

APPENDIX G

FREEWAY RAMP MERGE/DIVERGE ANALYSIS

WORKSHEETS

APPENDIX G-1

EXISTING TRAFFIC CONDITIONS

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6717	1362
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	7215	1463
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.90	0.73

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	30.2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (M)	0.527
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	2165
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (PM)	0.035	Outer Lanes Freeway Speed (SO), mi/h	64.0
Flow in Lanes 1 and 2 (v12), pc/h	2886	Ramp Junction Speed (S), mi/h	59.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	4349	Average Density (D), pc/mi/ln	36.6
Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5927	790
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	6366	849
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.75	0.42

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	28.4
Distance to Upstream Ramp (LUP), ft	-	Speed Index (M)	0.401
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	1910
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PM)	0.112	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2546	Ramp Junction Speed (S), mi/h	61.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3395	Average Density (D), pc/mi/ln	29.1
Level of Service (LOS)	D		

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	7991	2064
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	8583	2217
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.72	0.55

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	20.2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.628
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	1720
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influenecce Area Speed (SR), mi/h	52.4
Prop. Freeway Vehicles in Lane 1 and 2 (Pd)	0.260	Outer Lanes Freeway Speed (So), mi/h	74.0
Flow in Lanes 1 and 2 (v12), pc/h	3426	Ramp Junction Speed (S), mi/h	61.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.0
Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	6261	768
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	6725	825
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.70	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	13.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.502
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/mi/ln	2018
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.9
Prop. Freeway Vehicles in Lane 1 and 2 (Pd)	0.260	Outer Lanes Freeway Speed (SO), mi/h	72.8
Flow in Lanes 1 and 2 (v12), pc/h	2690	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.9
Level of Service (LOS)	B		

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), In	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	5493	387
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	5900	416
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	22.3
Distance to Upstream Ramp (LUP), ft	-	Speed Index (M)	0.331
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	1770
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (PM)	0.166	Outer Lanes Freeway Speed (SO), mi/h	65.4
Flow in Lanes 1 and 2 (v12), pc/h	2360	Ramp Junction Speed (S), mi/h	63.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2776	Average Density (D), pc/mi/ln	25.0
Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	5880	981
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	6316	1054
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.53

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	32.1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (D)	0.523
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	1484
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.4
Prop. Freeway Vehicles in Lane 1 and 2 (Pd)	0.436	Outer Lanes Freeway Speed (So), mi/h	74.9
Flow in Lanes 1 and 2 (v12), pc/h	3348	Ramp Junction Speed (S), mi/h	63.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.0
Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	4899	134
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	5262	144
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.56	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	17.8
Distance to Upstream Ramp (LUP), ft	-	Speed Index (M)	0.299
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	1579
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (PM)	0.200	Outer Lanes Freeway Speed (SO), mi/h	66.1
Flow in Lanes 1 and 2 (v12), pc/h	2105	Ramp Junction Speed (S), mi/h	64.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2249	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	B		

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay		

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	5033	1034
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	5406	1111
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.56

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	26.2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (M)	0.376
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/mi/ln	1622
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.5
Prop. Freeway Vehicles in Lane 1 and 2 (PM)	0.079	Outer Lanes Freeway Speed (SO), mi/h	66.0
Flow in Lanes 1 and 2 (v12), pc/h	2162	Ramp Junction Speed (S), mi/h	62.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3273	Average Density (D), pc/mi/ln	26.0
Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	5254	1315
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	5643	1412
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.71

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.378
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1693
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.041	Outer Lanes Freeway Speed (SO), mi/h	65.7
Flow in Lanes 1 and 2 (v12), pc/h	2257	Ramp Junction Speed (S), mi/h	62.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3669	Average Density (D), pc/mi/ln	28.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	4676	578
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	5023	621
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.31

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.339
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1507
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.140	Outer Lanes Freeway Speed (SO), mi/h	66.4
Flow in Lanes 1 and 2 (v12), pc/h	2009	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2630	Average Density (D), pc/mi/ln	22.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.5

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	6969	2293
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	7485	2463
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.62	0.62

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.650
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1304
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	51.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	75.6
Flow in Lanes 1 and 2 (v12), pc/h	3380	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.8

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8290	1300
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	8904	1396
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.93	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.554
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2671
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	70.3
Flow in Lanes 1 and 2 (v12), pc/h	3562	Ramp Junction Speed (S), mi/h	63.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	35.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.4

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	6990	525
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	7508	564
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.28

