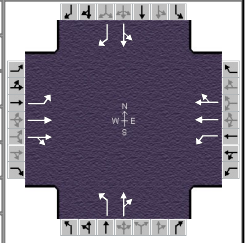


LEVEL OF SERVICE WORKSHEETS

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Del Mar Union School District			Duration, h	0.25		
Analyst	R Garland	Analysis Date	Feb 14, 2020	Area Type	Other		
Jurisdiction	City of San Diego	Time Period	AM Peak Hour	PHF	0.92		
Intersection	Carmel Mountain Rd / CanterHghts AM Exist.xus	Analysis Year	Existing 2020	Analysis Period	1 > 7:00		
File Name	CarmelMtn CanterHghts AM Exist.xus						
Project Description	Del Mar Heights School Rebuild Project						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	220	290	10	20	980	180	60	30	10	130	10	200

Signal Information				Signal Phases											
Cycle, s	83.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	Yes	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
		Green		2.0	6.0	31.6	13.7	4.7	0.0						
		Yellow		4.0	4.0	4.0	4.0	4.0	0.0						
		Red		1.0	1.0	1.0	1.0	1.0	0.0						

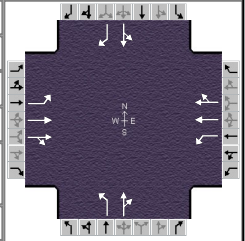
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		10.0		11.0
Phase Duration, s	18.0	47.6	7.0	36.6		9.7		18.7
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0		3.2		3.4
Queue Clearance Time (g _s), s	12.7	5.8	3.0	28.8		4.9		12.8
Green Extension Time (g _e), s	0.2	3.2	0.0	2.8		0.1		0.8
Phase Call Probability	1.00	1.00	0.40	1.00		0.92		1.00
Max Out Probability	0.02	0.00	0.00	0.17		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	239	164	162	22	647	614	65	43		152	217	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1877	1810	1900	1797	1810	1818		1816	1610	
Queue Service Time (g _s), s	10.7	3.8	3.8	1.0	26.6	26.8	2.9	1.9		6.4	10.8	
Cycle Queue Clearance Time (g _c), s	10.7	3.8	3.8	1.0	26.6	26.8	2.9	1.9		6.4	10.8	
Capacity (c), veh/h	283	976	964	43	725	685	102	103		301	267	
Volume-to-Capacity Ratio (X)	0.846	0.168	0.168	0.502	0.892	0.896	0.636	0.422		0.506	0.815	
Available Capacity (c _a), veh/h	434	1140	1127	217	912	863	434	437		872	773	
Back of Queue (Q), veh/ln (50th percentile)	4.8	1.4	1.4	0.5	12.2	11.7	1.4	0.9		2.8	4.4	
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	34.2	10.8	10.8	40.2	24.2	24.2	38.5	38.0		31.7	33.5	
Incremental Delay (d ₂), s/veh	5.6	0.0	0.0	3.3	8.2	9.0	2.4	1.0		0.5	2.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	39.8	10.8	10.8	43.5	32.3	33.2	40.9	39.0		32.1	35.9	
Level of Service (LOS)	D	B	B	D	C	C	D	D		C	D	
Approach Delay, s/veh / LOS	23.1		C	32.9		C	40.1		D	34.3		C
Intersection Delay, s/veh / LOS	31.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	1.0	A	1.5	A	0.7	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Del Mar Union School District			Duration, h	0.25
Analyst	R Garland	Analysis Date	Feb 14, 2020	Area Type	Other
Jurisdiction	City of San Diego	Time Period	AM Peak Hour	PHF	0.92
Intersection	Carmel Mountain Rd / Canter	Analysis Year	Existing plus Project	Analysis Period	1> 7:00
File Name	CarmelMtn CanterHgts AM Exist+Proj.xus				
Project Description	Del Mar Heights School Rebuild Project				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	276	290	10	20	980	210	60	30	10	156	10	247

Signal Information														
Cycle, s	101.4	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.3	11.3	37.9	19.5	5.5	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	4.0	0.0				
				Red	1.0	1.0	1.0	1.0	1.0	0.0				

