COLLEGE DRIVE IMR
CHAPTER 2 APP B
Existing Conditions Analysis

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URBAN SYSTEMS inc.

Project # 10-085-2

Table 2-1
Capacity Analysis
Existing Conditions- Intersection Analysis

Location	AM			PM		
	Delay (sec)	V/C Ratio	95th % Queues (ft)	Delay (sec)	V/C Ratio	95th % Queues (ft)
College Dr at I-10 WB Ramps	**31.7**			**33.7**		
I-10 Ramp Westbound	55.3	0.87	385	83.2	0.95	548
College Dr Northbound	34.1	0.76	583	28.1	0.68	690
College Dr Southbound	19.5	0.81	450	18.6	0.77	630

Table 2-2
Capacity Analysis
Existing Conditions- Freeway and Merge Analysis

Location	AM	PM
	Density (pc/mi/ln)	Density (pc/mi/ln)
I-10 WB On Ramp from Essen Ln Merge	27.6	28.7
I-10 WB between On Ramp from Essen Ln and Off Ramp to I-12 EB	27.4	28.6
I-10 WB between Off Ramp to I-12 EB and merge with I-12 WB	37.5	37.5
I-12 WB between Off Ramp to I-10 EB and merge with I-10 WB	22.5	18.3
I-10 WB between merge with I-12 WB and Off Ramp to College Dr	27.8	26.0
I-10 WB between College Dr On and Off Ramps	28.3	24.9

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HCS Merge/Diverge analysis		
INPUT		Notes
Project Properties		
Analyst	Initials of person doing analysis	
Agency	USI- 10-085-2	
Analysis Year	2017	Or 2040 as applicable
Project Description	I-10 Corridor Improvement Stage 1 EA - "analysis location"	Example: I-10 Corridor Improvement Stage 1 EA - I-10 EB Perkins off ramp
Jurisdiction	LADOTD	
Time Period	"Scenario AM"	Example: Existing AM, No Build PM, Build AM
Date	"Date of analysis"	should be autofilled with date analysis is conducted
Geometric Data		
Number of lanes	3	# of lanes in analysis direction (if weaving segment auxilary lane is included)
Freeway FFS	Posted speed	
Freeway Length	default	
Freeway Terrain Type	level	
Freeway Grade	default	
Freeway Grade Length	default	
Highway or C-D Roadway		Should be unchecked for all Existing and NB analysis. For the Build it may vary by alternative.
Managed Lane	unchecked	
Ramp Lanes	1	# of lanes for ramp. Can be 1 or 2 only.
Ramp FFS	Advisory speed of ramp	
Ramp side	Right	
Ramp Terrain Type	Level	
Ramp Grade	default	
Ramp Grade length	default	
Length of First Accel Lane		Look in Stage 0 analysis files in HCS 2010 file is located in U:\Projects\ENGPROJ\2010Proj\10-085 I-10\10-085-1 initial proj and modeling\A\HCS\Base\Ramp Junctions
Length of Second Accel Lane	default	
Demand Data		
Freeway Demand	I-10 mainline volume	Volume upsteam from the merge
Freeway Peak Hour Factor	Calculated mainline PHF	Same day and time as 2017 vol. Print out to document source.
Freeway Total Trucks	HV % from DCR reports	
Freeway Tractor-Trailers	default	
Freeway Single Unit Trucks	default	
Merge or Diverge Demand	On/Off ramp volume	
Ramp Peak Hour Factor	Calculated mainline PHF	use same as mainline PHF
Ramp Total Trucks	HV % from DCR reports	
Ramp Single Unit Trucks	default	
Ramp Tractor-Trailers	default	
Adjustment Factors		
Freeway Driver Population	default	All familiar
Freeway Weather Type	default	Non-severe Weather
Frreeway Speed Adjustment Factor	default	1.00
Freeway Capacity Adjustment Factor	default	1.00
Freeway Demand Adjustment Factor	default	1.00
Incident Type	default	no incident
Ramp Driver Population	default	All familiar
Ramp Weather Type	default	Non-severe Weather
Ramp Speed Adjustment Factor	default	1.00
Ramp Capacity Adjustment Factor	default	1.00
Ramp Demand Adjustment Factor	default	1.00
Adjacent Ramps		
Upstream Ramp	**	Merge or Diverge
Distance to Upstream Ramp		Distance in ft
Upstream Ramp Terrain	default	level
Upstream Ramp Demand	Ramp volume	volume from figure
Upstram Ramp PHF	Calculated mainline PHF	use same as mainline PHF
Upstream Ramp Trucks	HV % from DCR reports	
Downstream Ramp	**	Merge or Diverge
Distance to Downstream Ramp		Distance in ft
Downstream Ramp Terrain	default	level
Downstream Ramp Demand	Ramp volume	volume from figure
Downstram Ramp PHF	Calculated mainline PHF	use same as mainline PHF
Downstream Ramp Trucks	HV % from DCR reports	

NOTES** Be sure to put both upstream and downstream ramp information in the same analysis file. HCS 7 will report whichever is the "worst" condition.

