Lanes, Volumes, Timings
52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		48.0			48.0			22.0		22.0	22.0	
Actuated g/C Ratio		0.62			0.62			0.28		0.28	0.28	
v/c Ratio		0.60			0.54			0.20		0.07	0.22	
Control Delay		6.9			8.6			19.0		21.3	9.9	
Queue Delay		0.0			0.0			0.0		0.0	0.0	
Total Delay		6.9			8.6			19.0		21.3	9.9	
LOS		A			A			B		C	A	
Approach Delay		6.9			8.6			19.0			12.2	
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 78			
Actuated Cycle Length: 78			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 8.3		Intersection LOS: A	
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena

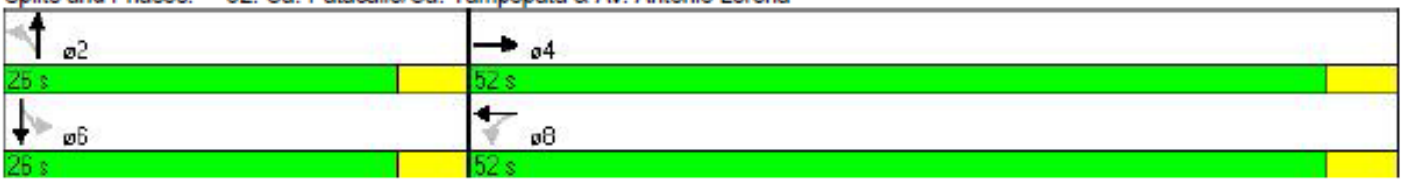


Figura 137: Reporte de Volúmenes, carriles y tiempos (Actual -2019)
Fuente: SYNCHRO

Lanes, Volumes, Timings
100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	544	5	307	17	601	0	0	435	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.3	3.3	3.3	4.5	4.5	4.5	3.6	3.6	3.6
Grade (%)		0%			9%			2%			4%	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt					0.946						0.996	
Flt Protected					0.969			0.999				
Satd. Flow (prot)	0	0	0	0	4303	0	0	2027	0	0	3455	0
Flt Permitted					0.969			0.983				
Satd. Flow (perm)	0	0	0	0	4303	0	0	1994	0	0	3455	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					149						4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		114.8			56.8			19.5			169.4	
Travel Time (s)		8.3			4.1			1.4			12.2	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	591	5	334	18	653	0	0	473	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	930	0	0	671	0	0	486	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.11	1.11	1.11	0.89	0.89	0.89	1.03	1.03	1.03
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Minimum Split (s)				20.5	20.5		20.5	20.5			20.5	
Total Split (s)				44.0	44.0		64.0	64.0			64.0	
Total Split (%)				40.7%	40.7%		59.3%	59.3%			59.3%	
Maximum Green (s)				40.0	40.0		60.0	60.0			60.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				0.0	0.0		0.0	0.0			0.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					40.0			60.0			60.0	
Actuated g/C Ratio					0.37			0.56			0.56	
v/c Ratio					0.55			0.61			0.25	
Control Delay					23.7			19.0			12.7	

Figura 138: Reporte de Volúmenes, carriles y tiempos (Actual -2019)
Fuente: SYNCHRO

Lanes, Volumes, Timings
100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0			141.1			0.0	
Total Delay					23.7			160.1			12.7	
LOS					C			F			B	
Approach Delay					23.7			160.1			12.7	
Approach LOS					C			F			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 108			
Actuated Cycle Length: 108			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 65.0		Intersection LOS: E	
Intersection Capacity Utilization 82.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau

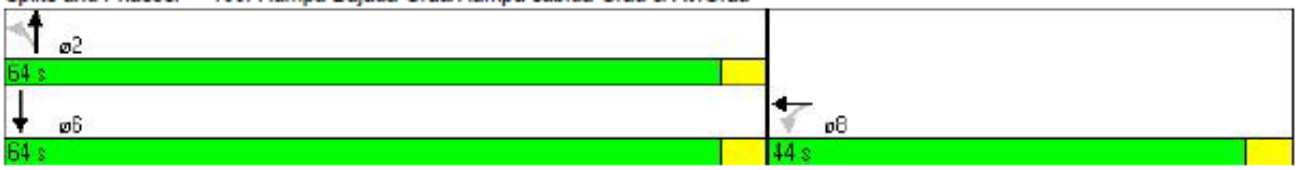


Figura 139: Reporte de Volúmenes, carriles y tiempos (Actual -2019)
Fuente: SYNCHRO

Lanes, Volumes, Timings
300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	163	0	0	0	0	629	381	226	907	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.6	3.6	3.6	3.5	3.5	3.5	4.5	4.5	4.5
Grade (%)		9%			0%			4%			2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.865					0.943				
Flt Protected											0.990	
Satd. Flow (prot)	0	0	1570	0	0	0	0	2911	0	0	1807	0
Flt Permitted											0.416	
Satd. Flow (perm)	0	0	1570	0	0	0	0	2911	0	0	759	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87					325				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		112.9			159.7			79.4			44.8	
Travel Time (s)		8.1			11.5			5.7			3.2	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	177	0	0	0	0	684	414	246	986	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	177	0	0	0	0	1098	0	0	1232	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.14	1.14	1.14	1.19	1.19	1.19	1.03	1.03	1.03
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type			custom					NA		Perm	NA	
Protected Phases								2			6	
Permitted Phases			4							6		
Minimum Split (s)			20.5					20.5		20.5	20.5	
Total Split (s)			24.0					34.0		34.0	34.0	
Total Split (%)			41.4%					58.6%		58.6%	58.6%	
Maximum Green (s)			20.0					30.0		30.0	30.0	
Yellow Time (s)			4.0					4.0		4.0	4.0	
All-Red Time (s)			0.0					0.0		0.0	0.0	
Lost Time Adjust (s)			0.0					0.0			0.0	
Total Lost Time (s)			4.0					4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)			5.0					5.0		5.0	5.0	
Flash Dont Walk (s)			11.0					11.0		11.0	11.0	
Pedestrian Calls (#/hr)			0					0		0	0	
Act Effct Green (s)			20.0					30.0			30.0	
Actuated g/C Ratio			0.34					0.52			0.52	
v/c Ratio			0.30					0.66			3.13	
Control Delay			9.1					9.2			981.8	

Figura 140: Reporte de Volúmenes, carriles y tiempos (Actual -2019)
Fuente: SYNCHRO

Lanes, Volumes, Timings
300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay			0.0					0.0			0.0	
Total Delay			9.1					9.2			981.8	
LOS			A					A			F	
Approach Delay								9.2			981.8	
Approach LOS								A			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 58			
Actuated Cycle Length: 58			
Offset: 41.5 (72%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Pretimed			
Maximum v/c Ratio: 3.13			
Intersection Signal Delay: 487.2		Intersection LOS: F	
Intersection Capacity Utilization 106.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito

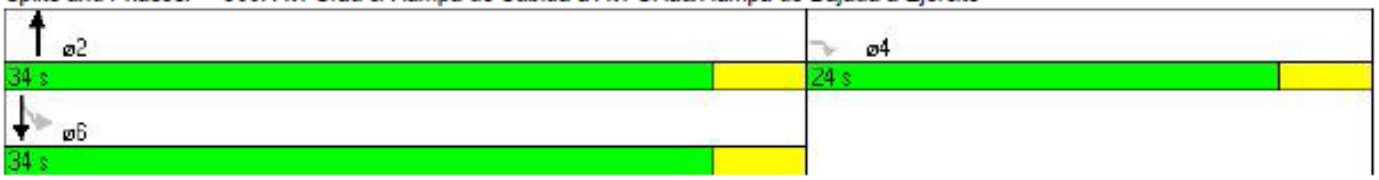


Figura 141: Reporte de Volúmenes, carriles y tiempos (Actual -2019)
Fuente: SYNCHRO

Lanes, Volumes, Timings
400: Rampa de Bajada a Ejercito & Av. Del Ejercito & Rampa subida Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SER	NEL	NER
Lane Configurations										
Volume (vph)	0	1315	0	0	1785	226	0	0	0	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00
Frt					0.983					0.865
Flt Protected										
Satd. Flow (prot)	0	3539	0	0	4999	0	0	0	0	1611
Flt Permitted										
Satd. Flow (perm)	0	3539	0	0	4999	0	0	0	0	1611
Link Speed (k/h)		50			50		50		50	
Link Distance (m)		268.1			80.7		108.8		159.7	
Travel Time (s)		19.3			5.8		7.8		11.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	1429	0	0	1940	246	0	0	0	663
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1429	0	0	2186	0	0	0	0	663
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(m)		0.0			0.0		0.0		0.0	
Link Offset(m)		0.0			0.0		0.0		0.0	
Crosswalk Width(m)		4.8			4.8		4.8		4.8	
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25	15	25	15
Sign Control		Free			Free		Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.8%		ICU Level of Service D	
Analysis Period (min) 15			

Figura 142: Reporte de Volúmenes, carriles y tiempos (Actual -2019)
Fuente: SYNCHRO

Lanes, Volumes, Timings
1: Residencia Militar/Ca. San Miguel 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1757	168	0	1730	18	0	0	5	0	0	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.9	3.9	4.8	3.6	3.6	3.6	4.8	4.8	4.8
Grade (%)		-4%			4%			0%			8%	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.998				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3110	0	0	4445	0	0	0	1450	0	0	1609
Flt Permitted												
Satd. Flow (perm)	0	3110	0	0	4445	0	0	0	1450	0	0	1609
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		80.7			78.7			88.6			55.6	
Travel Time (s)		5.8			5.7			6.4			4.0	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	4	0	0	0	0	0	0	0
Parking (#/hr)					6							
Adj. Flow (vph)	0	2311	221	0	2275	24	0	0	7	0	0	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2532	0	0	2299	0	0	0	7	0	0	204
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.13	1.20	1.00	1.14	1.14	1.14	1.03	1.03	1.03
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization	82.5%	ICU Level of Service E	
Analysis Period (min)	15		

Figura 143: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings

2: Rampa de Subida a Av. GRau & Av. Del Ejercito/Av. Del Ejercito & Rampa Bajada GRau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NWL	NWR	SWL	SWR
Lane Configurations										
Volume (vph)	0	1315	166	0	1785	0	0	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Frt		0.983								0.865
Flt Protected										
Satd. Flow (prot)	0	3131	0	0	4577	0	0	0	0	1450
Flt Permitted										
Satd. Flow (perm)	0	3131	0	0	4577	0	0	0	0	1450
Right Turn on Red			Yes			Yes				Yes
Satd. Flow (RTOR)		37								23
Link Speed (k/h)		50			50		50		50	
Link Distance (m)		250.6			268.1		112.9		114.8	
Travel Time (s)		18.0			19.3		8.1		8.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	1730	218	0	2348	0	0	0	0	16
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1948	0	0	2348	0	0	0	0	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(m)		0.0			0.0		0.0		0.0	
Link Offset(m)		0.0			0.0		0.0		0.0	
Crosswalk Width(m)		4.8			4.8		4.8		4.8	
Two way Left Turn Lane										
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (k/h)	25		15	25		15	25	15	25	15
Turn Type		NA			NA					custom
Protected Phases		4			8					
Permitted Phases										6
Minimum Split (s)		20.0			20.0					20.0
Total Split (s)		128.0			128.0					22.0
Total Split (%)		85.3%			85.3%					14.7%
Maximum Green (s)		124.0			124.0					18.0
Yellow Time (s)		3.5			3.5					3.5
All-Red Time (s)		0.5			0.5					0.5
Lost Time Adjust (s)		0.0			0.0					0.0
Total Lost Time (s)		4.0			4.0					4.0
Lead/Lag										
Lead-Lag Optimize?										
Walk Time (s)		5.0			5.0					5.0
Flash Dont Walk (s)		11.0			11.0					11.0
Pedestrian Calls (#/hr)		0			0					0
Act Effct Green (s)		124.0			124.0					18.0
Actuated g/C Ratio		0.83			0.83					0.12
v/c Ratio		0.75			0.62					0.08
Control Delay		8.1			5.5					14.7
Queue Delay		1.5			0.0					0.0

Figura 144: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
2: Rampa de Subida a Av. GRau & Av. Del Ejercito/Av. Del Ejercito & Rampa Bajada Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NWL	NWR	SWL	SWR
Total Delay		9.6			5.5					14.7
LOS		A			A					B
Approach Delay		9.6			5.5					
Approach LOS		A			A					

Intersection Summary	
Area Type:	CBD
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 147 (98%), Referenced to phase 2: and 6:SWR, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 7.4	Intersection LOS: A
Intersection Capacity Utilization 96.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Rampa de Subida a Av. GRau & Av. Del Ejercito/Av. Del Ejercito & Rampa Bajada Grau

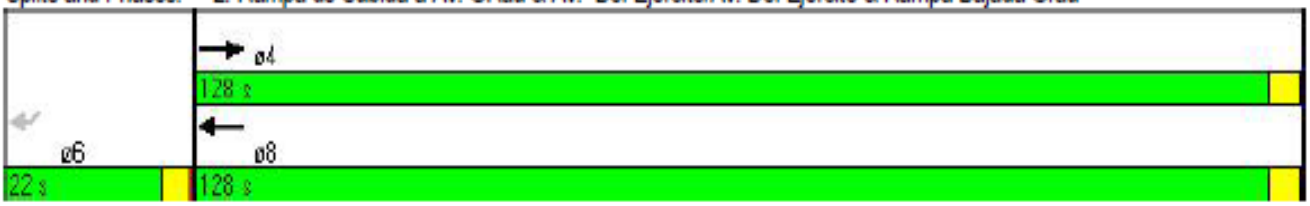


Figura 145: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
3: Prol. Ca. Pera/Ca. Pera & Av.Del Ejercito/Av. Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	870	30	240	1561	0	89	0	316	211	68	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.9	3.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Grade (%)		-4%			4%			-10%			5%	
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.895			0.978	
Flt Protected					0.993			0.989			0.969	
Satd. Flow (prot)	0	2958	0	0	4357	0	0	1457	0	0	1756	0
Flt Permitted					0.645			0.849			0.414	
Satd. Flow (perm)	0	2958	0	0	2830	0	0	1251	0	0	750	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		312.1			250.6			145.9			103.8	
Travel Time (s)		22.5			18.0			10.5			7.5	
Confl. Peds. (#/hr)	20											
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		5			12			15				
Adj. Flow (vph)	0	1144	39	316	2053	0	117	0	416	278	89	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1183	0	0	2369	0	0	533	0	0	439	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.12	1.25	1.12	1.13	1.21	1.00	0.91	1.17	0.91	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		21.5		21.5	21.5		21.5	21.5		21.5	21.5	
Total Split (s)		54.0		54.0	54.0		34.0	34.0		34.0	34.0	
Total Split (%)		61.4%		61.4%	61.4%		38.6%	38.6%		38.6%	38.6%	
Maximum Green (s)		50.0		50.0	50.0		30.0	30.0		30.0	30.0	
Yellow Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	

Figura 146: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
3: Prol. Ca. Pera/Ca. Pera & Av.Del Ejercito/Av. Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		50.0			50.0			30.0			30.0	
Actuated g/C Ratio		0.57			0.57			0.34			0.34	
v/c Ratio		0.70			2.41dl			1.25			1.71	
Control Delay		16.6			238.2			159.8			362.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.6			238.2			159.8			362.2	
LOS		B			F			F			F	
Approach Delay		16.6			238.2			159.8			362.2	
Approach LOS		B			F			F			F	

Intersection Summary	
Area Type:	CBD
Cycle Length: 88	
Actuated Cycle Length: 88	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 150	
Control Type: Pretimed	
Maximum v/c Ratio: 1.71	
Intersection Signal Delay: 183.1	Intersection LOS: F
Intersection Capacity Utilization 151.0%	ICU Level of Service H
Analysis Period (min) 15	

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 3: Prol. Ca. Pera/Ca. Pera & Av.Del Ejercito/Av. Del Ejercito

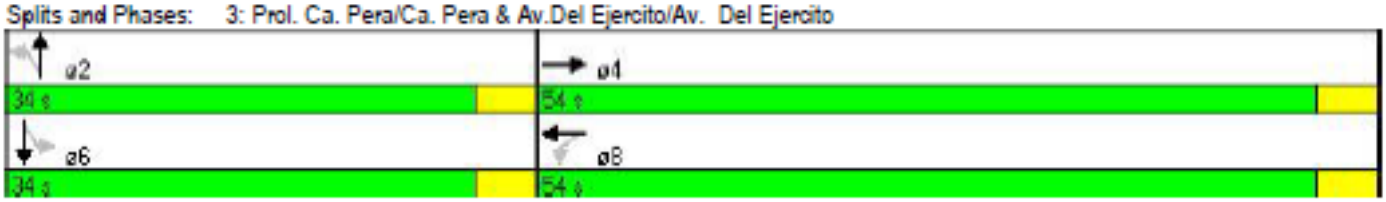


Figura 147: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

4: Ca. Los Angeles/Ca. General buendia & Av.Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	965	8	40	996	226	101	0	65	9	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.9	3.9	4.8	4.8	4.8	4.8	3.4	3.4	3.4
Grade (%)		0%			4%			-15%			-9%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		5.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.973			0.947			0.891	
Flt Protected		0.994			0.998			0.970			0.991	
Satd. Flow (prot)	0	2798	0	0	4110	0	0	1546	0	0	1513	0
Flt Permitted		0.525			0.795			0.786			0.944	
Satd. Flow (perm)	0	1478	0	0	3274	0	0	1253	0	0	1441	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.3			312.1			125.6			211.1	
Travel Time (s)		23.1			22.5			9.0			15.2	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	1%	1%	1%	5%	5%	5%	4%	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		21			16			12				
Adj. Flow (vph)	166	1269	11	53	1310	297	133	0	85	12	0	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1446	0	0	1660	0	0	218	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.14	1.35	1.14	1.13	1.22	1.00	0.89	1.11	0.89	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	44.0	44.0		44.0	44.0		29.0	29.0		29.0	29.0	
Total Split (%)	60.3%	60.3%		60.3%	60.3%		39.7%	39.7%		39.7%	39.7%	
Maximum Green (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Figura 148: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)
Fuente: SYNCHRO

Lanes, Volumes, Timings

4: Ca. Los Angeles/Ca. General buendia & Av.Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		40.0			40.0			25.0			25.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
v/c Ratio		2.37dl			0.93			0.51			0.13	
Control Delay		378.3			26.0			24.2			17.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		378.3			26.0			24.2			17.4	
LOS		F			C			C			B	
Approach Delay		378.3			26.0			24.2			17.4	
Approach LOS		F			C			C			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 73			
Actuated Cycle Length: 73			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Pretimed			
Maximum v/c Ratio: 1.79			
Intersection Signal Delay: 176.1		Intersection LOS: F	
Intersection Capacity Utilization 104.4%		ICU Level of Service G	
Analysis Period (min) 15			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			

Splits and Phases: 4: Ca. Los Angeles/Ca. General buendia & Av.Del Ejercito

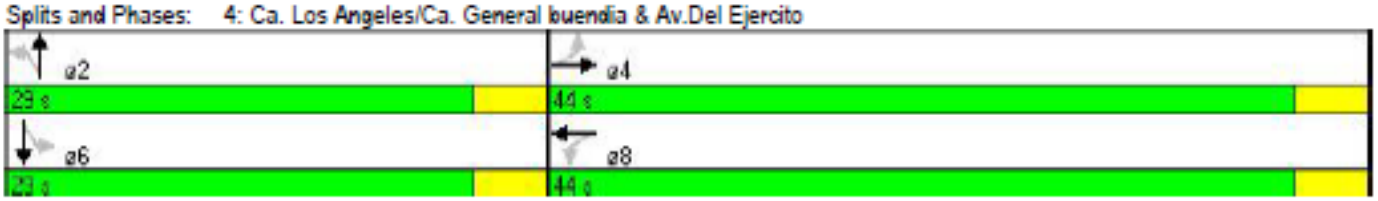


Figura 149: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
5: Rampa bajada- Almudena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	821	195	135	1109	0	25	0	275	0	28	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.5	4.5	4.5	4.5	4.5	4.5	4.8	4.8	4.8	4.8	4.8	4.8
Grade (%)		-4%			5%			-7%			-7%	
Storage Length (m)	0.0		0.0	0.0		0.0	5.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971						0.876			0.950	
Flt Protected					0.995			0.996				
Satd. Flow (prot)	0	3442	0	0	3399	0	0	1716	0	0	1906	0
Flt Permitted					0.995			0.996				
Satd. Flow (perm)	0	3442	0	0	3399	0	0	1716	0	0	1906	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.3			320.3			190.6			90.1	
Travel Time (s)		5.3			23.1			13.7			6.5	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	0	1080	256	178	1459	0	33	0	362	0	37	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1336	0	0	1637	0	0	395	0	0	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	1.00	0.99	1.05	1.05	1.05	0.93	0.93	0.93	0.93	0.93	0.93
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 126.7%		ICU Level of Service H	
Analysis Period (min) 15			

