)	0.95	0.78
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2113	241
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.31	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	12.0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.450
Downstream Equilibrium Distance (LEQ), ft	390.1	Flow Outer Lanes (VOA), pc/mi/ln	569
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.696	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1544	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.7
Level of Service (LOS)	B	B-11	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2138	288
Peak Hour Factor (PHF)	0.93	0.76
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2346	388
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.35	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	15.2
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.463
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	619
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.684	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1727	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.4
Level of Service (LOS)	B	B-12	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1049	425
Peak Hour Factor (PHF)	0.91	0.82
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1172	526
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.17	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	1.0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.475
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	189
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.707	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	983	Ramp Junction Speed (S), mi/h	44.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.8
Level of Service (LOS)	A	B-13	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	833	384
Peak Hour Factor (PHF)	0.93	0.73
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	910	535
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.10	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	6.8
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.476
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	106
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	698	Ramp Junction Speed (S), mi/h	44.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	5.1
Level of Service (LOS)	A	B-14	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1132	126
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1235	163
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.18	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	6.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	264.0	Flow Outer Lanes (vOA), pc/mi/ln	298
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.722	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	937	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.1
Level of Service (LOS)	A	B-15	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1220	193
Peak Hour Factor (PHF)	0.83	0.71
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1500	277
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.22	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.2
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.453
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	355
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.710	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1145	Ramp Junction Speed (S), mi/h	44.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.2
Level of Service (LOS)	B	B-16	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2636	356
Peak Hour Factor (PHF)	0.96	0.98
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2811	371
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.461
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	798
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.673	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2013	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	A	B-17	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2252	615
Peak Hour Factor (PHF)	0.90	0.93
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2542	675
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.28	0.34

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.6
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.489
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	527
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1489	Ramp Junction Speed (S), mi/h	45.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.9
Level of Service (LOS)	B	B-18	

APPENDIX B-III

YEAR 2026 CUMULATIVE TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2254	210
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2431	226
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.36	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.448
Downstream Equilibrium Distance (LEQ), ft	380.0	Flow Outer Lanes (VOA), pc/mi/ln	686
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.689	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1745	Ramp Junction Speed (S), mi/h	45.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.9
Level of Service (LOS)	B	B-20	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2391	350
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2568	376
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.38	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	16.4
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.462
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	704
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.679	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1864	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.0
Level of Service (LOS)	B	B-21	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1222	470
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1313	505
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.19	0.25

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	1.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.473
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	239
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.704	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1074	Ramp Junction Speed (S), mi/h	44.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.8
Level of Service (LOS)	A	B-22	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1040	429
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1117	461
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.12	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	7.2
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.469
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	185
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	747	Ramp Junction Speed (S), mi/h	45.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.2
Level of Service (LOS)	A	B-23	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1450	151
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1557	162
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.23	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	8.6
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	246.7	Flow Outer Lanes (VOA), pc/mi/ln	399
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.714	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1158	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.5
Level of Service (LOS)	A	B-24	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1432	239
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1538	257
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.23	0.13

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.4
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.451
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	371
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.710	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1167	Ramp Junction Speed (S), mi/h	44.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.4
Level of Service (LOS)	B	B-25	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2940	391
Peak Hour Factor (PHF)	0.96	0.98
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3135	408
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.46	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	11.6
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.465
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	919
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.663	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2216	Ramp Junction Speed (S), mi/h	45.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.1
Level of Service (LOS)	B	B-26	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2574	686
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2765	737
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.31	0.37

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	14.7
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.494
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	572
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1621	Ramp Junction Speed (S), mi/h	45.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.1
Level of Service (LOS)	B	B-27	

APPENDIX B-IV

YEAR 2026 CUMULATIVE PLUS PROJECT
TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2275	210
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2454	226
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.36	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.448
Downstream Equilibrium Distance (LEQ), ft	380.3	Flow Outer Lanes (VOA), pc/mi/ln	695
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.688	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1759	Ramp Junction Speed (S), mi/h	45.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	18.1
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2412	350
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2591	376
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.38	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	16.5
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.462
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	713
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.678	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1878	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.2
Level of Service (LOS)	B	B-30	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1237	470
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1329	505
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.20	0.25

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	1.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.473
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	244
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.704	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1085	Ramp Junction Speed (S), mi/h	44.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.9
Level of Service (LOS)	A	B-31	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1055	429
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1133	461
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.13	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	7.3
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.469
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	190
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	754	Ramp Junction Speed (S), mi/h	45.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.2
Level of Service (LOS)	A	B-32	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1468	151
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1577	162
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.23	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	8.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	246.8	Flow Outer Lanes (vOA), pc/mi/ln	406
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.713	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1171	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.7
Level of Service (LOS)	A	B-33	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1450	239
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1557	257
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.23	0.13

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.5
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.451
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	378
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.709	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1179	Ramp Junction Speed (S), mi/h	44.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.6
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2964	391
Peak Hour Factor (PHF)	0.96	0.98
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3160	408
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	11.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.465
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	930
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.662	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2230	Ramp Junction Speed (S), mi/h	45.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.3
Level of Service (LOS)	B	B-35	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2598	686
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2791	737
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.31	0.37