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HCS Freeway analysis		
INPUT		Notes
Project Properties		
Analyst	Initials of person doing analysis	
Agency	USI- 10-085-2	
Analysis Year	2017	
Project Description	I-10 Corridor Improvement Stage 1 EA - "segment location"	
Jurisdiction	LADOTD	
Time Period	Existing AM or Existing PM	
Date	"Date of analysis"	
Geometric Data		
Number of lanes	3	# of lanes in analysis direction
Measured FFS	unchecked	
Base Free Flow Speed	Posted speed	
Length	default	
Lane Width	12	
Managed Lane	unchecked	
Terrain Type	level	
Percent Grade	default	
Grade Length	default	
Right Side Clearance	distance in feet	measured in google earth
Total Ramp Density	ramp/mile	measured in google earth
Demand Data		
Demand	I-10 mainline volume (DC Figure 2)	
Total Trucks	HV % (DC Table 1)	
Tractor-Trailers	default	
Peak Hour Factor	Calculated mainline PHF	
Single Unit Trucks	default	
Mixed Flow Model	unchecked	
Adjustment Factors		
Driver Population	default	
Weather Type	default	
Incident Type	default	
Work Zone	default	
Speed Adjustment Factor	default	
Capacity Adjustment Factor	default	
Demand Adjustment Factor	default	

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PHF = Vt / (Vpeak 15 * 4)

I-12 WB before merge with I-10	
Count Source	#11
Day	Tuesday 10/24/17
Time	7:00:00 AM-8:00 AM
	15 Min Volumes
7:00	838
7:15	836
7:30	743
7:45	858
PHF	0.95

I-12 WB before merge with I-10	
Count Source	#11
Day	Tuesday 10/24/17
Time	5:00:00 PM-6:00 PM
	15 Min Volumes
5:00	651
5:15	672
5:30	577
5:45	566
PHF	0.92

I-10 WB before merge with I-12	
Count Source	#10
Day	Wednesday 10/11/17
Time	7:00:00 AM-8:00 AM
	15 Min Volumes
7:00	898
7:15	923
7:30	939
7:45	862
PHF	0.96

I-10 WB before merge with I-12	
Count Source	#10
Day	Tuesday 10/24/17
Time	5:00:00 PM-6:00 PM
	15 Min Volumes
5:00	834
5:15	945
5:30	820
5:45	708
PHF	0.87

I-10 WB on ramp from College Dr	
Count Source	#59
Day	Thursday 11/9/17
Time	7:00:00 AM-8:00 AM
	15 Min Volumes
7:00	120
7:15	109
7:30	120
7:45	107
PHF	0.95

I-10 WB on ramp from College Dr	
Count Source	#59
Day	Thursday 11/9/17
Time	5:00:00 PM-6:00 PM
	15 Min Volumes
5:00	99
5:15	86
5:30	81
5:45	89
PHF	0.90

I-10 WB on ramp from Essen Ln	
Count Source	#58
Day	Wednesday 10/11/17
Time	7:00:00 AM-8:00 AM
	15 Min Volumes
7:00	105
7:15	111
7:30	109
7:45	99
PHF	0.95

I-10 WB on ramp from Essen Ln	
Count Source	#58
Day	Wednesday 10/11/17
Time	5:00:00 PM-6:00 PM
	15 Min Volumes
5:00	163
5:15	141
5:30	164
5:45	127
PHF	0.91

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Summary of Input Sources for Merge/Diverge Freeway Analysis
Heavy Vehicles

Data Source	Intersection	Approach	Movement	AM Volumes from Turning Movement Counts						PM Volumes from Turning Movement Counts					
				# cars	# trucks	# buses	Total Trucks and Buses	Total Vehicles	% Heavy Vehicles per approach	# cars	# trucks	# buses	Total Trucks and Buses	Total Vehicles	% Heavy Vehicles per approach
TMC #59	I-10 WB at College	Westbound Off Ramp	WB Left	554	10	3	28	1342	2.1%	509	4	3	17	1161	1.5%
			WB Right	760	10	5				635	5	5			