Figura 150: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
6: Prolong. Av.Ejercito/Rampa bajada- Almudena 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	20	69	5	1130	425	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.0	3.0	4.2	4.2
Grade (%)		-2%	2%		-5%	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.851		0.999	
Flt Protected		0.989			0.953	
Satd. Flow (prot)	0	3040	2555	0	1780	0
Flt Permitted		0.989			0.953	
Satd. Flow (perm)	0	3040	2555	0	1780	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		131.5	73.3		113.3	
Travel Time (s)		9.5	5.3		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%
Adj. Flow (vph)	26	91	7	1486	559	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	117	1493	0	562	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.2	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.20	1.20	1.26	1.26	1.02	1.02
Turning Speed (k/h)	25			15	25	15
Sign Control		Stop	Stop		Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 88.1%		ICU Level of Service E	
Analysis Period (min) 15			

Figura 151: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings

7: Av. Ricardo Palma & Av. Ayahuayco & Av. Nueva Alta 05/03/2020

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations										
Volume (vph)	36	18	0	1016	12	0	427	11	51	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	3.6	4.1	4.1	4.1	4.8	4.8	4.8	4.3	4.3
Grade (%)	8%			5%			-5%		-8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.954			0.998			0.997		0.927	
Flt Protected	0.968								0.978	
Satd. Flow (prot)	1890	0	0	1913	0	0	2201	0	1893	0
Flt Permitted	0.968								0.978	
Satd. Flow (perm)	1890	0	0	1913	0	0	2201	0	1893	0
Right Turn on Red		Yes			Yes			Yes		
Satd. Flow (RTOR)	24			1			2			
Link Speed (k/h)	50			50			50		50	
Link Distance (m)	182.4			229.6			100.2		455.5	
Travel Time (s)	13.1			16.5			7.2		32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	1%	1%	2%	2%	2%	0%	0%	0%	2%	2%
Adj. Flow (vph)	47	24	0	1336	16	0	562	14	67	80
Shared Lane Traffic (%)										
Lane Group Flow (vph)	71	0	0	1352	0	0	576	0	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)	4.8			0.0			0.0		4.3	
Link Offset(m)	0.0			0.0			0.0		0.0	
Crosswalk Width(m)	4.8			4.8			4.8		4.8	
Two way Left Turn Lane										
Headway Factor	0.89	1.05	0.96	0.96	0.96	0.82	0.82	0.82	0.86	0.86
Turning Speed (k/h)	25	15	25		15	25		15	25	15
Turn Type	NA			NA		Perm	NA		NA	
Protected Phases	8!			2			6		4!	
Permitted Phases						6				
Minimum Split (s)	20.5			20.5		20.5	20.5		20.5	
Total Split (s)	34.0			44.0		44.0	44.0		34.0	
Total Split (%)	43.6%			56.4%		56.4%	56.4%		43.6%	
Maximum Green (s)	30.0			40.0		40.0	40.0		30.0	
Yellow Time (s)	4.0			4.0		4.0	4.0		4.0	
All-Red Time (s)	0.0			0.0		0.0	0.0		0.0	
Lost Time Adjust (s)	0.0			0.0			0.0		0.0	
Total Lost Time (s)	4.0			4.0			4.0		4.0	
Lead/Lag										
Lead-Lag Optimize?										
Walk Time (s)	5.0			5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	11.0			11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0			0		0	0		0	
Act Effct Green (s)	30.0			40.0			40.0		30.0	
Actuated g/C Ratio	0.38			0.51			0.51		0.38	
v/c Ratio	0.10			1.38			0.51		0.20	

Figura 152: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
7: Av. Ricardo Palma & Av. Ayahuayco & Av. Nueva Alta 05/03/2020

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Control Delay	11.6			197.9			14.5		17.0	
Queue Delay	0.0			0.0			0.0		0.0	
Total Delay	11.6			197.9			14.5		17.0	
LOS	B			F			B		B	
Approach Delay	11.6			197.9			14.5		17.0	
Approach LOS	B			F			B		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 78			
Actuated Cycle Length: 78			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 130.1		Intersection LOS: F	
Intersection Capacity Utilization 87.3%		ICU Level of Service E	
Analysis Period (min) 15			

! Phase conflict between lane groups.

Splits and Phases: 7: Av. Ricardo Palma & Av. Ayahuayco & Av. Nueva Alta

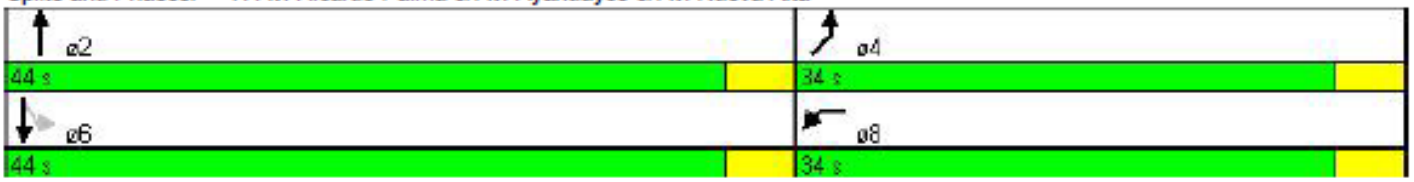


Figura 153: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings

8: Av. Antonio Lorena & Av. Ricardo Palma 05/03/2020

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	15	94	706	91	25	855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	4.8	4.8	4.8
Grade (%)	9%		5%			5%
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.884		0.983			
Flt Protected	0.993					0.999
Satd. Flow (prot)	1770	0	3449	0	0	3724
Flt Permitted	0.993					0.999
Satd. Flow (perm)	1770	0	3449	0	0	3724
Link Speed (k/h)	50		50			50
Link Distance (m)	251.3		326.6			317.4
Travel Time (s)	18.1		23.5			22.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%
Bus Blockages (#/hr)	0	0	16	16	14	14
Parking (#/hr)			2			
Adj. Flow (vph)	20	124	929	120	33	1125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	0	1049	0	0	1158
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	4.8		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	0.90	0.90	0.99	0.88	0.88	0.91
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Stop			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Figura 154: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
9: Av. Antonio Lorena & Av. Precursores 05/03/2020

Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (vph)	176	153	159	702	645	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.2	3.2	3.6	3.6
Grade (%)	9%			-5%	0%	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.937				0.972	
Flt Protected	0.974			0.991		
Satd. Flow (prot)	1624	0	0	3288	3342	0
Flt Permitted	0.974			0.991		
Satd. Flow (perm)	1624	0	0	3288	3342	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	195.6			183.6	335.1	
Travel Time (s)	14.1			13.2	24.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	4%	4%	5%	5%
Bus Blockages (#/hr)	0	0	12	12	0	0
Parking (#/hr)			6			
Adj. Flow (vph)	231	201	209	923	848	192
Shared Lane Traffic (%)						
Lane Group Flow (vph)	432	0	0	1132	1040	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.06	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

Figura 155: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

10: Av. Antonio Lorena & Ca. Almudena 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	878	829	0	275	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.1	3.1	3.4	3.4
Grade (%)		-7%	2%		6%	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.73	
Frt					0.983	
Flt Protected					0.958	
Satd. Flow (prot)	0	2862	2835	0	1476	0
Flt Permitted					0.958	
Satd. Flow (perm)	0	2862	2835	0	1080	0
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Link Speed (k/h)		50	50		50	
Link Distance (m)		123.4	184.8		293.6	
Travel Time (s)		8.9	13.3		21.1	
Confl. Peds. (#/hr)					235	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	3%	3%	2%	2%	0%	0%
Bus Blockages (#/hr)	0	0	24	0	8	8
Parking (#/hr)		13				
Adj. Flow (vph)	0	1155	1090	0	362	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1155	1090	0	415	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.16	1.29	1.32	1.24	1.27	1.22
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		NA	
Protected Phases		4	8		6	
Permitted Phases						
Minimum Split (s)		20.0	20.0		20.5	
Total Split (s)		52.0	52.0		26.0	
Total Split (%)		66.7%	66.7%		33.3%	
Maximum Green (s)		46.0	46.0		22.0	
Yellow Time (s)		4.0	4.0		4.0	
All-Red Time (s)		0.0	0.0		0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		4.0	4.0		4.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)		5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	

Figura 156: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
10: Av. Antonio Lorena & Ca. Almudena 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)		48.0	48.0		22.0	
Actuated g/C Ratio		0.62	0.62		0.28	
v/c Ratio		0.66	0.62		1.00	
Control Delay		11.9	8.4		73.9	
Queue Delay		0.0	0.0		0.0	
Total Delay		11.9	8.4		73.9	
LOS		B	A		E	
Approach Delay		11.9	8.4		73.9	
Approach LOS		B	A		E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 78			
Actuated Cycle Length: 78			
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green			
Natural Cycle: 55			
Control Type: Pretimed			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 63.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 10: Av. Antonio Lorena & Ca. Almudena

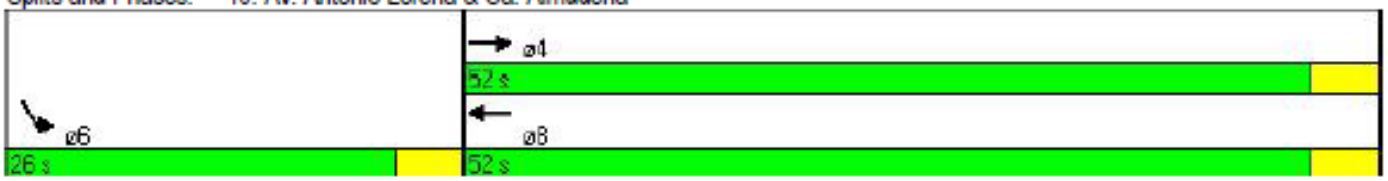


Figura 157: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
11: Ca. Jose Manuvera/Ca. Rocopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	812	57	118	573	6	162	0	158	51	203	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.0	3.0	3.0
Grade (%)		-2%			2%			9%			-4%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		5.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.999			0.933			0.963	
Flt Protected		0.999			0.992			0.975			0.993	
Satd. Flow (prot)	0	3022	0	0	2997	0	0	1424	0	0	1466	0
Flt Permitted		0.945			0.579			0.414			0.891	
Satd. Flow (perm)	0	2859	0	0	1749	0	0	605	0	0	1316	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			2			63			24	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		437.5			161.8			196.7			232.4	
Travel Time (s)		31.5			11.6			14.2			16.7	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	12	1068	75	155	754	8	213	0	208	67	267	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1155	0	0	917	0	0	421	0	0	458	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.16	1.19	1.19	1.19	1.25	1.25	1.25	1.28	1.28	1.28
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	52.0	52.0		52.0	52.0		26.0	26.0		26.0	26.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	48.0	48.0		48.0	48.0		22.0	22.0		22.0	22.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	

Figura 158: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
11: Ca. Jose Manuvera/Ca. Rocopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		48.0			48.0			22.0			22.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
v/c Ratio		0.65			0.85			1.95			1.18	
Control Delay		15.9			22.1			463.8			132.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.9			22.1			463.8			132.5	
LOS		B			C			F			F	
Approach Delay		15.9			22.1			463.8			132.5	
Approach LOS		B			C			F			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 78			
Actuated Cycle Length: 78			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 1.95			
Intersection Signal Delay: 99.8		Intersection LOS: F	
Intersection Capacity Utilization 123.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 11: Ca. Jose Manuvera/Ca. Rocopata & Av. Antonio Lorena

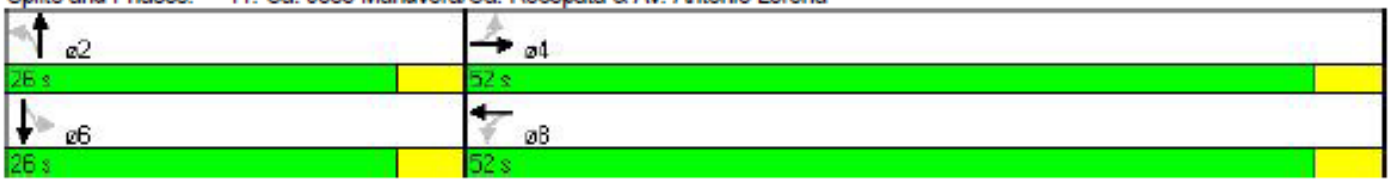


Figura 159: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
12: Av. Grau & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	0	25	5	9	6	612	955	0	5	1000	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.6	3.6	3.6	3.5	3.5	3.6
Grade (%)		-7%			4%			9%			-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Frt			0.850		0.960						0.990	
Flt Protected	0.950				0.987			0.981				
Satd. Flow (prot)	1530	0	1205	0	1517	0	0	2927	0	0	3196	0
Flt Permitted	0.950				0.987			0.981				
Satd. Flow (perm)	1530	0	1205	0	1517	0	0	2927	0	0	3196	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		224.0			69.5			152.1			376.4	
Travel Time (s)		16.1			5.0			11.0			27.1	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	4%	4%	4%	2%	2%	2%
Parking (#/hr)			4									
Adj. Flow (vph)	72	0	33	7	12	8	805	1256	0	7	1315	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	0	33	0	27	0	0	2061	0	0	1414	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.2			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.36	1.24	1.24	1.24	1.21	1.21	1.21	1.13	1.13	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 120.5%		ICU Level of Service H	
Analysis Period (min) 15			

Figura 160: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
14: 05/03/2020

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	0	315	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.983	
Flt Protected						
Satd. Flow (prot)	0	0	0	0	1831	0
Flt Permitted						
Satd. Flow (perm)	0	0	0	0	1831	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	90.1			92.9	177.5	
Travel Time (s)	6.5			6.7	12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0	414	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	473	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

Figura 161: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
23: PROL. CL. RICARDO PALMA & AV. TUPAC AMARU 05/03/2020

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	101	7	5	5	4	112	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	2.6	2.6	2.6	3.0	3.0	3.0	3.6	3.6	3.6
Grade (%)		0%			9%			-4%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.994			0.875				
Flt Protected					0.957			0.998				
Satd. Flow (prot)	0	0	0	0	1534	0	0	1580	0	0	0	0
Flt Permitted					0.957			0.998				
Satd. Flow (perm)	0	0	0	0	1534	0	0	1580	0	0	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.2			102.8			211.7			45.2	
Travel Time (s)		4.0			7.4			15.2			3.3	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	0	0	0	133	9	7	7	5	147	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	149	0	0	159	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.23	1.23	1.23	1.07	1.07	1.07	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.2%		ICU Level of Service A	
Analysis Period (min) 15			

Figura 162: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: Synchro

Lanes, Volumes, Timings
48: Rampa subida Grau

05/03/2020

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	0	0	0	630	226	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	1863	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	56.8			58.8	108.8	
Travel Time (s)	4.1			4.2	7.8	
Confl. Peds. (#/hr)			630			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	829	297	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	829	297	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

Figura 163: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	978	31	29	753	0	43	0	15	21	19	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.4	3.4	3.4	3.4	3.4	3.4	2.4	2.4	2.4	3.0	3.0	3.0
Grade (%)		-2%			2%			10%			5%	
Storage Length (m)	0.0		0.0	0.0		0.0	5.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (m)	7.5			7.5			2.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995						0.965			0.885	
Flt Protected					0.998			0.964		0.950		
Satd. Flow (prot)	0	2980	0	0	2864	0	0	1284	0	1478	1267	0
Flt Permitted					0.860			0.769		0.742		
Satd. Flow (perm)	0	2980	0	0	2468	0	0	1024	0	1155	1267	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7						20			83	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		184.8			437.5			115.6			161.4	
Travel Time (s)		13.3			31.5			8.3			11.6	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	24	0	0	0	0	0	0	0	0	20	0
Parking (#/hr)					4							
Adj. Flow (vph)	0	1286	41	38	990	0	57	0	20	28	25	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1327	0	0	1028	0	0	77	0	28	108	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.0			3.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.16	1.24	1.16	1.19	1.29	1.19	1.45	1.45	1.45	1.29	1.43	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)		52.0		52.0	52.0		26.0	26.0		26.0	26.0	
Total Split (%)		66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)		48.0		48.0	48.0		22.0	22.0		22.0	22.0	
Yellow Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0			4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Figura 164: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		48.0			48.0			22.0		22.0	22.0	
Actuated g/C Ratio		0.62			0.62			0.28		0.28	0.28	
v/c Ratio		0.72			0.68			0.25		0.09	0.26	
Control Delay		7.8			11.4			19.6		21.6	9.7	
Queue Delay		0.0			0.0			0.0		0.0	0.0	
Total Delay		7.8			11.4			19.6		21.6	9.7	
LOS		A			B			B		C	A	
Approach Delay		7.8			11.4			19.6			12.1	
Approach LOS		A			B			B			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 78			
Actuated Cycle Length: 78			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 74.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena

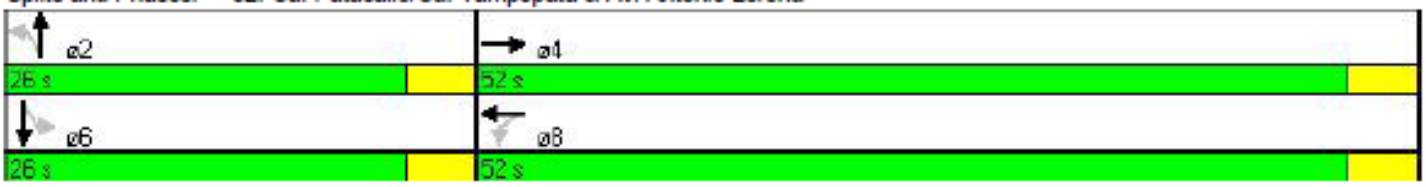


Figura 165: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	544	5	307	17	601	0	0	435	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.3	3.3	3.3	4.5	4.5	4.5	3.6	3.6	3.6
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt					0.946						0.996	
Flt Protected					0.969			0.999				
Satd. Flow (prot)	0	0	0	0	4506	0	0	2047	0	0	3525	0
Flt Permitted					0.969			0.977				
Satd. Flow (perm)	0	0	0	0	4506	0	0	2002	0	0	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					149						4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		114.8			56.8			19.5			169.4	
Travel Time (s)		8.3			4.1			1.4			12.2	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	715	7	404	22	790	0	0	572	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1126	0	0	812	0	0	588	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	0.88	0.88	0.88	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Minimum Split (s)				20.5	20.5		20.5	20.5			20.5	
Total Split (s)				44.0	44.0		64.0	64.0			64.0	
Total Split (%)				40.7%	40.7%		59.3%	59.3%			59.3%	
Maximum Green (s)				40.0	40.0		60.0	60.0			60.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				0.0	0.0		0.0	0.0			0.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					40.0			60.0			60.0	
Actuated g/C Ratio					0.37			0.56			0.56	
v/c Ratio					0.98dl			0.73			0.30	
Control Delay					26.0			22.8			13.2	

Figura 166: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0			177.6			0.0	
Total Delay					26.0			200.5			13.2	
LOS					C			F			B	
Approach Delay					26.0			200.5			13.2	
Approach LOS					C			F			B	

Intersection Summary	
Area Type:	Other
Cycle Length: 108	
Actuated Cycle Length: 108	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 55	
Control Type: Pretimed	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 79.1	Intersection LOS: E
Intersection Capacity Utilization 98.0%	ICU Level of Service F
Analysis Period (min) 15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.	