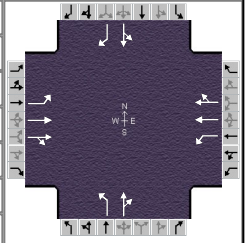
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		10.0		11.0
Phase Duration, s	23.6	59.2	7.3	42.9		10.5		24.5
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0		3.2		3.4
Queue Clearance Time (g _s), s	18.5	6.5	3.2	36.6		5.6		18.4
Green Extension Time (g _e), s	0.1	3.3	0.0	1.2		0.1		1.0
Phase Call Probability	1.00	1.00	0.46	1.00		0.95		1.00
Max Out Probability	1.00	0.00	0.00	0.92		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	300	164	162	22	665	628	65	43			180	268
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1877	1810	1900	1783	1810	1818			1815	1610
Queue Service Time (g _s), s	16.5	4.5	4.5	1.2	34.3	34.6	3.6	2.4			9.1	16.4
Cycle Queue Clearance Time (g _c), s	16.5	4.5	4.5	1.2	34.3	34.6	3.6	2.4			9.1	16.4
Capacity (c), veh/h	332	1015	1003	41	710	666	98	98			348	309
Volume-to-Capacity Ratio (X)	0.903	0.161	0.162	0.530	0.937	0.944	0.667	0.442			0.518	0.868
Available Capacity (c _a), veh/h	356	1015	1003	178	748	702	356	358			715	634
Back of Queue (Q), veh/ln (50th percentile)	9.2	1.7	1.7	0.6	18.1	17.4	1.7	1.1			4.1	6.7
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00
Uniform Delay (d ₁), s/veh	40.6	12.0	12.1	49.1	30.7	30.8	47.1	46.6			36.8	39.8
Incremental Delay (d ₂), s/veh	23.3	0.0	0.0	3.9	18.3	20.3	2.9	1.2			0.4	2.9
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (d), s/veh	63.9	12.1	12.1	53.0	49.0	51.0	50.0	47.7			37.3	42.7
Level of Service (LOS)	E	B	B	D	D	D	D	D			D	D
Approach Delay, s/veh / LOS	36.9		D	50.0		D	49.1		D	40.5		D
Intersection Delay, s/veh / LOS	45.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	1.0	A	1.6	A	0.7	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Del Mar Union School District			Duration, h	0.25		
Analyst	R Garland	Analysis Date	Feb 14, 2020	Area Type	Other		
Jurisdiction	City of San Diego	Time Period	PM Peak Hour	PHF	0.92		
Intersection	Carmel Mountain Rd / Canter	Analysis Year	Existing 2020	Analysis Period	1 > 7:00		
File Name	CarmelMtn CanterHgts PM Exist.xus						
Project Description	Del Mar Heights School Rebuild Project						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	140	450	20	10	390	100	20	10	20	80	10	180

Signal Information				Signal Phases																				
Cycle, s	45.1	Reference Phase	2																					
Offset, s	0	Reference Point	End																					
Uncoordinated	Yes	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On	Green	0.6	4.4	9.9	7.7	2.5	0.0	Yellow	4.0	0.0	4.0	4.0	4.0	0.0	Red	1.0	0.0	1.0	1.0	1.0	0.0