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TRAFFIC SIGNAL INVENTORY

TSI NO. S-036

DEPARTMENT OF PUBLIC WORKS/ TRAFFIC ENGINEERING DIVISION

SHEET: 1 OF 4

INTERSECTION: College at I-10 Westbound Ramp

CITY: BATON ROUGE **PARISH:** EAST BATON ROUGE **INSTALLATION DATE:** 03/27/69

TYPE SIGNAL: Interconnected, Fully actuated **LAST REVISION DATE:** 12/18/13

SIGNAL FACES

PHASES	Φ2 + Φ6			Φ4			Φ2 + Φ5												FL
INTERVALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	G	Y	R																R
2	G	Y	R																R
3	/G	/Y	R				←G/G	←Y/G	/G										R
4	G	Y	R				G	G	G										R
5	G	Y	R				G	G	G										R
6				←G	←Y	R													R
7				←G	←Y	R													R
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			

HOURS OF FLASHING OPERATION Emergency

TIME	SEC	49.5	**5.0**	**0.5**	29.5	**5.0**	**0.5**	24.5	**5.0**	**0.5**										Offset = 115 sec
FO	SEC	0.0			35.0			65.0												
YP	SEC																			
SPLIT	SEC		**55**			**35**			**30**											

PATTERN 1 CYCLE LENGTH = 120 TIMES OF OPERATION = M-F 0700-1000

TIME	SEC	73.5	5.0	0.5	33.5	5.0	0.5	26.5	5.0	0.5										Offset = 15 sec
FO	SEC	0.0			39.0			71.0												
YP	SEC																			
SPLIT	SEC		**79**			**39**			**32**											

PATTERN 2 CYCLE LENGTH = 150 TIMES OF OPERATION = M-F 0000-0700, 1000-1530, 2000-0000

TIME	SEC	77.5	5.0	0.5	29.5	5.0	0.5	26.5	5.0	0.5										Offset = 42 sec
FO	SEC	0.0			35.0			67.0												
YP	SEC																			
SPLIT	SEC		**83**			**35**			**32**											

PATTERN 3 CYCLE LENGTH = 150 TIMES OF OPERATION = M-F 1530-2000

TIME	SEC	47.5	5.0	0.5	23.5	5.0	0.5	22.5	5.0	0.5										Offset = 99 sec
FO	SEC	0.0			29.0			57.0												
YP	SEC																			
SPLIT	SEC		**53**			**29**			**28**											

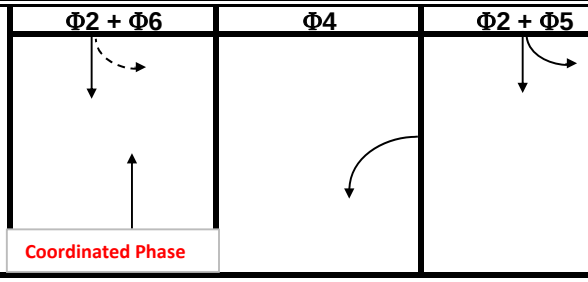
PATTERN 4 CYCLE LENGTH = 110 TIMES OF OPERATION = Sa & Su 0000-0000

TIME	SEC																			Offset =
FO	SEC																			
YP	SEC																			sec
SPLIT	SEC																			

PATTERN CYCLE LENGTH = TIMES OF OPERATION =

PHASING SEQUENCE

Φ2 + Φ6	Φ4	Φ2 + Φ5			



SIGNAL WARRANTS: MAINTAINED BY: DPW CONTROLLER MANUF: Naztec TS-2 SYSTEM #:

MASTER/ SLAVE: MASTER AT TSI #: COORDINATED WITH TSI #'S: S-0035, C-0029, C-0028,C-0023,C-0024, C-0027,S-327

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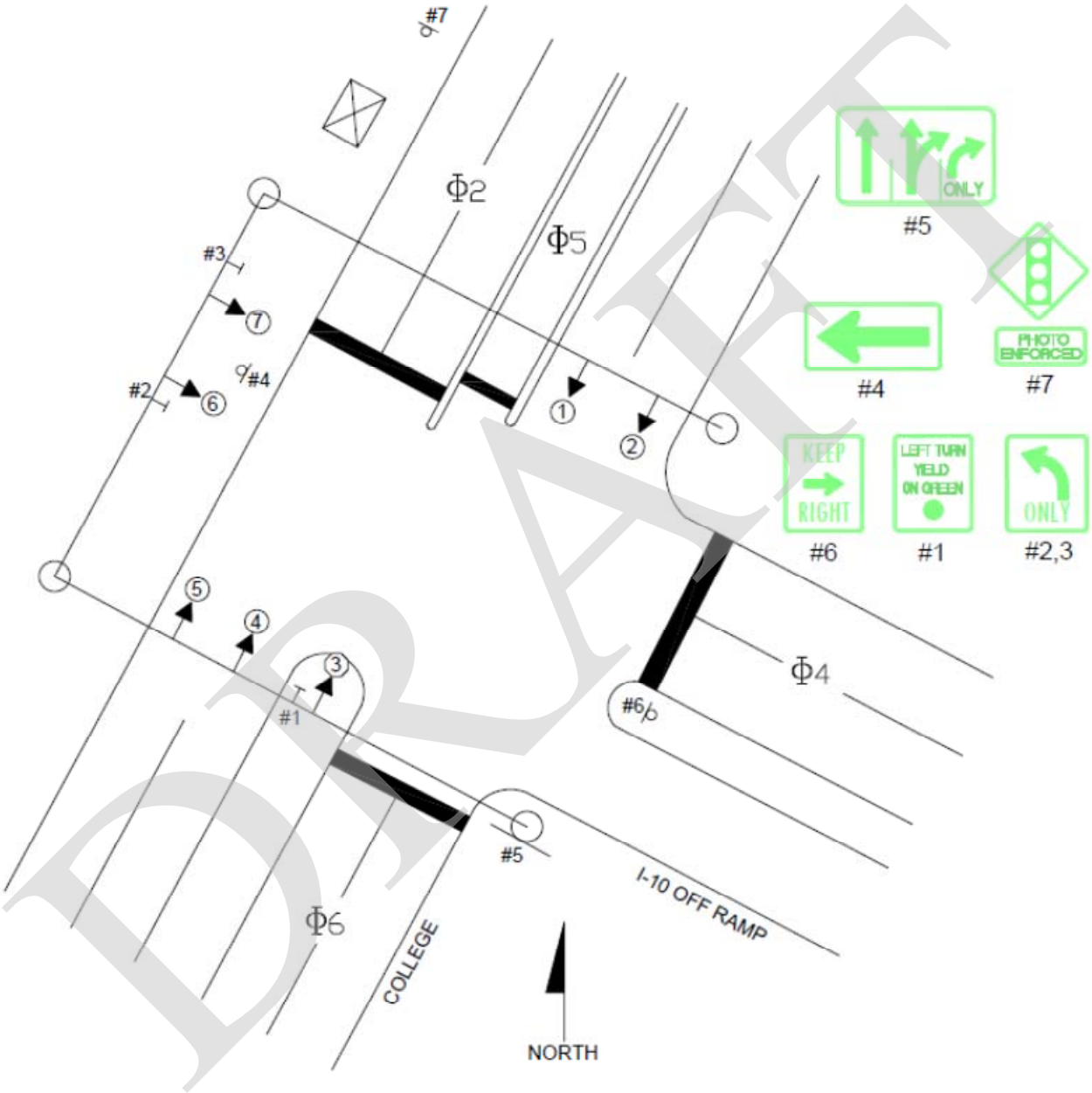
TRAFFIC SIGNAL INVENTORY

TSI NO. S-036

DEPARTMENT OF PUBLIC WORKS/ TRAFFIC ENGINEERING DIVISION

NOTE: SIGN 7 IS LOCATED175" FROM STOPBAR



SIGNAL FACES	1,2,4,5		6,7				3			
TOTALS	4		2				1			
R= RED Y = YELLOW G = GREEN G = GREEN ARROW Y = YELLOW ARROW DK = DARK 8" = 8" DIA. LENS 12" = 12" DIA. LENS WA = WALK DW = DON'T WALK FDW = FLASHING DON'T WALK	R Y G	R Y→ G→	R ←Y ←G	R Y ←G G	R Y G G→	R Y Y→ G G→	R ←Y Y ←G G			PED W DW