Splits and Phases: 100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau

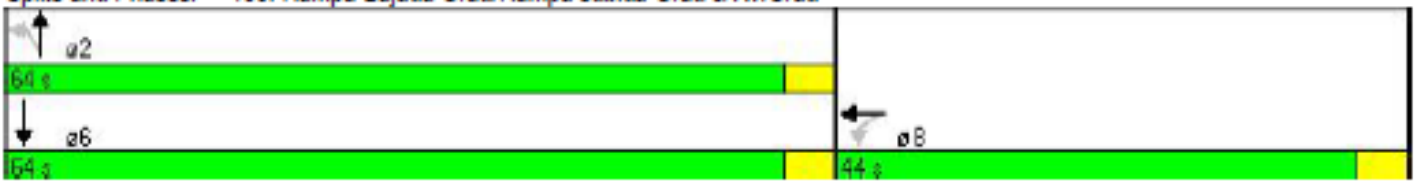


Figura 167: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	163	0	0	0	0	629	381	226	907	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.6	3.6	3.6	3.5	3.5	3.5	4.8	4.8	4.8
Grade (%)		9%			0%			4%			2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.865					0.943				
Flt Protected											0.990	
Satd. Flow (prot)	0	0	1570	0	0	0	0	2911	0	0	1862	0
Flt Permitted											0.287	
Satd. Flow (perm)	0	0	1570	0	0	0	0	2911	0	0	540	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			49					325				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		112.9			159.7			79.4			44.8	
Travel Time (s)		8.1			11.5			5.7			3.2	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	214	0	0	0	0	827	501	297	1193	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	214	0	0	0	0	1328	0	0	1490	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.14	1.14	1.14	1.19	1.19	1.19	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type			custom					NA		Perm	NA	
Protected Phases								2			6	
Permitted Phases			4							6		
Minimum Split (s)			20.5					20.5		20.5	20.5	
Total Split (s)			24.0					34.0		34.0	34.0	
Total Split (%)			41.4%					58.6%		58.6%	58.6%	
Maximum Green (s)			20.0					30.0		30.0	30.0	
Yellow Time (s)			4.0					4.0		4.0	4.0	
All-Red Time (s)			0.0					0.0		0.0	0.0	
Lost Time Adjust (s)			0.0					0.0			0.0	
Total Lost Time (s)			4.0					4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)			5.0					5.0		5.0	5.0	
Flash Dont Walk (s)			11.0					11.0		11.0	11.0	
Pedestrian Calls (#/hr)			0					0		0	0	
Act Effct Green (s)			20.0					30.0			30.0	
Actuated g/C Ratio			0.34					0.52			0.52	
v/c Ratio			0.37					0.80			5.34	

Figura 168: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay			13.2					13.2			1970.8	
Queue Delay			0.0					0.0			0.0	
Total Delay			13.2					13.2			1970.8	
LOS			B					B			F	
Approach Delay								13.2			1970.8	
Approach LOS								B			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 58			
Actuated Cycle Length: 58			
Offset: 41.5 (72%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Pretimed			
Maximum v/c Ratio: 5.34			
Intersection Signal Delay: 975.2		Intersection LOS: F	
Intersection Capacity Utilization 127.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito

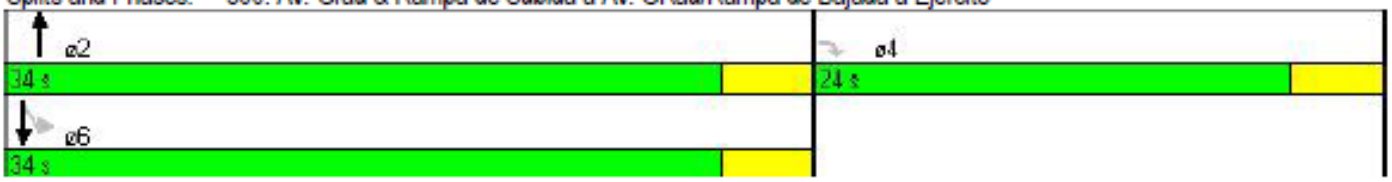


Figura 169: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

400: Rampa de Bajada a Ejercito & Av. Del Ejercito & Rampa subida Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SER	NEL	NER
Lane Configurations										
Volume (vph)	0	1315	0	0	1785	226	0	0	0	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00
Frt					0.983					0.865
Flt Protected										
Satd. Flow (prot)	0	3539	0	0	4999	0	0	0	0	1611
Flt Permitted										
Satd. Flow (perm)	0	3539	0	0	4999	0	0	0	0	1611
Link Speed (k/h)		50			50		50		50	
Link Distance (m)		268.1			80.7		108.8		159.7	
Travel Time (s)		19.3			5.8		7.8		11.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	1730	0	0	2348	297	0	0	0	802
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1730	0	0	2645	0	0	0	0	802
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(m)		0.0			0.0		0.0		0.0	
Link Offset(m)		0.0			0.0		0.0		0.0	
Crosswalk Width(m)		4.8			4.8		4.8		4.8	
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25	15	25	15
Sign Control		Free			Free		Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 96.4%		ICU Level of Service F	
Analysis Period (min) 15			

Figura 170: Reporte de volúmenes, carriles y tiempo (futuro sin proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
1: Residencia Militar/Ca. San Miguel 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1757	168	0	1730	18	0	0	5	0	0	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.9	3.9	4.8	3.6	3.6	3.6	4.8	4.8	4.8
Grade (%)		-4%			4%			0%			8%	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.998				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3110	0	0	4445	0	0	0	1450	0	0	1609
Flt Permitted												
Satd. Flow (perm)	0	3110	0	0	4445	0	0	0	1450	0	0	1609
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		80.7			78.7			88.6			55.6	
Travel Time (s)		5.8			5.7			6.4			4.0	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	4	0	0	0	0	0	0	0
Parking (#/hr)					6							
Adj. Flow (vph)	0	2311	221	0	2275	24	0	0	7	0	0	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2532	0	0	2299	0	0	0	7	0	0	204
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.13	1.20	1.00	1.14	1.14	1.14	1.03	1.03	1.03
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.5%		ICU Level of Service E	
Analysis Period (min) 15			

Figura 171: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings

2: Rampa de Subida a Av. GRau & Av. Del Ejercito/Av. Del Ejercito & Rampa Bajada GRau 25/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NWL	NWR	SWL	SWR
Lane Configurations										
Volume (vph)	0	0	166	0	0	0	0	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Frt		0.850								0.865
Flt Protected										
Satd. Flow (prot)	0	2707	0	0	4577	0	0	0	0	1450
Flt Permitted										
Satd. Flow (perm)	0	2707	0	0	4577	0	0	0	0	1450
Link Speed (k/h)		50			50		50		50	
Link Distance (m)		250.6			268.1		112.9		114.8	
Travel Time (s)		18.0			19.3		8.1		8.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	218	0	0	0	0	0	0	16
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	218	0	0	0	0	0	0	0	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(m)		0.0			0.0		0.0		0.0	
Link Offset(m)		0.0			0.0		0.0		0.0	
Crosswalk Width(m)		4.8			4.8		4.8		4.8	
Two way Left Turn Lane										
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (k/h)	25		15	25		15	25	15	25	15
Sign Control		Free			Free		Stop		Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 96.4%		ICU Level of Service F	
Analysis Period (min) 15			

Figura 172: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
3: Prol. Ca. Pera/Ca. Pera & Av.Del Ejercito/Av. Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	30	240	0	0	89	0	316	211	68	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.9	3.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Grade (%)		-4%			4%			-10%			5%	
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850						0.895			0.978	
Flt Protected					0.950			0.989			0.969	
Satd. Flow (prot)	0	2527	0	0	4168	0	0	1457	0	0	1756	0
Flt Permitted					0.730			0.813			0.535	
Satd. Flow (perm)	0	2527	0	0	3203	0	0	1198	0	0	969	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		312.1			250.6			145.9			103.8	
Travel Time (s)		22.5			18.0			10.5			7.5	
Confl. Peds. (#/hr)	20											
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		5			12			15				
Adj. Flow (vph)	0	0	39	316	0	0	117	0	416	278	89	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	0	316	0	0	533	0	0	439	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.12	1.25	1.12	1.13	1.21	1.00	0.91	1.17	0.91	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		21.5		21.5	21.5		21.5	21.5		21.5	21.5	
Total Split (s)		26.0		26.0	26.0		104.0	104.0		104.0	104.0	
Total Split (%)		20.0%		20.0%	20.0%		80.0%	80.0%		80.0%	80.0%	
Maximum Green (s)		22.0		22.0	22.0		100.0	100.0		100.0	100.0	
Yellow Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	

Figura 173: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
3: Prol. Ca. Pera/Ca. Pera & Av.Del Ejercito/Av. Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		22.0			22.0			100.0			100.0	
Actuated g/C Ratio		0.17			0.17			0.77			0.77	
v/c Ratio		0.09			1.80dl			0.58			0.59	
Control Delay		32.4			54.7			9.3			10.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		32.4			54.7			9.3			10.2	
LOS		C			D			A			B	
Approach Delay		32.4			54.7			9.3			10.2	
Approach LOS		C			D			A			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 75 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 21.1		Intersection LOS: C	
Intersection Capacity Utilization 91.5%		ICU Level of Service F	
Analysis Period (min) 15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 3: Prol. Ca. Pera/Ca. Pera & Av.Del Ejercito/Av. Del Ejercito

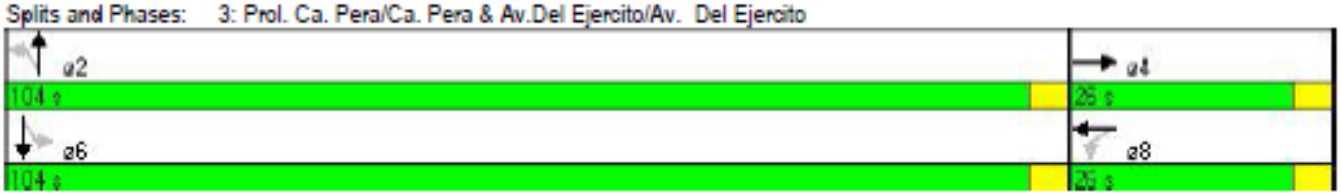


Figura 174: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
4: Ca. Los Angeles/Ca. General buendia & Av.Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	0	8	40	0	226	101	0	65	9	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.9	3.9	4.8	4.8	4.8	4.8	3.4	3.4	3.4
Grade (%)		0%			4%			-15%			-9%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		5.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.873			0.947			0.891	
Flt Protected		0.955			0.992			0.970			0.991	
Satd. Flow (prot)	0	2667	0	0	3665	0	0	1546	0	0	1513	0
Flt Permitted		0.581			0.864			0.787			0.945	
Satd. Flow (perm)	0	1622	0	0	3192	0	0	1254	0	0	1442	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.3			312.1			125.6			211.1	
Travel Time (s)		23.1			22.5			9.0			15.2	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	1%	1%	1%	5%	5%	5%	4%	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		21			16			12				
Adj. Flow (vph)	166	0	11	53	0	297	133	0	85	12	0	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	177	0	0	350	0	0	218	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.14	1.35	1.14	1.13	1.22	1.00	0.89	1.11	0.89	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	52.0	52.0		52.0	52.0		78.0	78.0		78.0	78.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	48.0	48.0		48.0	48.0		74.0	74.0		74.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Figura 175: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
4: Ca. Los Angeles/Ca. General buendia & Av.Del Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		48.0			48.0			74.0			74.0	
Actuated g/C Ratio		0.37			0.37			0.57			0.57	
v/c Ratio		0.30			0.30			0.31			0.08	
Control Delay		42.2			26.7			16.1			13.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		42.2			26.7			16.1			13.0	
LOS		D			C			B			B	
Approach Delay		42.2			26.7			16.1			13.0	
Approach LOS		D			C			B			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 45			
Control Type: Pretimed			
Maximum v/c Ratio: 0.31			
Intersection Signal Delay: 26.2		Intersection LOS: C	
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Ca. Los Angeles/Ca. General buendia & Av.Del Ejercito

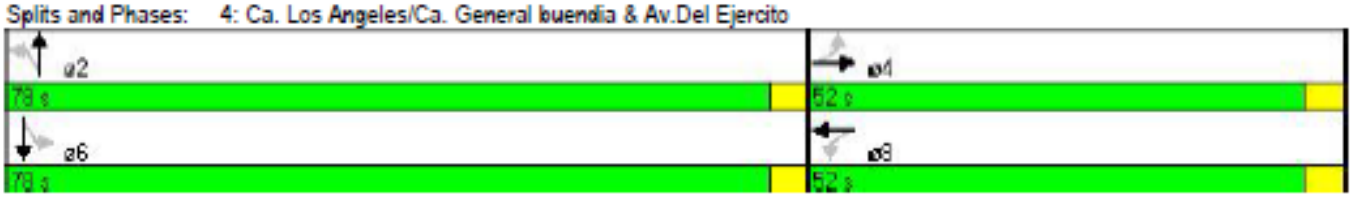


Figura 176: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
5: Rampa bajada- Almudena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	821	195	63	1109	0	25	0	275	0	28	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.5	4.5	4.5	4.5	4.5	4.5	4.8	4.8	4.8	4.8	4.8	4.8
Grade (%)		-4%			5%			-7%			-7%	
Storage Length (m)	0.0		0.0	0.0		0.0	5.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971						0.876			0.950	
Flt Protected					0.997			0.996				
Satd. Flow (prot)	0	3442	0	0	3406	0	0	1716	0	0	1906	0
Flt Permitted					0.729			0.968				
Satd. Flow (perm)	0	3442	0	0	2490	0	0	1668	0	0	1906	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86						193			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.3			320.3			190.6			90.1	
Travel Time (s)		5.3			23.1			13.7			6.5	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	4	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	0	1080	256	83	1459	0	33	0	362	0	37	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1336	0	0	1542	0	0	395	0	0	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	1.00	0.99	1.05	1.05	1.05	0.93	0.93	0.93	0.93	0.93	0.93
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type		NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2					
Minimum Split (s)		20.0		20.0	20.0		20.0	20.0			20.0	
Total Split (s)		110.0		110.0	110.0		20.0	20.0			20.0	
Total Split (%)		84.6%		84.6%	84.6%		15.4%	15.4%			15.4%	
Maximum Green (s)		106.0		106.0	106.0		16.0	16.0			16.0	
Yellow Time (s)		3.5		3.5	3.5		3.5	3.5			3.5	
All-Red Time (s)		0.5		0.5	0.5		0.5	0.5			0.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0			11.0	

Figura 177: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
5: Rampa bajada- Almudena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)		106.0			106.0			16.0			16.0	
Actuated g/C Ratio		0.82			0.82			0.12			0.12	
v/c Ratio		0.47			0.76			1.05			0.24	
Control Delay		5.3			7.5			89.0			39.4	
Queue Delay		8.6			42.2			60.0			0.0	
Total Delay		13.9			49.6			149.0			39.5	
LOS		B			D			F			D	
Approach Delay		13.9			49.6			149.0			39.5	
Approach LOS		B			D			F			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 46.9		Intersection LOS: D	
Intersection Capacity Utilization 123.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 5: Rampa bajada- Almudena

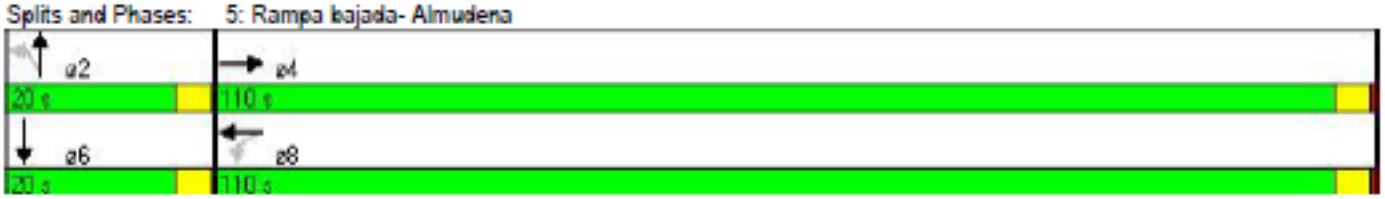


Figura 178: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
6: Prolong. Av.Ejercito/Rampa bajada- Almudena 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	20	69	1115	67	425	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.0	3.0	4.2	4.2
Grade (%)		-2%	2%		-5%	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.992		0.999	
Flt Protected		0.989			0.953	
Satd. Flow (prot)	0	3040	2978	0	1780	0
Flt Permitted		0.684			0.953	
Satd. Flow (perm)	0	2103	2978	0	1780	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			
Link Speed (k/h)		50	50		50	
Link Distance (m)		131.5	73.3		113.3	
Travel Time (s)		9.5	5.3		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%
Adj. Flow (vph)	26	91	1466	88	559	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	117	1554	0	562	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.2	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.20	1.20	1.26	1.26	1.02	1.02
Turning Speed (k/h)	25			15	25	15
Turn Type	Perm	NA	NA		NA	
Protected Phases		4	8		6	
Permitted Phases	4					
Minimum Split (s)	20.0	20.0	20.0		20.0	
Total Split (s)	77.0	77.0	77.0		53.0	
Total Split (%)	59.2%	59.2%	59.2%		40.8%	
Maximum Green (s)	73.0	73.0	73.0		49.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	
All-Red Time (s)	0.5	0.5	0.5		0.5	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		4.0	4.0		4.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	
Act Effct Green (s)		73.0	73.0		49.0	
Actuated g/C Ratio		0.56	0.56		0.38	
v/c Ratio		0.10	0.93		0.84	

Figura 179: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

6: Prolong. Av.Ejercito/Rampa bajada- Almudena 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Control Delay		13.5	28.9		49.6	
Queue Delay		0.0	41.8		21.2	
Total Delay		13.5	70.8		70.7	
LOS		B	E		E	
Approach Delay		13.5	70.8		70.7	
Approach LOS		B	E		E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 67.8		Intersection LOS: E	
Intersection Capacity Utilization 82.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Prolong. Av.Ejercito/Rampa bajada- Almudena

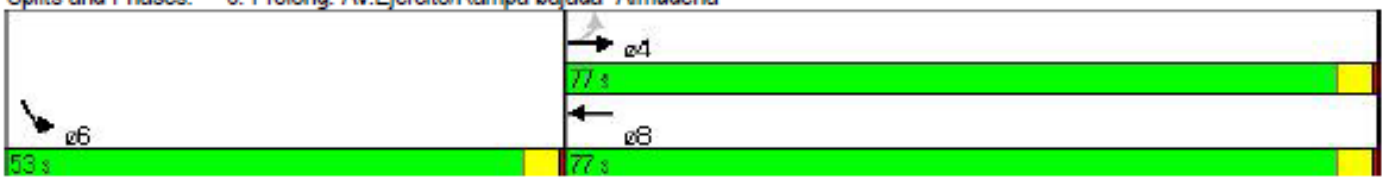


Figura 180: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

7: Av. Tupac Amaru & Av. Ayahuayco & Av. Nueva Alta 05/03/2020

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations										
Volume (vph)	36	18	0	231	12	0	427	11	25	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	3.6	4.1	4.1	4.1	4.8	4.8	4.8	4.3	4.3
Grade (%)	8%			5%			-5%		-8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.954			0.993			0.997		0.938	
Flt Protected	0.968								0.974	
Satd. Flow (prot)	1890	0	0	1904	0	0	2201	0	1908	0
Flt Permitted	0.968								0.974	
Satd. Flow (perm)	1890	0	0	1904	0	0	2201	0	1908	0
Right Turn on Red		Yes			Yes			Yes		
Satd. Flow (RTOR)	24			7			3			
Link Speed (k/h)	50			50			50		50	
Link Distance (m)	182.4			229.6			100.2		455.5	
Travel Time (s)	13.1			16.5			7.2		32.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	1%	1%	2%	2%	2%	0%	0%	0%	2%	2%
Adj. Flow (vph)	47	24	0	304	16	0	562	14	33	28
Shared Lane Traffic (%)										
Lane Group Flow (vph)	71	0	0	320	0	0	576	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)	4.8			0.0			0.0		4.3	
Link Offset(m)	0.0			0.0			0.0		0.0	
Crosswalk Width(m)	4.8			4.8			4.8		4.8	
Two way Left Turn Lane										
Headway Factor	0.89	1.05	0.96	0.96	0.96	0.82	0.82	0.82	0.86	0.86
Turning Speed (k/h)	25	15	25		15	25		15	25	15
Turn Type	NA			NA		Perm	NA		NA	
Protected Phases	8			2			6		4	
Permitted Phases						6				
Minimum Split (s)	20.5			20.5		20.5	20.5		20.5	
Total Split (s)	23.0			47.0		47.0	47.0		23.0	
Total Split (%)	32.9%			67.1%		67.1%	67.1%		32.9%	
Maximum Green (s)	19.0			43.0		43.0	43.0		19.0	
Yellow Time (s)	4.0			4.0		4.0	4.0		4.0	
All-Red Time (s)	0.0			0.0		0.0	0.0		0.0	
Lost Time Adjust (s)	0.0			0.0			0.0		0.0	
Total Lost Time (s)	4.0			4.0			4.0		4.0	
Lead/Lag										
Lead-Lag Optimize?										
Walk Time (s)	5.0			5.0		5.0	5.0		5.0	
Flash Dont Walk (s)	11.0			11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0			0		0	0		0	
Act Effct Green (s)	19.0			43.0			43.0		19.0	
Actuated g/C Ratio	0.27			0.61			0.61		0.27	
v/c Ratio	0.13			0.27			0.43		0.12	

Figura 181: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
7: Av. Tupac Amaru & Av. Ayahuayco & Av. Nueva Alta 05/03/2020

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Control Delay	14.9			6.9			8.2		20.0	
Queue Delay	0.0			0.0			0.0		0.0	
Total Delay	14.9			6.9			8.2		20.0	
LOS	B			A			A		C	
Approach Delay	14.9			6.9			8.2		20.0	
Approach LOS	B			A			A		C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 45			
Control Type: Pretimed			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 9.0		Intersection LOS: A	
Intersection Capacity Utilization 45.1%		ICU Level of Service A	
Analysis Period (min) 15			

! Phase conflict between lane groups.