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.407
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2253
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.147	Outer Lanes Freeway Speed (SO), mi/h	63.7
Flow in Lanes 1 and 2 (v12), pc/h	3003	Ramp Junction Speed (S), mi/h	61.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3567	Average Density (D), pc/mi/ln	32.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.4

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	7515	1119
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	8072	1202
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.60

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.536
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1938
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.1
Flow in Lanes 1 and 2 (v12), pc/h	4197	Ramp Junction Speed (S), mi/h	62.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	32.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	39.4

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	6396	88
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	6870	95
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.329
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2061
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.206	Outer Lanes Freeway Speed (SO), mi/h	64.4
Flow in Lanes 1 and 2 (v12), pc/h	2748	Ramp Junction Speed (S), mi/h	62.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2843	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.4

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	6484	1355
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	6965	1455
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.88	0.73

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.544
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2090
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.036	Outer Lanes Freeway Speed (SO), mi/h	64.3
Flow in Lanes 1 and 2 (v12), pc/h	2786	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	4241	Average Density (D), pc/mi/ln	35.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.6

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6265	1009
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	6729	1084
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.81	0.54

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.395
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2019
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.082	Outer Lanes Freeway Speed (SO), mi/h	64.5
Flow in Lanes 1 and 2 (v12), pc/h	2692	Ramp Junction Speed (S), mi/h	61.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	3776	Average Density (D), pc/mi/ln	31.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5613	652
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	6029	700
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.372
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1809
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.130	Outer Lanes Freeway Speed (SO), mi/h	65.3
Flow in Lanes 1 and 2 (v12), pc/h	2412	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3112	Average Density (D), pc/mi/ln	26.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.2

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8746	3133
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	9394	3365
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.78	0.84

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.731
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1536
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	49.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	74.7
Flow in Lanes 1 and 2 (v12), pc/h	4444	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	32.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.0

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	7345	1209
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	7889	1299
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.82	0.32

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.545
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2367
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.5
Flow in Lanes 1 and 2 (v12), pc/h	3156	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	31.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	6136	489
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	6591	525
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.361
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1978
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.152	Outer Lanes Freeway Speed (SO), mi/h	64.7
Flow in Lanes 1 and 2 (v12), pc/h	2636	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3161	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.3

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	6625	755
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	7116	811
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.74	0.41

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.501
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1778
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	56.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.8
Flow in Lanes 1 and 2 (v12), pc/h	3560	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	5870	108
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	6305	116
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.317
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1892
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.203	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 1 and 2 (v12), pc/h	2522	Ramp Junction Speed (S), mi/h	63.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2638	Average Density (D), pc/mi/ln	25.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.8

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/21/2020
Agency	LLG Engineers	Analysis Year	Existing
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	5978	1145
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	6421	1230
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.80	0.62

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.447
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1927
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.064	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2568	Ramp Junction Speed (S), mi/h	61.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3798	Average Density (D), pc/mi/ln	31.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.3

APPENDIX G-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6717	1422
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	7215	1527
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.91	0.76

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.547
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2165
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.027	Outer Lanes Freeway Speed (SO), mi/h	64.0
Flow in Lanes 1 and 2 (v12), pc/h	2886	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	4413	Average Density (D), pc/mi/ln	37.1
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.6

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5927	790
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	6366	849
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.75	0.42

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.401
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1910
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.112	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2546	Ramp Junction Speed (S), mi/h	61.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3395	Average Density (D), pc/mi/ln	29.1
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.4

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8025	2098
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	8620	2253
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.72	0.56

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.631
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1718
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	52.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	74.0
Flow in Lanes 1 and 2 (v12), pc/h	3460	Ramp Junction Speed (S), mi/h	61.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.5

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	6558	1032
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	7044	1108
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.73	0.28

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.528
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2113
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	72.4
Flow in Lanes 1 and 2 (v12), pc/h	2818	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.0

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	5526	387
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	5936	416
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.332
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1781
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.166	Outer Lanes Freeway Speed (SO), mi/h	65.4
Flow in Lanes 1 and 2 (v12), pc/h	2374	Ramp Junction Speed (S), mi/h	63.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2790	Average Density (D), pc/mi/ln	25.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.4

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	5913	1014
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	6351	1089
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.54

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.526
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1484
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.9
Flow in Lanes 1 and 2 (v12), pc/h	3383	Ramp Junction Speed (S), mi/h	63.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	32.4