TRAFFIC SIGNAL INVENTORY	TSI NO. S-036
DEPARTMENT OF PUBLIC WORKS/ TRAFFIC ENGINEERING DIVISION	SHEET: 3 OF 4

Phase Timing Parameters

Phase Designation		1	2	3	4	5	6	7	8
Movement Description			↓		←	↳	↑		
PARAMETER	RANGE								
MIN GREEN (MIN Grn)	0-255		10.0		5.0	3.0	10.0		
GAP EXTENSION	0-25.5		4.0		3.4	2.0	4.0		
MAX GREEN I (MAX I)	0-255		50.0		12.0	12.0	50.0		
MAX GREEN II (MAX II)	0-255		110.0		60.0	40.0	110.0		
YELLOW CLEARANCE (YEL)	0-25.5		5.0		5.0	5.0	5.0		
RED CLEARANCE (RED)	0-25.5		0.5		0.5	0.5	0.5		
WALK (WALK)	0-255								
PED CLEARANCE (P CLR)	0-255								
ADDED INITIAL GREEN	0-25.5		2.0				2.0		
MAX INITIAL GREEN	0-255		20.0				20.0		
TIME BEFORE REDUCTION	0-255		10.0				10.0		
TIME TO REDUCE	0-255		20.0				20.0		
MIN GAP	0-25.5		2.0				2.0		
DYNAMIC MAX LIMIT	0-255								
MAX STEP	0-25.5								
RECALL	CODES		MIN				MIN		
LOOP # - DELAY (in sec.)	0-25.5								
LOOP # - EXTEND (in sec.)	0-25.5								

RECALL FUNCTIONS	
MON	MEMORY ON
MOF	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

Note 1: MAX 2 TO RUN DURING COORDINATION

Note 2: PHASES 2 & 6 ON MAX RECALL DURING COORDINATION

Note 3:

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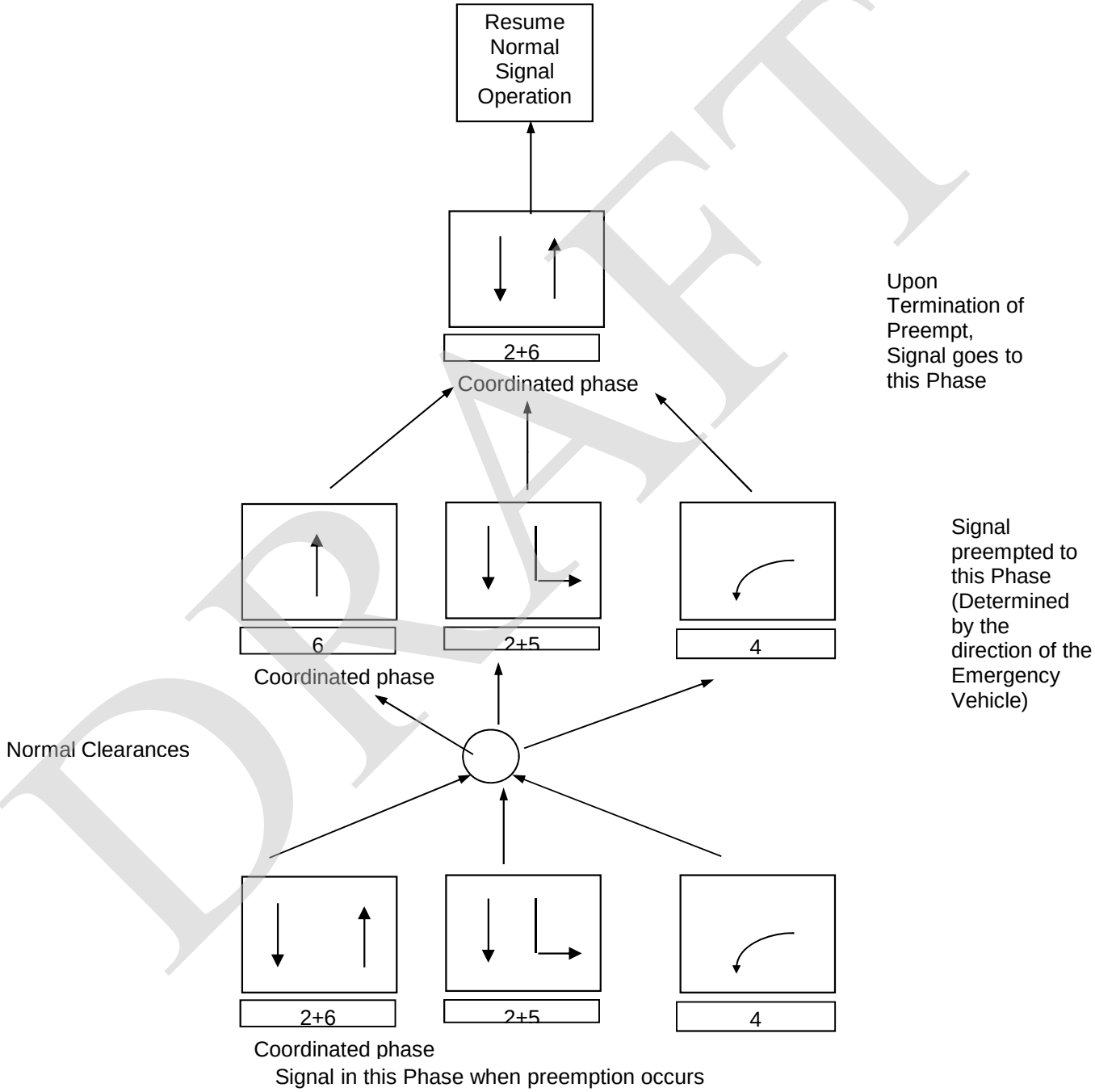
Emergency Preemption Sequence



