

**Appendix N**  
**Future Level of Service with**  
**Recommended Changes to Access**

# Intersection LOS

# HCM Unsignalized Intersection Capacity Analysis

## 1: US 50 #1 & Grand Mesa Ave

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑				↑			↑
Volume (veh/h)	0	746	0	44	1492	10	0	0	5	0	0	34
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1711	0	101	3422	23	0	0	11	0	0	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	3445			1711			3702	5358	855	4502	5346	1722
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3445			1711			3702	5358	855	4502	5346	1722
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			71			0	100	96	100	100	0
cM capacity (veh/h)	70			354			0	0	295	0	0	76

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1141	570	101	2281	1164	11	78
Volume Left	0	0	101	0	0	0	0
Volume Right	0	0	0	0	23	11	78
cSH	1700	1700	354	1700	1700	295	76
Volume to Capacity	0.67	0.34	0.29	1.34	0.68	0.04	1.03
Queue Length 95th (ft)	0	0	29	0	0	3	139
Control Delay (s)	0.0	0.0	19.2	0.0	0.0	17.7	207.8
Lane LOS			C			C	F
Approach Delay (s)	0.0		0.5			17.7	207.8
Approach LOS						C	F

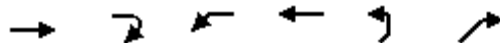
### Intersection Summary

Average Delay		3.4					
Intersection Capacity Utilization		98.8%		ICU Level of Service		F	
Analysis Period (min)		15					

# HCM Unsignalized Intersection Capacity Analysis

## 2: US 50 #1 & Gunnison Blvd

10/30/2008



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		
Volume (veh/h)	747	11	0	1543	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1677	25	0	3464	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1069		
pX, platoon unblocked					0.32	
vC, conflicting volume			1701		3421	851
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1701		4302	851
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	100
cM capacity (veh/h)			357		0	297

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1118	584	1732	1732
Volume Left	0	0	0	0
Volume Right	0	25	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.66	0.34	1.02	1.02
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		93.3%	ICU Level of Service F
Analysis Period (min)		15	

# HCM Unsignalized Intersection Capacity Analysis

## 3: US 50 #1 & Santa Clara Ave

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘				↗			↗
Volume (veh/h)	39	721	0	1	1484	2	0	0	1	0	0	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	1654	0	2	3404	5	0	0	2	0	0	94
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					634							
pX, platoon unblocked	0.32						0.32	0.32		0.32	0.32	0.32
vC, conflicting volume	3408			1654			3633	5245	827	4418	5243	1704
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	4284			1654			4990	10061	827	7461	10054	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	0			99			0	0	99	0	0	72
cM capacity (veh/h)	10			373			0	0	309	0	0	342

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	89	1102	551	2	2269	1139	2	94
Volume Left	89	0	0	2	0	0	0	0
Volume Right	0	0	0	0	0	5	2	94
cSH	10	1700	1700	373	1700	1700	309	342
Volume to Capacity	9.05	0.65	0.32	0.01	1.33	0.67	0.01	0.28
Queue Length 95th (ft)	Err	0	0	0	0	0	1	28
Control Delay (s)	4365.2	0.0	0.0	14.7	0.0	0.0	16.8	19.5
Lane LOS	F			B			C	C
Approach Delay (s)	224.0			0.0			16.8	19.5
Approach LOS							C	C

### Intersection Summary

Average Delay	74.7
Intersection Capacity Utilization	98.7%
ICU Level of Service	F
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 5: US 50 #1 & James St

10/30/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	532	1253	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	1245	2933	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		513				
pX, platoon unblocked					0.91	
vC, conflicting volume	2933				3555	1466
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2933				3610	1466
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	100
cM capacity (veh/h)	114				3	114

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	623	623	1955	978	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.37	0.37	1.15	0.58	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			83.8%	ICU Level of Service	E
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis  
 6: US 50 #1 & Green Acre 1

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Volume (veh/h)	530	0	0	1252	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1254	0	0	2963	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1023			1090		
pX, platoon unblocked				0.92	0.38	0.92
vC, conflicting volume				1254	2736	627
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1093	1279	407
tC, single (s)				4.2	6.9	7.0
tC, 2 stage (s)						
tF (s)				2.2	3.6	3.4
p0 queue free %				100	100	100
cM capacity (veh/h)				565	58	535

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	836	418	1482	1482	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.49	0.25	0.87	0.87	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			83.8%	ICU Level of Service	E
Analysis Period (min)			15		

# HCM Unsignalized Intersection Capacity Analysis

## 7: US 50 #1 & Elm Park

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑		↵
Volume (veh/h)	522	4	7	1263	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1235	9	17	2989	0	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1190			923		
pX, platoon unblocked	0.92			0.37	0.92	
vC, conflicting volume	1245			2768	622	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1093			1405	416	
tC, single (s)	4.2			6.9	7.0	
tC, 2 stage (s)						
tF (s)	2.2			3.6	3.4	
p0 queue free %	97			100	97	
cM capacity (veh/h)	568			46	531	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	824	421	17	1495	1495	14
Volume Left	0	0	17	0	0	0
Volume Right	0	9	0	0	0	14
cSH	1700	1700	568	1700	1700	531
Volume to Capacity	0.48	0.25	0.03	0.88	0.88	0.03
Queue Length 95th (ft)	0	0	2	0	0	2
Control Delay (s)	0.0	0.0	11.5	0.0	0.0	12.0
Lane LOS	B			B		
Approach Delay (s)	0.0	0.1			12.0	
Approach LOS				B		

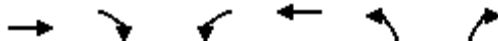
Intersection Summary						
Average Delay	0.1					
Intersection Capacity Utilization	77.7%			ICU Level of Service	D	
Analysis Period (min)	15					



# HCM Unsignalized Intersection Capacity Analysis

## 8: US 50 #1 & Green Acre 2

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Volume (veh/h)	519	1	0	1264	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	1242	2	0	3025	0	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	596					
pX, platoon unblocked					0.33	
vC, conflicting volume	1244			2756	622	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1244			2253	622	
tC, single (s)	4.2			6.9	7.0	
tC, 2 stage (s)						
tF (s)	2.2			3.6	3.4	
p0 queue free %	100			100	95	
cM capacity (veh/h)	539			11	422	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	828	416	1513	1513	22
Volume Left	0	0	0	0	0
Volume Right	0	2	0	0	22
cSH	1700	1700	1700	1700	422
Volume to Capacity	0.49	0.24	0.89	0.89	0.05
Queue Length 95th (ft)	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	14.0
Lane LOS	B				
Approach Delay (s)	0.0	0.0		14.0	
Approach LOS	B				

Intersection Summary					
Average Delay	0.1				
Intersection Capacity Utilization	77.8%		ICU Level of Service		D
Analysis Period (min)	15				

# HCM Unsignalized Intersection Capacity Analysis

## 9: US 50 #1 & Aspen St

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Volume (veh/h)	0	512	7	0	1261	2	0	0	5	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.89	0.92	0.89
Hourly flow rate (vph)	0	1225	10	0	3018	5	0	0	5	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					381							
pX, platoon unblocked	0.32						0.32	0.32		0.32	0.32	0.32
vC, conflicting volume	3023			1235			2739	4253	617	3638	4255	1511
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3070			1235			2195	6864	617	4969	6871	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			100			100	100	99	100	100	100
cM capacity (veh/h)	32			544			8	0	425	0	0	348

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	817	418	2012	1011	5	0
Volume Left	0	0	0	0	0	0
Volume Right	0	10	0	5	5	0
cSH	1700	1700	1700	1700	425	1700
Volume to Capacity	0.48	0.25	1.18	0.59	0.01	0.00
Queue Length 95th (ft)	0	0	0	0	1	0
Control Delay (s)	0.0	0.0	0.0	0.0	13.6	0.0
Lane LOS					B	A
Approach Delay (s)	0.0		0.0		13.6	0.0
Approach LOS					B	A

### Intersection Summary

Average Delay		0.0				
Intersection Capacity Utilization		77.7%		ICU Level of Service		D
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 11: US 50 #1 & Palisade St

10/30/2008





















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	514	1302	8	0	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	1230	3116	19	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		420				
pX, platoon unblocked					0.85	
vC, conflicting volume	3135				3741	1568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3135				3875	1568
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	88
cM capacity (veh/h)	94				2	97

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	615	615	2077	1058	12
Volume Left	0	0	0	0	0
Volume Right	0	0	0	19	12
cSH	1700	1700	1700	1700	97
Volume to Capacity	0.36	0.36	1.22	0.62	0.12
Queue Length 95th (ft)	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	47.3
Lane LOS					E
Approach Delay (s)	0.0		0.0		47.3
Approach LOS					E

Intersection Summary					
Average Delay			0.1		
Intersection Capacity Utilization			87.2%	ICU Level of Service	E
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis  
 12: US 50 #1 & Linden Ave

10/30/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	474	39	39	1198	12	0	0	24	0	0	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	87	1174	57	57	2967	30	0	0	35	0	0	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		988										
pX, platoon unblocked				0.85			0.85	0.85	0.85	0.85	0.85	0.85
vC, conflicting volume	2997			1231			2999	4458	587	3891	4499	1498
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2997			922			2999	4712	165	4046	4761	1498
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	19			91			100	100	95	100	100	50
cM capacity (veh/h)	107			611			1	0	716	0	0	108
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	478	783	57	57	1978	1019	35	54				
Volume Left	87	0	0	57	0	0	0	0				
Volume Right	0	0	57	0	0	30	35	54				
cSH	107	1700	1700	611	1700	1700	716	108				
Volume to Capacity	0.81	0.46	0.03	0.09	1.16	0.60	0.05	0.50				
Queue Length 95th (ft)	114	0	0	8	0	0	4	57				
Control Delay (s)	113.9	0.0	0.0	11.5	0.0	0.0	10.3	68.1				
Lane LOS	F			B			B	F				
Approach Delay (s)	41.3			0.2			10.3	68.1				
Approach LOS							B	F				
Intersection Summary												
Average Delay				13.3								
Intersection Capacity Utilization			87.8%		ICU Level of Service			E				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 14: US 50 #1 & Dorothy Ave

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑				↗			↗
Volume (veh/h)	0	417	66	0	1070	10	0	0	3	0	0	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	1068	169	0	2741	26	0	0	8	0	0	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		807										
pX, platoon unblocked				0.85			0.85	0.85	0.85	0.85	0.85	0.85
vC, conflicting volume	2767			1068			2490	3835	534	3296	3822	1383
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2767			731			2401	3981	103	3347	3966	1383
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			100			100	100	99	100	100	61
cM capacity (veh/h)	133			723			9	2	785	2	2	130

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	534	534	169	1827	939	8	51
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	169	0	26	8	51
cSH	1700	1700	1700	1700	1700	785	130
Volume to Capacity	0.31	0.31	0.10	1.07	0.55	0.01	0.39
Queue Length 95th (ft)	0	0	0	0	0	1	42
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6	49.8
Lane LOS						A	E
Approach Delay (s)	0.0			0.0		9.6	49.8
Approach LOS						A	E

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		78.2%	ICU Level of Service
Analysis Period (min)		15	D

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Intersection Sign configuration not allowed in HCM analysis.

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# HCM Unsignalized Intersection Capacity Analysis

## 16: US 50 #1 & WB On-Ramp

10/30/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Volume (veh/h)	0	366	790	0	0	360
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	907	2353	0	0	571
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2353				2806	1176
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2353				2806	1176
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	0
cM capacity (veh/h)	196				14	179

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	454	454	1176	1176	571
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	571
cSH	1700	1700	1700	1700	179
Volume to Capacity	0.27	0.27	0.69	0.69	3.18
Queue Length 95th (ft)	0	0	0	0	Err
Control Delay (s)	0.0	0.0	0.0	0.0	Err
Lane LOS					F
Approach Delay (s)	0.0		0.0		Err
Approach LOS					F

Intersection Summary					
Average Delay			1491.1		
Intersection Capacity Utilization			99.0%	ICU Level of Service	F
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis  
 17: US 50 #1 & Frontage Rd

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		↑
Volume (veh/h)	306	15	15	741	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	975	48	48	2361	0	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1023		2251	487
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1023		2251	487
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			93		100	96
cM capacity (veh/h)			657		31	518

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	487	487	48	48	1180	1180	22
Volume Left	0	0	0	48	0	0	0
Volume Right	0	0	48	0	0	0	22
cSH	1700	1700	1700	657	1700	1700	518
Volume to Capacity	0.29	0.29	0.03	0.07	0.69	0.69	0.04
Queue Length 95th (ft)	0	0	0	6	0	0	3
Control Delay (s)	0.0	0.0	0.0	10.9	0.0	0.0	12.3
Lane LOS				B	B		
Approach Delay (s)	0.0			0.2			12.3
Approach LOS					B		

Intersection Summary			
Average Delay			0.2
Intersection Capacity Utilization	59.5%		ICU Level of Service B
Analysis Period (min)	15		



# HCM Unsignalized Intersection Capacity Analysis

## 20: US 50 WB #3 & Fairgrounds

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	8	739	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	24	2201	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1235					
pX, platoon unblocked						
vC, conflicting volume			0	1148	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	1148	0	
tC, single (s)			4.2	6.9	7.0	
tC, 2 stage (s)						
tF (s)			2.2	3.6	3.4	
p0 queue free %			99	100	100	
cM capacity (veh/h)			1600	185	1075	













Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	24	1100	1100	0
Volume Left	24	0	0	0
Volume Right	0	0	0	0
cSH	1600	1700	1700	1700
Volume to Capacity	0.01	0.65	0.65	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	7.3	0.0	0.0	0.0
Lane LOS	A			A
Approach Delay (s)	0.1		0.0	
Approach LOS				A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

# HCM Unsignalized Intersection Capacity Analysis

## 21: US 50 EB #2 & Fairgrounds

10/30/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗						↗		↑	
Volume (veh/h)	0	302	6	0	0	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	899	18	0	0	0	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		1250										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	0.84
vC, conflicting volume	0			917			899	899	450	450	917	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			532			511	511	0	0	532	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1600			853			371	387	907	856	376	1075
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>EB 3</b>	<b>NB 1</b>	<b>SB 1</b>							
Volume Total	450	450	18	0	0							
Volume Left	0	0	0	0	0							
Volume Right	0	0	18	0	0							
cSH	1700	1700	1700	1700	1700							
Volume to Capacity	0.26	0.26	0.01	0.00	0.00							
Queue Length 95th (ft)	0	0	0	0	0							
Control Delay (s)	0.0	0.0	0.0	0.0	0.0							
Lane LOS				A	A							
Approach Delay (s)	0.0			0.0	0.0							
Approach LOS				A	A							
<b>Intersection Summary</b>												
Average Delay			0.0									
Intersection Capacity Utilization			87.5%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 22: US 50 EB #2 & KOA

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	300	3	0	0	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	956	10	0	0	0	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			965		961	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			965		961	483
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	92
cM capacity (veh/h)			691		249	522

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	637	328	41
Volume Left	0	0	0
Volume Right	0	10	41
cSH	1700	1700	522
Volume to Capacity	0.37	0.19	0.08
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	12.5
Lane LOS			B
Approach Delay (s)	0.0		12.5
Approach LOS			B

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		33.0%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis  
 25: US 50 WB #3 & Indiana St

10/30/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↗
Volume (veh/h)	0	0	2100	1	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	0	0	2593	1	0	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2594				2593	1297
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2594				2593	1297
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	97
cM capacity (veh/h)	157				20	149

Direction, Lane #	WB 1	WB 2	SB 1
Volume Total	1728	865	5
Volume Left	0	0	0
Volume Right	0	1	5
cSH	1700	1700	149
Volume to Capacity	1.02	0.51	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.0	30.1
Lane LOS			D
Approach Delay (s)	0.0		30.1
Approach LOS			D

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		68.1%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis  
 26: US 50 EB #2 & Dee Vee Dr

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	1065	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1224	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1224		1224	612
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1224		1224	612
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %						
cM capacity (veh/h)						
			549		167	429

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	816	408	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.48	0.24	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0		0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