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	4899	134
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	5262	144
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.56	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.299
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1579
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.200	Outer Lanes Freeway Speed (SO), mi/h	66.1
Flow in Lanes 1 and 2 (v12), pc/h	2105	Ramp Junction Speed (S), mi/h	64.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2249	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.8

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	5033	1040
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	5406	1117
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.56

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.376
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1622
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.078	Outer Lanes Freeway Speed (SO), mi/h	66.0
Flow in Lanes 1 and 2 (v12), pc/h	2162	Ramp Junction Speed (S), mi/h	62.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3279	Average Density (D), pc/mi/ln	26.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.3

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	5254	1420
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	5643	1525
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.75	0.76

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.396
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1693
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.027	Outer Lanes Freeway Speed (SO), mi/h	65.7
Flow in Lanes 1 and 2 (v12), pc/h	2257	Ramp Junction Speed (S), mi/h	61.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3782	Average Density (D), pc/mi/ln	28.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.7

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	4676	578
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	5023	621
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.31

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.339
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1507
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.140	Outer Lanes Freeway Speed (SO), mi/h	66.4
Flow in Lanes 1 and 2 (v12), pc/h	2009	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2630	Average Density (D), pc/mi/ln	22.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.5

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	6999	2323
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	7518	2495
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.63	0.62

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.653
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1302
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	51.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	75.6
Flow in Lanes 1 and 2 (v12), pc/h	3410	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.1

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8382	1344
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	9003	1444
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.94	0.36

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.558
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2700
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	70.2
Flow in Lanes 1 and 2 (v12), pc/h	3603	Ramp Junction Speed (S), mi/h	62.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	35.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.7

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	7038	525
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	7560	564
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.85	0.28

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.410
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2268
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.147	Outer Lanes Freeway Speed (SO), mi/h	63.6
Flow in Lanes 1 and 2 (v12), pc/h	3024	Ramp Junction Speed (S), mi/h	61.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	3588	Average Density (D), pc/mi/ln	33.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.6

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	7563	1167
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	8124	1253
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.85	0.63

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.541
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1938
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.1
Flow in Lanes 1 and 2 (v12), pc/h	4249	Ramp Junction Speed (S), mi/h	62.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	32.6
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	39.8

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	6396	88
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	6870	95
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.329
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2061
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.206	Outer Lanes Freeway Speed (SO), mi/h	64.4
Flow in Lanes 1 and 2 (v12), pc/h	2748	Ramp Junction Speed (S), mi/h	62.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2843	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.4

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	6484	1407
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	6965	1511
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.88	0.76

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.559
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2090
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.029	Outer Lanes Freeway Speed (SO), mi/h	64.3
Flow in Lanes 1 and 2 (v12), pc/h	2786	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	4297	Average Density (D), pc/mi/ln	36.0
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	34.0

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6265	1119
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	6729	1202
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.83	0.60

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.416
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2019
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.068	Outer Lanes Freeway Speed (SO), mi/h	64.5
Flow in Lanes 1 and 2 (v12), pc/h	2692	Ramp Junction Speed (S), mi/h	61.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3894	Average Density (D), pc/mi/ln	32.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.7

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5613	652
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	6029	700
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.372
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1809
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.130	Outer Lanes Freeway Speed (SO), mi/h	65.3
Flow in Lanes 1 and 2 (v12), pc/h	2412	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3112	Average Density (D), pc/mi/ln	26.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.2

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8956	3343
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	9620	3591
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.80	0.90

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.751
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1519
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	49.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	74.8
Flow in Lanes 1 and 2 (v12), pc/h	4658	Ramp Junction Speed (S), mi/h	56.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	33.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.8

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	7448	1256
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	8000	1349
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.83	0.34

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.549
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2400
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.3
Flow in Lanes 1 and 2 (v12), pc/h	3200	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	31.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.3

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	6192	489
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	6651	525
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.75	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.363
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1996
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.152	Outer Lanes Freeway Speed (SO), mi/h	64.6
Flow in Lanes 1 and 2 (v12), pc/h	2660	Ramp Junction Speed (S), mi/h	62.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3185	Average Density (D), pc/mi/ln	28.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.4

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	6681	811
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	7176	871
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.75	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.506
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1778
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.8
Flow in Lanes 1 and 2 (v12), pc/h	3620	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	34.4

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	5870	108
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	6305	116
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.317
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1892
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.203	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 1 and 2 (v12), pc/h	2522	Ramp Junction Speed (S), mi/h	63.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2638	Average Density (D), pc/mi/ln	25.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.8