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	14.8
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.494
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	579
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1633	Ramp Junction Speed (S), mi/h	45.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.2
Level of Service (LOS)	B	B-36	

APPENDIX B-V

BUILDOUT TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2791	140
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2848	143
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	15.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.441
Downstream Equilibrium Distance (LEQ), ft	291.0	Flow Outer Lanes (vOA), pc/mi/ln	860
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.682	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1988	Ramp Junction Speed (S), mi/h	45.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.0
Level of Service (LOS)	B	B-38	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2251	287
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2297	293
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.34	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	14.8
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.454
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	623
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.689	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1674	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.0
Level of Service (LOS)	B	B-39	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1257	460
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1283	469
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.19	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	1.5
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.470
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	239
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.706	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1044	Ramp Junction Speed (S), mi/h	44.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.6
Level of Service (LOS)	A	B-40	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1247	450
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1272	459
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.14	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	7.8
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.469
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	230
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	813	Ramp Junction Speed (S), mi/h	45.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	7.0
Level of Service (LOS)	A	B-41	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1753	90
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1789	92
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.27	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.436
Downstream Equilibrium Distance (LEQ), ft	160.9	Flow Outer Lanes (vOA), pc/mi/ln	490
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.711	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1299	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.2
Level of Service (LOS)	A	B-42	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1368	167
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1396	170
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.21	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.4
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	347
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.717	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1049	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.3
Level of Service (LOS)	A	B-43	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2785	403
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2842	411
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.465
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	802
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.670	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2040	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.0
Level of Service (LOS)	B	B-44	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2329	680
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2377	694
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.26	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.1
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.490
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	475
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1428	Ramp Junction Speed (S), mi/h	45.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.0
Level of Service (LOS)	B	B-45	

APPENDIX B-VI

**BUILDOUT PLUS PROJECT
TRAFFIC CONDITIONS**

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2812	140
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2869	143
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.43	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	15.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.441
Downstream Equilibrium Distance (LEQ), ft	291.2	Flow Outer Lanes (VOA), pc/mi/ln	867
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influence Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.682	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2002	Ramp Junction Speed (S), mi/h	45.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	B	B-47	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2272	287
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2318	293
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.34	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	14.9
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.454
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	630
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.689	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1688	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	B-48	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1272	460
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1298	469
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.19	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	1.6
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.470
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	244
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.706	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1054	Ramp Junction Speed (S), mi/h	44.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.7
Level of Service (LOS)	A	B-49	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1262	450
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1288	459
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.14	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	7.8
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.469
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	234
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	820	Ramp Junction Speed (S), mi/h	45.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	7.1
Level of Service (LOS)	A	B-50	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1771	90
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1807	92
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.27	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.436
Downstream Equilibrium Distance (LEQ), ft	161.0	Flow Outer Lanes (vOA), pc/mi/ln	496
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.711	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1311	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.4
Level of Service (LOS)	A	B-51	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1386	167
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1414	170
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.21	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.5
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	352
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.717	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1062	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.5
Level of Service (LOS)	A	B-52	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2809	403
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2866	411
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.465
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	813
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.669	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2053	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.2
Level of Service (LOS)	B	B-53	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2353	680
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2401	694
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.27	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.2
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.490
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	482
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1438	Ramp Junction Speed (S), mi/h	45.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.1
Level of Service (LOS)	B	B-54	

APPENDIX B-VII

EXISTING PLUS PROJECT ALTERNATIVE
TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1952	183
Peak Hour Factor (PHF)	0.95	0.78
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2106	241
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.31	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	11.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.450
Downstream Equilibrium Distance (LEQ), ft	390.0	Flow Outer Lanes (VOA), pc/mi/ln	567
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.696	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1539	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.6
Level of Service (LOS)	B	B-56	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2131	288
Peak Hour Factor (PHF)	0.93	0.76
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2338	388
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.35	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	15.2
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.463
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	616
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.684	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1722	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.3
Level of Service (LOS)	B	B-57	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1039	425
Peak Hour Factor (PHF)	0.91	0.82
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1161	526
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.17	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	0.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.475
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	186
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.707	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	975	Ramp Junction Speed (S), mi/h	44.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.7
Level of Service (LOS)	A	B-58	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	823	384
Peak Hour Factor (PHF)	0.93	0.73
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	899	535
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.10	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	6.8
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.476
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	103
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	694	Ramp Junction Speed (S), mi/h	44.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	5.0
Level of Service (LOS)	A	B-59	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1124	126
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1227	163
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.18	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	6.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	263.9	Flow Outer Lanes (vOA), pc/mi/ln	296
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.722	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	931	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.1
Level of Service (LOS)	A	B-60	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1212	193
Peak Hour Factor (PHF)	0.83	0.71
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1490	277
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.22	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.2
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.453
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	352
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.710	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1138	Ramp Junction Speed (S), mi/h	44.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.1
Level of Service (LOS)	B	B-61	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2628	356
Peak Hour Factor (PHF)	0.96	0.98
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2802	371
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.461
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	795
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.673	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2007	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.7
Level of Service (LOS)	A	B-62	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Existing Plus Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2244	615
Peak Hour Factor (PHF)	0.90	0.93
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2533	675
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.28	0.34