# HCM Unsignalized Intersection Capacity Analysis

## 27: US 50 WB #3 & Reta Dr

10/30/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↑
Volume (veh/h)	0	0	2110	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	2293	0	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			389			
pX, platoon unblocked	0.46				0.46	0.46
vC, conflicting volume	2293				2293	1147
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1474				1474	0
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	100
cM capacity (veh/h)	203				53	497

Direction, Lane #	WB 1	WB 2	SB 1
Volume Total	1529	764	2
Volume Left	0	0	0
Volume Right	0	0	2
cSH	1700	1700	497
Volume to Capacity	0.90	0.45	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	12.3
Lane LOS			B
Approach Delay (s)	0.0		12.3
Approach LOS			B

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		68.3%	ICU Level of Service C
Analysis Period (min)		15	

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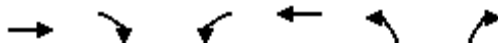
Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

HCM Unsignalized Intersection Capacity Analysis  
 34: US 50 EB #2 & Redrock Rd

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	1313	18	0	0	0	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	1475	20	0	0	0	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	595					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			1496		1485	748
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1134		1121	206
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	93
cM capacity (veh/h)			480		158	638

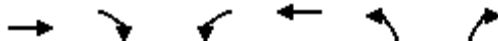
Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	984	512	46
Volume Left	0	0	0
Volume Right	0	20	46
cSH	1700	1700	638
Volume to Capacity	0.58	0.30	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0		11.1
Approach LOS			B

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization	46.9%		ICU Level of Service A
Analysis Period (min)		15	



HCM Unsignalized Intersection Capacity Analysis  
 35: US 50 EB #2 & 29 1/4 Rd

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	1332	32	0	0	0	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1514	36	0	0	0	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	969					
pX, platoon unblocked			0.80		0.80	0.80
vC, conflicting volume			1550		1532	775
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1197		1175	234
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	90
cM capacity (veh/h)			452		145	611

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	1009	541	62
Volume Left	0	0	0
Volume Right	0	36	62
cSH	1700	1700	611
Volume to Capacity	0.59	0.32	0.10
Queue Length 95th (ft)	0	0	9
Control Delay (s)	0.0	0.0	11.6
Lane LOS			B
Approach Delay (s)	0.0		11.6
Approach LOS			B

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		47.9%	ICU Level of Service A
Analysis Period (min)		15	

# HCM Unsignalized Intersection Capacity Analysis

37: US 50 #4 & 29 3/4 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑	↗		↑↑	↗			↗			↗
Volume (veh/h)	36	1090	100	0	2100	14	0	0	115	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.89	0.89	0.89	0.89	0.92	0.89	0.92	0.89	0.92	0.92	0.92
Hourly flow rate (vph)	39	1225	112	0	2360	15	0	0	129	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2375			1337			2483	3678	612	3179	3775	1180
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2375			1337			2483	3678	612	3179	3775	1180
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	80			100			100	100	70	100	100	100
cM capacity (veh/h)	192			496			12	4	429	2	3	179

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	39	612	612	112	1180	1180	15	129	0
Volume Left	39	0	0	0	0	0	0	0	0
Volume Right	0	0	0	112	0	0	15	129	0
cSH	192	1700	1700	1700	1700	1700	1700	429	1700
Volume to Capacity	0.20	0.36	0.36	0.07	0.69	0.69	0.01	0.30	0.00
Queue Length 95th (ft)	18	0	0	0	0	0	0	31	0
Control Delay (s)	28.4	0.0	0.0	0.0	0.0	0.0	0.0	17.0	0.0
Lane LOS	D							C	A
Approach Delay (s)	0.8				0.0			17.0	0.0
Approach LOS								C	A

## Intersection Summary

Average Delay	0.9
Intersection Capacity Utilization	61.4%
ICU Level of Service	B
Analysis Period (min)	15

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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# HCM Signalized Intersection Capacity Analysis

## 4: US 50 #1 & Unawweep Ave

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↖	↖	↕	↖		↕	↖		↕	↖
Volume (vph)	189	525	6	1	1244	0	10	1	2	16	3	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0			5.0	5.0		5.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	3335	3438	1538	1719	3438			1727	1538		1737	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.72	1.00		0.74	1.00
Satd. Flow (perm)	3335	3438	1538	1719	3438			1297	1538		1345	1538
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor (vph)	121%	211%	211%	213%	213%	121%	211%	121%	211%	121%	121%	121%
Adj. Flow (vph)	246	1191	14	2	2849	0	23	1	5	21	4	288
RTOR Reduction (vph)	0	0	2	0	0	0	0	0	5	0	0	0
Lane Group Flow (vph)	246	1191	12	2	2849	0	0	24	0	0	25	288
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Over
Protected Phases	1	6		5	2			4			4	1
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	21.2	117.1	117.1	0.8	96.7			7.1	7.1		7.1	21.2
Effective Green, g (s)	21.2	117.1	117.1	0.8	96.7			7.1	7.1		7.1	21.2
Actuated g/C Ratio	0.15	0.84	0.84	0.01	0.69			0.05	0.05		0.05	0.15
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0			5.0	5.0		5.0	4.0
Vehicle Extension (s)	3.0	5.0	5.0	2.5	3.5			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	505	2876	1286	10	2375			66	78		68	233
v/s Ratio Prot	0.07	0.35		0.00	c0.83							c0.19
v/s Ratio Perm			0.01					0.02	0.00		c0.02	
v/c Ratio	0.49	0.41	0.01	0.20	1.20			0.36	0.00		0.37	1.24
Uniform Delay, d1	54.4	2.9	1.9	69.3	21.6			64.3	63.1		64.3	59.4
Progression Factor	1.00	1.00	1.00	0.98	0.08			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.7	0.4	0.0	0.6	90.2			3.4	0.0		3.3	137.5
Delay (s)	55.2	3.3	1.9	68.6	92.0			67.7	63.1		67.6	196.9
Level of Service	E	A	A	E	F			E	E		E	F
Approach Delay (s)		12.1			92.0			66.9			186.6	
Approach LOS		B			F			E			F	

### Intersection Summary

HCM Average Control Delay	73.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: US 50 #1 & Palmer St

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	512	35	16	1291	0	85	5	0	7	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00			1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1719	3438	1538	1719	3438		1719	1810			1748	
Flt Permitted	0.04	1.00	1.00	0.23	1.00		0.74	1.00			0.79	
Satd. Flow (perm)	78	3438	1538	411	3438		1330	1810			1421	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor (vph)	213%	213%	125%	125%	213%	213%	125%	125%	125%	213%	125%	213%
Adj. Flow (vph)	81	1225	49	22	3090	0	119	7	0	17	7	0
RTOR Reduction (vph)	0	0	13	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	81	1225	36	22	3090	0	119	7	0	0	24	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt				Perm	
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	101.7	101.7	101.7	95.4	95.4		17.9	17.9			7.9	
Effective Green, g (s)	101.7	101.7	101.7	95.4	95.4		17.9	17.9			7.9	
Actuated g/C Ratio	0.73	0.73	0.73	0.68	0.68		0.13	0.13			0.06	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	159	2497	1117	302	2343		181	231			80	
v/s Ratio Prot	0.03	c0.36		0.00	c0.90		c0.02	0.00				
v/s Ratio Perm	0.34		0.02	0.05			c0.07				0.02	
v/c Ratio	0.51	0.49	0.03	0.07	1.32		0.66	0.03			0.30	
Uniform Delay, d1	64.6	8.1	5.4	7.7	22.3		60.1	53.5			63.4	
Progression Factor	0.97	0.98	0.96	0.28	0.27		1.00	1.00			1.00	
Incremental Delay, d2	2.5	0.7	0.1	0.0	143.8		8.3	0.1			2.1	
Delay (s)	65.0	8.6	5.2	2.2	149.8		68.4	53.5			65.5	
Level of Service	E	A	A	A	F		E	D			E	
Approach Delay (s)		11.9			148.7			67.6			65.5	
Approach LOS		B			F			E			E	

### Intersection Summary

HCM Average Control Delay	105.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

13: US 50 #1 & 27 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	435	24	27	1047	22	174	20	15	40	29	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	5.0	5.5		5.0	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1693		1719	1669	
Flt Permitted	0.05	1.00	1.00	0.21	1.00	1.00	0.00	1.00		0.00	1.00	
Satd. Flow (perm)	87	3438	1538	380	3438	1538	0	1693		0	1669	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	213%	213%	213%	236%	228%	228%	236%	236%	236%	228%	236%	228%
Adj. Flow (vph)	84	1018	56	70	2623	55	451	52	39	100	75	80
RTOR Reduction (vph)	0	0	20	0	0	5	0	19	0	0	15	0
Lane Group Flow (vph)	84	1018	36	70	2623	50	451	72	0	100	140	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		
Actuated Green, G (s)	88.0	85.0	85.0	84.2	84.2	84.2	21.0	19.6		9.9	8.5	
Effective Green, g (s)	88.0	85.0	85.0	84.2	84.2	84.2	21.0	19.6		9.9	8.5	
Actuated g/C Ratio	0.63	0.61	0.61	0.60	0.60	0.60	0.15	0.14		0.07	0.06	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	111	2087	934	267	2068	925	258	237		122	101	
v/s Ratio Prot	c0.03	0.30		0.01	c0.76		c0.26	0.04		0.06	c0.08	
v/s Ratio Perm	0.45		0.02	0.15		0.03						
v/c Ratio	0.76	0.49	0.04	0.26	1.27	0.05	1.75	0.30		0.82	1.39	
Uniform Delay, d1	62.4	15.3	11.1	13.3	27.9	11.5	59.5	54.1		64.2	65.8	
Progression Factor	0.77	0.83	0.62	1.20	0.81	1.31	1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.5	0.8	0.1	0.1	122.2	0.0	352.2	0.7		33.1	223.4	
Delay (s)	69.6	13.4	6.9	16.1	144.7	15.1	411.7	54.8		97.3	289.1	
Level of Service	E	B	A	B	F	B	F	D		F	F	
Approach Delay (s)		17.2			138.8			351.8			213.9	
Approach LOS		B			F			F			F	

## Intersection Summary

HCM Average Control Delay	137.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	111.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

18: US 50 WB #3 & 27 3/4 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↕	↱		↕			↱	↰
Volume (vph)	0	0	0	9	727	39	15	40	0	0	33	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	6.0	6.0		6.0			6.0	
Lane Util. Factor				1.00	0.95	1.00		1.00			1.00	
Fr <sub>t</sub>				1.00	1.00	0.85		1.00			0.90	
Fl <sub>t</sub> Protected				0.95	1.00	1.00		0.99			1.00	
Satd. Flow (prot)				1719	3438	1538		1785			1637	
Fl <sub>t</sub> Permitted				0.95	1.00	1.00		0.13			1.00	
Satd. Flow (perm)				1719	3438	1538		239			1637	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	274%	274%	274%	274%	274%	274%	274%	274%	274%
Adj. Flow (vph)	0	0	0	27	2165	116	45	119	0	0	98	235
RTOR Reduction (vph)	0	0	0	0	0	43	0	0	0	0	62	0
Lane Group Flow (vph)	0	0	0	27	2165	74	0	164	0	0	271	0
Turn Type				pm+pt		Perm		Perm				
Protected Phases				5	6			1 8			4	
Permitted Phases				6		6		1 8				
Actuated Green, G (s)				81.0	70.0	70.0		37.0			16.0	
Effective Green, g (s)				81.0	70.0	70.0		37.0			16.0	
Actuated g/C Ratio				0.58	0.50	0.50		0.26			0.11	
Clearance Time (s)				4.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				995	1719	769		63			187	
v/s Ratio Prot				c0.00	c0.63						0.17	
v/s Ratio Perm				0.01		0.05		c0.69				
v/c Ratio				0.03	1.26	0.10		2.60			1.45	
Uniform Delay, d1				12.6	35.0	18.4		51.5			62.0	
Progression Factor				0.81	0.88	0.71		1.21			1.00	
Incremental Delay, d2				0.0	117.2	0.0		764.8			229.5	
Delay (s)				10.3	148.2	13.0		827.0			291.5	
Level of Service				B	F	B		F			F	
Approach Delay (s)		0.0			139.8			827.0			291.5	
Approach LOS		A			F			F			F	

## Intersection Summary

HCM Average Control Delay	198.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

19: US 50 EB #2 & 27 3/4 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	293	0	0	0	0	0	20	4	24	22	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0						6.0			6.0	
Lane Util. Factor	1.00	0.95						1.00			1.00	
Frt	1.00	1.00						0.98			1.00	
Flt Protected	0.95	1.00						1.00			0.97	
Satd. Flow (prot)	1719	3438						1769			1764	
Flt Permitted	0.95	1.00						1.00			0.36	
Satd. Flow (perm)	1719	3438						1769			648	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	274%	274%	274%	100%	100%	100%	274%	274%	274%	274%	274%	274%
Adj. Flow (vph)	119	873	0	0	0	0	0	60	12	71	66	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	119	873	0	0	0	0	0	67	0	0	137	0
Turn Type	pm+pt		Perm							Perm		
Protected Phases	1	2						8			4 5	
Permitted Phases	2		2							4 5		
Actuated Green, G (s)	91.0	70.0						16.0			31.0	
Effective Green, g (s)	91.0	70.0						16.0			27.0	
Actuated g/C Ratio	0.65	0.50						0.11			0.19	
Clearance Time (s)	6.0	6.0						6.0				
Vehicle Extension (s)	3.0	3.0						3.0				
Lane Grp Cap (vph)	1191	1719						202			125	
v/s Ratio Prot	c0.01	c0.25						0.04				
v/s Ratio Perm	0.05										c0.21	
v/c Ratio	0.10	0.51						0.33			1.10	
Uniform Delay, d1	9.2	23.5						57.1			56.5	
Progression Factor	1.49	0.83						1.00			0.76	
Incremental Delay, d2	0.0	1.0						1.0			72.6	
Delay (s)	13.7	20.6						58.0			115.8	
Level of Service	B	C						E			F	
Approach Delay (s)		19.8			0.0			58.0			115.8	
Approach LOS		B			A			E			F	

## Intersection Summary

HCM Average Control Delay	33.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

23: US 50 WB #3 & 28 1/2 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗		↖			↕	↘
Volume (vph)	0	0	0	8	677	7	49	56	0	0	18	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0		6.0			6.0	
Lane Util. Factor				1.00	0.95	1.00		1.00			1.00	
Fr <sub>t</sub>				1.00	1.00	0.85		1.00			0.90	
Fl <sub>t</sub> Protected				0.95	1.00	1.00		0.98			1.00	
Satd. Flow (prot)				1719	3438	1538		1768			1631	
Fl <sub>t</sub> Permitted				0.95	1.00	1.00		0.33			1.00	
Satd. Flow (perm)				1719	3438	1538		603			1631	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	100%	100%	100%	131%	300%	131%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	0	0	0	12	2308	10	73	83	0	0	27	74
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0	66	0
Lane Group Flow (vph)	0	0	0	12	2308	7	0	156	0	0	35	0
Turn Type				pm+pt		Perm		Perm				
Protected Phases				5	6			1 8			4	
Permitted Phases				6		6		1 8				
Actuated Green, G (s)				82.0	78.8	78.8		40.0			16.0	
Effective Green, g (s)				82.0	78.8	78.8		40.0			16.0	
Actuated g/C Ratio				0.59	0.56	0.56		0.29			0.11	
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				1081	1935	866		172			186	
v/s Ratio Prot				c0.00	c0.67						0.02	
v/s Ratio Perm				0.01		0.00		c0.26				
v/c Ratio				0.01	1.19	0.01		0.91			0.19	
Uniform Delay, d1				12.1	30.6	13.4		48.2			56.1	
Progression Factor				1.52	1.42	1.74		1.01			1.00	
Incremental Delay, d2				0.0	87.3	0.0		38.4			0.5	
Delay (s)				18.4	130.6	23.4		87.3			56.6	
Level of Service				B	F	C		F			E	
Approach Delay (s)		0.0			129.6			87.3			56.6	
Approach LOS		A			F			F			E	

## Intersection Summary

HCM Average Control Delay	124.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