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	8/24/2020
Agency	LLG Engineers	Analysis Year	Existing + P
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	5978	1184
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	6421	1272
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.80	0.64

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.454
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1927
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.059	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2568	Ramp Junction Speed (S), mi/h	60.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3840	Average Density (D), pc/mi/ln	31.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.6

APPENDIX G-III

YEAR 2045 BUILDOUT TRAFFIC CONDITIONS

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6916	1723
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	7429	1851
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.97	0.93

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.710
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2229
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	50.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	2972	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	4823	Average Density (D), pc/mi/ln	41.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.7

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5927	989
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	6366	1062
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.77	0.53

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.428
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1910
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.085	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2546	Ramp Junction Speed (S), mi/h	61.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3608	Average Density (D), pc/mi/ln	30.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.9

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8173	2246
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	8779	2412
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.73	0.60

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.645
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1706
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	51.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	74.0
Flow in Lanes 1 and 2 (v12), pc/h	3611	Ramp Junction Speed (S), mi/h	60.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.8

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	7192	1255
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	7725	1348
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.80	0.34

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.549
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2318
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.7
Flow in Lanes 1 and 2 (v12), pc/h	3090	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	30.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.3

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	5937	559
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	6377	600
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.30

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.360
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1913
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.143	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2551	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3151	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.1

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	6496	1414
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	6977	1519
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.76

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.565
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1539
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.7
Flow in Lanes 1 and 2 (v12), pc/h	3899	Ramp Junction Speed (S), mi/h	61.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	36.8

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	5082	167
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	5459	179
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1638
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.195	Outer Lanes Freeway Speed (SO), mi/h	65.9
Flow in Lanes 1 and 2 (v12), pc/h	2184	Ramp Junction Speed (S), mi/h	64.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2363	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.6

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	5249	1304
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	5638	1401
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.70

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.424
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1692
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.043	Outer Lanes Freeway Speed (SO), mi/h	65.7
Flow in Lanes 1 and 2 (v12), pc/h	2255	Ramp Junction Speed (S), mi/h	61.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3656	Average Density (D), pc/mi/ln	28.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	5820	1607
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	6251	1726
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.83	0.86

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.492
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1876
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	56.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.002	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 1 and 2 (v12), pc/h	2500	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	4226	Average Density (D), pc/mi/ln	33.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	4998	822
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	5368	883
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.365
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1611
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.107	Outer Lanes Freeway Speed (SO), mi/h	66.0
Flow in Lanes 1 and 2 (v12), pc/h	2147	Ramp Junction Speed (S), mi/h	62.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3030	Average Density (D), pc/mi/ln	24.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.5

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	7638	2640
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	8204	2836
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.68	0.71

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.683
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1379
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	75.3
Flow in Lanes 1 and 2 (v12), pc/h	3805	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.5

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	9349	1801
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	10042	1934
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	1.05	0.48

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	0.0	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	-
Downstream Equilibrium Distance (LEQ), ft	0.0	Flow Outer Lanes (vOA), pc/h/ln	2700
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	-
Flow in Lanes 1 and 2 (v12), pc/h	4642	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vR12), pc/h	4642	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	30.7

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	7548	642
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	8107	690
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.92	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.468
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2432
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	56.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.132	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	3243	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3933	Average Density (D), pc/mi/ln	36.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.2

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	8190	1806
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	8797	1940
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.92	0.97

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.603
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1934
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.1
Flow in Lanes 1 and 2 (v12), pc/h	4930	Ramp Junction Speed (S), mi/h	60.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	36.4
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	45.7

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	6384	123
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	6857	132
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.331
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2057
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.201	Outer Lanes Freeway Speed (SO), mi/h	64.4
Flow in Lanes 1 and 2 (v12), pc/h	2743	Ramp Junction Speed (S), mi/h	62.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2875	Average Density (D), pc/mi/ln	27.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.6

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	6507	1636
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	6989	1757
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.91	0.88

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.643
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2097
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	52.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	64.3
Flow in Lanes 1 and 2 (v12), pc/h	2796	Ramp Junction Speed (S), mi/h	57.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	4553	Average Density (D), pc/mi/ln	38.2
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	35.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6940	1354
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	7454	1454
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.93	0.73

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.554
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2236
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.036	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	2982	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	4436	Average Density (D), pc/mi/ln	37.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5998	942
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	6443	1012
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.78	0.51