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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	543	691	1038	231	225	1044
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1863	1845
Adj Flow Rate, veh/h	584	0	1116	0	242	1123
Adj No. of Lanes	2	1	2	1	1	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	1	2	3
Cap, veh/h	671	308	1460	660	299	1937
Arrive On Green	0.19	0.00	0.41	0.00	0.09	0.55
Sat Flow, veh/h	3442	1583	3632	1599	1774	3597
Grp Volume(v), veh/h	584	0	1116	0	242	1123
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1599	1774	1752
Q Serve(g_s), s	19.7	0.0	32.5	0.0	9.0	25.3
Cycle Q Clear(g_c), s	19.7	0.0	32.5	0.0	9.0	25.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	671	308	1460	660	299	1937
V/C Ratio(X)	0.87	0.00	0.76	0.00	0.81	0.58
Avail Cap(c_a), veh/h	846	389	1460	660	494	2322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	0.0	30.2	0.0	24.3	17.7
Incr Delay (d2), s/veh	8.5	0.0	3.9	0.0	2.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.4	0.0	23.3	0.0	8.0	18.0
LnGrp Delay(d),s/veh	55.3	0.0	34.1	0.0	26.3	18.1
LnGrp LOS	E		C		C	B
Approach Vol, veh/h	584		1116			1365
Approach Delay, s/veh	55.3		34.1			19.5
Approach LOS	E		C			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		71.8		28.9	16.8	55.0		
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		
Max Green Setting (Gmax), s		79.5		29.5	24.5	49.5		
Max Q Clear Time (g_c+I1), s		27.3		21.7	11.0	34.5		
Green Ext Time (p_c), s		37.6		1.6	0.3	13.4		

Intersection Summary	
HCM 2010 Ctrl Delay	31.7
HCM 2010 LOS	C

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Phase Number	2	4	5	6
Movement	SBTL	WBL	SBL	NBT
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	C-Max
Maximum Split (s)	85	35	30	55
Maximum Split (%)	70.8%	29.2%	25.0%	45.8%
Minimum Split (s)	15.5	10.5	15.5	15.5
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	10	5	3	10
Vehicle Extension (s)	4	3.4	2	4
Minimum Gap (s)	2	3.4	2	2
Time Before Reduce (s)	20	0	0	20
Time To Reduce (s)	2	0	0	2
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	No	No	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	35.5	0.5	35.5	65.5
End Time (s)	0.5	35.5	65.5	0.5
Yield/Force Off (s)	115	30	60	115
Yield/Force Off 170(s)	115	30	60	115
Local Start Time (s)	40.5	5.5	40.5	70.5
Local Yield (s)	0	35	65	0
Local Yield 170(s)	0	35	65	0

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 115 (96%), Referenced to phase 6:NBT, Start of Yellow	