# HCM Signalized Intersection Capacity Analysis

24: US 50 EB #2 & 28 1/2 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	275	8	0	0	0	0	69	42	8	18	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00					1.00			1.00	
Frt	1.00	1.00	0.85					0.95			1.00	
Flt Protected	0.95	1.00	1.00					1.00			0.98	
Satd. Flow (prot)	1719	3438	1538					1717			1782	
Flt Permitted	0.95	1.00	1.00					1.00			0.27	
Satd. Flow (perm)	1719	3438	1538					1717			497	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	131%	274%	131%	100%	100%	100%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	54	856	12	0	0	0	0	103	63	12	27	0
RTOR Reduction (vph)	0	0	5	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	54	856	7	0	0	0	0	150	0	0	39	0
Turn Type	pm+pt		Perm							Perm		
Protected Phases	1	2						8			4 5	
Permitted Phases	2		2							4 5		
Actuated Green, G (s)	96.8	78.8	78.8					16.0			19.2	
Effective Green, g (s)	96.8	78.8	78.8					16.0			19.2	
Actuated g/C Ratio	0.69	0.56	0.56					0.11			0.14	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	1189	1935	866					196			68	
v/s Ratio Prot	c0.01	c0.25						c0.09				
v/s Ratio Perm	0.03		0.00								c0.08	
v/c Ratio	0.05	0.44	0.01					0.77			0.57	
Uniform Delay, d1	6.9	17.8	13.4					60.2			56.6	
Progression Factor	0.33	0.16	0.02					1.00			0.90	
Incremental Delay, d2	0.0	0.7	0.0					16.2			10.9	
Delay (s)	2.3	3.5	0.3					76.4			61.9	
Level of Service	A	A	A					E			E	
Approach Delay (s)		3.3			0.0			76.4			61.9	
Approach LOS		A			A			E			E	

## Intersection Summary

HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 29: US 50 WB #3 & 29 Rd

10/30/2008



Movement	WBT	WBR	SBT	SBR2	NEL
Lane Configurations	↑↑	↑	↑↑	↑	↑↑
Volume (vph)	2270	348	261	466	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.95	1.00	0.95	1.00	0.97
Frt	1.00	0.85	1.00	0.85	1.00
Flt Protected	1.00	1.00	1.00	1.00	0.95
Satd. Flow (prot)	3438	1538	3438	1538	3335
Flt Permitted	1.00	1.00	1.00	1.00	0.95
Satd. Flow (perm)	3438	1538	3438	1538	3335
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.92
Adj. Flow (vph)	2495	382	287	512	407
RTOR Reduction (vph)	0	2	0	122	0
Lane Group Flow (vph)	2495	380	287	390	407
Turn Type	custom		Perm		
Protected Phases	6	4 6	4		5
Permitted Phases		6		4	
Actuated Green, G (s)	76.0	109.0	26.5	26.5	16.0
Effective Green, g (s)	76.0	109.0	26.5	26.5	16.0
Actuated g/C Ratio	0.54	0.78	0.19	0.19	0.11
Clearance Time (s)	9.0		6.5	6.5	6.0
Vehicle Extension (s)	4.0		6.0	6.0	2.0
Lane Grp Cap (vph)	1866	1197	651	291	381
v/s Ratio Prot	c0.73	0.25	0.08		c0.12
v/s Ratio Perm				c0.25	
v/c Ratio	1.34	0.32	0.44	1.34	1.07
Uniform Delay, d1	32.0	4.6	50.2	56.8	62.0
Progression Factor	0.69	1.17	1.00	1.00	0.77
Incremental Delay, d2	152.0	0.0	1.3	173.9	64.4
Delay (s)	174.2	5.4	51.5	230.6	112.2
Level of Service	F	A	D	F	F
Approach Delay (s)	151.8		166.3		112.2
Approach LOS	F		F		F

### Intersection Summary

HCM Average Control Delay	150.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

30: US 50 EB #2 & 29 Rd

10/30/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↑↑	
Volume (vph)	0	755	0	0	261	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.5	
Lane Util. Factor		0.95			0.97	
Fr <sub>t</sub>		1.00			1.00	
Fl <sub>t</sub> Protected		1.00			0.95	
Satd. Flow (prot)		3438			3335	
Fl <sub>t</sub> Permitted		1.00			0.95	
Satd. Flow (perm)		3438			3335	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	830	0	0	287	0
RTOR Reduction (vph)	0	0	0	0	233	0
Lane Group Flow (vph)	0	830	0	0	54	0
Turn Type						
Protected Phases		2			4	
Permitted Phases						
Actuated Green, G (s)		101.0			26.5	
Effective Green, g (s)		101.0			26.5	
Actuated g/C Ratio		0.72			0.19	
Clearance Time (s)		6.0			6.5	
Vehicle Extension (s)		3.0			6.0	
Lane Grp Cap (vph)		2480			631	
v/s Ratio Prot		c0.24			c0.02	
v/s Ratio Perm						
v/c Ratio		0.33			0.09	
Uniform Delay, d <sub>1</sub>		7.2			46.8	
Progression Factor		0.24			1.00	
Incremental Delay, d <sub>2</sub>		0.3			0.2	
Delay (s)		2.1			46.9	
Level of Service		A			D	
Approach Delay (s)		2.1	0.0		46.9	
Approach LOS		A	A		D	

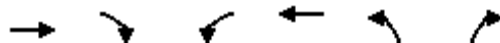
## Intersection Summary

HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 31: US 50 WB #3 & Sundance Dr

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Volume (vph)	0	0	0	3018	321	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	7.0	
Lane Util. Factor				0.95	0.97	
Flt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3438	3335	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3438	3335	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	3353	357	0
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	0	0	3353	356	0
Turn Type						
Protected Phases				6	5 8	
Permitted Phases						
Actuated Green, G (s)				85.3	42.7	
Effective Green, g (s)				85.3	42.7	
Actuated g/C Ratio				0.61	0.30	
Clearance Time (s)				6.0		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)				2095	1017	
v/s Ratio Prot				c0.98	c0.11	
v/s Ratio Perm						
v/c Ratio				1.60	0.35	
Uniform Delay, d1				27.4	37.9	
Progression Factor				1.15	0.40	
Incremental Delay, d2				270.4	0.1	
Delay (s)				301.7	15.4	
Level of Service				F	B	
Approach Delay (s)	0.0			301.7	15.4	
Approach LOS	A			F	B	

### Intersection Summary

HCM Average Control Delay	274.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 32: Sundance Dr &

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖			↖				↑↑				
Volume (vph)	9	0	0	5	0	0	0	312	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0			6.0				6.0				
Lane Util. Factor	1.00			1.00				0.95				
Frt	1.00			1.00				1.00				
Flt Protected	0.95			0.95				1.00				
Satd. Flow (prot)	1719			1719				3438				
Flt Permitted	0.95			0.95				1.00				
Satd. Flow (perm)	1719			1719				3438				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	0	0	5	0	0	0	339	0	0	0	0
RTOR Reduction (vph)	9	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	0	5	0	0	0	339	0	0	0	0
Turn Type	Prot			Prot								
Protected Phases	5			1				8				
Permitted Phases												
Actuated Green, G (s)	19.4			0.8				16.3				
Effective Green, g (s)	19.4			0.8				16.3				
Actuated g/C Ratio	0.14			0.01				0.12				
Clearance Time (s)	7.0			6.0				6.0				
Vehicle Extension (s)	3.0			3.0				3.0				
Lane Grp Cap (vph)	238			10				400				
v/s Ratio Prot	c0.00			c0.00				c0.10				
v/s Ratio Perm												
v/c Ratio	0.01			0.50				0.85				
Uniform Delay, d1	52.0			69.4				60.6				
Progression Factor	1.00			1.00				0.10				
Incremental Delay, d2	0.0			3.5				7.8				
Delay (s)	52.0			73.0				13.7				
Level of Service	D			E				B				
Approach Delay (s)		52.0			73.0			13.7			0.0	
Approach LOS		D			E			B			A	

### Intersection Summary

HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	110.3
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 33: US 50 EB #2 & Sundance Dr

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗					↑↑	↗		↖	
Volume (vph)	0	1308	54	0	0	0	0	312	9	0	5	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0					6.0	6.0		6.0	
Lane Util. Factor		0.95	1.00					0.95	1.00		1.00	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3438	1538					3438	1538		1810	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3438	1538					3438	1538		1810	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1453	60	0	0	0	0	347	10	0	6	0
RTOR Reduction (vph)	0	0	15	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	0	1453	45	0	0	0	0	347	6	0	6	0
Turn Type		Perm						Perm		Split		
Protected Phases		2						8		1	1	
Permitted Phases			2						8			
Actuated Green, G (s)		104.9	104.9					16.3	16.3		0.8	
Effective Green, g (s)		104.9	104.9					16.3	16.3		0.8	
Actuated g/C Ratio		0.75	0.75					0.12	0.12		0.01	
Clearance Time (s)		6.0	6.0					6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)		2576	1152					400	179		10	
v/s Ratio Prot		c0.42						c0.10			c0.00	
v/s Ratio Perm			0.03					0.00				
v/c Ratio		0.56	0.04					0.87	0.03		0.60	
Uniform Delay, d1		7.6	4.5					60.8	54.8		69.4	
Progression Factor		1.06	1.52					1.00	1.00		0.19	
Incremental Delay, d2		0.9	0.1					17.6	0.1		73.0	
Delay (s)		9.0	6.9					78.4	54.9		86.2	
Level of Service		A	A					E	D		F	
Approach Delay (s)		8.9			0.0			77.8			86.2	
Approach LOS		A			A			E			F	

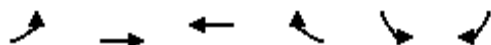
### Intersection Summary

HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

36: US 50 #4 & 29 1/2 Rd

10/30/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↑	↘	↘
Volume (vph)	32	1318	2462	9	36	296
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3438	3438	1538	1719	1538
Flt Permitted	0.04	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	71	3438	3438	1538	1719	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	1464	2736	10	40	329
RTOR Reduction (vph)	0	0	0	3	0	40
Lane Group Flow (vph)	36	1464	2736	7	40	289
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	105.0	105.0	95.8	95.8	23.0	23.0
Effective Green, g (s)	105.0	105.0	95.8	95.8	23.0	23.0
Actuated g/C Ratio	0.75	0.75	0.68	0.68	0.16	0.16
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	91	2579	2353	1052	282	253
v/s Ratio Prot	0.01	c0.43	c0.80		0.02	
v/s Ratio Perm	0.29			0.00		c0.19
v/c Ratio	0.40	0.57	1.16	0.01	0.14	1.14
Uniform Delay, d1	68.3	7.6	22.1	7.0	50.1	58.5
Progression Factor	2.62	0.52	0.97	1.93	1.00	1.00
Incremental Delay, d2	2.5	0.8	74.8	0.0	0.2	100.3
Delay (s)	181.5	4.8	96.3	13.5	50.3	158.8
Level of Service	F	A	F	B	D	F
Approach Delay (s)		9.0	96.0		147.0	
Approach LOS		A	F		F	

## Intersection Summary

HCM Average Control Delay	71.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

38: US 50 #4 & 30 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1254	0	110	2300	114	130	0	28	61	0	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Fr <sub>t</sub>	1.00	1.00		1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Fl <sub>t</sub> Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3438		1719	3438	1538	1719	1538		1719	1538	
Fl <sub>t</sub> Permitted	0.04	1.00		0.17	1.00	1.00	0.67	1.00		0.95	1.00	
Satd. Flow (perm)	77	3438		313	3438	1538	1221	1538		1719	1538	
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.89	0.92	0.89
Adj. Flow (vph)	69	1409	0	120	2584	128	141	0	30	69	0	128
RTOR Reduction (vph)	0	0	0	0	0	36	0	29	0	0	84	0
Lane Group Flow (vph)	69	1409	0	120	2584	92	141	1	0	69	44	0
Turn Type	pm+pt		Perm	Perm		Perm	pm+pt			Prot		
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8					
Actuated Green, G (s)	101.0	101.0		87.5	87.5	87.5	18.5	6.8		16.2	11.3	
Effective Green, g (s)	101.0	101.0		87.5	87.5	87.5	18.5	6.8		16.2	11.3	
Actuated g/C Ratio	0.72	0.72		0.62	0.62	0.62	0.13	0.05		0.12	0.08	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	144	2480		196	2149	961	203	75		199	124	
v/s Ratio Prot	0.03	c0.41			c0.75		c0.06	0.00		0.04	c0.03	
v/s Ratio Perm	0.32			0.38		0.06	c0.03					
v/c Ratio	0.48	0.57		0.61	1.20	0.10	0.69	0.02		0.35	0.36	
Uniform Delay, d <sub>1</sub>	65.3	9.2		15.9	26.2	10.5	57.4	63.4		57.0	60.9	
Progression Factor	1.52	0.89		0.55	0.49	0.38	1.00	1.00		1.00	1.00	
Incremental Delay, d <sub>2</sub>	2.3	0.9		3.9	92.5	0.1	9.9	0.1		1.1	1.8	
Delay (s)	101.4	9.0		12.6	105.3	4.0	67.3	63.5		58.1	62.7	
Level of Service	F	A		B	F	A	E	E		E	E	
Approach Delay (s)		13.4			96.8			66.6			61.1	
Approach LOS		B			F			E			E	

## Intersection Summary

HCM Average Control Delay	67.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



# HCM Signalized Intersection Capacity Analysis

39: US 50 #4 & 31 Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	1223	5	23	2408	112	9	0	65	93	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538		1719	1538	1719	1538	
Flt Permitted	0.04	1.00	1.00	0.17	1.00	1.00		0.75	1.00	0.75	1.00	
Satd. Flow (perm)	69	3438	1538	303	3438	1538		1352	1538	1359	1538	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	37	1359	6	26	2676	124	10	0	72	103	0	16
RTOR Reduction (vph)	0	0	1	0	0	24	0	0	65	0	14	0
Lane Group Flow (vph)	37	1359	5	26	2676	100	0	10	7	103	2	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	109.8	105.4	105.4	105.8	103.4	103.4		14.2	14.2	14.2	14.2	
Effective Green, g (s)	109.8	105.4	105.4	105.8	103.4	103.4		14.2	14.2	14.2	14.2	
Actuated g/C Ratio	0.78	0.75	0.75	0.76	0.74	0.74		0.10	0.10	0.10	0.10	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	106	2588	1158	253	2539	1136		137	156	138	156	
v/s Ratio Prot	c0.01	0.40		0.00	c0.78							0.00
v/s Ratio Perm	0.26		0.00	0.08		0.06		0.01	0.00	c0.08		
v/c Ratio	0.35	0.53	0.00	0.10	1.05	0.09		0.07	0.05	0.75	0.01	
Uniform Delay, d1	64.4	7.1	4.3	10.0	18.3	5.1		56.9	56.8	61.1	56.6	
Progression Factor	1.20	1.39	1.72	0.19	0.33	0.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.7	0.0	0.0	25.5	0.0		0.2	0.1	19.5	0.0	
Delay (s)	78.8	10.5	7.4	1.9	31.4	0.0		57.2	56.9	80.7	56.6	
Level of Service	E	B	A	A	C	A		E	E	F	E	
Approach Delay (s)		12.3			29.8			56.9			77.4	
Approach LOS		B			C			E			E	

## Intersection Summary

HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

40: US 50 WB #6 & 141B

10/30/2008



Movement	WBT	WBR	NBT	SBL	SBR
Lane Configurations	↑↑	↑	↑↑	↑	↑
Volume (vph)	2280	150	73	157	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	5.6	5.6
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3438	1538	3438	1719	1538
Flt Permitted	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3438	1538	3438	1719	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	100%	251%	251%	251%	251%
Adj. Flow (vph)	2533	418	204	438	229
RTOR Reduction (vph)	0	89	0	0	67
Lane Group Flow (vph)	2533	329	204	438	162
Turn Type		Perm		Prot	custom
Protected Phases	6		5	4	
Permitted Phases		6	5		4
Actuated Green, G (s)	86.0	86.0	7.0	29.4	29.4
Effective Green, g (s)	86.0	86.0	7.0	29.4	29.4
Actuated g/C Ratio	0.61	0.61	0.05	0.21	0.21
Clearance Time (s)	6.0	6.0	6.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0	4.0	4.0	4.0
Lane Grp Cap (vph)	2112	945	172	361	323
v/s Ratio Prot	c0.74		c0.06	c0.25	
v/s Ratio Perm		0.21			0.11
v/c Ratio	1.20	0.35	1.19	1.21	0.50
Uniform Delay, d1	27.0	13.3	66.5	55.3	48.8
Progression Factor	0.91	0.61	0.78	1.00	1.00
Incremental Delay, d2	93.6	0.8	123.6	118.9	1.7
Delay (s)	118.2	8.9	175.3	174.2	50.5
Level of Service	F	A	F	F	D
Approach Delay (s)	102.7		175.3		
Approach LOS	F		F		