Splits and Phases: 7: Av. Tupac Amaru & Av. Ayahuayco & Av. Nueva Alta

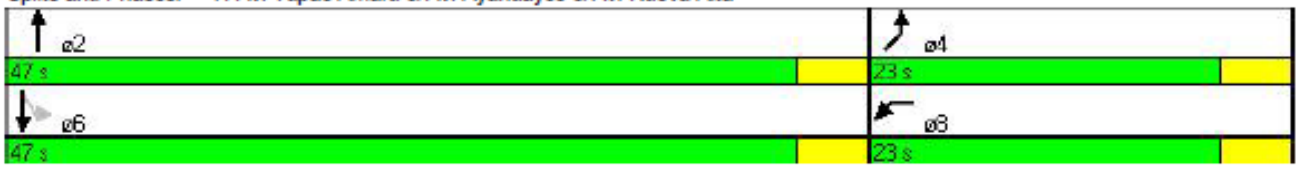


Figura 182: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
8: Av. Antonio Lorena & Av. Ricardo Palma 05/03/2020

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	15	14	1800	15	1	855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	4.8	4.8	4.8
Grade (%)	9%		5%			5%
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.936		0.999			
Flt Protected	0.974					
Satd. Flow (prot)	1838	0	3505	0	0	3728
Flt Permitted	0.974					0.873
Satd. Flow (perm)	1838	0	3505	0	0	3255
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	18		1			
Link Speed (k/h)	50		50			50
Link Distance (m)	251.3		326.6			317.4
Travel Time (s)	18.1		23.5			22.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%
Bus Blockages (#/hr)	0	0	16	16	14	14
Parking (#/hr)			2			
Adj. Flow (vph)	20	18	2367	20	1	1125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	2387	0	0	1126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	4.8		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	0.90	0.90	0.99	0.88	0.88	0.91
Turning Speed (k/h)	25	15		15	25	
Turn Type	NA		NA		Perm	NA
Protected Phases	8		4			6
Permitted Phases					6	
Minimum Split (s)	20.0		20.0		20.0	20.0
Total Split (s)	94.0		94.0		56.0	56.0
Total Split (%)	62.7%		62.7%		37.3%	37.3%
Maximum Green (s)	90.0		90.0		52.0	52.0
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	0.5		0.5		0.5	0.5
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	4.0		4.0			4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	90.0		90.0			52.0

Figura 183: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
8: Av. Antonio Lorena & Av. Ricardo Palma 05/03/2020

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Actuated g/C Ratio	0.60		0.60			0.35
v/c Ratio	0.03		1.14			1.00
Control Delay	7.7		99.6			74.8
Queue Delay	0.0		0.0			0.0
Total Delay	7.7		99.6			74.8
LOS	A		F			E
Approach Delay	7.7		99.6			74.8
Approach LOS	A		F			E

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2: and 6:SWTL, Start of Green	
Natural Cycle: 150	
Control Type: Pretimed	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 90.8	Intersection LOS: F
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

! Phase conflict between lane groups.

Splits and Phases: 8: Av. Antonio Lorena & Av. Ricardo Palma

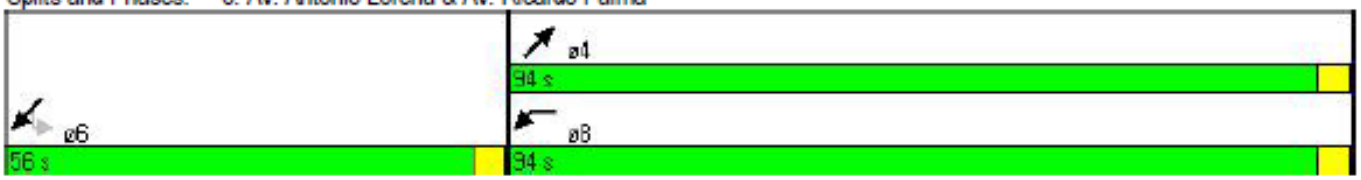


Figura 184: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
9: Av. Antonio Lorena & Av. Precursores 05/03/2020

Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (vph)	176	153	159	165	645	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.2	3.2	3.6	3.6
Grade (%)	9%			-5%	0%	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.937				0.972	
Flt Protected	0.974			0.976		
Satd. Flow (prot)	1624	0	0	3239	3342	0
Flt Permitted	0.974			0.595		
Satd. Flow (perm)	1624	0	0	1974	3342	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	86				78	
Link Speed (k/h)	50			50	50	
Link Distance (m)	195.6			183.6	335.1	
Travel Time (s)	14.1			13.2	24.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	4%	4%	5%	5%
Bus Blockages (#/hr)	0	0	12	12	0	0
Parking (#/hr)			6			
Adj. Flow (vph)	231	201	209	217	848	192
Shared Lane Traffic (%)						
Lane Group Flow (vph)	432	0	0	426	1040	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.06	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	NA		Perm	NA	NA	
Protected Phases	8			6	2	
Permitted Phases			6			
Minimum Split (s)	20.0		20.0	20.0	20.0	
Total Split (s)	21.0		24.0	24.0	24.0	
Total Split (%)	46.7%		53.3%	53.3%	53.3%	
Maximum Green (s)	17.0		20.0	20.0	20.0	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	0.5		0.5	0.5	0.5	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	4.0			4.0	4.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	5.0		5.0	5.0	5.0	
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	17.0			20.0	20.0	

Figura 185: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
9: Av. Antonio Lorena & Av. Precursores 05/03/2020

Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Actuated g/C Ratio	0.38			0.44	0.44	
v/c Ratio	0.65			1.38dl	0.68	
Control Delay	14.6			11.2	11.9	
Queue Delay	0.0			0.0	0.0	
Total Delay	14.6			11.2	11.9	
LOS	B			B	B	
Approach Delay	14.6			11.2	11.9	
Approach LOS	B			B	B	

Intersection Summary	
Area Type:	Other
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SETL, Start of Green	
Natural Cycle: 45	
Control Type: Pretimed	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 9: Av. Antonio Lorena & Av. Precursores

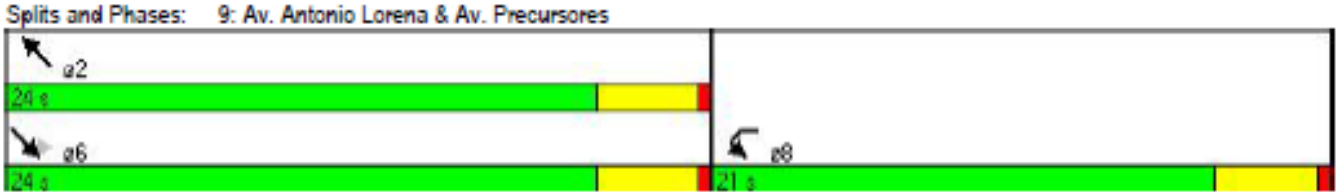


Figura 186: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
10: Av. Antonio Lorena & Ca. Almudena 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	362	829	0	275	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.1	3.1	3.4	3.4
Grade (%)		-7%	2%		6%	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.75	
Frt					0.983	
Flt Protected					0.956	
Satd. Flow (prot)	0	2862	2835	0	1478	0
Flt Permitted					0.958	
Satd. Flow (perm)	0	2862	2835	0	1109	0
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Link Speed (k/h)		50	50		50	
Link Distance (m)		123.4	184.8		293.6	
Travel Time (s)		8.9	13.3		21.1	
Confl. Peds. (#/hr)					235	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	3%	3%	2%	2%	0%	0%
Bus Blockages (#/hr)	0	0	24	0	8	8
Parking (#/hr)		13				
Adj. Flow (vph)	0	476	1090	0	362	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	476	1090	0	415	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.16	1.29	1.32	1.24	1.27	1.22
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		NA	
Protected Phases		4	8		6	
Permitted Phases						
Minimum Split (s)		20.0	20.0		20.5	
Total Split (s)		35.0	35.0		30.0	
Total Split (%)		53.8%	53.8%		46.2%	
Maximum Green (s)		31.0	31.0		26.0	
Yellow Time (s)		4.0	4.0		4.0	
All-Red Time (s)		0.0	0.0		0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		4.0	4.0		4.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)		5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	

Figura 187: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
10: Av. Antonio Lorena & Ca. Almudena 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)		31.0	31.0		26.0	
Actuated g/C Ratio		0.48	0.48		0.40	
v/c Ratio		0.35	0.81		0.70	
Control Delay		11.6	9.6		24.2	
Queue Delay		0.0	0.0		0.0	
Total Delay		11.6	9.6		24.2	
LOS		B	A		C	
Approach Delay		11.6	9.6		24.2	
Approach LOS		B	A		C	

Intersection Summary	
Area Type:	CBD
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 7 (11%), Referenced to phase 2: and 6:SBL, Start of Green	
Natural Cycle: 50	
Control Type: Pretimed	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: Av. Antonio Lorena & Ca. Almudena

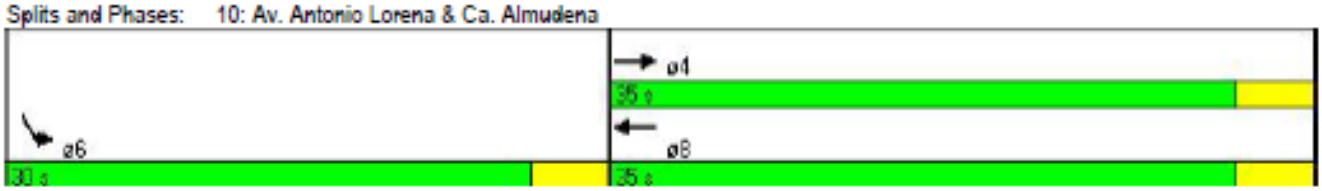


Figura 188: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
11: Ca. Jose Manuvera/Ca. Rocopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	480	57	118	573	6	162	0	158	51	203	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.0	3.0	3.0
Grade (%)		-2%			2%			9%			4%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		5.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.999			0.933			0.963	
Flt Protected		0.999			0.992			0.975			0.993	
Satd. Flow (prot)	0	3004	0	0	2997	0	0	1424	0	0	1466	0
Flt Permitted		0.938			0.654			0.561			0.902	
Satd. Flow (perm)	0	2820	0	0	1976	0	0	819	0	0	1332	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			2			97			37	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		437.5			161.8			196.7			232.4	
Travel Time (s)		31.5			11.6			14.2			16.7	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	12	631	75	155	754	8	213	0	208	67	267	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	718	0	0	917	0	0	421	0	0	458	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.16	1.19	1.19	1.19	1.25	1.25	1.25	1.28	1.28	1.28
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	32.2	32.2		32.2	32.2		32.8	32.8		32.8	32.8	
Total Split (%)	49.5%	49.5%		49.5%	49.5%		50.5%	50.5%		50.5%	50.5%	
Maximum Green (s)	28.2	28.2		28.2	28.2		28.8	28.8		28.8	28.8	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	

Figura 189: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
11: Ca. Jose Manuvera/Ca. Rocopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		28.2			28.2			28.8			28.8	
Actuated g/C Ratio		0.43			0.43			0.44			0.44	
v/c Ratio		0.58			1.07			1.01			0.75	
Control Delay		9.0			72.4			65.3			23.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.0			72.4			65.3			23.6	
LOS		A			E			E			C	
Approach Delay		9.0			72.4			65.3			23.6	
Approach LOS		A			E			E			C	

Intersection Summary	
Area Type:	CBD
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 28 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Pretimed	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 44.2	Intersection LOS: D
Intersection Capacity Utilization 111.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 11: Ca. Jose Manuvera/Ca. Rocopata & Av. Antonio Lorena

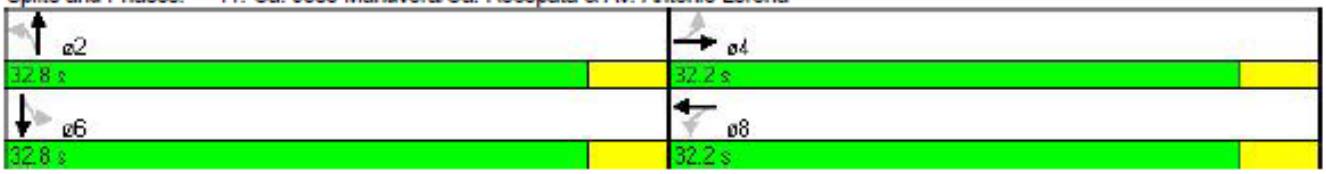


Figura 190: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
12: Av. Grau & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	0	25	5	9	6	612	955	0	5	1000	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.6	3.6	3.6	3.5	3.5	3.6
Grade (%)		-7%			4%			9%			-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Frt			0.850		0.960						0.990	
Flt Protected	0.950				0.987			0.981				
Satd. Flow (prot)	1530	0	1205	0	1517	0	0	2927	0	0	3196	0
Flt Permitted	0.950				0.987			0.981				
Satd. Flow (perm)	1530	0	1205	0	1517	0	0	2927	0	0	3196	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		224.0			69.5			152.1			376.4	
Travel Time (s)		16.1			5.0			11.0			27.1	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	4%	4%	4%	2%	2%	2%
Parking (#/hr)			4									
Adj. Flow (vph)	72	0	33	7	12	8	805	1256	0	7	1315	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	0	33	0	27	0	0	2061	0	0	1414	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.2			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.36	1.24	1.24	1.24	1.21	1.21	1.21	1.13	1.13	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 120.5%		ICU Level of Service H	
Analysis Period (min) 15			

Figura 191: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
14: 05/03/2020

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	0	0	315	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.983	
Flt Protected						
Satd. Flow (prot)	0	0	0	0	1831	0
Flt Permitted						
Satd. Flow (perm)	0	0	0	0	1831	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	90.1			92.9	177.5	
Travel Time (s)	6.5			6.7	12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0	414	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	473	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.7%		ICU Level of Service A	
Analysis Period (min) 15			

Figura 192: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings

23: PROL. CL. RICARDO PALMA & AV. TUPAC AMARU 05/03/2020

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	22	7	5	5	4	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	2.6	2.6	2.6	3.0	3.0	3.0	3.6	3.6	3.6
Grade (%)		0%			9%			-4%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.979			0.913				
Flt Protected					0.969			0.990				
Satd. Flow (prot)	0	0	0	0	1530	0	0	1635	0	0	0	0
Flt Permitted					0.969			0.990				
Satd. Flow (perm)	0	0	0	0	1530	0	0	1635	0	0	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.2			102.8			211.7			45.2	
Travel Time (s)		4.0			7.4			15.2			3.3	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	0	0	0	29	9	7	7	5	22	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	45	0	0	34	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.23	1.23	1.23	1.07	1.07	1.07	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Figura 193: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
32:

05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	560	311	775	17	0	1100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0			0.0	0.0	0.0
Storage Lanes	0			1	0	2
Taper Length (m)	50.0				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt				0.850		0.850
Flt Protected		0.969				
Satd. Flow (prot)	0	1770	1827	1553	0	2733
Flt Permitted		0.051				
Satd. Flow (perm)	0	93	1827	1553	0	2733
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				10		853
Link Speed (k/h)		50	50		50	
Link Distance (m)		106.5	201.3		33.6	
Travel Time (s)		7.7	14.5		2.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Adj. Flow (vph)	737	409	1019	22	0	1447
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1146	1019	22	0	1447
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Turn Type	Prot	NA	NA	Prot		custom
Protected Phases	7	4	8	8		6
Permitted Phases						
Minimum Split (s)	8.0	20.0	20.0	20.0		20.0
Total Split (s)	49.0	114.0	65.0	65.0		36.0
Total Split (%)	32.7%	76.0%	43.3%	43.3%		24.0%
Maximum Green (s)	45.0	110.0	61.0	61.0		32.0
Yellow Time (s)	3.5	3.5	3.5	3.5		3.5
All-Red Time (s)	0.5	0.5	0.5	0.5		0.5
Lost Time Adjust (s)		0.0	0.0	0.0		0.0
Total Lost Time (s)		4.0	4.0	4.0		4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Walk Time (s)		5.0	5.0	5.0		5.0
Flash Dont Walk (s)		11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)		0	0	0		0
Act Effct Green (s)		45.0	61.0	61.0		32.0
Actuated g/C Ratio		0.30	0.41	0.41		0.21
v/c Ratio		2.16	1.37	0.03		1.15

Figura 194: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
32: 05/03/2020

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Control Delay		544.8	211.2	17.9		99.8
Queue Delay		0.0	0.0	0.0		0.0
Total Delay		544.8	211.2	17.9		99.8
LOS		F	F	B		F
Approach Delay		544.8	207.1			
Approach LOS		F	F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2: and 6:SER, Start of Green			
Natural Cycle: 50			
Control Type: Pretimed			
Maximum v/c Ratio: 2.16			
Intersection Signal Delay: 270.8		Intersection LOS: F	
Intersection Capacity Utilization 113.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 32:

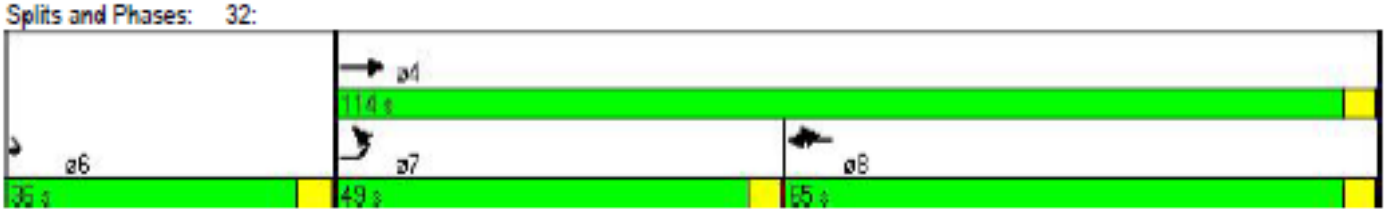


Figura 195: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
48: Rampa subida Grau 05/03/2020

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (vph)	0	0	0	630	226	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	1863	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	56.8			58.8	108.8	
Travel Time (s)	4.1			4.2	7.8	
Confl. Peds. (#/hr)			630			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	829	297	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	829	297	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

Figura 196: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	590	31	29	753	0	43	0	15	21	19	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.4	3.4	3.4	3.4	3.4	3.4	2.4	2.4	2.4	3.0	3.0	3.0
Grade (%)		-2%			2%			10%			5%	
Storage Length (m)	0.0		0.0	0.0		0.0	5.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (m)	7.5			7.5			2.0			7.5		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992						0.965			0.885	
Flt Protected					0.998			0.964		0.950		
Satd. Flow (prot)	0	2971	0	0	2864	0	0	1284	0	1478	1267	0
Flt Permitted					0.905			0.769		0.759		
Satd. Flow (perm)	0	2971	0	0	2598	0	0	1024	0	1181	1267	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15						20			83	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		184.8			437.5			115.6			161.4	
Travel Time (s)		13.3			31.5			8.3			11.6	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	0%	0%	0%
Bus Blockages (#/hr)	0	24	0	0	0	0	0	0	0	0	20	0
Parking (#/hr)					4							
Adj. Flow (vph)	0	776	41	38	990	0	57	0	20	28	25	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	817	0	0	1028	0	0	77	0	28	108	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.0			3.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.16	1.24	1.16	1.19	1.29	1.19	1.45	1.45	1.45	1.29	1.43	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)		43.0		43.0	43.0		22.0	22.0		22.0	22.0	
Total Split (%)		66.2%		66.2%	66.2%		33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)		39.0		39.0	39.0		18.0	18.0		18.0	18.0	
Yellow Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0			4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Figura 197: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)		39.0			39.0			18.0		18.0	18.0	
Actuated g/C Ratio		0.60			0.60			0.28		0.28	0.28	
v/c Ratio		0.46			0.66			0.26		0.09	0.26	
Control Delay		4.3			5.1			17.2		18.4	8.9	
Queue Delay		0.0			0.0			0.0		0.0	0.0	
Total Delay		4.3			5.1			17.2		18.4	8.9	
LOS		A			A			B		B	A	
Approach Delay		4.3			5.1			17.2			10.9	
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 1 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Pretimed			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 52: Ca. Patacalle/Ca. Tampopata & Av. Antonio Lorena