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.426
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1933
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.091	Outer Lanes Freeway Speed (SO), mi/h	64.8
Flow in Lanes 1 and 2 (v12), pc/h	2577	Ramp Junction Speed (S), mi/h	61.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3589	Average Density (D), pc/mi/ln	30.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.8

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	9575	3577
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	10285	3842
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.86	0.96

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.774
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1623
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	48.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	74.4
Flow in Lanes 1 and 2 (v12), pc/h	4982	Ramp Junction Speed (S), mi/h	56.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	36.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.6

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8429	1620
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	9054	1740
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.94	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.585
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2700
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	70.2
Flow in Lanes 1 and 2 (v12), pc/h	3654	Ramp Junction Speed (S), mi/h	62.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	36.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.2

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	6809	514
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	7314	552
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.82	0.28

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.395
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2194
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.149	Outer Lanes Freeway Speed (SO), mi/h	63.9
Flow in Lanes 1 and 2 (v12), pc/h	2926	Ramp Junction Speed (S), mi/h	61.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3478	Average Density (D), pc/mi/ln	31.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.7

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	7323	1473
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	7866	1582
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.82	0.79

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.570
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1772
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.8
Flow in Lanes 1 and 2 (v12), pc/h	4322	Ramp Junction Speed (S), mi/h	61.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	32.0
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	40.5

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	5850	150
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	6284	161
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.319
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1885
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.198	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 1 and 2 (v12), pc/h	2514	Ramp Junction Speed (S), mi/h	63.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2675	Average Density (D), pc/mi/ln	25.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	6000	1469
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	6445	1578
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.79

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.522
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1934
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.021	Outer Lanes Freeway Speed (SO), mi/h	64.8
Flow in Lanes 1 and 2 (v12), pc/h	2578	Ramp Junction Speed (S), mi/h	59.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	4156	Average Density (D), pc/mi/ln	33.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	32.9

APPENDIX G-IV

**YEAR 2045 BUILDOUT PLUS PROJECT
TRAFFIC CONDITIONS**

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6916	1770
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	7429	1901
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.97	0.95

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.735
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2229
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	49.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	2972	Ramp Junction Speed (S), mi/h	55.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	4873	Average Density (D), pc/mi/ln	42.1
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	34.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5927	989
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	6366	1062
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.77	0.53

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.428
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1910
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.085	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2546	Ramp Junction Speed (S), mi/h	61.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3608	Average Density (D), pc/mi/ln	30.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.9

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8207	2280
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	8815	2449
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.73	0.61

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.648
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1703
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	51.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	74.0
Flow in Lanes 1 and 2 (v12), pc/h	3646	Ramp Junction Speed (S), mi/h	60.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.1

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	7247	1278
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	7784	1373
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.81	0.34

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.552
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2335
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.6
Flow in Lanes 1 and 2 (v12), pc/h	3114	Ramp Junction Speed (S), mi/h	63.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	30.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.5

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	5969	559
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	6411	600
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.30

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.361
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1924
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.143	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2564	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3164	Average Density (D), pc/mi/ln	28.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.2

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	6528	1446
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	7012	1553
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.78

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.568
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1540
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.7
Flow in Lanes 1 and 2 (v12), pc/h	3933	Ramp Junction Speed (S), mi/h	61.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	37.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	5082	167
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	5459	179
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1638
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.195	Outer Lanes Freeway Speed (SO), mi/h	65.9
Flow in Lanes 1 and 2 (v12), pc/h	2184	Ramp Junction Speed (S), mi/h	64.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2363	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.6

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	AM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	5249	1306
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	5638	1403
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.70

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.424
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1692
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.042	Outer Lanes Freeway Speed (SO), mi/h	65.7
Flow in Lanes 1 and 2 (v12), pc/h	2255	Ramp Junction Speed (S), mi/h	61.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3658	Average Density (D), pc/mi/ln	28.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	5820	1704
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	6251	1830
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.92

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.521
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1876
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 1 and 2 (v12), pc/h	2500	Ramp Junction Speed (S), mi/h	59.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	4330	Average Density (D), pc/mi/ln	34.0
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	4998	822
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	5368	883
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.365
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1611
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.107	Outer Lanes Freeway Speed (SO), mi/h	66.0
Flow in Lanes 1 and 2 (v12), pc/h	2147	Ramp Junction Speed (S), mi/h	62.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3030	Average Density (D), pc/mi/ln	24.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.5

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	7664	2666
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	8232	2864
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.69	0.72

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.686
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1377
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	75.3
Flow in Lanes 1 and 2 (v12), pc/h	3832	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.7