## Intersection Summary

HCM Average Control Delay	111.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 41: US 50 #7 & CDOT

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑↑	↓	↓
Volume (vph)	1602	55	0	2667	10	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	5.0	5.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Fr <sub>t</sub>	1.00	0.85		1.00	1.00	0.85
Fl <sub>t</sub> Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3438	1538		4940	1719	1538
Fl <sub>t</sub> Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3438	1538		4940	1719	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1669	57	0	2778	10	22
RTOR Reduction (vph)	0	7	0	0	0	21
Lane Group Flow (vph)	1669	50	0	2778	10	1
Turn Type		Perm	Perm			Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	122.5	122.5		122.5	6.5	6.5
Effective Green, g (s)	122.5	122.5		122.5	6.5	6.5
Actuated g/C Ratio	0.88	0.88		0.88	0.05	0.05
Clearance Time (s)	6.0	6.0		6.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	3008	1346		4323	80	71
v/s Ratio Prot	0.49			c0.56	c0.01	
v/s Ratio Perm		0.03				0.00
v/c Ratio	0.55	0.04		0.64	0.12	0.01
Uniform Delay, d <sub>1</sub>	2.1	1.1		2.5	64.0	63.7
Progression Factor	1.10	0.01		1.00	1.00	1.00
Incremental Delay, d <sub>2</sub>	0.6	0.0		0.7	0.7	0.1
Delay (s)	2.9	0.1		3.2	64.7	63.8
Level of Service	A	A		A	E	E
Approach Delay (s)	2.8			3.2	64.1	
Approach LOS	A			A	E	

Intersection Summary

HCM Average Control Delay	3.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 42: US 50 #7 & Willow Bend Rd

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖		↕			↕	
Volume (vph)	0	1563	0	5	2650	0	51	0	4	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0				
Lane Util. Factor		0.95		1.00	0.95			1.00				
Fr <sub>t</sub>		1.00		1.00	1.00			0.99				
Fl <sub>t</sub> Protected		1.00		0.95	1.00			0.96				
Satd. Flow (prot)		3438		1719	3438			1712				
Fl <sub>t</sub> Permitted		1.00		0.09	1.00			0.74				
Satd. Flow (perm)		3438		154	3438			1329				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	1839	0	6	3118	0	60	0	5	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	1839	0	6	3118	0	0	63	0	0	0	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)		110.1		116.9	116.9			11.5				
Effective Green, g (s)		110.1		116.9	116.9			11.5				
Actuated g/C Ratio		0.78		0.83	0.83			0.08				
Clearance Time (s)		6.0		6.0	6.0			6.0				
Vehicle Extension (s)		3.0		3.0	3.0			3.0				
Lane Grp Cap (vph)		2696		137	2863			109				
v/s Ratio Prot		0.53		0.00	c0.91							
v/s Ratio Perm				0.04				c0.05				
v/c Ratio		0.68		0.04	1.09			0.58				
Uniform Delay, d <sub>1</sub>		7.0		6.5	11.8			62.1				
Progression Factor		1.00		1.00	1.00			1.00				
Incremental Delay, d <sub>2</sub>		0.7		0.1	46.7			7.3				
Delay (s)		7.8		6.7	58.4			69.4				
Level of Service		A		A	E			E				
Approach Delay (s)		7.8			58.3			69.4			0.0	
Approach LOS		A			E			E			A	

### Intersection Summary

HCM Average Control Delay	40.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 43: US 50 #7 & Whitewater Frontage Road

10/30/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Volume (vph)	13	1550	8	0	2675	0	30	0	30	10	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0			6.0			5.0			5.0	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frt	1.00	1.00			1.00			0.93			0.96	
Flt Protected	0.95	1.00			1.00			0.98			0.98	
Satd. Flow (prot)	1719	3436			3438			1646			1700	
Flt Permitted	0.03	1.00			1.00			0.87			0.86	
Satd. Flow (perm)	56	3436			3438			1467			1487	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	15	1824	9	0	3147	0	35	0	35	12	12	12
RTOR Reduction (vph)	0	0	0	0	0	0	0	25	0	0	11	0
Lane Group Flow (vph)	15	1833	0	0	3147	0	0	45	0	0	25	0
Turn Type	pm+pt			pm+pt			Perm		Perm			
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	129.9	128.9			122.3			10.1			10.1	
Effective Green, g (s)	129.9	128.9			122.3			10.1			10.1	
Actuated g/C Ratio	0.87	0.86			0.82			0.07			0.07	
Clearance Time (s)	5.0	6.0			6.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	66	2953			2803			99			100	
v/s Ratio Prot	0.00	c0.53			c0.92							
v/s Ratio Perm	0.19							c0.03			0.02	
v/c Ratio	0.23	0.62			1.12			0.45			0.25	
Uniform Delay, d1	68.4	3.2			13.8			67.3			66.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	1.8	1.0			60.6			3.3			1.3	
Delay (s)	70.2	4.2			74.4			70.6			67.6	
Level of Service	E	A			E			E			E	
Approach Delay (s)		4.7			74.4			70.6			67.6	
Approach LOS		A			E			E			E	

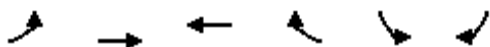
### Intersection Summary

HCM Average Control Delay	49.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 44: US 50 #7 & Reeder Mesa

10/30/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑	↑↑	↖	↖	↖
Volume (vph)	128	1453	2245	0	21	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	0.97	0.95	0.95		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3335	3438	3438		1719	1538
Flt Permitted	0.04	1.00	1.00		0.95	1.00
Satd. Flow (perm)	143	3438	3438		1719	1538
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	147	1670	2580	0	24	407
RTOR Reduction (vph)	0	0	0	0	0	41
Lane Group Flow (vph)	147	1670	2580	0	24	366
Turn Type	pm+pt			Perm		Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2			6	4	
Actuated Green, G (s)	102.0	102.0	92.0		26.0	26.0
Effective Green, g (s)	102.0	102.0	92.0		26.0	26.0
Actuated g/C Ratio	0.73	0.73	0.66		0.19	0.19
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	195	2505	2259		319	286
v/s Ratio Prot	0.02	c0.49	c0.75		0.01	c0.24
v/s Ratio Perm	0.53					
v/c Ratio	0.75	0.67	1.14		0.08	1.28
Uniform Delay, d1	69.1	10.0	24.0		47.1	57.0
Progression Factor	1.00	1.00	0.70		1.00	1.00
Incremental Delay, d2	15.2	1.4	66.1		0.1	150.4
Delay (s)	84.3	11.5	83.0		47.2	207.4
Level of Service	F	B	F		D	F
Approach Delay (s)		17.3	83.0		198.5	
Approach LOS		B	F		F	

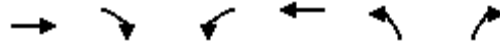
### Intersection Summary

HCM Average Control Delay	68.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 45: US 50 #7 & SH 141A

10/30/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	1218	63	6	2050	68	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1538	1719	3438	1719	1538
Flt Permitted	1.00	1.00	0.13	1.00	0.95	1.00
Satd. Flow (perm)	3438	1538	228	3438	1719	1538
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor (vph)	100%	279%	279%	100%	279%	279%
Adj. Flow (vph)	1467	212	20	2470	229	10
RTOR Reduction (vph)	0	63	0	0	0	8
Lane Group Flow (vph)	1467	149	20	2470	229	2
Turn Type		Perm	pm+pt			Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	98.5	98.5	106.9	106.9	21.1	21.1
Effective Green, g (s)	98.5	98.5	106.9	106.9	21.1	21.1
Actuated g/C Ratio	0.70	0.70	0.76	0.76	0.15	0.15
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2419	1082	200	2625	259	232
v/s Ratio Prot	0.43		0.00	c0.72	c0.13	
v/s Ratio Perm		0.10	0.07			0.00
v/c Ratio	0.61	0.14	0.10	0.94	0.88	0.01
Uniform Delay, d1	10.7	6.8	7.7	13.9	58.3	50.6
Progression Factor	0.19	0.12	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.2	0.2	8.3	27.9	0.0
Delay (s)	2.9	1.0	7.9	22.2	86.2	50.6
Level of Service	A	A	A	C	F	D
Approach Delay (s)	2.6			22.1	84.7	
Approach LOS	A			C	F	

### Intersection Summary

HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group





# HCM Unsignalized Intersection Capacity Analysis

## 1: US 50 #1 & Grand Mesa Ave

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑				↑			↑
Volume (veh/h)	0	1769	1	23	1035	0	0	0	2	0	0	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4057	2	53	2374	0	0	0	5	0	0	94
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2374			4059			5445	6538	2030	4512	6539	1187
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2374			4059			5445	6538	2030	4512	6539	1187
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			0			0	0	90	0	0	47
cM capacity (veh/h)	192			39			0	0	46	0	0	177

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2705	1355	53	1582	791	5	94
Volume Left	0	0	53	0	0	0	0
Volume Right	0	2	0	0	0	5	94
cSH	1700	1700	39	1700	1700	46	177
Volume to Capacity	1.59	0.80	1.36	0.93	0.47	0.10	0.53
Queue Length 95th (ft)	0	0	135	0	0	8	68
Control Delay (s)	0.0	0.0	432.6	0.0	0.0	91.3	46.5
Lane LOS			F			F	E
Approach Delay (s)	0.0		9.4			91.3	46.5
Approach LOS						F	E

### Intersection Summary

Average Delay	4.2
Intersection Capacity Utilization	113.2%
ICU Level of Service	H
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 2: US 50 #1 & Gunnison Blvd

11/5/2008



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		
Volume (veh/h)	1771	7	0	1029	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	3975	16	0	2310	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1069		
pX, platoon unblocked					0.48	
vC, conflicting volume			3991		5138	1996
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			3991		7426	1996
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	100
cM capacity (veh/h)			41		0	49

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	2650	1341	1155	1155
Volume Left	0	0	0	0
Volume Right	0	16	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	1.56	0.79	0.68	0.68
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		107.1%	ICU Level of Service
Analysis Period (min)		15	G

# HCM Unsignalized Intersection Capacity Analysis

## 3: US 50 #1 & Santa Clara Ave

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	43	1733	0	1	1001	8	0	0	2	0	0	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	97	3890	0	2	2247	18	0	0	4	0	0	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					634							
pX, platoon unblocked	0.48						0.48	0.48		0.48	0.48	0.48
vC, conflicting volume	2265			3890			5265	6352	1945	4403	6343	1132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1455			3890			7761	10047	1945	5949	10028	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	55			95			100	100	92	100	100	89
cM capacity (veh/h)	212			46			0	0	53	0	0	511

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	97	2593	1297	2	1498	767	4	54
Volume Left	97	0	0	2	0	0	0	0
Volume Right	0	0	0	0	0	18	4	54
cSH	212	1700	1700	46	1700	1700	53	511
Volume to Capacity	0.45	1.53	0.76	0.05	0.88	0.45	0.08	0.11
Queue Length 95th (ft)	54	0	0	4	0	0	7	9
Control Delay (s)	35.4	0.0	0.0	88.0	0.0	0.0	79.2	12.9
Lane LOS	E			F			F	B
Approach Delay (s)	0.9			0.1			79.2	12.9
Approach LOS							F	B

### Intersection Summary

Average Delay	0.7
Intersection Capacity Utilization	111.1%
ICU Level of Service	H
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 5: US 50 #1 & James St

11/5/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1502	794	1	0	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	3298	1744	2	0	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		513				
pX, platoon unblocked					0.22	
vC, conflicting volume	1746				3394	873
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1746				4801	873
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	96
cM capacity (veh/h)	343				0	288
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	1649	1649	1162	583	11	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	2	11	
cSH	1700	1700	1700	1700	288	
Volume to Capacity	0.97	0.97	0.68	0.34	0.04	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	18.0	
Lane LOS					C	
Approach Delay (s)	0.0		0.0		18.0	
Approach LOS					C	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			91.8%		ICU Level of Service	F
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 6: US 50 #1 & Green Acre 1

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Volume (veh/h)	1507	10	0	793	0	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	3344	22	0	1759	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1023			1090		
pX, platoon unblocked				0.22	0.39	0.22
vC, conflicting volume				3366	4234	1683
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				4628	2348	0
tC, single (s)				4.2	6.9	7.0
tC, 2 stage (s)						
tF (s)				2.2	3.6	3.4
p0 queue free %				100	100	99
cM capacity (veh/h)				5	11	242

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	2229	1137	880	880	2
Volume Left	0	0	0	0	0
Volume Right	0	22	0	0	2
cSH	1700	1700	1700	1700	242
Volume to Capacity	1.31	0.67	0.52	0.52	0.01
Queue Length 95th (ft)	0	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	0.0	20.0
Lane LOS					C
Approach Delay (s)	0.0		0.0		20.0
Approach LOS					C

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			99.4%	ICU Level of Service	F
Analysis Period (min)			15		

# HCM Unsignalized Intersection Capacity Analysis

## 7: US 50 #1 & Elm Park

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑		↵
Volume (veh/h)	1508	10	13	794	0	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3381	22	29	1780	0	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1190			923		
pX, platoon unblocked				0.23	0.39	0.23
vC, conflicting volume				3404	4341	1702
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				4780	2561	0
tC, single (s)				4.2	6.9	7.0
tC, 2 stage (s)						
tF (s)				2.2	3.6	3.4
p0 queue free %				0	0	81
cM capacity (veh/h)				4	0	244

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	2254	1149	29	890	890	47
Volume Left	0	0	29	0	0	0
Volume Right	0	22	0	0	0	47
cSH	1700	1700	4	1700	1700	244
Volume to Capacity	1.33	0.68	6.75	0.52	0.52	0.19
Queue Length 95th (ft)	0	0	Err	0	0	17
Control Delay (s)	0.0	0.0	4180.9	0.0	0.0	23.3
Lane LOS	F			C		
Approach Delay (s)	0.0		67.4		23.3	
Approach LOS				C		

### Intersection Summary

Average Delay	23.4					
Intersection Capacity Utilization	99.5%		ICU Level of Service		F	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 8: US 50 #1 & Green Acre 2

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Volume (veh/h)	1501	15	0	794	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	3296	33	0	1744	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				596		
pX, platoon unblocked				0.66		
vC, conflicting volume	3329			4184 1664		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3329			4804 1664		
tC, single (s)	4.2			6.9 7.0		
tC, 2 stage (s)						
tF (s)	2.2			3.6 3.4		
p0 queue free %	100			100 81		
cM capacity (veh/h)	78			0 83		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	2197	1132	872	872	15
Volume Left	0	0	0	0	0
Volume Right	0	33	0	0	15
cSH	1700	1700	1700	1700	83
Volume to Capacity	1.29	0.67	0.51	0.51	0.19
Queue Length 95th (ft)	0	0	0	0	16
Control Delay (s)	0.0	0.0	0.0	0.0	57.9
Lane LOS					F
Approach Delay (s)	0.0			57.9	
Approach LOS					F

Intersection Summary					
Average Delay	0.2				
Intersection Capacity Utilization	99.4%		ICU Level of Service	F	
Analysis Period (min)	15				

# HCM Unsignalized Intersection Capacity Analysis

## 9: US 50 #1 & Aspen St

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Volume (veh/h)	0	1498	20	0	805	0	0	0	6	0	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.92	0.92	0.97	0.97	0.92	0.92	0.92	0.97	0.92	0.97
Hourly flow rate (vph)	0	3289	22	0	1768	0	0	0	7	0	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					381							
pX, platoon unblocked	0.65						0.65	0.65		0.65	0.65	0.65
vC, conflicting volume	1768			3311			4189	5068	1656	3419	5079	884
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1111			3311			4822	6170	1656	3642	6187	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			100			100	100	92	100	100	99
cM capacity (veh/h)	396			80			0	0	84	1	0	701