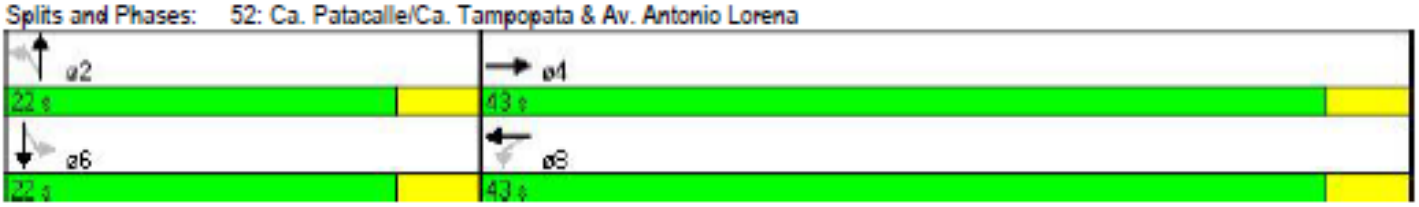


Figura 198: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	544	5	307	17	601	0	0	435	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.3	3.3	3.3	4.5	4.5	4.5	3.6	3.6	3.6
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt					0.946						0.996	
Flt Protected					0.969			0.999				
Satd. Flow (prot)	0	0	0	0	4506	0	0	2047	0	0	3525	0
Flt Permitted					0.969			0.976				
Satd. Flow (perm)	0	0	0	0	4506	0	0	2000	0	0	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					115						4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		114.8			56.8			19.5			169.4	
Travel Time (s)		8.3			4.1			1.4			12.2	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	715	7	404	22	790	0	0	572	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1126	0	0	812	0	0	588	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	0.88	0.88	0.88	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Minimum Split (s)				20.5	20.5		20.5	20.5			20.5	
Total Split (s)				46.0	46.0		84.0	84.0			84.0	
Total Split (%)				35.4%	35.4%		64.6%	64.6%			64.6%	
Maximum Green (s)				42.0	42.0		80.0	80.0			80.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				0.0	0.0		0.0	0.0			0.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					42.0			80.0			80.0	
Actuated g/C Ratio					0.32			0.62			0.62	
v/c Ratio					1.13dl			0.66			0.27	
Control Delay					38.2			16.3			11.8	

Figura 199: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					3.0			0.4			0.2	
Total Delay					41.2			16.7			12.0	
LOS					D			B			B	
Approach Delay					41.2			16.7			12.0	
Approach LOS					D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 30 (23%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Pretimed			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 98.0%		ICU Level of Service F	
Analysis Period (min) 15			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			

Splits and Phases: 100: Rampa Bajada Grau/Rampa subida Grau & Av.Grau

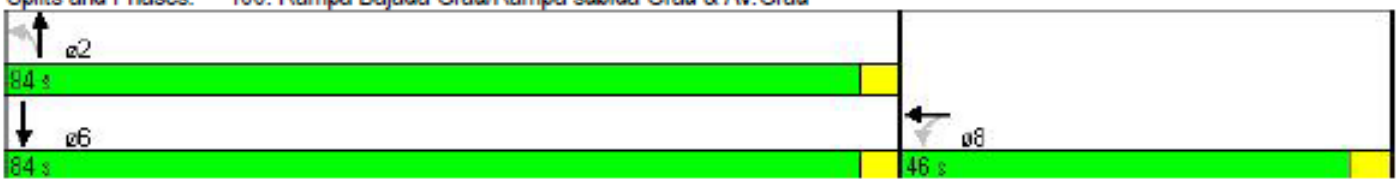


Figura 200: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	163	0	0	0	0	629	381	226	907	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.8	4.8	4.8	3.6	3.6	3.6	3.5	3.5	3.5	4.8	4.8	4.8
Grade (%)		9%			0%			4%			2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.865					0.943				
Flt Protected											0.990	
Satd. Flow (prot)	0	0	1570	0	0	0	0	2911	0	0	1862	0
Flt Permitted											0.472	
Satd. Flow (perm)	0	0	1570	0	0	0	0	2911	0	0	888	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158					372				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		112.9			159.7			79.4			44.8	
Travel Time (s)		8.1			11.5			5.7			3.2	
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
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	214	0	0	0	0	827	501	297	1193	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	214	0	0	0	0	1328	0	0	1490	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.14	1.14	1.14	1.19	1.19	1.19	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type			custom					NA		Perm	NA	
Protected Phases								2			6	
Permitted Phases			4							6		
Minimum Split (s)			20.5					20.5		20.5	20.5	
Total Split (s)			20.5					109.5		109.5	109.5	
Total Split (%)			15.8%					84.2%		84.2%	84.2%	
Maximum Green (s)			16.5					105.5		105.5	105.5	
Yellow Time (s)			4.0					4.0		4.0	4.0	
All-Red Time (s)			0.0					0.0		0.0	0.0	
Lost Time Adjust (s)			0.0					0.0			0.0	
Total Lost Time (s)			4.0					4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)			5.0					5.0		5.0	5.0	
Flash Dont Walk (s)			11.0					11.0		11.0	11.0	
Pedestrian Calls (#/hr)			0					0		0	0	
Act Effct Green (s)			16.5					105.5			105.5	
Actuated g/C Ratio			0.13					0.81			0.81	
v/c Ratio			0.64					0.55			2.07	

Figura 201: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito 05/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay			23.1					3.6			504.8	
Queue Delay			0.0					0.5			23.8	
Total Delay			23.1					4.2			528.6	
LOS			C					A			F	
Approach Delay								4.2			528.6	
Approach LOS								A			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Pretimed			
Maximum v/c Ratio: 2.07			
Intersection Signal Delay: 263.2		Intersection LOS: F	
Intersection Capacity Utilization 127.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 300: Av. Grau & Rampa de Subida a Av. GRau/Rampa de Bajada a Ejercito

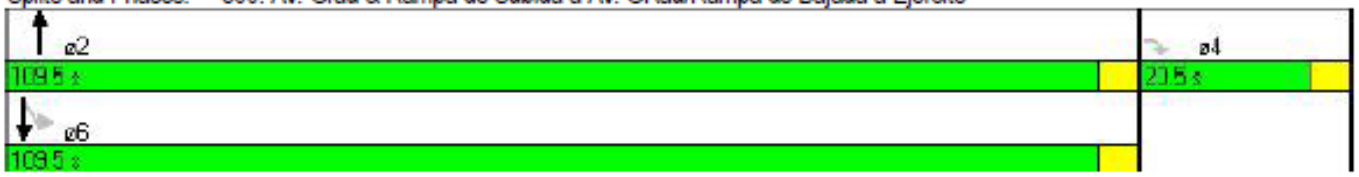


Figura 202: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

Lanes, Volumes, Timings
400: Rampa de Bajada a Ejercito & Av. Del Ejercito & Rampa subida Grau 05/03/2020

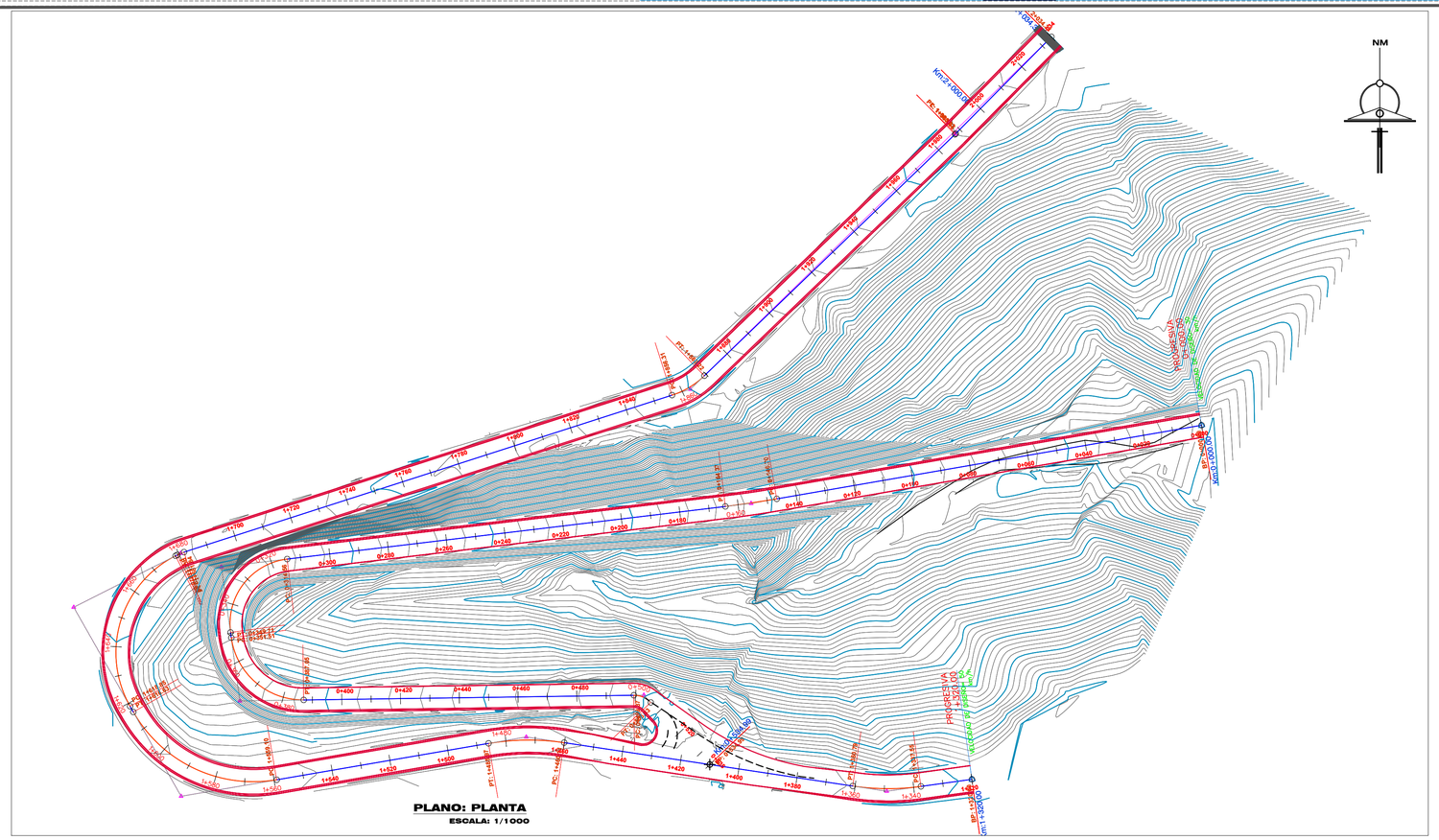
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SER	NEL	NER
Lane Configurations										
Volume (vph)	0	1315	0	0	1785	226	0	0	0	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00
Frt					0.983					0.865
Flt Protected										
Satd. Flow (prot)	0	3539	0	0	4999	0	0	0	0	1611
Flt Permitted										
Satd. Flow (perm)	0	3539	0	0	4999	0	0	0	0	1611
Link Speed (k/h)		50			50		50		50	
Link Distance (m)		268.1			80.7		108.8		159.7	
Travel Time (s)		19.3			5.8		7.8		11.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	121%	121%	121%	121%	121%	121%	121%	121%	121%	121%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	1730	0	0	2348	297	0	0	0	802
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1730	0	0	2645	0	0	0	0	802
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(m)		0.0			0.0		0.0		0.0	
Link Offset(m)		0.0			0.0		0.0		0.0	
Crosswalk Width(m)		4.8			4.8		4.8		4.8	
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25	15	25	15
Sign Control		Free			Free		Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

Figura 203: Reporte de volúmenes, carriles y tiempo (futuro con proyecto - 2039)

Fuente: SYNCHRO

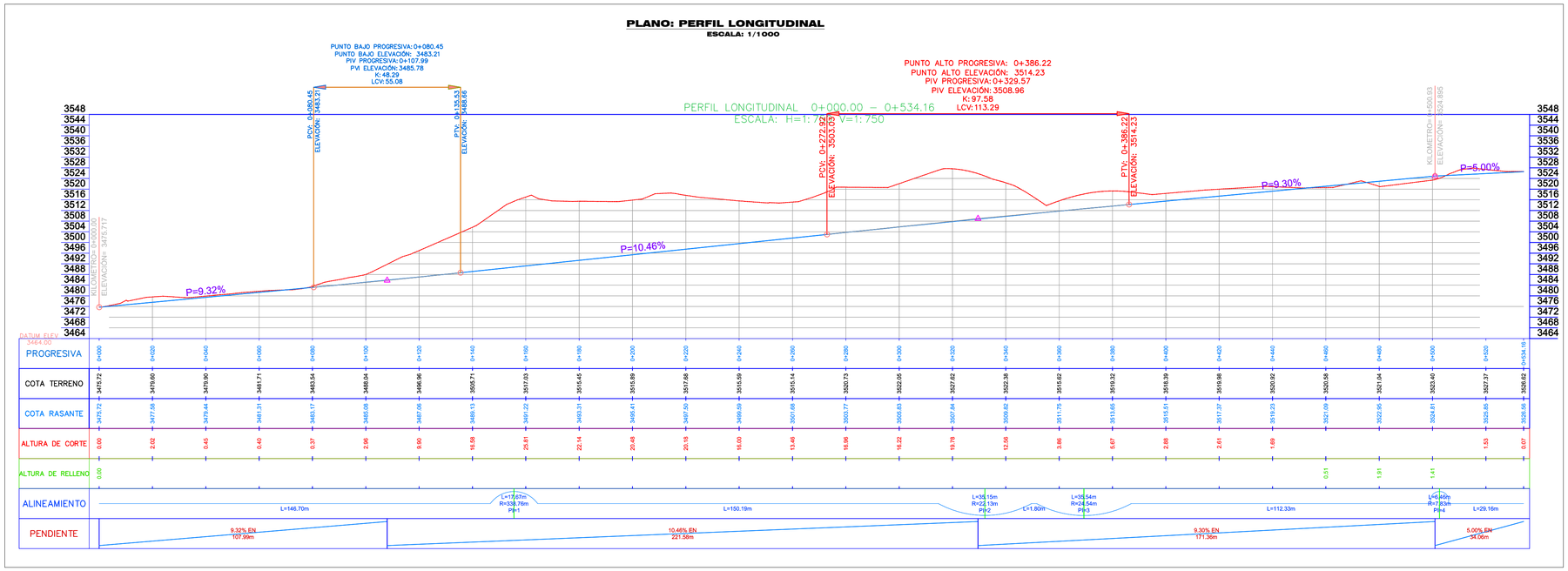
ANEXO H: Planos de planta, perfil, y secciones del conector vial Propuesto



PLANO: PLANTA
ESCALA: 1/1000

LEYENDA	
Curvas de Nivel	
BM	
Rios	
Carreteras Existentes	
Casas	
Eje de Via	
PI de Via	
Kilometraje	
Norte	

PLANO: PERFIL LONGITUDINAL
ESCALA: 1/1000



PLANO: SECCIONES TRANSVERSALES
ESCALA: 1/1000

UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO–ABANCAY EN EL SECTOR SIPASPUQUIO".

PLANO DE PERFIL Y PLANTA:
CONTINUIDAD VIAL PROL. AV. DEL EJERCITO

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : CUSCO

TESISTA 1:
BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2:
BACH. JOAQUIN RICALDE PERALTA

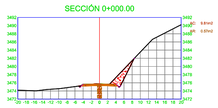
ESCALAS : **ESCALA: 1/1000**

FECHA:
ENERO DEL 2020

REVISADO VºBº:

SECCIONES TRANSVERSALES

SECCIÓN 0+000.00



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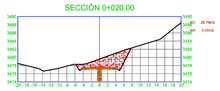

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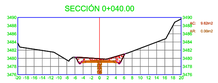

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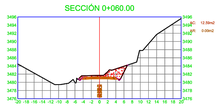

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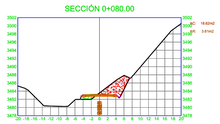

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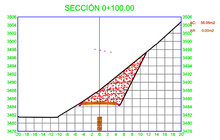

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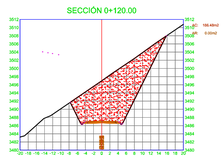

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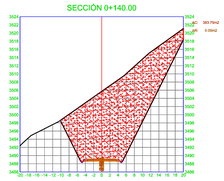

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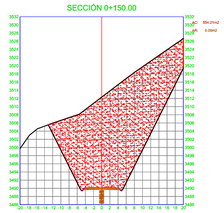

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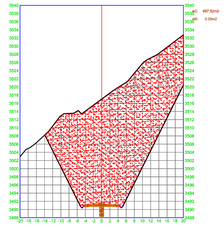

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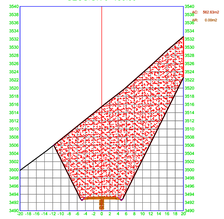

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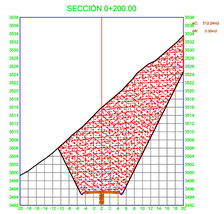

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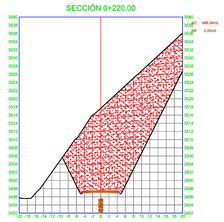
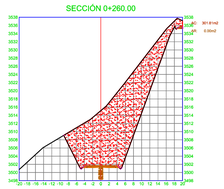


SECCIÓN 0+240.00

SECCIÓN 0+260.00



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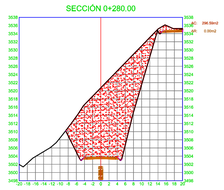

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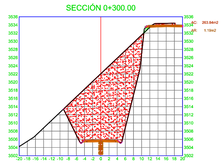

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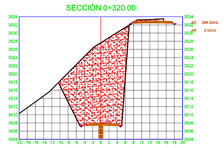

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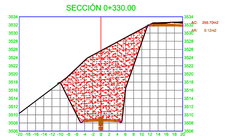

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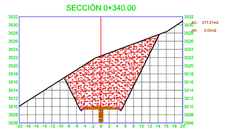

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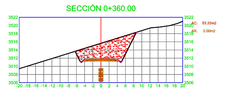
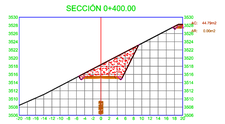


SECCIÓN 0+370.00

SECCIÓN 0+380.00

SECCIÓN 0+400.00



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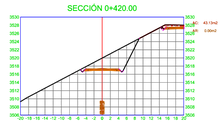

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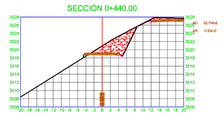

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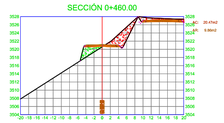
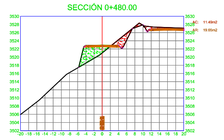


SECCIÓN 0+480.00



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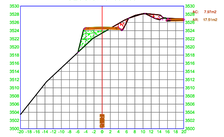

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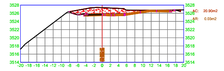

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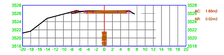


PLANO: SECCIONES TRANSVERSALES
ESCALA: 1/1000

UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO–ABANCAY EN EL SECTOR SIPASPUQUIO."