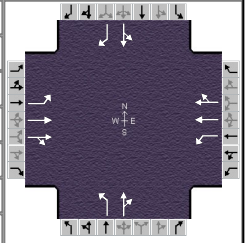
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		10.0		11.0
Phase Duration, s	10.0	19.3	5.6	14.9		7.5		12.7
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0		3.3		3.4
Queue Clearance Time (g _s), s	5.7	6.8	2.3	8.0		2.8		7.2
Green Extension Time (g _e), s	0.2	1.8	0.0	1.8		0.1		0.7
Phase Call Probability	0.85	1.00	0.13	1.00		0.49		0.97
Max Out Probability	0.00	0.00	0.00	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	152	257	254	11	274	259	22	33		98	196	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1871	1810	1900	1766	1810	1696		1819	1610	
Queue Service Time (g _s), s	3.7	4.8	4.8	0.3	5.9	6.0	0.5	0.8		2.1	5.2	
Cycle Queue Clearance Time (g _c), s	3.7	4.8	4.8	0.3	5.9	6.0	0.5	0.8		2.1	5.2	
Capacity (c), veh/h	203	603	594	26	417	388	100	94		311	275	
Volume-to-Capacity Ratio (X)	0.750	0.426	0.428	0.420	0.657	0.667	0.218	0.348		0.315	0.712	
Available Capacity (c _a), veh/h	801	2102	2070	400	1682	1563	801	751		1610	1425	
Back of Queue (Q), veh/ln (50th percentile)	1.4	1.5	1.5	0.1	2.1	2.0	0.2	0.3		0.8	1.8	
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	19.5	12.2	12.2	22.1	16.1	16.1	20.4	20.6		16.4	17.7	
Incremental Delay (d ₂), s/veh	2.1	0.2	0.2	4.0	0.7	0.7	0.4	0.8		0.2	1.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	21.6	12.4	12.4	26.1	16.8	16.9	20.8	21.4		16.6	19.0	
Level of Service (LOS)	C	B	B	C	B	B	C	C		B	B	
Approach Delay, s/veh / LOS	14.5		B	17.0		B	21.2		C	18.2		B
Intersection Delay, s/veh / LOS	16.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	1.0	A	0.9	A	0.6	A	1.0	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Del Mar Union School District			Duration, h	0.25		
Analyst	R Garland	Analysis Date	Feb 14, 2020	Area Type	Other		
Jurisdiction	City of San Diego	Time Period	PM Peak Hour	PHF	0.92		
Intersection	Carmel Mountain Rd / Canter	Analysis Year	Existing + Project	Analysis Period	1 > 7:00		
File Name	CarmelMtn CanterHgts PM Exist+Proj.xus						
Project Description	Del Mar Heights School Rebuild Project						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	165	450	20	10	390	113	20	10	20	96	10	210

Signal Information																								
Cycle, s	49.0	Reference Phase	2																					
Offset, s	0	Reference Point	End																					
Uncoordinated	Yes	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On	Green	0.7	0.7	10.7	9.3	2.6	0.0	Yellow	4.0	4.0	4.0	4.0	4.0	0.0	Red	1.0	1.0	1.0	1.0	1.0	0.0

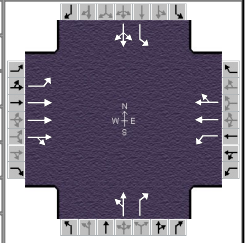
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		10.0		11.0
Phase Duration, s	11.4	21.4	5.7	15.7		7.6		14.3
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0		3.3		3.4
Queue Clearance Time (g _s), s	6.7	7.1	2.3	8.8		2.9		8.6
Green Extension Time (g _e), s	0.2	1.8	0.0	1.8		0.1		0.8
Phase Call Probability	0.91	1.00	0.14	1.00		0.52		0.99
Max Out Probability	0.00	0.00	0.00	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	179	257	254	11	282	264	22	33		115	228	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1871	1810	1900	1753	1810	1696		1818	1610	
Queue Service Time (g _s), s	4.7	5.1	5.1	0.3	6.7	6.8	0.6	0.9		2.7	6.6	
Cycle Queue Clearance Time (g _c), s	4.7	5.1	5.1	0.3	6.7	6.8	0.6	0.9		2.7	6.6	
Capacity (c), veh/h	236	636	626	26	415	383	97	91		346	306	
Volume-to-Capacity Ratio (X)	0.761	0.404	0.406	0.422	0.680	0.690	0.223	0.357		0.333	0.745	
Available Capacity (c _a), veh/h	737	1934	1904	368	1547	1428	737	691		1480	1311	
Back of Queue (Q), veh/ln (50th percentile)	1.8	1.7	1.6	0.1	2.4	2.3	0.2	0.4		1.1	2.3	
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	20.6	12.6	12.6	24.0	17.6	17.7	22.3	22.4		17.2	18.8	
Incremental Delay (d ₂), s/veh	1.9	0.2	0.2	4.0	0.7	0.8	0.4	0.9		0.2	1.4	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	22.5	12.7	12.7	28.1	18.4	18.5	22.7	23.3		17.4	20.1	
Level of Service (LOS)	C	B	B	C	B	B	C	C		B	C	
Approach Delay, s/veh / LOS	15.3		B	18.6		B	23.1		C	19.2		B
Intersection Delay, s/veh / LOS	17.5						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.3		B	2.3		B	2.8		C	2.8		C
Bicycle LOS Score / LOS	1.1		A	0.9		A	0.6		A	1.1		A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Del Mar Union School District			Duration, h	0.25		
Analyst	R Garland	Analysis Date	2/14/2020	Area Type	Other		
Jurisdiction	City of San Diego	Time Period	AM Peak Hour	PHF	0.92		
Intersection	Dell Mar Heights Rd / Mango	Analysis Year	Existing 2020	Analysis Period	1 > 7:00		
File Name	DelMarHghts Mango AM Exist.xus						
Project Description	Del Mar Heights School Rebuild Project						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	150	1060	50	40	850	180	70	40	70	280	20	80

Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	120.0	Reference Phase	2	Green	3.8	4.0	54.6	22.6	10.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	4.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	1.0	1.0	1.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On												

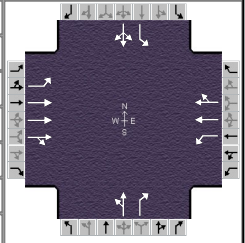
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		11.0		10.0
Phase Duration, s	17.8	68.6	8.8	59.6		15.0		27.6
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g _s), s	12.6		4.9			9.6		21.7
Green Extension Time (g _e), s	0.3	0.0	0.1	0.0		0.4		0.9
Phase Call Probability	1.00		0.77			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	163	811	396	43	577	543		120	76	304	304	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1854	1810	1900	1784		1841	1610	1810	1810	
Queue Service Time (g _s), s	10.6	15.3	15.3	2.9	28.5	28.6		7.6	5.5	19.7	19.7	
Cycle Queue Clearance Time (g _c), s	10.6	15.3	15.3	2.9	28.5	28.6		7.6	5.5	19.7	19.7	
Capacity (c), veh/h	193	2014	983	58	865	812		153	134	340	340	
Volume-to-Capacity Ratio (X)	0.843	0.402	0.403	0.753	0.667	0.668		0.779	0.567	0.894	0.894	
Available Capacity (c _a), veh/h	640	2014	983	640	865	812		574	502	679	679	
Back of Queue (Q), veh/ln (50th percentile)	4.9	6.5	6.5	1.4	13.3	12.5		3.7	2.3	9.2	9.2	
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	52.6	16.8	16.8	57.6	25.6	25.6		53.9	52.9	47.5	47.5	
Incremental Delay (d ₂), s/veh	3.8	0.6	1.2	7.2	4.1	4.3		3.2	1.4	3.4	3.4	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	56.4	17.4	18.1	64.8	29.7	29.9		57.1	54.3	50.9	50.9	
Level of Service (LOS)	E	B	B	E	C	C		E	D	D	D	
Approach Delay, s/veh / LOS	22.3		C	31.1		C		56.0	E	48.7		D
Intersection Delay, s/veh / LOS	31.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	3.2	C	3.0	C
Bicycle LOS Score / LOS	1.2	A	1.4	A	0.8	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Del Mar Union School District			Duration, h	0.25		
Analyst	R Garland	Analysis Date	2/14/2020	Area Type	Other		
Jurisdiction	City of San Diego	Time Period	AM Peak Hour	PHF	0.92		
Intersection	Dell Mar Heights Rd / Mango	Analysis Year	Existing + Project	Analysis Period	1 > 7:00		
File Name	DelMarHghts Mango AM Exist+Proj.xus						
Project Description	Del Mar Heights School Rebuild Project						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	248	1060	50	40	850	253	70	77	70	343	52	164

Signal Information				Signal Phases											
Cycle, s	120.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	3.8	11.1	40.2	27.4	12.5	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	4.0	4.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	1.0	1.0	0.0					