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	2193	1118	1178	589	7	4
Volume Left	0	0	0	0	0	0
Volume Right	0	22	0	0	7	4
cSH	1700	1700	1700	1700	84	701
Volume to Capacity	1.29	0.66	0.69	0.35	0.08	0.01
Queue Length 95th (ft)	0	0	0	0	6	0
Control Delay (s)	0.0	0.0	0.0	0.0	51.3	10.2
Lane LOS					F	B
Approach Delay (s)	0.0		0.0		51.3	10.2
Approach LOS					F	B

### Intersection Summary

Average Delay		0.1				
Intersection Capacity Utilization		98.8%		ICU Level of Service		F
Analysis Period (min)		15				



HCM Unsignalized Intersection Capacity Analysis  
 11: US 50 #1 & Palisade St

11/5/2008





















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1475	770	7	0	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	3342	1745	16	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		420				
pX, platoon unblocked					0.32	
vC, conflicting volume	1761				3424	880
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1761				4341	880
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	98
cM capacity (veh/h)	338				0	284

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	1671	1671	1163	597	7
Volume Left	0	0	0	0	0
Volume Right	0	0	0	16	7
cSH	1700	1700	1700	1700	284
Volume to Capacity	0.98	0.98	0.68	0.35	0.02
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	18.0
Lane LOS					C
Approach Delay (s)	0.0		0.0		18.0
Approach LOS					C

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			90.2%	ICU Level of Service	E
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis  
 12: US 50 #1 & Linden Ave

11/5/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	89	1445	110	50	768	12	0	0	86	0	0	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	195	3173	142	64	1686	26	0	0	111	0	0	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		988										
pX, platoon unblocked				0.32			0.32	0.32	0.32	0.32	0.32	
vC, conflicting volume	1713			3315			4591	5406	1587	3917	5534	856
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1713			3975			7926	10449	0	5839	10847	856
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	45			0			0	0	68	0	0	81
cM capacity (veh/h)	353			14			0	0	347	0	0	295
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	1253	2115	142	64	1124	588	111	55				
Volume Left	195	0	0	64	0	0	0	0				
Volume Right	0	0	142	0	0	26	111	55				
cSH	353	1700	1700	14	1700	1700	347	295				
Volume to Capacity	0.55	1.24	0.08	4.75	0.66	0.35	0.32	0.19				
Queue Length 95th (ft)	80	0	0	Err	0	0	34	17				
Control Delay (s)	27.1	0.0	0.0	2246.0	0.0	0.0	20.2	20.0				
Lane LOS	D			F			C	C				
Approach Delay (s)	9.7			81.4			20.2	20.0				
Approach LOS							C	C				
Intersection Summary												
Average Delay				33.4								
Intersection Capacity Utilization			143.3%		ICU Level of Service				H			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 14: US 50 #1 & Dorothy Ave

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑				↗			↗
Volume (veh/h)	0	1138	265	0	700	3	0	0	6	0	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	2760	643	0	1698	7	0	0	15	0	0	44
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		807										
pX, platoon unblocked				0.38			0.38	0.38	0.38	0.38	0.38	
vC, conflicting volume	1705			2760			3653	4465	1380	3096	4462	853
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1705			2373			4708	6835	0	3252	6825	853
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			100			100	100	96	100	100	85
cM capacity (veh/h)	356			74			0	0	411	1	0	297

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	1380	1380	643	1132	573	15	44
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	643	0	7	15	44
cSH	1700	1700	1700	1700	1700	411	297
Volume to Capacity	0.81	0.81	0.38	0.67	0.34	0.04	0.15
Queue Length 95th (ft)	0	0	0	0	0	3	13
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.1	19.2
Lane LOS						B	C
Approach Delay (s)	0.0			0.0		14.1	19.2
Approach LOS						B	C

Intersection Summary

Average Delay	0.2
Intersection Capacity Utilization	81.7%
ICU Level of Service	D
Analysis Period (min)	15

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Intersection Sign configuration not allowed in HCM analysis.

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# HCM Unsignalized Intersection Capacity Analysis

## 16: US 50 #1 & WB On-Ramp

11/5/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Volume (veh/h)	0	807	538	0	0	180
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2000	1602	0	0	286
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1602				2602	801
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1602				2602	801
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	11
cM capacity (veh/h)	391				19	321

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	1000	1000	801	801	286
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	286
cSH	1700	1700	1700	1700	321
Volume to Capacity	0.59	0.59	0.47	0.47	0.89
Queue Length 95th (ft)	0	0	0	0	209
Control Delay (s)	0.0	0.0	0.0	0.0	62.8
Lane LOS					F
Approach Delay (s)	0.0		0.0		62.8
Approach LOS					F

Intersection Summary					
Average Delay			4.6		
Intersection Capacity Utilization			63.7%	ICU Level of Service	B
Analysis Period (min)			15		

# HCM Unsignalized Intersection Capacity Analysis

## 17: US 50 #1 & Frontage Rd

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Volume (veh/h)	726	1	0	540	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	2072	3	0	1541	0	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2075		2843	1036
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2075		2843	1036
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	88
cM capacity (veh/h)			254		13	223
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	1036	1036	3	771	771	26
Volume Left	0	0	0	0	0	0
Volume Right	0	0	3	0	0	26
cSH	1700	1700	1700	1700	1700	223
Volume to Capacity	0.61	0.61	0.00	0.45	0.45	0.12
Queue Length 95th (ft)	0	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	23.2
Lane LOS						C
Approach Delay (s)	0.0			0.0		23.2
Approach LOS						C
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			65.0%	ICU Level of Service		C
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 20: US 50 WB #3 & Fairgrounds

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↘	↕	↘	
Volume (veh/h)	0	0	18	510	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	53	1503	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1235					
pX, platoon unblocked						
vC, conflicting volume			0	857	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	857	0	
tC, single (s)			4.2	6.9	7.0	
tC, 2 stage (s)						
tF (s)			2.2	3.6	3.4	
p0 queue free %			97	100	100	
cM capacity (veh/h)			1600	281	1075	

Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	53	751	751	0
Volume Left	53	0	0	0
Volume Right	0	0	0	0
cSH	1600	1700	1700	1700
Volume to Capacity	0.03	0.44	0.44	0.00
Queue Length 95th (ft)	3	0	0	0
Control Delay (s)	7.3	0.0	0.0	0.0
Lane LOS	A			A
Approach Delay (s)	0.2		0.0	
Approach LOS				A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		

# HCM Unsignalized Intersection Capacity Analysis

## 21: US 50 EB #2 & Fairgrounds

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Volume (veh/h)	0	759	10	0	0	0	0	0	0	0	18	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	2236	29	0	0	0	0	0	0	0	53	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	1250											
pX, platoon unblocked				0.63			0.63	0.63	0.63	0.63	0.63	0.63
vC, conflicting volume	0			2266			2263	2236	1118	1118	2266	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			1835			1830	1788	14	14	1835	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	100			100			0	100	100	100	0	100
cM capacity (veh/h)	1600			199			0	49	663	625	46	1075

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	1118	1118	29	0	53
Volume Left	0	0	0	0	0
Volume Right	0	0	29	0	0
cSH	1700	1700	1700	1700	46
Volume to Capacity	0.66	0.66	0.02	0.00	1.16
Queue Length 95th (ft)	0	0	0	0	123
Control Delay (s)	0.0	0.0	0.0	0.0	324.3
Lane LOS				A	F
Approach Delay (s)	0.0			0.0	324.3
Approach LOS				A	F

### Intersection Summary

Average Delay	7.4
Intersection Capacity Utilization	104.8%
ICU Level of Service	G
Analysis Period (min)	15



HCM Unsignalized Intersection Capacity Analysis  
 22: US 50 EB #2 & KOA

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	754	15	0	0	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2246	45	0	0	0	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2290		2268	1145
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2290		2268	1145
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	79
cM capacity (veh/h)			208		33	188

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	1497	793	39
Volume Left	0	0	0
Volume Right	0	45	39
cSH	1700	1700	188
Volume to Capacity	0.88	0.47	0.21
Queue Length 95th (ft)	0	0	19
Control Delay (s)	0.0	0.0	29.0
Lane LOS	D		
Approach Delay (s)	0.0		29.0
Approach LOS	D		

Intersection Summary			
Average Delay			0.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)			15

HCM Unsignalized Intersection Capacity Analysis  
 25: US 50 WB #3 & Indiana St

11/5/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↗
Volume (veh/h)	0	0	1643	12	0	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	0	1711	12	0	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1724				1718	862
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1724				1718	862
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	98
cM capacity (veh/h)	350				78	292

Direction, Lane #	WB 1	WB 2	SB 1
Volume Total	1141	583	6
Volume Left	0	0	0
Volume Right	0	12	6
cSH	1700	1700	292
Volume to Capacity	0.67	0.34	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	17.6
Lane LOS			C
Approach Delay (s)	0.0		17.6
Approach LOS			C

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		55.8%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis  
 26: US 50 EB #2 & Dee Vee Dr

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					
Volume (veh/h)	2171	0	0	0	0	3
Sign Control	Free			Free Stop		
Grade	0%			0% 0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2334	0	0	0	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2334			2334 1167
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2334			2334 1167
tC, single (s)			4.2			6.9 7.0
tC, 2 stage (s)						
tF (s)			2.2			3.6 3.4
p0 queue free %			100			100 98
cM capacity (veh/h)			200			30 182

Direction, Lane #	EB 1	EB 2
Volume Total	1556	778
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.92	0.46
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	
Approach LOS		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

# HCM Unsignalized Intersection Capacity Analysis

## 27: US 50 WB #3 & Reta Dr

11/5/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↗
Volume (veh/h)	0	0	1675	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	1763	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			389			
pX, platoon unblocked	0.62				0.62	0.62
vC, conflicting volume	1763				1763	882
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	994				994	0
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	100				100	100
cM capacity (veh/h)	415				146	663

Direction, Lane #	WB 1	WB 2	SB 1
Volume Total	1175	588	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.69	0.35	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0		0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		49.6%	ICU Level of Service A
Analysis Period (min)		15	

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Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

HCM Unsignalized Intersection Capacity Analysis  
 34: US 50 EB #2 & Redrock Rd

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	2700	18	0	0	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	3140	21	0	0	0	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	595					
pX, platoon unblocked			0.24		0.24	0.24
vC, conflicting volume			3160		3150	1580
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			3670		3626	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	92
cM capacity (veh/h)			14		1	258

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	2093	1067	21
Volume Left	0	0	0
Volume Right	0	21	21
cSH	1700	1700	258
Volume to Capacity	1.23	0.63	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	20.2
Lane LOS			C
Approach Delay (s)	0.0		20.2
Approach LOS			C

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		85.2%	ICU Level of Service E
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis  
 35: US 50 EB #2 & 29 1/4 Rd

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	2550	91	0	0	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	2965	106	0	0	0	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	969					
pX, platoon unblocked			0.24		0.24	0.24
vC, conflicting volume			3071		3018	1535
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			3292		3074	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		100	94
cM capacity (veh/h)			20		2	261

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	1977	1094	16
Volume Left	0	0	0
Volume Right	0	106	16
cSH	1700	1700	261
Volume to Capacity	1.16	0.64	0.06
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.0	0.0	19.7
Lane LOS			C
Approach Delay (s)	0.0		19.7
Approach LOS			C

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

# HCM Unsignalized Intersection Capacity Analysis

37: US 50 #4 & 29 3/4 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↘		↑↑	↘			↘			↘
Volume (veh/h)	14	2200	100	0	1650	19	0	0	100	0	0	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.89	0.89	0.89	0.89	0.92	0.89	0.92	0.89	0.92	0.92	0.92
Hourly flow rate (vph)	15	2472	112	0	1854	21	0	0	112	0	0	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1875			2584			3479	4377	1236	3233	4469	927
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1875			2584			3479	4377	1236	3233	4469	927
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.6	4.0	3.4
p0 queue free %	95			100			100	100	31	100	100	81
cM capacity (veh/h)	305			158			2	1	164	1	1	264

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	15	1236	1236	112	927	927	21	112	50
Volume Left	15	0	0	0	0	0	0	0	0
Volume Right	0	0	0	112	0	0	21	112	50
cSH	305	1700	1700	1700	1700	1700	1700	164	264
Volume to Capacity	0.05	0.73	0.73	0.07	0.55	0.55	0.01	0.69	0.19
Queue Length 95th (ft)	4	0	0	0	0	0	0	101	17
Control Delay (s)	17.4	0.0	0.0	0.0	0.0	0.0	0.0	65.1	21.8
Lane LOS	C							F	C
Approach Delay (s)	0.1				0.0			65.1	21.8
Approach LOS								F	C

## Intersection Summary

Average Delay		1.9							
Intersection Capacity Utilization		73.7%		ICU Level of Service				D	
Analysis Period (min)		15							



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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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# HCM Signalized Intersection Capacity Analysis

## 4: US 50 #1 & Unawweep Ave

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↗	↑↑	↖		↖	↗		↖	↗
Volume (vph)	251	1496	5	1	803	0	39	11	8	30	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0			5.0	5.0		5.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	3335	3438	1538	1719	3438			1741	1538		1719	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.75	1.00		0.72	1.00
Satd. Flow (perm)	3335	3438	1538	1719	3438			1351	1538		1294	1538
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	121%	211%	121%	121%	213%	121%	121%	121%	121%	121%	121%	121%
Adj. Flow (vph)	323	3358	6	1	1820	0	50	14	10	39	0	247
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	9	0	0	0
Lane Group Flow (vph)	323	3358	6	1	1820	0	0	64	1	0	39	247
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Over
Protected Phases	1	6		5	2			4			4	1
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	38.4	110.4	110.4	4.0	76.0			10.6	10.6		10.6	38.4
Effective Green, g (s)	38.4	110.4	110.4	4.0	76.0			10.6	10.6		10.6	38.4
Actuated g/C Ratio	0.27	0.79	0.79	0.03	0.54			0.08	0.08		0.08	0.27
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0			5.0	5.0		5.0	4.0
Vehicle Extension (s)	3.0	5.0	5.0	2.5	3.5			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	915	2711	1213	49	1866			102	116		98	422
v/s Ratio Prot	0.10	c0.98		0.00	c0.53							0.16
v/s Ratio Perm			0.00					c0.05	0.00		0.03	
v/c Ratio	0.35	1.24	0.00	0.02	0.98			0.63	0.01		0.40	0.59
Uniform Delay, d1	40.8	14.8	3.1	66.1	31.1			62.8	59.8		61.7	43.9
Progression Factor	1.00	1.00	1.00	0.84	0.56			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.1	110.7	0.0	0.4	11.1			11.5	0.0		2.6	5.8
Delay (s)	41.9	125.5	3.1	55.9	28.7			74.2	59.9		64.3	49.8
Level of Service	D	F	A	E	C			E	E		E	D
Approach Delay (s)		118.0			28.7			72.3			51.7	
Approach LOS		F			C			E			D	

### Intersection Summary

HCM Average Control Delay	86.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	113.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 10: US 50 #1 & Palmer St

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	1475	105	41	787	4	200	10	48	12	10	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1719	3438	1538	1719	3436		1719	1586			1691	
Flt Permitted	0.08	1.00	1.00	0.04	1.00		0.58	1.00			0.82	
Satd. Flow (perm)	145	3438	1538	79	3436		1056	1586			1416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	213%	213%	125%	125%	213%	213%	125%	125%	125%	213%	125%	213%
Adj. Flow (vph)	69	3415	143	56	1822	9	272	14	65	28	14	21
RTOR Reduction (vph)	0	0	20	0	0	0	0	42	0	0	14	0
Lane Group Flow (vph)	69	3415	123	56	1831	0	272	37	0	0	49	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt				Perm	
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	96.6	96.6	96.6	97.0	97.0		20.2	20.2			10.2	
Effective Green, g (s)	96.6	96.6	96.6	97.0	97.0		20.2	20.2			10.2	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.14	0.14			0.07	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	154	2372	1061	116	2381		171	229			103	
v/s Ratio Prot	0.02	c0.99		0.02	c0.53		c0.05	0.02				
v/s Ratio Perm	0.29		0.08	0.32			c0.18				0.03	
v/c Ratio	0.45	1.44	0.12	0.48	0.77		1.59	0.16			0.48	
Uniform Delay, d1	29.6	21.7	7.3	67.1	14.1		62.2	52.5			62.3	
Progression Factor	0.54	0.51	0.27	1.10	0.97		1.00	1.00			1.00	
Incremental Delay, d2	0.2	198.1	0.0	1.6	1.3		291.6	0.3			3.5	
Delay (s)	16.3	209.2	2.0	75.4	15.1		353.8	52.8			65.8	
Level of Service	B	F	A	E	B		F	D			E	
Approach Delay (s)		197.4			16.8			286.1			65.8	
Approach LOS		F			B			F			E	