PLANO DE CORTES Y RELLENOS:
CONTINUIDAD VIAL PROL. AV. DEL EJERCITO

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : CUSCO

TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

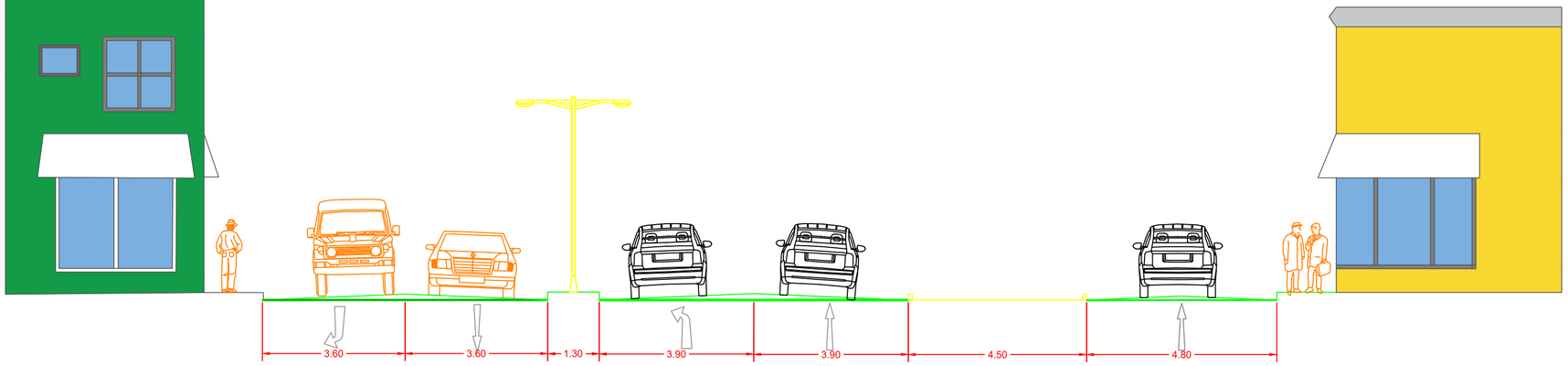
ESCALAS :
ESCALA: 1/1000

FECHA: ENERO DEL 2020

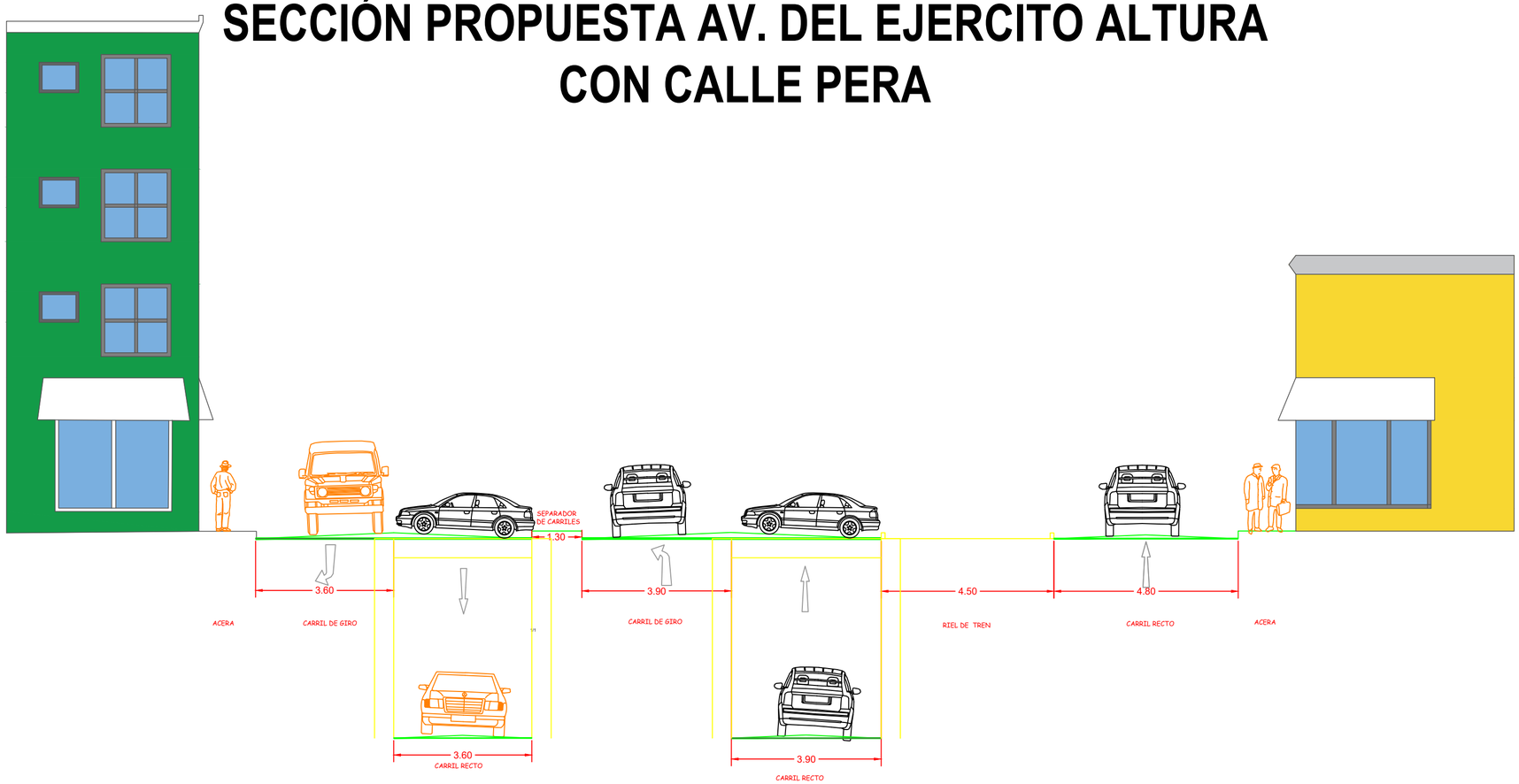
REVISADO V°B°:

ANEXO I: Planos de Sección de la Av. del Ejército actual y del pase a desnivel propuesto

SECCIÓN EXISTENTE
AV. DEL EJERCITO ALTURA CON CALLE PERA



SECCIÓN PROPUESTA AV. DEL EJERCITO ALTURA CON CALLE PERA



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

PLANO DE SECCIONES: Av. del Ejercito - Calle Pera

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : CUSCO

TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

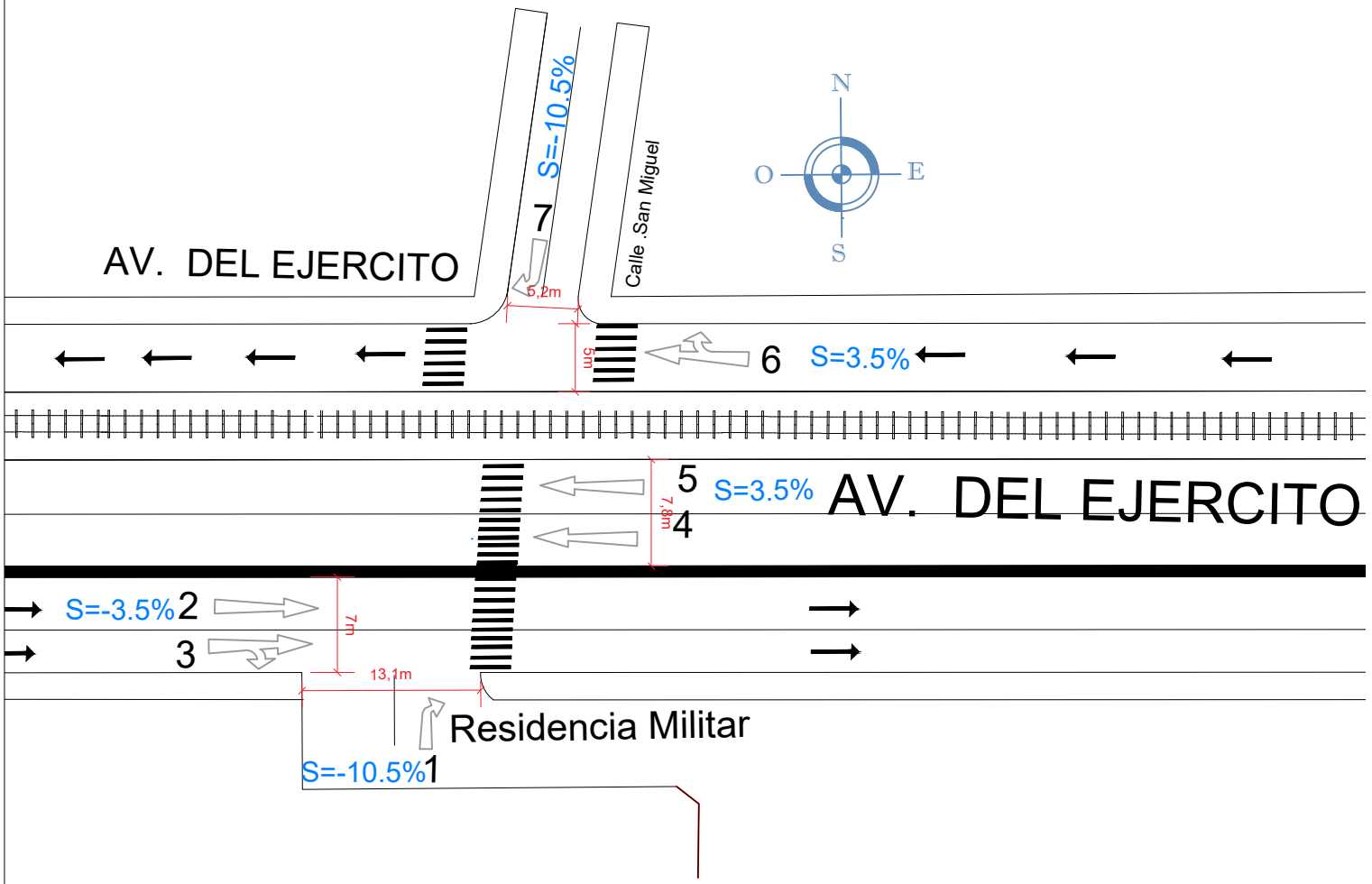
TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/100

FECHA: ENERO DEL 2020

REVISADO V°B°:

ANEXO I: Planos de planta de las intersecciones estudiadas.



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. del Ejercito - Ca. San Miguel, Quinta Jardin

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : CUSCO

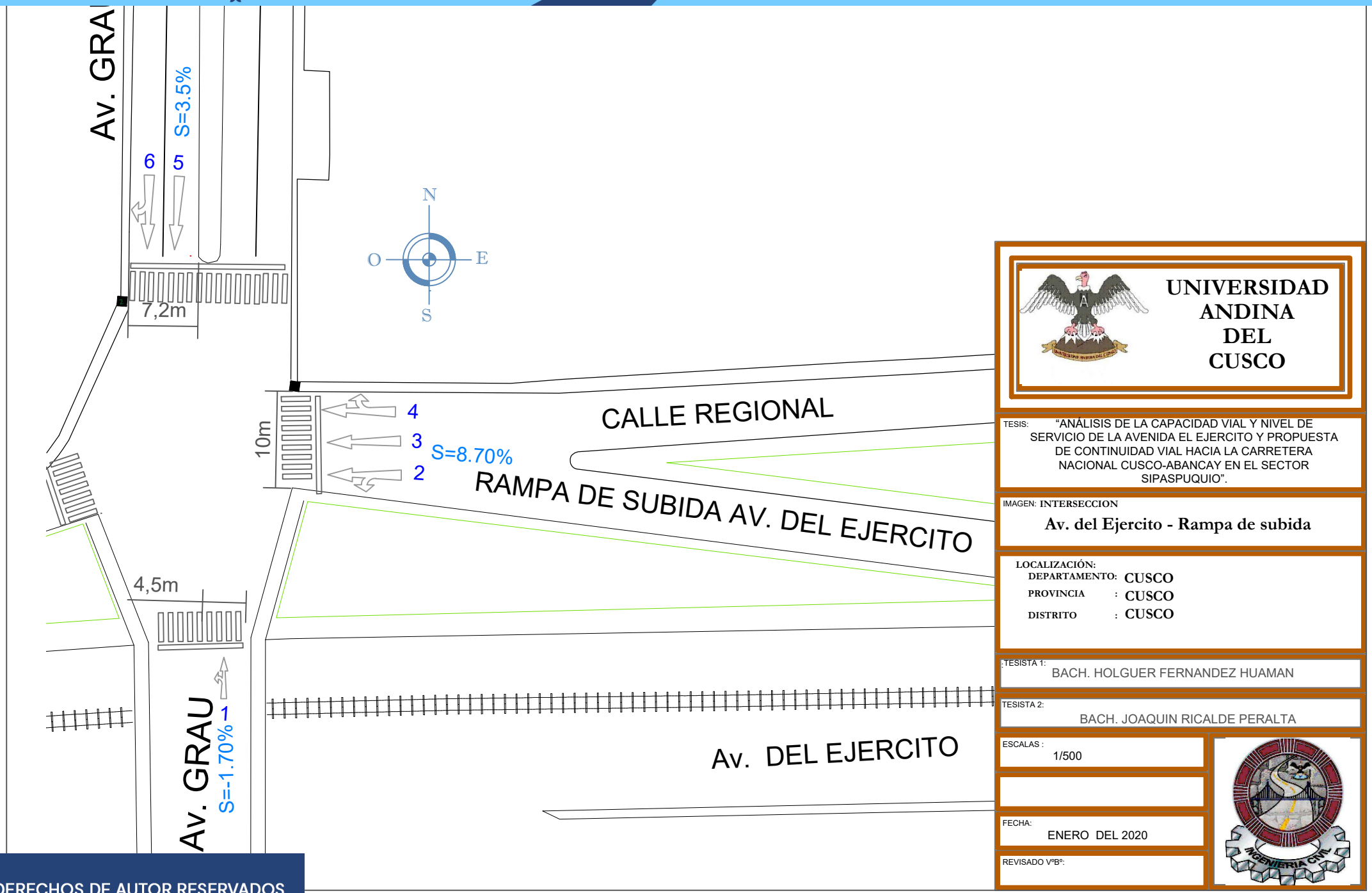
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO V°B°:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. del Ejercito - Rampa de subida

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : CUSCO

TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

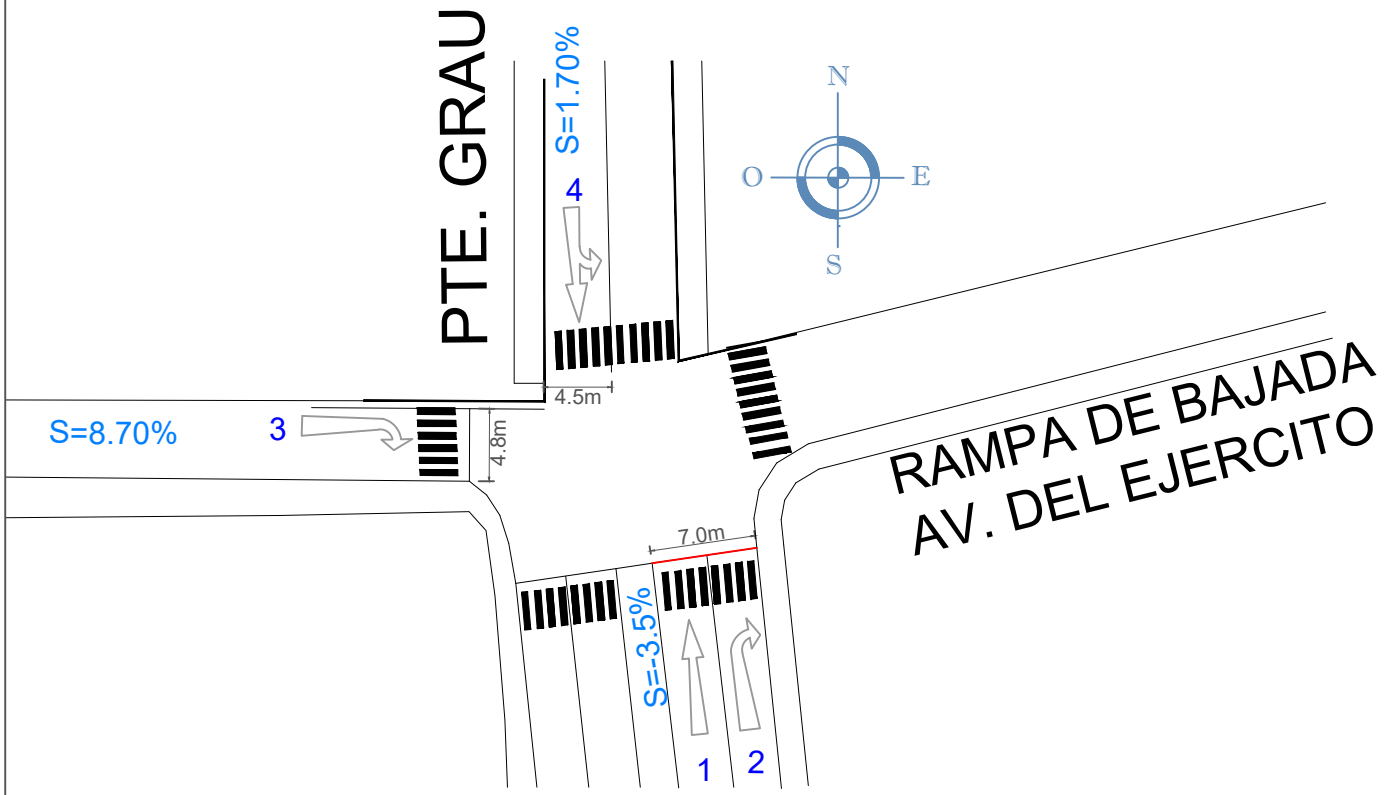
TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:

INGENIERIA CIVIL



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

PLANO: INTERSECCION

Av. Grau - Rampa de bajada Av. del Ejercito

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : CUSCO

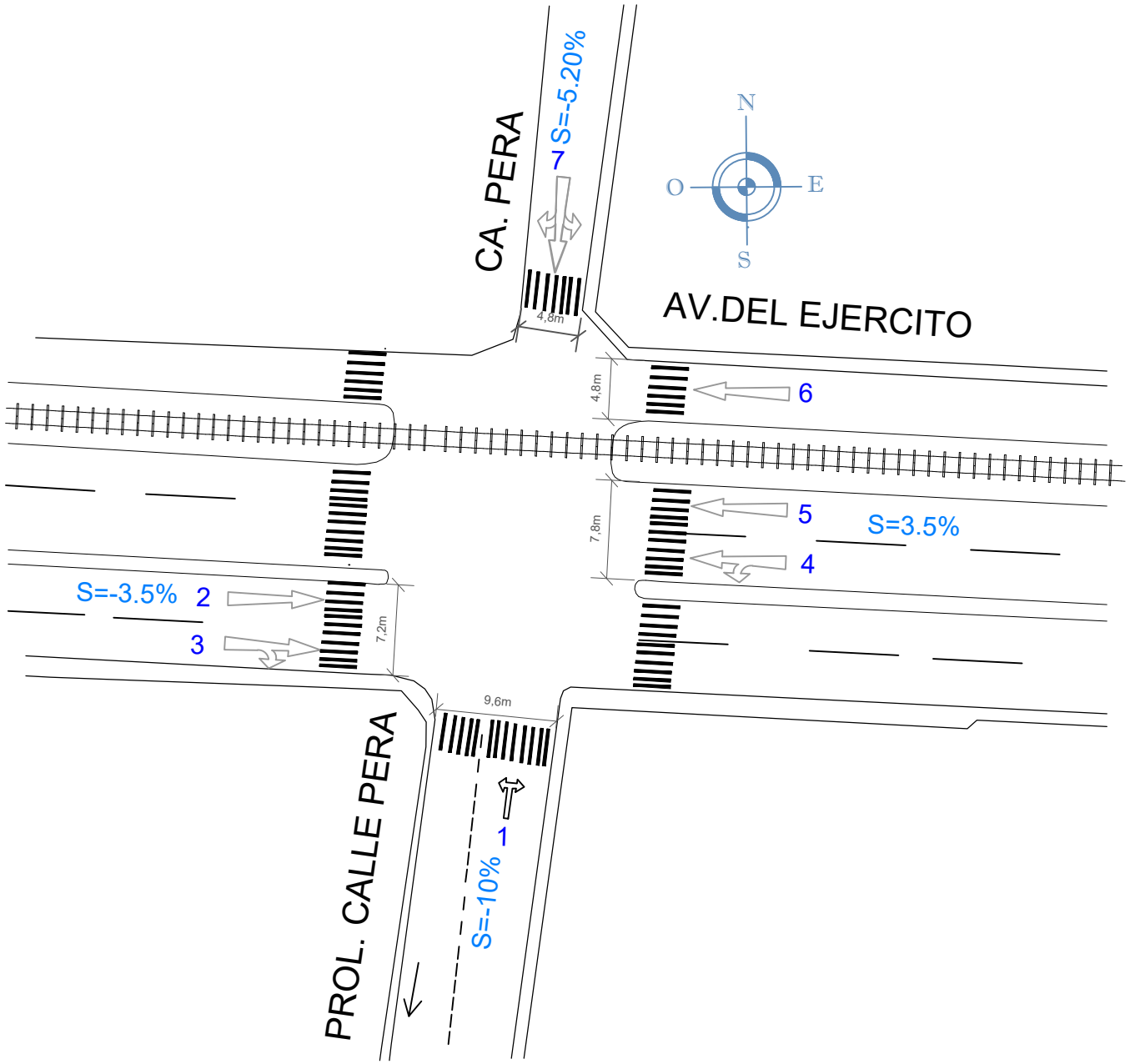
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. del Ejercito - Calle Pera

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : CUSCO

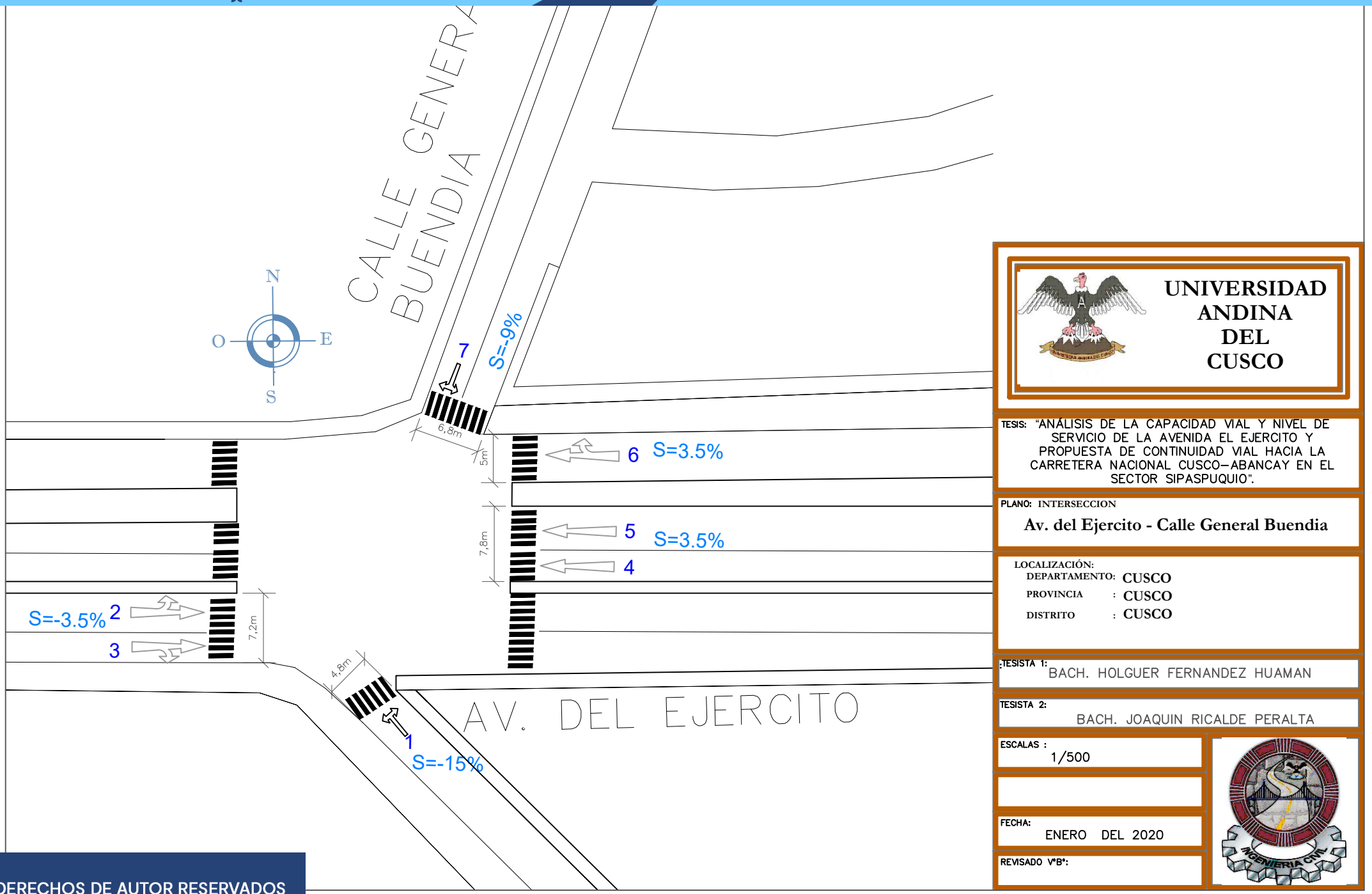
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO–ABANCAY EN EL SECTOR SIPASPUQUIO".