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	9427	1838
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	10126	1974
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	1.05	0.49

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	0.0	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	-
Downstream Equilibrium Distance (LEQ), ft	0.0	Flow Outer Lanes (vOA), pc/h/ln	2700
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	-
Flow in Lanes 1 and 2 (v12), pc/h	4726	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (vR12), pc/h	4726	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F	Density in Ramp Influence Area (DR), pc/mi/ln	31.4

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	7589	642
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	8151	690
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.92	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.471
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2446
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	56.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.132	Outer Lanes Freeway Speed (SO), mi/h	62.6
Flow in Lanes 1 and 2 (v12), pc/h	3260	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3950	Average Density (D), pc/mi/ln	36.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.3

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	8231	1847
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	8841	1984
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.92	0.99

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.607
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1934
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.1
Flow in Lanes 1 and 2 (v12), pc/h	4974	Ramp Junction Speed (S), mi/h	60.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	36.7
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	46.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	6384	123
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	6857	132
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.331
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2057
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.201	Outer Lanes Freeway Speed (SO), mi/h	64.4
Flow in Lanes 1 and 2 (v12), pc/h	2743	Ramp Junction Speed (S), mi/h	62.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2875	Average Density (D), pc/mi/ln	27.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.6

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	PM Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	6507	1686
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	6989	1811
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.92	0.91

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.663
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2097
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	51.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.000	Outer Lanes Freeway Speed (SO), mi/h	64.3
Flow in Lanes 1 and 2 (v12), pc/h	2796	Ramp Junction Speed (S), mi/h	56.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	4607	Average Density (D), pc/mi/ln	38.7
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	36.3

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB On-Ramp from Stonehill Dr	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1375
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)	6940	1450
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	7454	1557
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.94	0.78

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.590
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2236
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.023	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	2982	Ramp Junction Speed (S), mi/h	58.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	4539	Average Density (D), pc/mi/ln	38.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.6

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	520
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)	5998	942
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	6443	1012
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.78	0.51

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.426
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1933
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.091	Outer Lanes Freeway Speed (SO), mi/h	64.8
Flow in Lanes 1 and 2 (v12), pc/h	2577	Ramp Junction Speed (S), mi/h	61.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3589	Average Density (D), pc/mi/ln	30.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.8

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 NB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	9602	3604
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	10314	3871
Capacity (c), pc/h	12000	4000
Volume-to-Capacity Ratio (v/c)	0.86	0.97

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.776
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1621
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	48.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	74.4
Flow in Lanes 1 and 2 (v12), pc/h	5010	Ramp Junction Speed (S), mi/h	56.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	36.8
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.8

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB Off-Ramp to Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	2
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
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)	8518	1660
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	9149	1783
Capacity (c), pc/h	9600	4000
Volume-to-Capacity Ratio (v/c)	0.95	0.45

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.588
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2700
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	70.2
Flow in Lanes 1 and 2 (v12), pc/h	3749	Ramp Junction Speed (S), mi/h	62.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	36.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.0

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp from Camino Capistrano	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
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)	6858	514
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	7366	552
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.82	0.28

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.397
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2210
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.149	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	2946	Ramp Junction Speed (S), mi/h	61.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3498	Average Density (D), pc/mi/ln	32.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.9

HCS7 Freeway Diverge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB Off-Ramp to PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	105
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)	7372	1522
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	7918	1635
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.82	0.82

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.575
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1772
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	73.8
Flow in Lanes 1 and 2 (v12), pc/h	4374	Ramp Junction Speed (S), mi/h	61.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	32.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	40.9

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp Loop from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
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)	5850	150
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	6284	161
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.319
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1885
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.198	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 1 and 2 (v12), pc/h	2514	Ramp Junction Speed (S), mi/h	63.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2675	Average Density (D), pc/mi/ln	25.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.1

HCS7 Freeway Merge Report

Project Information

Analyst	ML	Date	4/22/2021
Agency	LLG Engineers	Analysis Year	Year 2045 + P
Jurisdiction	I-5 SB On-Ramp from PCH	Time Period Analyzed	Saturday MD Peak Hour
Project Description	4244 Doheny Village Zoning District Overlay	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	690
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)	6000	1504
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	6445	1615
Capacity (c), pc/h	9600	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.81

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.531
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1934
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.016	Outer Lanes Freeway Speed (SO), mi/h	64.8
Flow in Lanes 1 and 2 (v12), pc/h	2578	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	4193	Average Density (D), pc/mi/ln	33.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.2