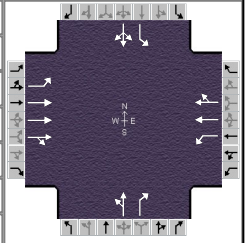
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		11.0		10.0
Phase Duration, s	24.9	61.3	8.8	45.2		17.5		32.4
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.2		3.3
Queue Clearance Time (g _s), s	19.5		4.9			12.1		26.0
Green Extension Time (g _e), s	0.4	0.0	0.1	0.0		0.4		1.3
Phase Call Probability	1.00		0.77			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	270	811	396	43	623	576		160	76	373	373	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1854	1810	1900	1750		1856	1610	1810	1810	
Queue Service Time (g _s), s	17.5	17.3	17.3	2.9	38.9	39.2		10.1	5.3	24.0	24.0	
Cycle Queue Clearance Time (g _c), s	17.5	17.3	17.3	2.9	38.9	39.2		10.1	5.3	24.0	24.0	
Capacity (c), veh/h	301	1782	869	58	636	586		194	168	413	413	
Volume-to-Capacity Ratio (X)	0.897	0.455	0.455	0.753	0.980	0.984		0.823	0.452	0.904	0.904	
Available Capacity (c _a), veh/h	529	1782	869	529	636	586		505	438	679	679	
Back of Queue (Q), veh/ln (50th percentile)	8.1	7.6	7.7	1.4	23.0	21.6		4.9	2.2	11.5	11.5	
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	49.0	21.5	21.5	57.6	39.5	39.6		52.6	50.5	45.0	45.0	
Incremental Delay (d ₂), s/veh	4.6	0.8	1.7	7.2	31.0	33.4		3.3	0.7	6.1	6.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	53.6	22.4	23.2	64.8	70.6	73.0		56.0	51.2	51.2	51.2	
Level of Service (LOS)	D	C	C	E	E	E		E	D	D	D	
Approach Delay, s/veh / LOS	28.3		C	71.5		E		54.4		D		D
Intersection Delay, s/veh / LOS	48.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	3.2	C	3.0	C
Bicycle LOS Score / LOS	1.3	A	1.5	A	0.9	A	1.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Del Mar Union School District			Duration, h	0.25		
Analyst	R Garland	Analysis Date	2/14/2020	Area Type	Other		
Jurisdiction	City of San Diego	Time Period	PM Peak Hour	PHF	0.92		
Intersection	Dell Mar Heights Rd / Mango	Analysis Year	Existing 2020	Analysis Period	1 > 7:00		
File Name	DelMarHghts Mango PM Exist.xus						
Project Description	Del Mar Heights School Rebuild Project						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	960	10	80	930	240	40	60	40	240	30	50

Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	120.0	Reference Phase	2	Green	7.4	3.2	60.7	19.6	9.1	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	4.0	0.0	4.0	4.0	4.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	0.0	1.0	1.0	1.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On												

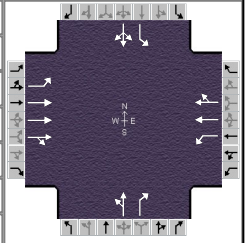
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		11.0		10.0
Phase Duration, s	15.6	68.9	12.4	65.7		14.1		24.6
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.2		3.3
Queue Clearance Time (g _s), s	10.5		7.7			8.9		18.9
Green Extension Time (g _e), s	0.2	0.0	0.1	0.0		0.3		0.7
Phase Call Probability	0.99		0.94			0.99		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	130	704	350	87	657	615		109	43	261	261		
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1889	1810	1900	1765		1863	1610	1810	1810		
Queue Service Time (g _s), s	8.5	12.8	12.8	5.7	31.4	31.7		6.9	3.1	16.9	16.9		
Cycle Queue Clearance Time (g _c), s	8.5	12.8	12.8	5.7	31.4	31.7		6.9	3.1	16.9	16.9		
Capacity (c), veh/h	160	2023	1006	111	961	893		141	122	296	296		
Volume-to-Capacity Ratio (X)	0.818	0.348	0.348	0.780	0.684	0.688		0.770	0.356	0.881	0.881		
Available Capacity (c _a), veh/h	698	2023	1006	698	961	893		627	542	679	679		
Back of Queue (Q), veh/ln (50th percentile)	4.0	5.4	5.5	2.7	14.2	13.5		3.4	1.3	8.0	8.0		
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		
Uniform Delay (d ₁), s/veh	53.8	16.1	16.1	55.5	22.4	22.5		54.4	52.7	49.0	49.0		
Incremental Delay (d ₂), s/veh	3.9	0.5	1.0	4.4	3.9	4.3		3.3	0.7	3.4	3.4		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	57.6	16.6	17.1	59.9	26.3	26.8		57.7	53.3	52.5	52.5		
Level of Service (LOS)	E	B	B	E	C	C		E	D	D	D		
Approach Delay, s/veh / LOS	21.2		C	28.7		C		56.5		E	50.5		D
Intersection Delay, s/veh / LOS	29.7						C						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	3.2	C	3.0	C
Bicycle LOS Score / LOS	1.1	A	1.6	A	0.7	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Del Mar Union School District			Duration, h	0.25		
Analyst	R Garland	Analysis Date	2/14/2020	Area Type	Other		
Jurisdiction	City of San Diego	Time Period	PM Peak Hour	PHF	0.92		
Intersection	Dell Mar Heights Rd / Mango	Analysis Year	Existing + Project	Analysis Period	1 > 7:00		
File Name	DelMarHghts Mango PM Exist+Proj.xus						
Project Description	Del Mar Heights School Rebuild Project						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	162	960	10	80	930	272	40	76	40	279	49	102