PLANO: INTERSECCION

Av. del Ejercito - Calle General Buendia

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : CUSCO

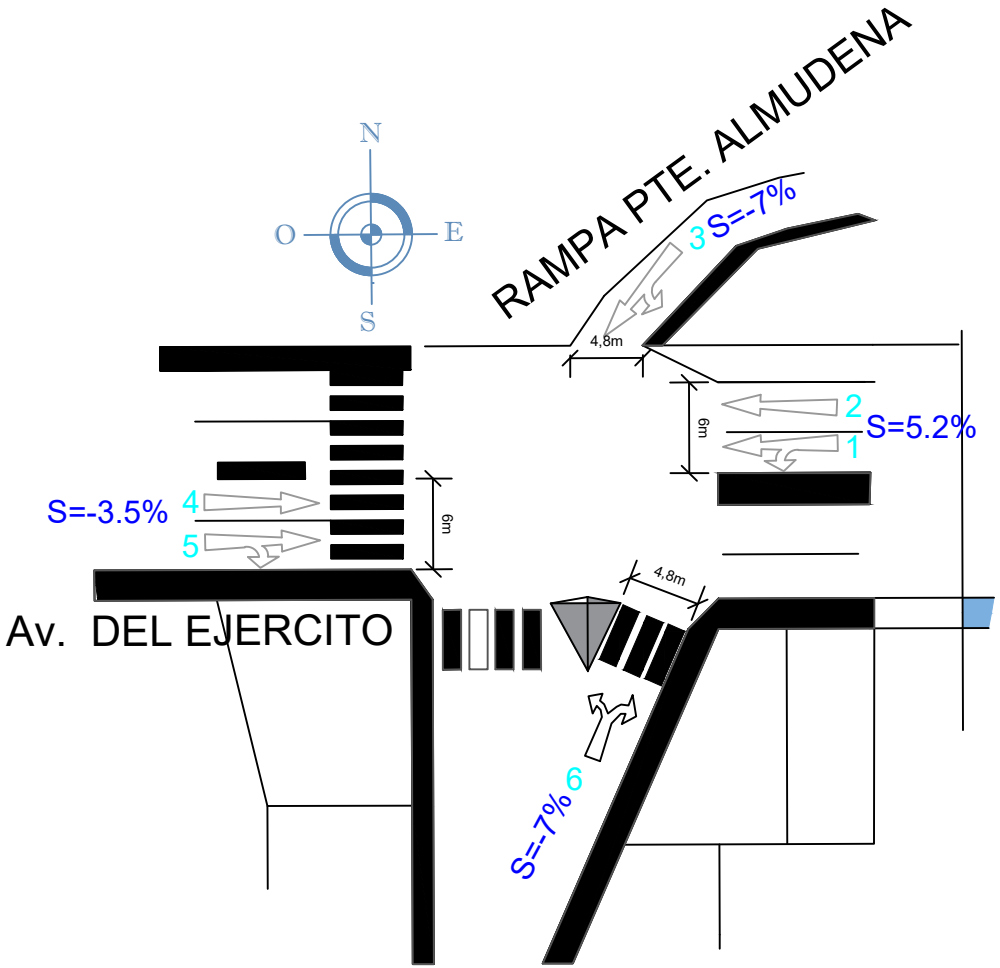
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO V°B°:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: **INTERSECCION**

Av. del Ejercito - Rampa de Puente Almudena

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : CUSCO

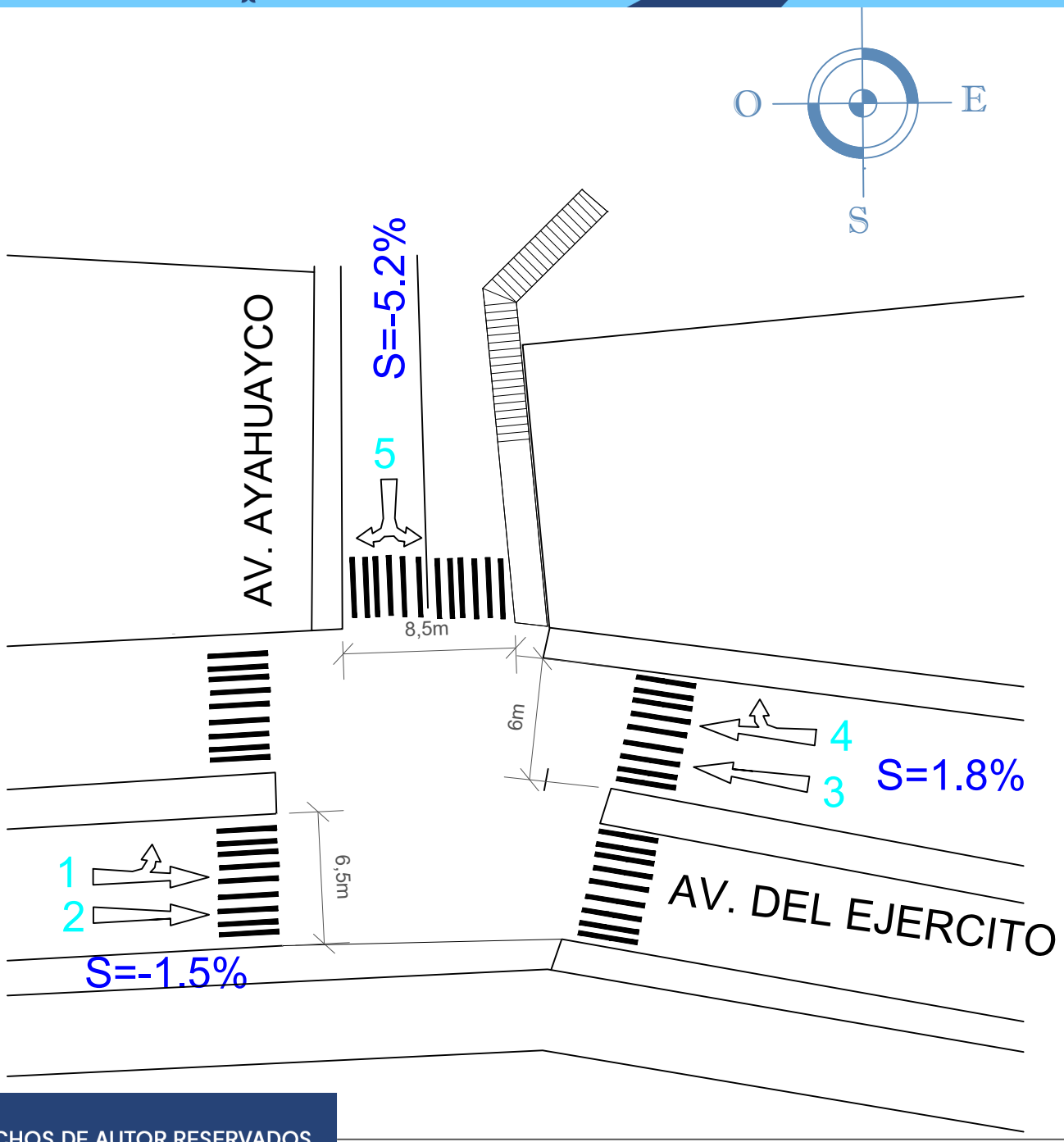
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. del Ejercito - Av. Ayahuayco

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : CUSCO

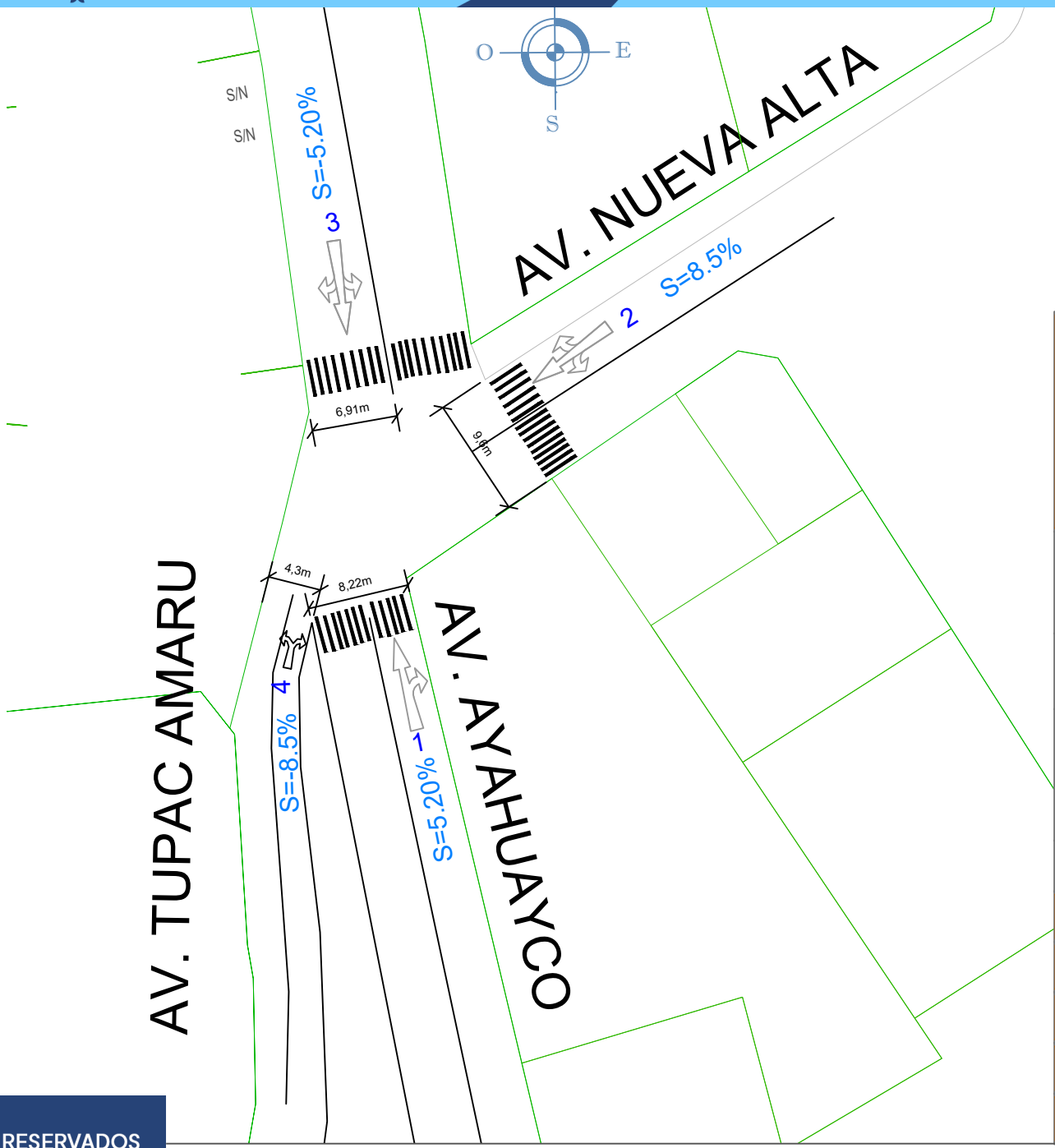
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

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IMAGEN: **INTERSECCION**

Av. Ayahuayco - Av. Nueva Alta

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : CUSCO

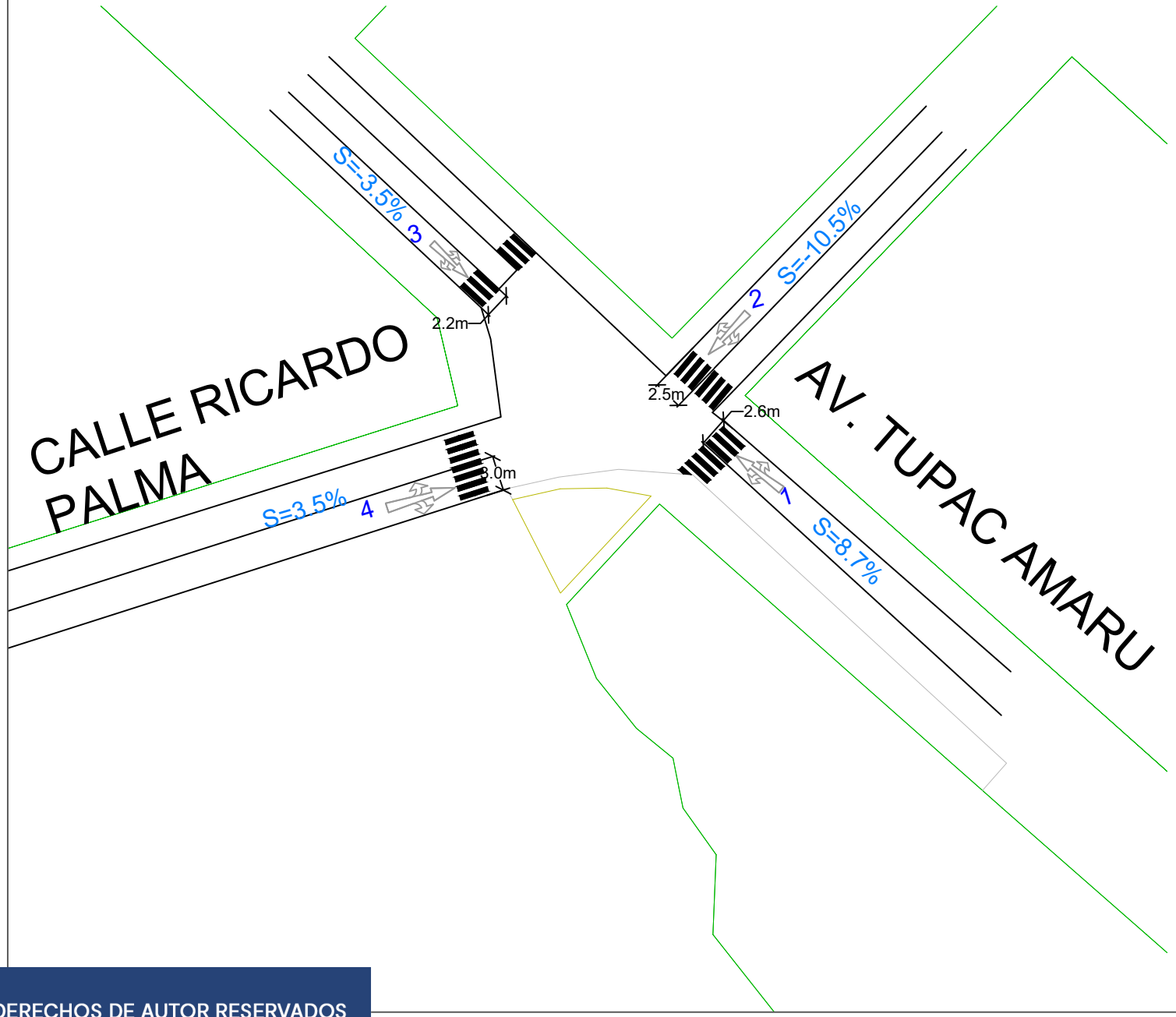
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Calle Ricardo Palma - Av. Tupac Amaru

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : CUSCO

TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

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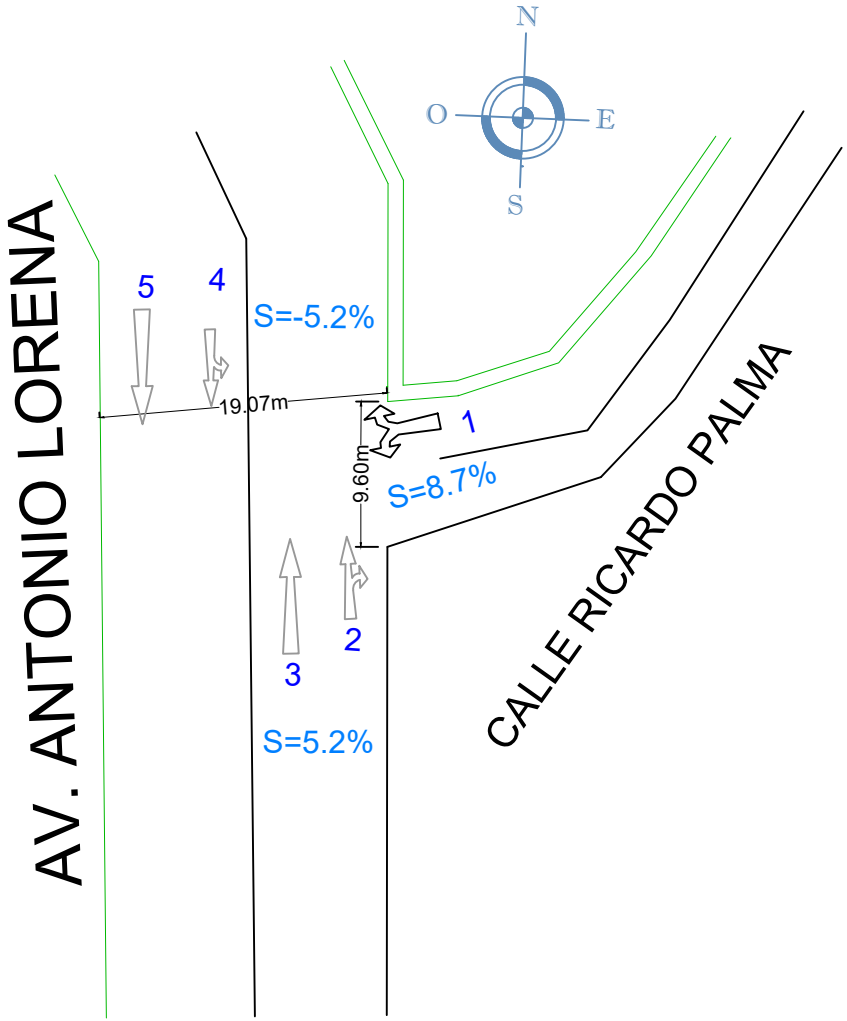

UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: **INTERSECCION**

Av. Antonio Lorena - Calle Ricardo Palma

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : SANTIAGO

TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:

UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. Antonio Lorena - Calle Precursores