Splits and Phases: 7: College Dr & I-10

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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	587	734	1171	158	201	1297
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1881	1900	1900	1863
Adj Flow Rate, veh/h	645	0	1287	0	221	1425
Adj No. of Lanes	2	1	2	1	1	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	1	0	0	2
Cap, veh/h	677	311	1887	853	288	2243
Arrive On Green	0.20	0.00	0.53	0.00	0.07	0.63
Sat Flow, veh/h	3442	1583	3668	1615	1810	3632
Grp Volume(v), veh/h	645	0	1287	0	221	1425
Grp Sat Flow(s),veh/h/ln	1721	1583	1787	1615	1810	1770
Q Serve(g_s), s	27.8	0.0	39.8	0.0	8.1	37.0
Cycle Q Clear(g_c), s	27.8	0.0	39.8	0.0	8.1	37.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	677	311	1887	853	288	2243
V/C Ratio(X)	0.95	0.00	0.68	0.00	0.77	0.64
Avail Cap(c_a), veh/h	677	311	1887	853	482	2584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	0.0	26.1	0.0	24.8	16.8
Incr Delay (d2), s/veh	23.6	0.0	2.0	0.0	1.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	21.9	0.0	27.6	0.0	8.8	25.2
LnGrp Delay(d),s/veh	83.2	0.0	28.1	0.0	26.4	17.4
LnGrp LOS	F		C		C	B
Approach Vol, veh/h	645		1287			1646
Approach Delay, s/veh	83.2		28.1			18.6
Approach LOS	F		C			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		100.6		35.0	15.9	84.7		
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		
Max Green Setting (Gmax), s		109.5		29.5	26.5	77.5		
Max Q Clear Time (g_c+I1), s		39.0		29.8	10.1	41.8		
Green Ext Time (p_c), s		56.1		0.0	0.3	32.0		

Intersection Summary	
HCM 2010 Ctrl Delay	33.7
HCM 2010 LOS	C

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Phase Number	2	4	5	6
Movement	SBTL	WBL	SBL	NBT
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	C-Max
Maximum Split (s)	115	35	32	83
Maximum Split (%)	76.7%	23.3%	21.3%	55.3%
Minimum Split (s)	15.5	10.5	9.5	15.5
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	10	5	3	10
Vehicle Extension (s)	4	3.4	2	4
Minimum Gap (s)	2	3.4	2	2
Time Before Reduce (s)	20	0	0	20
Time To Reduce (s)	2	0	0	2
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	No	No	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	82.5	47.5	82.5	114.5
End Time (s)	47.5	82.5	114.5	47.5
Yield/Force Off (s)	42	77	109	42
Yield/Force Off 170(s)	42	77	109	42
Local Start Time (s)	40.5	5.5	40.5	72.5
Local Yield (s)	0	35	67	0
Local Yield 170(s)	0	35	67	0

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 42 (28%), Referenced to phase 6:NBT, Start of Yellow	

Splits and Phases: 7: College Dr & I-10

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HCS7 Freeway Merge Report

Project Information

Analyst	AMB	Date	7/26/2019
Agency	USI	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing AM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB On Ramp from Essen Ln AM		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1020
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 (V_i), veh/h	3668	424
Peak Hour Factor (PHF)	0.96	0.95
Total Trucks, %	7.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.980
Flow Rate (v_i), pc/h	4086	455
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.23

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.323
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1610
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.606	Outer Lanes Freeway Speed (S_O), mi/h	56.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2476	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2931	Average Density (D), pc/mi/ln	27.6
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AMB	Date	7/26/2019
Agency	USI	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing PM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB On Ramp from Essen Ln PM		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1020
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 (V_i), veh/h	3305	595
Peak Hour Factor (PHF)	0.87	0.91
Total Trucks, %	6.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.943	0.971
Flow Rate (v_i), pc/h	4028	673
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.34

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.337
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1587
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.606	Outer Lanes Freeway Speed (S_O), mi/h	56.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	2441	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3114	Average Density (D), pc/mi/ln	28.7
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	7/26/19
Agency	USI - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing AM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB btw Essen on ramp and ramp to I-12 EB AM		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	4092	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1520
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	7/26/19
Agency	USI - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing PM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB btw Essen on ramp and ramp to I-12 EB PM		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	3900	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	1585
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	7/26/19
Agency	USI - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing AM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB btw ramp to I-12 EB and merge with I-12 WB AM		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	3622	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	2018
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	7/25/19
Agency	USI - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing PM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB btw ramp to I-12 EB and merge with I-12 WB PM		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	3307	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	2016
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	7/25/19
Agency	US - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing AM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-12 WB btw ramp to I-10 EB and merge with I-10 WB AM		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	3275	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1219
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.5
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	7/25/19
Agency	USI - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing PM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-12 WB btw ramp to I-10 EB and merge with I-10 WB PM		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	2466	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	992
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	4/4/2018
Agency	US - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing AM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB between merge with I-12 WB and off ramp to College Dr		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	6897	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1493
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	4/4/2018
Agency	US - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing PM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB between merge with I-12 WB and off ramp to College Dr		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	5773	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor	0.89	Flow Rate (V_p), pc/h/ln	1401
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	4/4/2018
Agency	US - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing AM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB btw College Dr on and off ramps AM		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	5663	Heavy Vehicle Adjustment Factor (f_{HV})	0.943
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1532
Total Trucks, %	6.00	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AMB	Date	4/4/2018
Agency	US - 10-085-2	Analysis Year	2017
Jurisdiction	LADOTD	Time Period Analyzed	Existing PM
Project Description	I-10 Corridor Improvement Stage 1 EA - I-10 WB btw College Dr on and off ramps		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