Signal Information				Signal Timing (s)									
Cycle, s	120.0	Reference Phase	2	Green	7.4	1.3	53.5	22.6	10.2	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	4.0	4.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On										

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		11.0		10.0
Phase Duration, s	18.7	64.8	12.4	58.5		15.2		27.6
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0		3.2		3.3
Queue Clearance Time (g _s), s	13.5		7.7			9.9		21.6
Green Extension Time (g _e), s	0.3	0.0	0.1	0.0		0.3		1.0
Phase Call Probability	1.00		0.94			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	176	704	350	87	677	630		126	43	303	303		
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1889	1810	1900	1752		1868	1610	1810	1810		
Queue Service Time (g _s), s	11.5	13.7	13.7	5.7	36.8	37.3		7.9	3.0	19.6	19.6		
Cycle Queue Clearance Time (g _c), s	11.5	13.7	13.7	5.7	36.8	37.3		7.9	3.0	19.6	19.6		
Capacity (c), veh/h	207	1893	941	111	847	781		159	137	341	341		
Volume-to-Capacity Ratio (X)	0.851	0.372	0.372	0.780	0.799	0.807		0.793	0.317	0.890	0.890		
Available Capacity (c _a), veh/h	636	1893	941	636	847	781		582	502	679	679		
Back of Queue (Q), veh/ln (50th percentile)	5.3	5.9	6.1	2.7	17.8	16.8		3.9	1.3	9.2	9.2		
Overflow Queue (Q ₃), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Queue Storage Ratio (RQ) (50th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		
Uniform Delay (d ₁), s/veh	52.1	18.5	18.5	55.5	28.6	28.8		53.9	51.6	47.5	47.5		
Incremental Delay (d ₂), s/veh	3.8	0.6	1.1	4.4	7.8	8.7		3.4	0.5	3.2	3.2		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	55.9	19.1	19.7	59.9	36.5	37.5		57.2	52.1	50.7	50.7		
Level of Service (LOS)	E	B	B	E	D	D		E	D	D	D		
Approach Delay, s/veh / LOS	24.5		C	38.4		D		55.9		E	48.4		D
Intersection Delay, s/veh / LOS	35.5						D						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	3.2	C	3.0	C
Bicycle LOS Score / LOS	1.2	A	1.6	A	0.8	A	1.3	A

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	R Garland				Intersection	Mango Drive / Lozana Road		
Agency/Co.	Del Mar Union School District				Jurisdiction	City of San Diego		
Date Performed	2/15/2020				Analysis Year	Existing 2020		
Analysis Time Period	AM Peak Hour							
Project ID <i>Del Mar Heights School Rebuild Project</i>								
East/West Street: <i>Lozana Road</i>					North/South Street: <i>Mango Drive</i>			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	10	40	80		90	30	10	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	80	100	110		10	80	10	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.88		0.88		0.88		0.88	
Flow Rate (veh/h)	146		147		328		112	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.1		0.7		0.3		0.1	
Prop. Right-Turns	0.6		0.1		0.4		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.4		0.1		-0.2		-0.0	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.13		0.13		0.29		0.10	
hd, final value (s)	4.88		5.31		4.67		5.08	
x, final value	0.20		0.22		0.43		0.16	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.9		3.3		2.7		3.1	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	396		397		578		362	
Delay (s/veh)	9.07		9.77		11.07		9.03	
LOS	A		A		B		A	
Approach: Delay (s/veh)	9.07		9.77		11.07		9.03	
LOS	A		A		B		A	
Intersection Delay (s/veh)	10.10							
Intersection LOS	B							