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : SANTIAGO

TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

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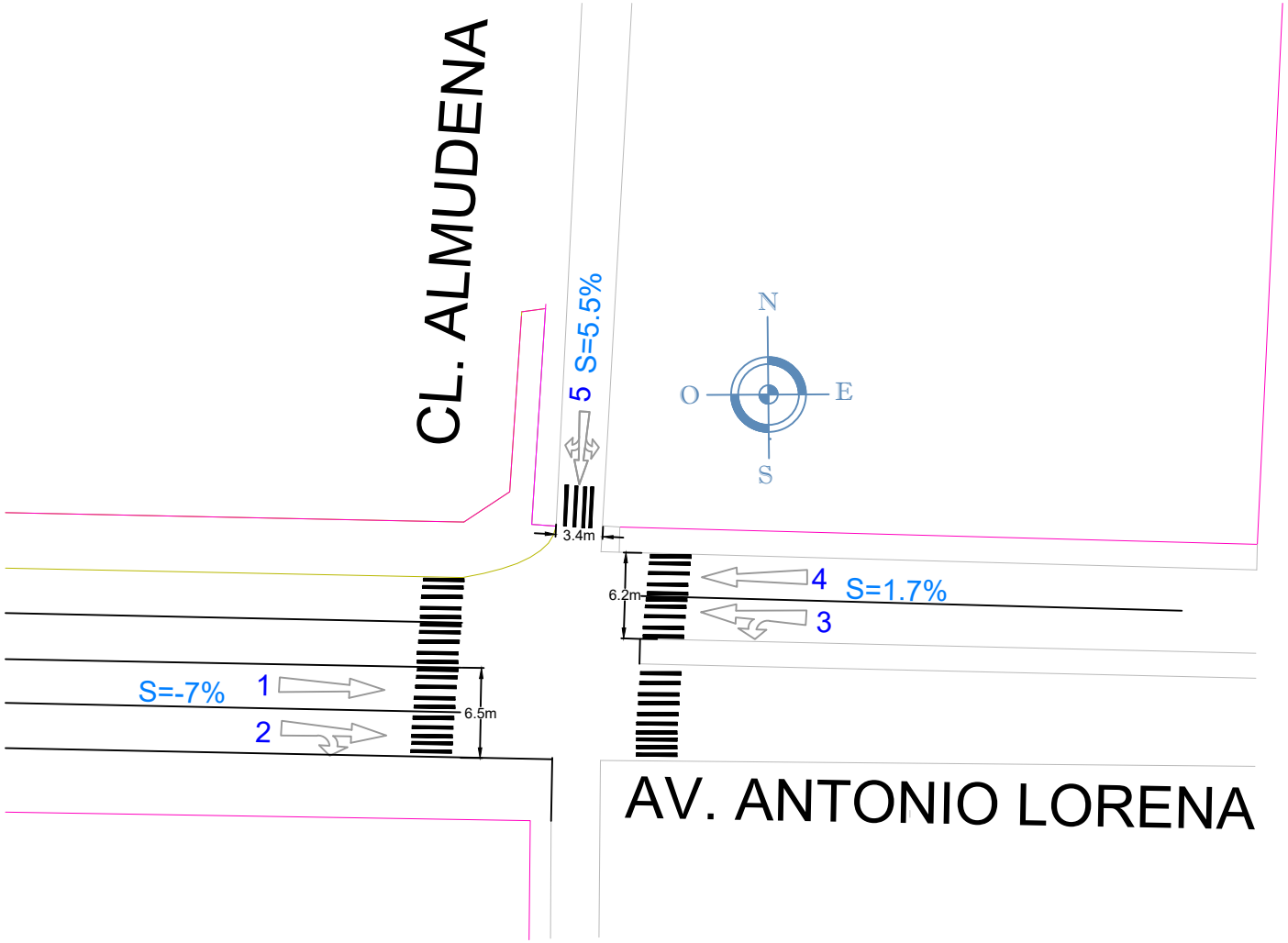

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TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. Antonio Lorena- Calle Almudena

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : SANTIAGO

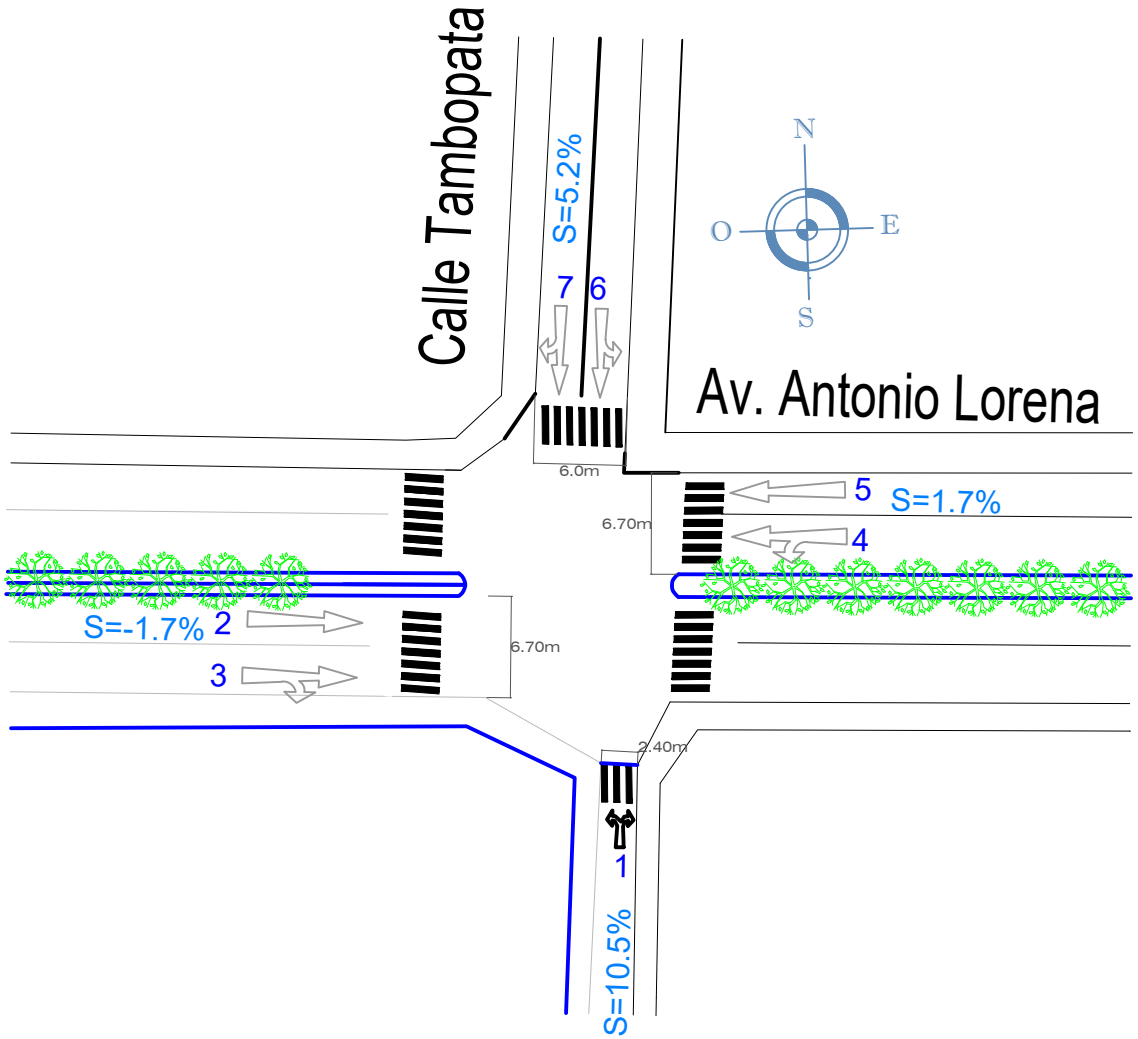
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

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IMAGEN: INTERSECCION

Av. Antonio Lorena -Calle Tambopata

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : SANTIAGO

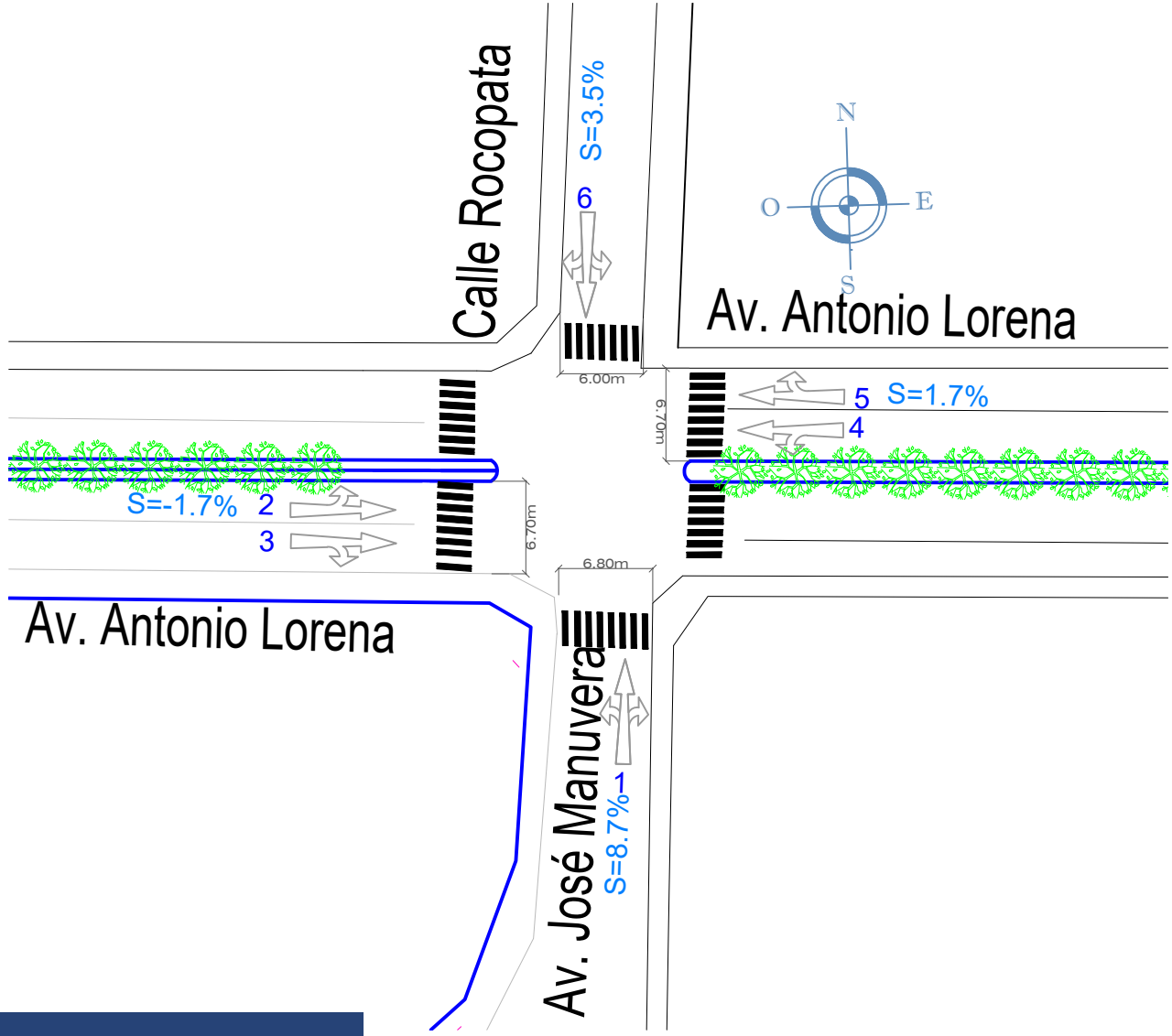
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. Antonio Lorena - Calle Rocopota

LOCALIZACIÓN:
DEPARTAMENTO: CUSCO
PROVINCIA : CUSCO
DISTRITO : SANTIAGO

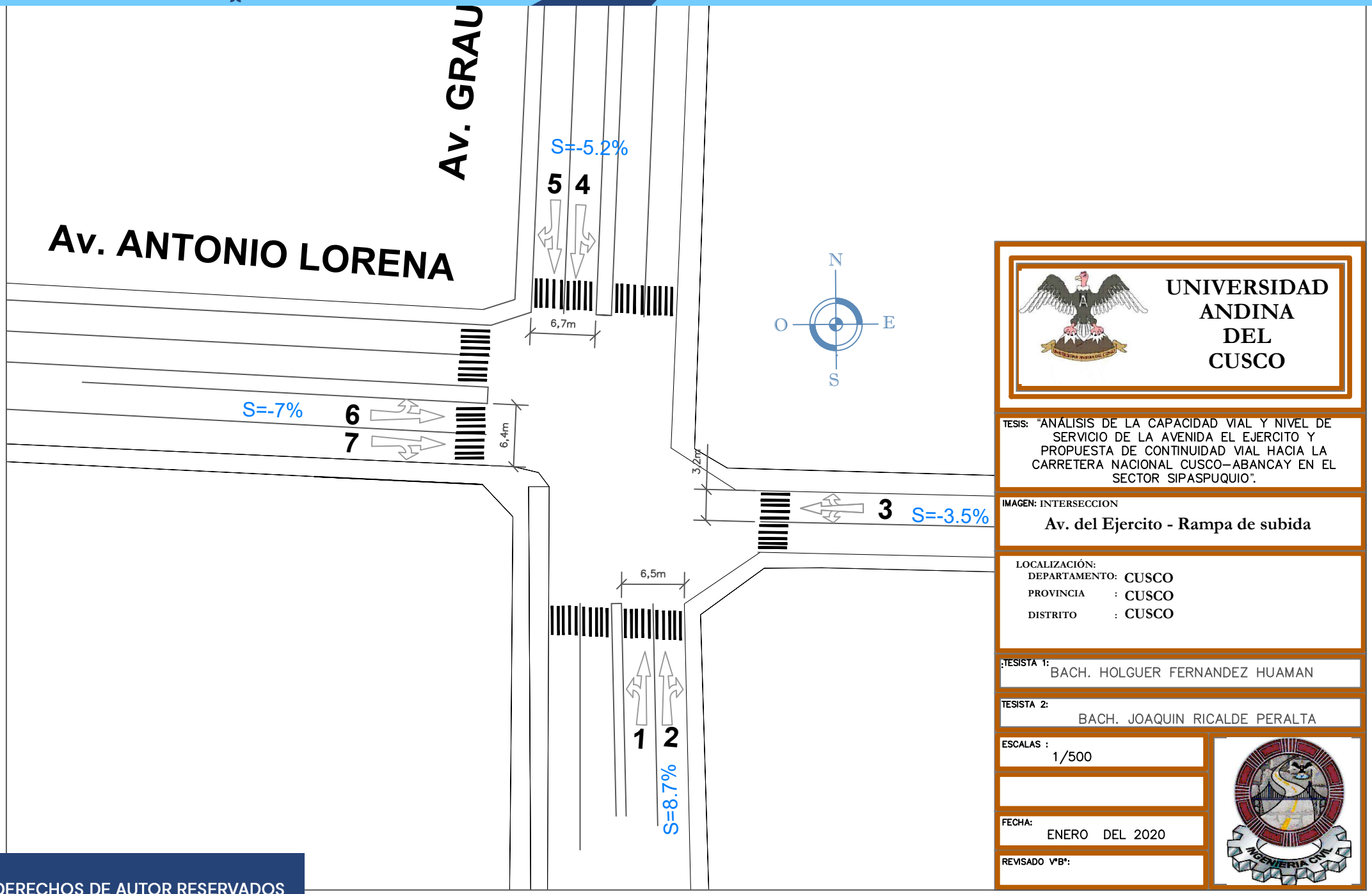
TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO VºBº:



UNIVERSIDAD ANDINA DEL CUSCO

TESIS: "ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO–ABANCAY EN EL SECTOR SIPASPUQUIO".

IMAGEN: INTERSECCION

Av. del Ejercito - Rampa de subida

LOCALIZACIÓN:

DEPARTAMENTO: CUSCO

PROVINCIA : CUSCO

DISTRITO : CUSCO

TESISTA 1: BACH. HOLGUER FERNANDEZ HUAMAN

TESISTA 2: BACH. JOAQUIN RICALDE PERALTA

ESCALAS : 1/500

FECHA: ENERO DEL 2020

REVISADO V°B°:

INGENIERIA CIVIL

ANEXO J: Matriz de consistencia.

J. MATRIZ DE CONSISTENCIA

ANÁLISIS DE LA CAPACIDAD VIAL Y NIVEL DE SERVICIO DE LA AVENIDA EL EJERCITO Y PROPUESTA DE CONTINUIDAD VIAL HACIA LA CARRETERA NACIONAL CUSCO-ABANCAY EN EL SECTOR SIPASPUQUIO.

PROBLEMA GENERAL	OBJETIVO GENERAL	HIPÓTESIS GENERAL	VARIABLES INDEPENDIENTES	DIMENSIÓN	INDICADORES
¿Cuál es la capacidad vial y niveles de servicio de la Av. del Ejército?	Analizar la capacidad vial y niveles de servicio de la Av. del Ejercito antes y después de la propuesta de solución.	La capacidad vial es menor de 1000 vph/h para la mayoría de las intersecciones, mientas que el nivel de servicio estará en un rango de E-F para la situación actual. Las demoras superan los 60 segundos/vehículo en promedio. Después de la propuesta de solución se tienen demoras menores a 30 segundos por vehículo.	Intersecciones	Intersecciones Semaforizadas	Semáforos
				Intersecciones No Semaforizadas	Geometría de la intersección
				Intersecciones a Desnivel	
PROBLEMA ESPECIFICO	OBJETIVO ESPECIFICO	HIPÓTESIS ESPECIFICA	VARIABLES DEPENDIENTES	DIMENSIÓN	INDICADORES
¿Cómo varían las Condiciones de tráfico que influyen en la capacidad vial de la Av. del Ejército, aplicando la metodología del HCM 2010?	Determinar cómo varían las condiciones de tráfico que influyen en la capacidad vial de la Av. del Ejército, aplicando la metodología del HCM 2010.	La condiciones de tráfico o demanda de vehículos se ha modificado al crearse un nuevo conector que permite circular por la Av. Del Ejército. Incluyendo un mayor flujo de vehículos hacia la Av. Del Ejército y disminuyendo la cantidad de vehículos en la Av. Antonio Lorena.	Capacidad Vial	Condiciones de Trafico	• Vehículos Pesados (%) • Estacionamiento • Paradas de Autobús • Circulación de Peatones y Ciclistas
¿Cómo varía la capacidad vial y niveles de servicio de la Av. del Ejército con respecto a la geometría de la vía con la propuesta planteada?	Determinar cómo varía la capacidad vial y niveles de servicio de la Av. del Ejército con respecto a la geometría de la vía.	La capacidad vial y niveles de servicio mejoran para el caso de una mejor disposición de la geometría y sección vial, considerando carriles de continuidad a lo largo de la vía.		Condiciones Geométricas	• Número de Carriles • Anchura de Carril (m) • Inclinación de la Rasante • Tipo de área
¿Cuál es el estado de las Condiciones semafóricas que influyen en la capacidad vial de las intersecciones semaforizadas de la Av. del Ejército?	Determinar el estado de las Condiciones semafóricas que influyen en la capacidad vial de las intersecciones semaforizadas de la Av. del Ejército.	La capacidad vial y niveles de servicio mejoran con una adecuada optimización semafórica y modificación de los sistemas de control en las intersecciones de la Av. Ejercito.		Condiciones Semafóricas	• Duración de fase en verde(seg) • Duración de fase en rojo(seg) • Ciclo del Semáforo(seg) • Giros a la Derecha • Giros a la Izquierda
¿Cuál es la diferencia de los tiempos de viaje para la situación actual y la propuesta de solución a la conectividad de la Av. del Ejército hacia la carretera Cusco-Abancay?	Determinar cuál es la diferencia de los tiempos de viaje para la situación actual y la propuesta de solución a la conectividad de la Av. del Ejército hacia la carretera Cusco-Abancay.	La diferencia de los tiempos de viaje para la situación actual y la propuesta de solución a la conectividad de la Av. del Ejército hacia la carretera Cusco-Abancay es mayor del 20%	Nivel de Servicio	Tiempos de Demora	• Demora Uniforme • Factor de ajuste de progresión uniforme • Demora incremental • Demora por demanda residual
¿Cuál es la relación de congestión Volumen/Capacidad de las intersecciones de la Av. Ejercito antes y después de la propuesta de solución?	Determinar cuál es la relación de congestión Volumen/Capacidad de las intersecciones de la Av. Ejercito antes y después de la propuesta de solución.	La relación de saturación Volumen/Capacidad de las intersecciones en la Av. del Ejército es menor de 1.0 después de la optimización geométrica y semafórica.		Grado de Saturación (V/C)	Relación Volumen/Capacidad
¿Cuál es la velocidad en los tramos de la vía Av. Ejército?	Determinar ¿Cuál es la velocidad en los tramos de la Av. Ejercito?	La velocidad promedio en la avenida ejercito es menor <30 km/h.		Kilómetros por hora (km/h)	-Condición de la estructura de la vía. - Diseño geométrico de la vía.