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.6
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.489
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	524
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1485	Ramp Junction Speed (S), mi/h	45.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.8
Level of Service (LOS)	B	B-63	

APPENDIX B-VIII

YEAR 2026 CUMULATIVE PLUS PROJECT ALTERNATIVE
TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2268	210
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2446	226
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.36	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.448
Downstream Equilibrium Distance (LEQ), ft	380.2	Flow Outer Lanes (vOA), pc/mi/ln	693
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.688	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1753	Ramp Junction Speed (S), mi/h	45.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	18.0
Level of Service (LOS)	B	B-65	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2405	350
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2583	376
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.38	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	16.5
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.462
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	711
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.678	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1872	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	B	B-66	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1227	470
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1318	505
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.20	0.25

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	1.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.473
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	241
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.704	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1077	Ramp Junction Speed (S), mi/h	44.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.9
Level of Service (LOS)	A	B-67	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1045	429
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1122	461
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.12	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	7.2
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.469
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	187
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	749	Ramp Junction Speed (S), mi/h	45.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.2
Level of Service (LOS)	A	B-68	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1460	151
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1568	162
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.23	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	8.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	246.7	Flow Outer Lanes (vOA), pc/mi/ln	404
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.713	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1164	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.6
Level of Service (LOS)	A	B-69	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1442	239
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1549	257
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.23	0.13

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.5
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.451
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	376
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influence Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.709	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1173	Ramp Junction Speed (S), mi/h	44.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.5
Level of Service (LOS)	B	B-70	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2956	391
Peak Hour Factor (PHF)	0.96	0.98
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3152	408
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	11.7
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.465
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	927
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.662	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2225	Ramp Junction Speed (S), mi/h	45.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.2
Level of Service (LOS)	B	B-71	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Year 2026 Cum + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2590	686
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2782	737
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.31	0.37

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	14.8
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.494
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	577
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1629	Ramp Junction Speed (S), mi/h	45.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.2
Level of Service (LOS)	B	B-72	

APPENDIX B-IX

BUILDOUT PLUS PROJECT ALTERNATIVE
TRAFFIC CONDITIONS

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2805	140
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2862	143
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	15.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.441
Downstream Equilibrium Distance (LEQ), ft	291.1	Flow Outer Lanes (VOA), pc/mi/ln	865
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influence Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.682	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1997	Ramp Junction Speed (S), mi/h	45.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	B	B-74	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2265	287
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2311	293
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.34	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	14.9
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.454
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	628
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.689	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1683	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.1
Level of Service (LOS)	B	B-75	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1262	460
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1288	469
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.19	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	1.6
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.470
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	241
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.706	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1047	Ramp Junction Speed (S), mi/h	44.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.6
Level of Service (LOS)	A	B-76	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	AM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1252	450
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1278	459
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.14	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	7.8
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.469
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	231
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	816	Ramp Junction Speed (S), mi/h	45.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	7.0
Level of Service (LOS)	A	B-77	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	620
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1763	90
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1799	92
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.27	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.436
Downstream Equilibrium Distance (LEQ), ft	160.9	Flow Outer Lanes (VOA), pc/mi/ln	493
Distance to Downstream Ramp (LDOWN), ft	660	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.711	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1306	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.3
Level of Service (LOS)	A	B-78	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 EB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	660	430
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1378	167
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	1406	170
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.21	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	9.5
Distance to Upstream Ramp (LUP), ft	660	Speed Index (D)	0.443
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	350
Distance to Downstream Ramp (LDOWN), ft	265	Off-Ramp Influenecce Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.717	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1056	Ramp Junction Speed (S), mi/h	45.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.4
Level of Service (LOS)	A	B-79	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to NB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	3	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2801	403
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2858	411
Capacity (c), pc/h	6750	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	10.2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.465
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	808
Distance to Downstream Ramp (LDOWN), ft	115	Off-Ramp Influenecce Area Speed (SR), mi/h	43.6
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.670	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	2050	Ramp Junction Speed (S), mi/h	45.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	B	B-80	

HCS7 Freeway Diverge Report

Project Information

Analyst	JT	Date	05/13/19
Agency	LLG	Analysis Year	Buildout + Project
Jurisdiction	SR-1 WB Off-Ramp to SB Newport Blvd	Time Period Analyzed	PM Peak Hour
Project Description	2-17-3857 Magnolia Tank Farm, Huntington Beach		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	45.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	385	385
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2345	680
Peak Hour Factor (PHF)	1.00	1.00
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2393	694
Capacity (c), pc/h	9000	2000
Volume-to-Capacity Ratio (v/c)	0.27	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.1
Distance to Upstream Ramp (LUP), ft	385	Speed Index (D)	0.490
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	479
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.5
Prop. Freeway Vehicles in Lane 1 and 2 (PD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1435	Ramp Junction Speed (S), mi/h	45.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.1
Level of Service (LOS)	B	B-81	