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

Demand and Capacity

Demand Volume veh/h	4452	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor	0.89	Flow Rate (V_p), pc/h/ln	1350
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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Chapter 2 and Appendicies B and C QAQC

Task	Chapter/Appendix	Done by and Date	Checked by and Date
Archive Appendix B pdf with "submittal" and the submittal date (April 2018) in the title	App B	AMB 6/10/19	N/A
Do new existing HCS analysis (freeways and merge)	App B	AMB 7/26/19	BDP 7/27/19
Update HCS results table to include new existing analysis	App B	AMB 7/26/19	MHM 7/29/19
Re-pdf reports in Existing AM and PM Synchro using HCM 10 report	App B	AMB 6/10/19	BDP 7/26/19
Replace new HCM 10 Synchro reports in Appendix	App B	AMB 7/27/19	BDP 7/26/19
Add new HCS Analysis files and replace old ones (bc ramp density missing)	App B	AMB 7/27/19	BDP 7/26/19
Table 2.1 Existing MOE's updated to match HCM 10 reports	App B	AMB 6/10/19	MHM 7/29/19
Add Input Parameters sheet for merge analysis	App B	AMB 8/1/19	BDP 8/8/19
Check Appendix to make sure nothing else should be updated	App B	AMB 8/2/19	BDP 8/5/19
create a pdf and print	App B	AMB 8/8/19	N/A
check the print copy	App B	AMB 8/7/19	BDP 8/8/19
Archive Appendix C pdf with "submittal" and the submittal date in the title	App C	AMB 6/10/19	N/A
Update Build Volume figures to include options 1 and 2	App C	AMB 7/9/19	BDP 7/23/19
Do no build additional analysis to address comment on ch 3 (Freeways and merge, about direct	App C	AMB 7/26/19	BDP 7/27/19
Re-pdf reports in No Build AM and PM Synchro using HCM 10 report	App C	AMB 6/10/19	BDP 7/26/19
Replace new HCM 10 Synchro report pdf's in Appendix	App C	AMB 7/27/19	BDP 7/26/19
Create Existing vs No Build Intersection Comparison Table Update	App C	AMB 7/27/19	MHM 7/29/19
Create Existing vs No Build Freeway and Merge Comparison Table Update	App C	AMB 7/27/19	MHM 7/29/19
Check Appendix to make sure nothing else should be updated	App C	AMB 8/2/19	BDP 8/5/19
create a pdf and print	App C	AMB 8/8/19	N/A
check the print copy	App C	AMB 8/7/19	BDP 8/8/19
Archive Ch 2 pdf and word with "submittal" and the submittal date in the title	Ch 2	AMB 6/10/19	N/A
Update Tables 2.3 and 2.5 to inclued new HCS analysis	Ch 2	AMB 7/27/19	MHM 7/29/19
Update Table 2.4 and 2.6 with HCM 10 report MOE's for Existing and No Build	Ch 2	AMB 7/27/19	MHM 7/29/19
Delete footnote about 95th queue on Tables 2.4 and 2.6	Ch 2	AMB 7/27/19	BDP 8/5/19
Read Ch 2 to make sure nothing else should be updated	Ch 2	AMB 8/1/19	BDP 8/5/19
Added statement about presenting highest movement moe	Ch 2	AMB 7/8/19	BDP 8/5/19
create a pdf and print	Ch 2	AMB 8/8/19	N/A
check the print copy	Ch 2	AMB 8/7/19	BDP 8/8/19

Matt Morgan, E.I. — Date: 8/8/19

Alyssa Bienes, E.I. — Date: 8/8/19

Brandon Perilloux, P.E., PTOE, RSP — Date: 8/8/19

Nicole Stewart, P.E., PTOE (Verified) — Date: 8/8/19

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