### Intersection Summary

HCM Average Control Delay	143.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	117.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 13: US 50 #1 & 27 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	1323	75	56	675	50	115	36	20	95	41	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	5.0	5.5		5.0	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1713		1719	1765	
Flt Permitted	0.06	1.00	1.00	0.05	1.00	1.00	0.00	1.00		0.00	1.00	
Satd. Flow (perm)	103	3438	1538	99	3438	1538	0	1713		0	1765	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	236%	213%	236%	236%	228%	236%	236%	236%	236%	236%	236%	236%
Adj. Flow (vph)	191	2998	188	141	1637	126	289	90	50	239	103	20
RTOR Reduction (vph)	0	0	23	0	0	19	0	15	0	0	5	0
Lane Group Flow (vph)	191	2998	165	141	1637	107	289	125	0	239	118	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4			8		
Actuated Green, G (s)	88.0	88.0	88.0	79.0	76.0	76.0	17.0	11.5		13.0	7.5	
Effective Green, g (s)	88.0	88.0	88.0	79.0	76.0	76.0	17.0	11.5		13.0	7.5	
Actuated g/C Ratio	0.63	0.63	0.63	0.56	0.54	0.54	0.12	0.08		0.09	0.05	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	273	2161	967	125	1866	835	209	141		160	95	
v/s Ratio Prot	0.09	c0.87		c0.05	0.48		c0.17	0.07		c0.14	0.07	
v/s Ratio Perm	0.35		0.11	0.59		0.07						
v/c Ratio	0.70	1.39	0.17	1.13	0.88	0.13	1.38	0.89		1.49	1.24	
Uniform Delay, d1	40.3	26.0	10.8	62.4	27.9	15.7	61.5	63.6		63.5	66.2	
Progression Factor	1.25	0.39	0.07	0.72	0.44	0.20	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	174.6	0.0	104.7	4.3	0.2	199.2	43.9		252.2	171.9	
Delay (s)	51.6	184.8	0.7	149.3	16.5	3.3	260.7	107.5		315.7	238.2	
Level of Service	D	F	A	F	B	A	F	F		F	F	
Approach Delay (s)		167.0			25.5			210.7			289.3	
Approach LOS		F			C			F			F	

### Intersection Summary

HCM Average Control Delay	133.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	124.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 18: US 50 WB #3 & 27 3/4 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗		↖			↕	↘
Volume (vph)	0	0	0	0	434	53	8	140	0	0	125	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0	6.0		6.0			6.0	
Lane Util. Factor					0.95	1.00		1.00			1.00	
Fr <sub>t</sub>					1.00	0.85		1.00			0.94	
Fl <sub>t</sub> Protected					1.00	1.00		1.00			1.00	
Satd. Flow (prot)					3438	1538		1805			1708	
Fl <sub>t</sub> Permitted					1.00	1.00		0.35			1.00	
Satd. Flow (perm)					3438	1538		624			1708	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	274%	274%	274%	274%	274%	274%	274%	274%	274%
Adj. Flow (vph)	0	0	0	0	1252	153	23	404	0	0	361	257
RTOR Reduction (vph)	0	0	0	0	0	94	0	0	0	0	18	0
Lane Group Flow (vph)	0	0	0	0	1252	59	0	427	0	0	600	0
Turn Type				pm+pt		Perm		Perm				
Protected Phases				5	6			1 8			4	
Permitted Phases				6		6		1 8				
Actuated Green, G (s)					54.0	54.0		58.0			33.0	
Effective Green, g (s)					54.0	54.0		58.0			33.0	
Actuated g/C Ratio					0.39	0.39		0.41			0.24	
Clearance Time (s)					6.0	6.0					6.0	
Vehicle Extension (s)					3.0	3.0					3.0	
Lane Grp Cap (vph)					1326	593		259			403	
v/s Ratio Prot					c0.36						0.35	
v/s Ratio Perm						0.04		c0.68				
v/c Ratio					0.94	0.10		1.65			1.49	
Uniform Delay, d <sub>1</sub>					41.5	27.5		41.0			53.5	
Progression Factor					0.11	0.04		2.00			1.00	
Incremental Delay, d <sub>2</sub>					1.9	0.0		307.6			232.5	
Delay (s)					6.6	1.2		389.6			286.0	
Level of Service					A	A		F			F	
Approach Delay (s)		0.0			6.0			389.6			286.0	
Approach LOS		A			A			F			F	

Intersection Summary

HCM Average Control Delay	143.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 19: US 50 EB #2 & 27 3/4 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	635	2	0	0	0	0	8	10	125	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00					1.00			1.00	
Frt	1.00	1.00	0.85					0.92			1.00	
Flt Protected	0.95	1.00	1.00					1.00			0.96	
Satd. Flow (prot)	1719	3438	1538					1673			1733	
Flt Permitted	0.95	1.00	1.00					1.00			0.55	
Satd. Flow (perm)	1719	3438	1538					1673			990	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	274%	274%	274%	100%	100%	100%	274%	274%	274%	274%	274%	274%
Adj. Flow (vph)	418	1831	6	0	0	0	0	23	29	361	46	0
RTOR Reduction (vph)	0	0	2	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	418	1831	4	0	0	0	0	30	0	0	407	0
Turn Type	pm+pt		Perm							Perm		
Protected Phases	1	2						8			4 5	
Permitted Phases	2		2							4 5		
Actuated Green, G (s)	79.0	54.0	54.0					33.0			43.0	
Effective Green, g (s)	79.0	54.0	54.0					33.0			43.0	
Actuated g/C Ratio	0.56	0.39	0.39					0.24			0.31	
Clearance Time (s)	6.0	6.0	6.0					6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0			3.0	
Lane Grp Cap (vph)	1044	1326	593					394			304	
v/s Ratio Prot	c0.07	c0.53						0.02				
v/s Ratio Perm	0.17		0.00								c0.41	
v/c Ratio	0.40	1.38	0.01					0.08			1.34	
Uniform Delay, d1	17.6	43.0	26.5					41.6			48.5	
Progression Factor	0.86	0.66	0.44					1.00			0.49	
Incremental Delay, d2	0.0	171.8	0.0					0.1			154.5	
Delay (s)	15.1	200.2	11.6					41.7			178.2	
Level of Service	B	F	B					D			F	
Approach Delay (s)		165.4			0.0			41.7			178.2	
Approach LOS		F			A			D			F	

### Intersection Summary

HCM Average Control Delay	164.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

23: US 50 WB #3 & 28 1/2 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗		↖			↘	↗
Volume (vph)	0	0	0	34	1457	4	32	116	0	0	14	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0		6.0			6.0	
Lane Util. Factor				1.00	0.95	1.00		1.00			1.00	
Fr <sub>t</sub>				1.00	1.00	0.85		1.00			0.93	
Fl <sub>t</sub> Protected				0.95	1.00	1.00		0.99			1.00	
Satd. Flow (prot)				1719	3438	1538		1790			1682	
Fl <sub>t</sub> Permitted				0.95	1.00	1.00		0.23			1.00	
Satd. Flow (perm)				1719	3438	1538		419			1682	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	100%	100%	131%	100%	131%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	0	0	0	47	1550	6	45	162	0	0	20	22
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	47	1550	4	0	207	0	0	23	0
Turn Type				pm+pt		Perm		Perm				
Protected Phases				5	6			1 8			4	
Permitted Phases				6		6		1 8				
Actuated Green, G (s)				61.0	57.8	57.8		55.0			18.0	
Effective Green, g (s)				61.0	57.8	57.8		55.0			18.0	
Actuated g/C Ratio				0.44	0.41	0.41		0.39			0.13	
Clearance Time (s)				6.0	6.0	6.0					6.0	
Vehicle Extension (s)				3.0	3.0	3.0					3.0	
Lane Grp Cap (vph)				749	1419	635		165			216	
v/s Ratio Prot				c0.00	c0.45						0.01	
v/s Ratio Perm				0.03		0.00		c0.49				
v/c Ratio				0.06	1.09	0.01		1.25			0.11	
Uniform Delay, d1				22.9	41.1	24.2		42.5			53.9	
Progression Factor				0.82	0.76	0.45		1.50			1.00	
Incremental Delay, d2				0.0	42.9	0.0		154.1			0.2	
Delay (s)				18.7	74.2	10.9		217.9			54.1	
Level of Service				B	E	B		F			D	
Approach Delay (s)		0.0			72.4			217.9			54.1	
Approach LOS		A			E			F			D	

## Intersection Summary

HCM Average Control Delay	88.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

24: US 50 EB #2 & 28 1/2 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	96	2050	63	0	0	0	0	52	11	5	43	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0					6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00					1.00			1.00	
Frt	1.00	1.00	0.85					0.98			1.00	
Flt Protected	0.95	1.00	1.00					1.00			0.99	
Satd. Flow (prot)	1719	3438	1538					1767			1800	
Flt Permitted	0.95	1.00	1.00					1.00			0.97	
Satd. Flow (perm)	1719	3438	1538					1767			1761	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	131%	100%	131%	100%	100%	100%	131%	131%	131%	131%	131%	131%
Adj. Flow (vph)	134	2181	88	0	0	0	0	72	15	7	60	0
RTOR Reduction (vph)	0	0	26	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	134	2181	62	0	0	0	0	82	0	0	67	0
Turn Type	pm+pt		Perm							Perm		
Protected Phases	1	2						8			4 5	
Permitted Phases	2		2							4 5		
Actuated Green, G (s)	94.8	57.8	57.8					18.0			27.2	
Effective Green, g (s)	94.8	57.8	57.8					18.0			27.2	
Actuated g/C Ratio	0.68	0.41	0.41					0.13			0.19	
Clearance Time (s)	6.0	6.0	6.0					6.0				
Vehicle Extension (s)	3.0	3.0	3.0					3.0				
Lane Grp Cap (vph)	1238	1419	635					227			342	
v/s Ratio Prot	c0.03	c0.63						c0.05				
v/s Ratio Perm	0.05		0.04								c0.04	
v/c Ratio	0.11	1.54	0.10					0.36			0.20	
Uniform Delay, d1	7.9	41.1	25.1					55.7			47.2	
Progression Factor	0.88	0.75	0.34					1.00			1.31	
Incremental Delay, d2	0.0	242.0	0.0					1.0			0.3	
Delay (s)	7.0	272.8	8.5					56.7			61.9	
Level of Service	A	F	A					E			E	
Approach Delay (s)		248.3			0.0			56.7			61.9	
Approach LOS		F			A			E			E	

## Intersection Summary

HCM Average Control Delay	236.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 29: US 50 WB #3 & 29 Rd

11/5/2008



Movement	WBT	WBR	SBT	SBR2	NEL
Lane Configurations	↑↑	↑	↑↑	↑	↑↑
Volume (vph)	1330	374	486	558	609
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.95	1.00	0.95	1.00	0.97
Frt	1.00	0.85	1.00	0.85	1.00
Flt Protected	1.00	1.00	1.00	1.00	0.95
Satd. Flow (prot)	3438	1538	3438	1538	3335
Flt Permitted	1.00	1.00	1.00	1.00	0.95
Satd. Flow (perm)	3438	1538	3438	1538	3335
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1430	402	523	600	655
RTOR Reduction (vph)	0	1	0	79	0
Lane Group Flow (vph)	1430	401	523	521	655
Turn Type	custom		Perm		
Protected Phases	6		4		5
Permitted Phases		4 6		4	
Actuated Green, G (s)	55.0	104.5	40.5	40.5	23.0
Effective Green, g (s)	55.0	95.5	40.5	40.5	23.0
Actuated g/C Ratio	0.39	0.68	0.29	0.29	0.16
Clearance Time (s)	9.0		6.5	6.5	6.0
Vehicle Extension (s)	4.0		6.0	6.0	2.0
Lane Grp Cap (vph)	1351	1049	995	445	548
v/s Ratio Prot	c0.42		0.15		c0.20
v/s Ratio Perm		0.26		c0.34	
v/c Ratio	1.06	0.38	0.53	1.17	1.20
Uniform Delay, d1	42.5	9.6	41.7	49.7	58.5
Progression Factor	0.88	0.35	1.00	1.00	1.25
Incremental Delay, d2	35.4	0.3	1.3	98.6	89.6
Delay (s)	73.0	3.7	43.0	148.3	162.9
Level of Service	E	A	D	F	F
Approach Delay (s)	57.8		99.3		162.9
Approach LOS	E		F		F

### Intersection Summary

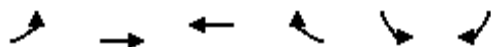
HCM Average Control Delay	89.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



# HCM Signalized Intersection Capacity Analysis

30: US 50 EB #2 & 29 Rd

11/5/2008

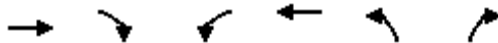


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↑↑	
Volume (vph)	0	1838	0	0	486	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.5	
Lane Util. Factor		0.95			0.97	
Fr <sub>t</sub>		1.00			1.00	
Fl <sub>t</sub> Protected		1.00			0.95	
Satd. Flow (prot)		3438			3335	
Fl <sub>t</sub> Permitted		1.00			0.95	
Satd. Flow (perm)		3438			3335	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	1976	0	0	523	0
RTOR Reduction (vph)	0	0	0	0	19	0
Lane Group Flow (vph)	0	1976	0	0	504	0
Turn Type						
Protected Phases		2			4	
Permitted Phases						
Actuated Green, G (s)		87.0			40.5	
Effective Green, g (s)		87.0			40.5	
Actuated g/C Ratio		0.62			0.29	
Clearance Time (s)		6.0			6.5	
Vehicle Extension (s)		3.0			6.0	
Lane Grp Cap (vph)		2136			965	
v/s Ratio Prot		c0.57			c0.15	
v/s Ratio Perm						
v/c Ratio		0.93			0.52	
Uniform Delay, d <sub>1</sub>		23.6			41.6	
Progression Factor		0.36			0.02	
Incremental Delay, d <sub>2</sub>		0.9			1.1	
Delay (s)		9.5			1.8	
Level of Service		A			A	
Approach Delay (s)		9.5	0.0		1.8	
Approach LOS		A	A		A	
<b>Intersection Summary</b>						
HCM Average Control Delay			7.9		HCM Level of Service	A
HCM Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	12.5
Intersection Capacity Utilization			75.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Signalized Intersection Capacity Analysis

## 31: US 50 WB #3 & Sundance Dr

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Volume (vph)	0	0	0	1900	210	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	
Lane Util. Factor				0.95	0.97	
Flt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3438	3335	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3438	3335	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	2135	236	0
RTOR Reduction (vph)	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	2135	219	0
Turn Type						
Protected Phases				6	5 8	
Permitted Phases						
Actuated Green, G (s)				95.8	32.2	
Effective Green, g (s)				95.8	32.2	
Actuated g/C Ratio				0.68	0.23	
Clearance Time (s)				6.0		
Vehicle Extension (s)				3.0		
Lane Grp Cap (vph)				2353	767	
v/s Ratio Prot				c0.62	c0.07	
v/s Ratio Perm						
v/c Ratio				0.91	0.29	
Uniform Delay, d1				18.4	44.4	
Progression Factor				0.76	0.04	
Incremental Delay, d2				3.2	0.2	
Delay (s)				17.2	1.9	
Level of Service				B	A	
Approach Delay (s)	0.0			17.2	1.9	
Approach LOS	A			B	A	