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	R Garland				Intersection	Mango Drive / Lozana Road		
Agency/Co.	Del Mar Union School District				Jurisdiction	City of San Diego		
Date Performed	2/15/2020				Analysis Year	Existing + Project		
Analysis Time Period	AM Peak Hour							
Project ID <i>Del Mar Heights School Rebuild Project</i>								
East/West Street: <i>Lozana Road</i>					North/South Street: <i>Mango Drive</i>			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	10	64	80		269	51	20	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	80	100	318		22	80	10	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.88		0.88		0.88		0.88	
Flow Rate (veh/h)	173		384		564		126	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.1		0.8		0.2		0.2	
Prop. Right-Turns	0.5		0.1		0.6		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.3		0.1		-0.4		-0.0	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.15		0.34		0.50		0.11	
hd, final value (s)	6.78		6.62		5.76		7.10	
x, final value	0.33		0.71		0.90		0.25	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	4.8		4.6		3.8		5.1	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	423		519		616		376	
Delay (s/veh)	13.02		23.95		40.01		12.43	
LOS	B		C		E		B	
Approach: Delay (s/veh)	13.02		23.95		40.01		12.43	
LOS	B		C		E		B	
Intersection Delay (s/veh)	28.53							
Intersection LOS	D							

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	R Garland				Intersection	Mango Drive / Lozana Road			
Agency/Co.	Del Mar Union School District				Jurisdiction	City of San Diego			
Date Performed	2/15/2020				Analysis Year	Existing 2020			
Analysis Time Period	PM Peak Hour								
Project ID <i>Del Mar Heights School Rebuild Project</i>									
East/West Street: <i>Lozana Road</i>					North/South Street: <i>Mango Drive</i>				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	20	10	30		50	20	10		
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	70	80	50		10	80	20		
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LTR		
PHF	0.88		0.88		0.88		0.88		
Flow Rate (veh/h)	67		89		225		123		
% Heavy Vehicles	0		0		0		0		
No. Lanes	1		1		1		1		
Geometry Group	1		1		1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.3		0.6		0.4		0.1		
Prop. Right-Turns	0.5		0.1		0.2		0.2		
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0		
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.2		0.1		-0.1		-0.1		
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20		
x, initial	0.06		0.08		0.20		0.11		
hd, final value (s)	4.58		4.84		4.35		4.45		
x, final value	0.09		0.12		0.27		0.15		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t _s (s)	2.6		2.8		2.4		2.5		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	317		339		475		373		
Delay (s/veh)	8.01		8.49		8.97		8.25		
LOS	A		A		A		A		
Approach: Delay (s/veh)	8.01		8.49		8.97		8.25		
LOS	A		A		A		A		
Intersection Delay (s/veh)	8.58								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	R Garland				Intersection	Mango Drive / Lozana Road		
Agency/Co.	Del Mar Union School District				Jurisdiction	City of San Diego		
Date Performed	2/15/2020				Analysis Year	Existing + Project		
Analysis Time Period	PM Peak Hour							
Project ID <i>Del Mar Heights School Rebuild Project</i>								
East/West Street: <i>Lozana Road</i>					North/South Street: <i>Mango Drive</i>			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	20	21	30		160	33	16	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	70	80	140		15	80	20	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.88		0.88		0.88		0.88	
Flow Rate (veh/h)	79		236		328		129	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.3		0.8		0.2		0.1	
Prop. Right-Turns	0.4		0.1		0.5		0.2	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.2		0.1		-0.2		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.07		0.21		0.29		0.11	
hd, final value (s)	5.24		5.28		4.72		5.15	
x, final value	0.11		0.35		0.43		0.18	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	3.2		3.3		2.7		3.2	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	329		486		578		379	
Delay (s/veh)	8.92		11.05		11.23		9.31	
LOS	A		B		B		A	
Approach: Delay (s/veh)	8.92		11.05		11.23		9.31	
LOS	A		B		B		A	
Intersection Delay (s/veh)	10.62							
Intersection LOS	B							