### Intersection Summary

HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 32: Sundance Dr &

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖			↖				↑↑				
Volume (vph)	23	0	0	14	0	0	0	187	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			3.5				6.0				
Lane Util. Factor	1.00			1.00				0.95				
Frt	1.00			1.00				1.00				
Flt Protected	0.95			0.95				1.00				
Satd. Flow (prot)	1719			1719				3438				
Flt Permitted	0.95			0.95				1.00				
Satd. Flow (perm)	1719			1719				3438				
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	26	0	0	16	0	0	0	210	0	0	0	0
RTOR Reduction (vph)	24	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	16	0	0	0	210	0	0	0	0
Turn Type	Prot			Prot								
Protected Phases	5			1				8				
Permitted Phases												
Actuated Green, G (s)	12.0			2.7				14.2				
Effective Green, g (s)	12.0			2.7				14.2				
Actuated g/C Ratio	0.09			0.02				0.10				
Clearance Time (s)	6.0			3.5				6.0				
Vehicle Extension (s)	3.0			3.0				3.0				
Lane Grp Cap (vph)	147			33				349				
v/s Ratio Prot	c0.00			c0.01				c0.06				
v/s Ratio Perm												
v/c Ratio	0.02			0.48				0.60				
Uniform Delay, d1	58.6			68.0				60.2				
Progression Factor	1.00			0.92				0.02				
Incremental Delay, d2	0.0			5.5				2.5				
Delay (s)	58.6			68.3				3.8				
Level of Service	E			E				A				
Approach Delay (s)		58.6			68.3			3.8			0.0	
Approach LOS		E			E			A			A	

### Intersection Summary

HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	111.1
Intersection Capacity Utilization	17.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 33: US 50 EB #2 & Sundance Dr

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑					↑↑	↑		↑	
Volume (vph)	0	2645	123	0	0	0	0	187	45	0	14	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0					6.0	6.0		3.5	
Lane Util. Factor		0.95	1.00					0.95	1.00		1.00	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3438	1538					3438	1538		1810	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3438	1538					3438	1538		1810	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	2972	138	0	0	0	0	210	51	0	16	0
RTOR Reduction (vph)	0	0	22	0	0	0	0	0	23	0	0	0
Lane Group Flow (vph)	0	2972	116	0	0	0	0	210	28	0	16	0
Turn Type		Perm						Perm		Split		
Protected Phases		2						8		1	1	
Permitted Phases			2						8			
Actuated Green, G (s)		107.6	107.6					14.2	14.2		2.7	
Effective Green, g (s)		107.6	107.6					14.2	14.2		2.7	
Actuated g/C Ratio		0.77	0.77					0.10	0.10		0.02	
Clearance Time (s)		6.0	6.0					6.0	6.0		3.5	
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)		2642	1182					349	156		35	
v/s Ratio Prot		c0.86						c0.06			c0.01	
v/s Ratio Perm			0.08					0.02				
v/c Ratio		1.12	0.10					0.60	0.18		0.46	
Uniform Delay, d1		16.2	4.1					60.2	57.6		67.9	
Progression Factor		0.61	0.67					1.00	1.00		0.09	
Incremental Delay, d2		60.4	0.1					2.9	0.5		8.9	
Delay (s)		70.3	2.8					63.1	58.1		14.8	
Level of Service		E	A					E	E		B	
Approach Delay (s)		67.3			0.0			62.1			14.8	
Approach LOS		E			A			E			B	

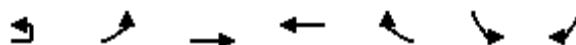
### Intersection Summary

HCM Average Control Delay	66.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

36: US 50 #4 & 29 1/2 Rd

11/5/2008



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↕↕	↕↕	↕	↕	↕
Volume (vph)	60	264	2302	1728	14	50	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
Frt		1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1719	3438	3438	1538	1719	1538
Flt Permitted		0.04	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		81	3438	3438	1538	1719	1538
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	65	290	2530	1899	15	55	235
RTOR Reduction (vph)	0	0	0	0	6	0	151
Lane Group Flow (vph)	0	355	2530	1899	9	55	84
Turn Type	custom	pm+pt			Perm		Perm
Protected Phases		5	2	6		7	
Permitted Phases	5	2			6	7	7
Actuated Green, G (s)		116.1	116.1	83.0	83.0	11.9	11.9
Effective Green, g (s)		116.1	116.1	83.0	83.0	11.9	11.9
Actuated g/C Ratio		0.83	0.83	0.59	0.59	0.08	0.08
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		384	2851	2038	912	146	131
v/s Ratio Prot		0.18	c0.74	0.55		0.03	
v/s Ratio Perm		c0.58			0.01		c0.05
v/c Ratio		0.92	0.89	0.93	0.01	0.38	0.64
Uniform Delay, d1		48.7	7.7	25.9	11.7	60.5	62.0
Progression Factor		1.07	0.90	0.59	0.67	1.00	1.00
Incremental Delay, d2		4.0	0.4	6.8	0.0	1.6	10.3
Delay (s)		56.1	7.4	22.2	7.9	62.2	72.2
Level of Service		E	A	C	A	E	E
Approach Delay (s)			13.4	22.1		70.3	
Approach LOS			B	C		E	

## Intersection Summary

HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 38: US 50 #4 & 30 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	2171	110	130	1355	113	227	0	119	137	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	6.0	4.0	5.0	5.0	5.0	6.0		5.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1538		1719	1538	
Flt Permitted	0.16	1.00	1.00	0.05	1.00	1.00	0.47	1.00		0.41	1.00	
Satd. Flow (perm)	285	3438	1538	92	3438	1538	853	1538		734	1538	
Peak-hour factor, PHF	0.96	0.96	0.92	0.92	0.96	0.96	0.92	0.92	0.92	0.96	0.92	0.96
Adj. Flow (vph)	143	2261	120	141	1411	118	247	0	129	143	0	118
RTOR Reduction (vph)	0	0	34	0	0	41	0	78	0	0	109	0
Lane Group Flow (vph)	143	2261	86	141	1411	77	247	51	0	143	9	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	92.0	91.0	91.0	90.9	90.9	90.9	16.1	10.1		16.1	10.1	
Effective Green, g (s)	92.0	91.0	91.0	90.9	90.9	90.9	16.1	10.1		16.1	10.1	
Actuated g/C Ratio	0.66	0.65	0.65	0.65	0.65	0.65	0.12	0.07		0.12	0.07	
Clearance Time (s)	5.0	6.0	6.0	4.0	5.0	5.0	5.0	6.0		5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	310	2235	1000	198	2232	999	135	111		127	111	
v/s Ratio Prot	0.04	c0.66		c0.06	0.41		c0.08	0.03		0.05	0.01	
v/s Ratio Perm	0.26		0.06	0.40		0.05	c0.13			0.08		
v/c Ratio	0.46	1.01	0.09	0.71	0.63	0.08	1.83	0.46		1.13	0.08	
Uniform Delay, d1	23.2	24.5	9.1	63.8	14.6	9.1	61.3	62.3		61.1	60.6	
Progression Factor	0.76	0.78	0.81	1.10	1.67	4.75	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	16.7	0.1	9.0	1.1	0.1	400.7	3.0		117.7	0.3	
Delay (s)	18.3	35.9	7.4	79.5	25.5	43.1	462.0	65.3		178.8	60.9	
Level of Service	B	D	A	E	C	D	F	E		F	E	
Approach Delay (s)		33.6			31.3			325.9			125.5	
Approach LOS		C			C			F			F	

### Intersection Summary

HCM Average Control Delay	60.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 39: US 50 #4 & 31 Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	2274	126	46	1400	18	126	5	46	42	5	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538		1726	1538	1719	1569	
Flt Permitted	0.12	1.00	1.00	0.04	1.00	1.00		0.70	1.00	0.49	1.00	
Satd. Flow (perm)	209	3438	1538	76	3438	1538		1269	1538	878	1569	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	109	2419	134	49	1489	19	134	5	49	45	5	39
RTOR Reduction (vph)	0	0	36	0	0	6	0	0	27	0	35	0
Lane Group Flow (vph)	109	2419	98	49	1489	13	0	139	22	45	9	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	102.8	102.8	102.8	98.0	98.0	98.0		16.0	16.0	16.0	16.0	
Effective Green, g (s)	102.8	102.8	102.8	98.0	98.0	98.0		16.0	16.0	16.0	16.0	
Actuated g/C Ratio	0.73	0.73	0.73	0.70	0.70	0.70		0.11	0.11	0.11	0.11	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	240	2524	1129	91	2407	1077		145	176	100	179	
v/s Ratio Prot	0.03	c0.70		0.01	c0.43						0.01	
v/s Ratio Perm	0.31		0.06	0.36		0.01		c0.11	0.01	0.05		
v/c Ratio	0.45	0.96	0.09	0.54	0.62	0.01		0.96	0.12	0.45	0.05	
Uniform Delay, d1	11.0	16.7	5.3	53.8	11.1	6.4		61.7	55.7	57.9	55.2	
Progression Factor	1.54	1.95	3.09	0.43	0.24	0.17		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	4.5	0.1	4.3	0.9	0.0		61.5	0.3	3.2	0.1	
Delay (s)	17.4	37.0	16.4	27.5	3.5	1.1		123.2	56.0	61.1	55.4	
Level of Service	B	D	B	C	A	A		F	E	E	E	
Approach Delay (s)		35.1			4.2			105.7			58.3	
Approach LOS		D			A			F			E	

### Intersection Summary

HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

40: US 50 #6 & 141B

11/5/2008



Movement	WBT	WBR	NBT	SBL	SBR
Lane Configurations	↑↑	↑	↑↑	↑	↑
Volume (vph)	1180	231	59	233	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	5.6	5.6
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3438	1538	3438	1719	1538
Flt Permitted	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3438	1538	3438	1719	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	242%	242%	242%	242%
Adj. Flow (vph)	1216	576	147	581	324
RTOR Reduction (vph)	0	242	0	0	94
Lane Group Flow (vph)	1216	334	147	581	230
Turn Type		Perm		Prot	custom
Protected Phases	6		5	4	
Permitted Phases		6	5		4
Actuated Green, G (s)	62.0	62.0	8.0	52.4	52.4
Effective Green, g (s)	62.0	62.0	8.0	52.4	52.4
Actuated g/C Ratio	0.44	0.44	0.06	0.37	0.37
Clearance Time (s)	6.0	6.0	6.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1523	681	196	643	576
v/s Ratio Prot	c0.35		c0.04	c0.34	
v/s Ratio Perm		0.22			0.15
v/c Ratio	0.80	0.49	0.75	0.90	0.40
Uniform Delay, d1	33.6	27.7	65.0	41.4	32.2
Progression Factor	0.92	0.65	1.03	1.00	1.00
Incremental Delay, d2	4.0	2.3	7.0	16.4	0.6
Delay (s)	34.9	20.2	74.2	57.8	32.8
Level of Service	C	C	E	E	C
Approach Delay (s)	30.2		74.2		
Approach LOS	C		E		

## Intersection Summary

HCM Average Control Delay	38.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



# HCM Signalized Intersection Capacity Analysis

## 41: US 50 #7 & CDOT

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑↑	↓	↑
Volume (vph)	2867	13	13	1768	72	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1538	1719	4940	1719	1538
Flt Permitted	1.00	1.00	0.03	1.00	0.95	1.00
Satd. Flow (perm)	3438	1538	62	4940	1719	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3186	14	14	1964	80	10
RTOR Reduction (vph)	0	2	0	0	0	5
Lane Group Flow (vph)	3186	12	14	1964	80	5
Turn Type		Perm	Perm			Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	117.3	117.3	117.3	117.3	11.7	11.7
Effective Green, g (s)	117.3	117.3	117.3	117.3	11.7	11.7
Actuated g/C Ratio	0.84	0.84	0.84	0.84	0.08	0.08
Clearance Time (s)	6.0	6.0	6.0	6.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2881	1289	52	4139	144	129
v/s Ratio Prot	c0.93			0.40	c0.05	
v/s Ratio Perm		0.01	0.23			0.00
v/c Ratio	1.11	0.01	0.27	0.47	0.56	0.04
Uniform Delay, d1	11.4	1.9	2.4	3.1	61.7	59.0
Progression Factor	1.87	1.10	1.00	1.00	1.00	1.00
Incremental Delay, d2	51.5	0.0	12.3	0.4	4.6	0.1
Delay (s)	72.7	2.0	14.7	3.4	66.2	59.1
Level of Service	E	A	B	A	E	E
Approach Delay (s)	72.4			3.5	65.4	
Approach LOS	E			A	E	

### Intersection Summary

HCM Average Control Delay	46.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 42: US 50 #7 & Willow Bend Rd

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖		↕			↕	
Volume (vph)	0	2863	34	0	1977	9	13	0	4	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0		6.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		1.00				
Frt		1.00	0.85		1.00	0.85		0.97				
Flt Protected		1.00	1.00		1.00	1.00		0.96				
Satd. Flow (prot)		3438	1538		3438	1538		1690				
Flt Permitted		1.00	1.00		1.00	1.00		0.77				
Satd. Flow (perm)		3438	1538		3438	1538		1358				
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	3146	37	0	2173	10	14	0	4	0	0	0
RTOR Reduction (vph)	0	0	5	0	0	1	0	4	0	0	0	0
Lane Group Flow (vph)	0	3146	32	0	2173	9	0	14	0	0	0	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)		112.0	112.0		112.0	112.0		7.0				
Effective Green, g (s)		112.0	112.0		112.0	112.0		7.0				
Actuated g/C Ratio		0.85	0.85		0.85	0.85		0.05				
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0				
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0				
Lane Grp Cap (vph)		2939	1315		2939	1315		73				
v/s Ratio Prot		c0.92			0.63							
v/s Ratio Perm			0.02			0.01		c0.01				
v/c Ratio		1.07	0.02		0.74	0.01		0.19				
Uniform Delay, d1		9.5	1.4		3.7	1.4		59.3				
Progression Factor		1.00	1.00		1.00	1.00		1.00				
Incremental Delay, d2		39.2	0.0		1.0	0.0		1.3				
Delay (s)		48.7	1.4		4.7	1.4		60.6				
Level of Service		D	A		A	A		E				
Approach Delay (s)		48.2			4.7			60.6			0.0	
Approach LOS		D			A			E			A	

### Intersection Summary

HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	131.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 43: US 50 #7 & Whitewater Frontage Road

11/5/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔	↕		↔	↕			↕			↕	
Volume (vph)	0	2854	51	13	1964	9	68	0	61	10	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			5.0			5.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frt		1.00		1.00	1.00			0.94			0.96	
Flt Protected		1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)		3429		1719	3436			1651			1700	
Flt Permitted		1.00		0.04	1.00			0.83			0.88	
Satd. Flow (perm)		3429		64	3436			1408			1517	
Peak-hour factor, PHF	0.92	0.91	0.92	0.92	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3136	55	14	2158	10	74	0	66	11	11	11
RTOR Reduction (vph)	0	1	0	0	0	0	0	4	0	0	10	0
Lane Group Flow (vph)	0	3190	0	14	2168	0	0	136	0	0	23	0
Turn Type	pm+pt			D.Pm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)		112.5		112.5	112.5			16.5			16.5	
Effective Green, g (s)		112.5		112.5	112.5			16.5			16.5	
Actuated g/C Ratio		0.80		0.80	0.80			0.12			0.12	
Clearance Time (s)		6.0		6.0	6.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		2755		51	2761			166			179	
v/s Ratio Prot		c0.93			0.63							
v/s Ratio Perm				0.22				c0.10			0.02	
v/c Ratio		1.16		0.27	0.79			0.82			0.13	
Uniform Delay, d1		13.7		3.5	7.3			60.3			55.3	
Progression Factor		1.00		1.07	0.92			1.00			1.00	
Incremental Delay, d2		75.6		1.8	1.0			34.9			1.5	
Delay (s)		89.3		5.6	7.7			95.2			56.8	
Level of Service		F		A	A			F			E	
Approach Delay (s)		89.3			7.7			95.2			56.8	
Approach LOS		F			A			F			E	

### Intersection Summary

HCM Average Control Delay	57.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 44: US 50 #7 & 3rd St

11/5/2008



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑	↖↗	↗	↖	↗
Volume (vph)	350	2616	1934	30	25	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3335	3438	3438	1538	1719	1538
Flt Permitted	0.06	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	205	3438	3438	1538	1719	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	361	2697	1994	31	26	132
RTOR Reduction (vph)	0	0	0	7	0	124
Lane Group Flow (vph)	361	2697	1994	24	26	8
Turn Type	pm+pt			Perm		custom
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	119.8	119.8	101.8	101.8	8.2	8.2
Effective Green, g (s)	119.8	119.8	101.8	101.8	8.2	8.2
Actuated g/C Ratio	0.86	0.86	0.73	0.73	0.06	0.06
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	444	2942	2500	1118	101	90
v/s Ratio Prot	0.07	c0.78	0.58			
v/s Ratio Perm	0.63			0.02	c0.02	0.01
v/c Ratio	0.81	0.92	0.80	0.02	0.26	0.09
Uniform Delay, d1	33.1	6.8	12.4	5.3	63.0	62.4
Progression Factor	0.69	0.10	0.76	0.35	1.00	1.00
Incremental Delay, d2	1.1	0.6	2.0	0.0	1.4	0.4
Delay (s)	24.0	1.3	11.5	1.9	64.3	62.8
Level of Service	C	A	B	A	E	E
Approach Delay (s)		4.0	11.4		63.0	
Approach LOS		A	B		E	

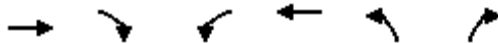
### Intersection Summary

HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 45: US 50 #7 & SH 141A

11/5/2008



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Volume (vph)	2400	67	8	1742	58	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1538	1719	3438	1719	1538
Flt Permitted	1.00	1.00	0.04	1.00	0.95	1.00
Satd. Flow (perm)	3438	1538	67	3438	1719	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (vph)	100%	279%	279%	100%	279%	279%
Adj. Flow (vph)	2526	197	23	1834	170	12
RTOR Reduction (vph)	0	53	0	0	0	11
Lane Group Flow (vph)	2526	144	23	1834	170	1
Turn Type		Perm	pm+pt			Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	102.3	102.3	110.7	110.7	17.3	17.3
Effective Green, g (s)	102.3	102.3	110.7	110.7	17.3	17.3
Actuated g/C Ratio	0.73	0.73	0.79	0.79	0.12	0.12
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2512	1124	81	2718	212	190
v/s Ratio Prot	c0.73		0.00	c0.53	c0.10	
v/s Ratio Perm		0.09	0.22			0.00
v/c Ratio	1.01	0.13	0.28	0.67	0.80	0.01
Uniform Delay, d1	18.9	5.6	61.7	6.6	59.7	53.8
Progression Factor	0.80	2.22	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	0.1	1.9	1.4	19.2	0.0
Delay (s)	27.8	12.5	63.6	7.9	78.9	53.8
Level of Service	C	B	E	A	E	D
Approach Delay (s)	26.7			8.6	77.3	
Approach LOS	C			A	E	

### Intersection Summary

HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

# Arterial LOS

Arterial Level of Service: EB US 50 #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Grand Mesa Ave	1	55.2	66.5	0.1	11
Gunnison Blvd	6	12.4	16.3	0.0	11
Santa Clara Ave	8	8.9	15.5	0.1	19
UnawEEP Ave	11	6.6	16.0	0.1	27
	121	1.0	5.5	0.1	37
James St	14	0.3	3.7	0.0	40
Green Acre 1	107	0.6	8.4	0.1	41
Elm Park	15	0.3	2.8	0.0	41
Green Acre 2	19	0.6	5.7	0.1	39
Aspen St	24	0.6	3.7	0.0	40
Palmer St	20	4.6	10.1	0.1	27
Palisade St	27	1.6	7.7	0.1	37
Linden Ave	28	1.1	10.0	0.1	39
27 Rd	32	12.2	35.5	0.3	30
Dorothy Ave	35	3.3	15.3	0.2	36
EB Off-Ramp	38	0.3	5.6	0.1	43
EB On-Ramp	40	0.4	9.4	0.1	45
Frontage Rd	43	0.7	17.0	0.2	42
US 50 EB #2	117	0.2	4.4	0.1	43
Total		110.8	259.1	1.9	28

Arterial Level of Service: WB US 50 #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Frontage Rd	43	0.7	4.7	0.1	40
WB On-Ramp	40	4.0	19.3	0.2	37
EB Off-Ramp	38	6.5	15.8	0.1	27
Dorothy Ave	35	6.4	12.5	0.1	19
27 Rd	32	39.6	51.9	0.2	11
	28	17.1	39.0	0.3	27
Palisade St	27	13.6	23.0	0.1	22
Palmer St	20	11.9	18.1	0.1	16
Aspen St	24	4.6	10.3	0.1	25
Green Acre 2	19	1.6	4.5	0.0	33
Elm Park	15	3.7	9.0	0.1	25
Green Acre 1	107	1.6	4.1	0.0	28
James St	14	8.0	15.8	0.1	22
	121	4.5	7.7	0.0	19
UnawEEP Ave	11	9.4	13.4	0.1	15
Santa Clara Ave	8	17.4	26.9	0.1	23
Gunnison Blvd	6	7.9	14.3	0.1	24
Grand Mesa Ave	1	2.3	6.7	0.0	27
Total		160.8	297.1	1.7	22

Arterial Level of Service: WB US 50 WB #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	138	75.0	83.8	0.1	7
Sundance Dr	71	24.4	30.8	0.1	9
29 Rd	68	25.6	34.0	0.1	12
Reta Dr	66	3.5	9.0	0.1	30
Elm Dr	64	1.3	16.7	0.2	41
Dee Vee Dr	62	0.1	2.0	0.0	45
Indiana St	61	0.4	4.5	0.1	45
Tennessee St	59	0.6	5.8	0.1	48
28 1/2 Rd	51	9.3	22.7	0.2	33
Fairgrounds	49	7.8	46.8	0.6	47
	127	1.6	10.3	0.1	38
27 3/4 Rd	46	41.4	51.1	0.1	10
	130	5.3	13.6	0.1	28
US 50 EB #2	117	2.1	15.2	0.2	38
<b>Total</b>		<b>198.5</b>	<b>346.4</b>	<b>2.0</b>	<b>23</b>

Arterial Level of Service: EB US 50 EB #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
27 3/4 Rd	110	15.9	37.0	0.3	25
Fairgrounds	109	4.1	22.7	0.2	37
	136	0.4	4.8	0.1	45
KOA	112	1.7	18.3	0.2	49
28 1/2 Rd	54	23.1	42.2	0.3	25
Rainbow Dr	113	5.1	14.6	0.2	40
Dee Vee Dr	115	1.6	13.8	0.2	50
Reta Dr	56	2.5	19.1	0.2	40
29 Rd	116	12.1	18.5	0.1	16
	133	5.2	9.3	0.1	27
Sundance Dr	114	6.6	11.3	0.1	18
Redrock Rd	118	3.1	12.3	0.1	33
29 1/4 Rd	119	1.9	6.9	0.1	39
US 50 WB # 3	120	1.4	13.3	0.1	40
<b>Total</b>		<b>84.7</b>	<b>244.1</b>	<b>2.2</b>	<b>33</b>



Arterial Level of Service: EB US 50 #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
29 1/2 Rd	78	1.3	10.1	0.1	46
	131	0.9	7.2	0.1	48
29 3/4 Rd	80	10.8	24.2	0.2	31
30 Rd	84	7.1	25.8	0.3	40
S Frontage Rd	85	2.9	24.4	0.3	48
	124	1.8	24.2	0.3	50
31 Rd	87	3.4	12.3	0.1	40
US 50 EB #5	134	5.0	37.2	0.5	46
Total		33.1	165.5	2.0	44

Arterial Level of Service: WB US 50 #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
31 Rd	87	12.5	43.6	0.5	40
	124	2.7	11.8	0.1	42
S Frontage Rd	85	3.8	26.2	0.3	47
30 Rd	84	7.4	29.2	0.3	41
29 3/4 Rd	80	17.9	36.3	0.3	29
	131	45.1	58.9	0.2	13
29 1/2 Rd	78	29.0	35.3	0.1	10
US 50 WB # 3	120	182.4	192.7	0.1	9
Total		300.8	434.0	2.0	25

Arterial Level of Service: WB US 50 WB #6

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
141B	90	53.8	62.1	0.1	7
US 50 EB #5	134	10.1	20.2	0.1	27
Total		63.9	82.4	0.3	12

Arterial Level of Service: EB US 50 #7

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	111	0.0	0.0	0.1	
CDOT	92	1.5	7.5	0.1	52
	122	2.2	33.9	0.5	51
	137	3.0	37.4	0.5	50
Willow Bend Rd	94	3.7	13.7	0.2	40
	132	1.6	13.8	0.2	39
3247	97	3.0	37.8	0.5	50
1st St	100	0.6	5.6	0.1	53
3rd St	102	11.8	30.3	0.3	32
SH 141A	104	4.9	15.6	0.2	40
	72	0.8	10.9	0.1	41
Total		33.2	206.3	2.7	47

Arterial Level of Service: WB US 50 #7

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	72	29.8	35.0	0.1	14
SH 141A	104	33.9	42.7	0.1	10
3rd St	102	52.0	62.9	0.2	10
1st St	100	13.5	32.0	0.3	30
3247	97	2.2	7.4	0.1	43
	132	7.1	49.3	0.5	38
Willow Bend Rd	94	7.5	17.9	0.2	30
	137	5.4	15.6	0.2	35
	122	7.5	41.8	0.5	45
CDOT	92	50.6	82.3	0.5	21
	111	30.4	36.9	0.1	9
US 50 EB #5	125	45.6	53.7	0.1	8
Total		285.6	477.6	2.8	22

Arterial Level of Service: EB US 50 EB #5

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	139	0.8	4.1	0.0	41
	140	2.4	11.9	0.1	45
US 50 #7	125	1.1	7.3	0.1	40
Total		4.3	23.4	0.3	43



Arterial Level of Service: EB US 50 #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Grand Mesa Ave	1	703.1	714.0	0.1	11
Gunnison Blvd	6	10.0	13.9	0.0	13
Santa Clara Ave	8	17.4	23.9	0.1	14
UnawEEP Ave	11	24.9	34.6	0.1	12
	121	6.2	10.7	0.1	19
James St	14	4.0	7.3	0.0	20
Green Acre 1	107	12.4	20.2	0.1	18
Elm Park	15	5.2	7.7	0.0	16
Green Acre 2	19	12.1	17.2	0.1	13
Aspen St	24	7.7	10.8	0.0	14
Palmer St	20	58.0	63.6	0.1	12
Palisade St	27	6.4	12.5	0.1	23
Linden Ave	28	90.0	98.7	0.1	14
27 Rd	32	92.5	115.9	0.3	9
Dorothy Ave	35	8.2	20.1	0.2	29
EB Off-Ramp	38	0.6	5.9	0.1	41
EB On-Ramp	40	0.5	9.6	0.1	44
Frontage Rd	43	1.1	16.9	0.2	43
US 50 EB #2	117	0.7	5.0	0.1	39
Total		1060.7	1208.6	1.9	16

Arterial Level of Service: WB US 50 #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Frontage Rd	43	0.6	4.7	0.1	41
WB On-Ramp	40	2.5	17.8	0.2	40
EB Off-Ramp	38	2.0	11.4	0.1	37
Dorothy Ave	35	1.9	8.0	0.1	31
27 Rd	32	19.5	31.5	0.2	18
B 3/4 Road	28	7.6	29.7	0.3	35
Palisade St	27	2.5	12.3	0.1	31
Palmer St	20	5.5	11.6	0.1	26
Aspen St	24	2.5	8.1	0.1	32
Green Acre 2	19	0.7	3.6	0.0	40
Elm Park	15	1.9	7.2	0.1	32
Green Acre 1	107	1.1	3.6	0.0	31
James St	14	7.5	15.3	0.1	23
	121	4.4	7.6	0.0	19
UnawEEP Ave	11	17.2	21.3	0.1	10
Santa Clara Ave	8	13.9	23.4	0.1	21
Gunnison Blvd	6	11.3	17.8	0.1	17
Grand Mesa Ave	1	3.8	8.2	0.0	24
Total		106.5	243.0	1.7	26

Arterial Level of Service: WB US 50 WB #3

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	75	5.1	15.4	0.1	34
	138	17.9	26.7	0.1	15
Sundance Dr	71	21.8	28.3	0.1	10
29 Rd	68	34.4	42.7	0.1	10
Reta Dr	66	4.3	10.0	0.1	27
Elm Dr	64	1.7	17.1	0.2	40
Dee Vee Dr	62	0.2	2.1	0.0	44
Indiana St	61	0.6	4.7	0.1	44
Tennessee St	59	0.8	5.9	0.1	47
28 1/2 Rd	51	12.5	25.8	0.2	29
Fairgrounds	49	11.1	48.9	0.6	45
	127	10.2	18.9	0.1	21
27 3/4 Rd	46	55.6	65.6	0.1	8
	130	4.7	13.1	0.1	29
US 50 EB #2	117	1.9	14.9	0.2	39
Total		182.8	340.0	2.2	24

Arterial Level of Service: EB US 50 EB #2

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
27 3/4 Rd	110	112.3	133.4	0.3	7
Fairgrounds	109	9.3	28.0	0.2	30
	136	0.7	5.1	0.1	42
KOA	112	3.4	19.8	0.2	45
28 1/2 Rd	54	17.9	36.7	0.3	30
Rainbow Dr	113	5.7	16.2	0.2	35
Dee Vee Dr	115	3.4	15.7	0.2	45
Reta Dr	56	7.0	23.0	0.2	37
29 Rd	116	8.1	14.5	0.1	20
	133	107.7	111.6	0.1	25
Sundance Dr	114	8.6	13.1	0.1	16
Redrock Rd	118	6.2	15.3	0.1	28
29 1/4 Rd	119	3.6	8.5	0.1	30
US 50 WB #3	120	3.5	15.6	0.1	34
Total		297.4	456.6	2.2	23

Arterial Level of Service: EB US 50 #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
29 1/2 Rd	78	2.8	11.6	0.1	40
	131	1.4	7.8	0.1	45
29 3/4 Rd	80	24.9	38.4	0.2	20
30 Rd	84	9.5	27.7	0.3	37
S Frontage Rd	85	4.3	26.1	0.3	46
	124	4.0	26.5	0.3	46
31 Rd	87	7.3	16.0	0.1	31
US 50 #5	134	9.6	41.6	0.5	42
Total		63.9	195.7	2.0	37

Arterial Level of Service: WB US 50 #4

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
31 Rd	87	12.4	43.6	0.5	40
	124	2.4	11.6	0.1	42
S Frontage Rd	85	2.6	24.0	0.3	51
30 Rd	84	9.6	31.2	0.3	38
29 3/4 Rd	80	16.7	35.2	0.3	29
	131	3.5	17.3	0.2	43
29 1/2 Rd	78	2.0	8.3	0.1	42
US 50 WB #3	120	1.1	11.4	0.1	40
Total		50.4	182.6	2.0	40

Arterial Level of Service: WB US 50 #6

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
141B	90	42.9	51.2	0.1	9
US 50 #5	134	8.7	18.9	0.1	28
Total		51.6	70.1	0.3	14

Arterial Level of Service: EB US 50 #7

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	111	1.7	10.2	0.1	43
CDOT	92	1.7	8.0	0.1	48
	122	3.6	34.6	0.5	49
	141	5.3	39.8	0.5	47
Willow Bend Rd	94	7.4	17.9	0.2	34
	132	3.2	15.5	0.2	35
3247	97	6.1	41.0	0.5	46
1st St	100	2.2	7.0	0.1	49
3rd St	102	6.9	25.4	0.3	38
SH 141A	104	10.9	21.9	0.2	28
	72	3.1	13.2	0.1	34
Total		52.2	234.5	2.7	42

Arterial Level of Service: WB US 50 #7

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	72	1.1	6.4	0.1	40
SH 141A	104	6.6	15.7	0.1	28
3rd St	102	11.5	22.7	0.2	27
1st St	100	8.4	26.5	0.3	37
3247	97	1.5	6.7	0.1	44
	132	5.8	48.1	0.5	39
Willow Bend Rd	94	13.4	23.9	0.2	23
	141	5.4	16.4	0.2	36
	122	5.6	40.1	0.5	47
CDOT	92	2.8	31.8	0.5	53
	111	0.6	7.2	0.1	48
US 50 #5	125	2.3	10.4	0.1	42
Total		65.1	255.9	2.8	39

Arterial Level of Service: EB US 50 #5

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	139	1.7	5.5	0.1	33
	140	3.3	12.3	0.1	41
US 50 #7	125	1.6	8.1	0.1	39
Total		6.6	25.9	0.3	39