east side of Sand Creek area. This is shown in Figure 2. A 5-foot trail along the south boundary will provide connectivity from the eastern portion of Sterling Ranch to the Regional Trail on the west side of Sand Creek and the community parks, trails, and open space within Sterling Ranch.

A detached sidewalk will be provided along the west side of Sterling Ranch Road. The multi-use paved shoulder on Sterling Ranch Road will accommodate bicycles.

and both sides of Briargate Parkway? 1

Proposed Access Points

Figure 3 shows the roadway connections that are planned to be constructed in the short term. As shown in Figure 3, in the short term Briargate Parkway is planned to be constructed to its final cross section between Vollmer Road and Sterling Ranch Road, Marksheffel Road is planned to be completed between Vollmer Road and Woodmen Road, and Sterling Ranch Road is planned to be constructed from Marksheffel Road to the northmost access point within the Sterling Ranch East Phase 1 Preliminary Plan area.

Figure 2 shows the access plan for the SRE Phase 1 Preliminary Plan. The access plan for this Preliminary plan is consistent with the access plan shown in the February 10, 2023 LSC Sketch Plan Master TIS.

Briargate Access Points

The Briargate Parkway-Stapleton Road Corridor Study Appendix D: Access Control Plan shows the access locations and intersection access restrictions along Briargate Parkway between Black Forest Road and Meridian Road. The currently proposed plan has several access points that are not included in the access control plan.

- The access control plan shows a right-in/right-out access point north and south of Briargate Parkway between Wheatland Drive and Sterling Ranch Road. The currently proposed Preliminary Plan shows two offset three-quarter movement (left-in/right-in/right-out only) access points. A deviation request is being submitted with this application for the north-side access. The south-side access is not part of these Sterling Ranch East applications. However, it has been shown in case the school district needs it for access and/or adequate school circulation. The access request would be reviewed at the time of development of the future school.
- The access control plan shows the intersection of Briargate Parkway/Sterling Ranch Road as a three-leg intersection. The currently proposed Preliminary Plan includes a north leg at this future full-movement signal-controlled intersection.

LSC Responses to TIS Redline Comments

Page: 2

Number: 1 Author: dsdrice Subject: Callout Date: 3/8/2023 5:23:26 PM -07'00'

and both sides of Briargate Parkway?

Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:51:53 AM

LSC Response: Revised to both sides.

Sterling Ranch Road Site Access Points (Intersection #303-#308)

The intersections of Lubbock Trail/Sterling Ranch Road (#303), Bellflower Drive/Sterling Ranch Road (#304), Lake Tahoe Drive/Sterling Ranch Road (#305), Newport Beach Place/Sterling Ranch Road (#306), Idaho Falls Drive/Sterling Ranch Road (#308) and Vancouver Street/Sterling Ranch Road (#309) are projected to operate at a satisfactory level of service (LOS C or better) during the peak hours as stop-sign-controlled intersections, based on the projected short-term and 2042 total traffic volumes

Briargate Parkway Site Access Points (Intersection #102-#103)

The intersection of Boulder City Place/Briargate Parkway and the future K-8 school access to Briargate Parkway are projected to operate at LOS B or better for all movements as three-quarter movement (left-in/right-in/right-out only) stop-sign-controlled intersections, based on the projected short-term and 2042 total traffic volumes.

Intersection # 307 (Tract M entrance) is not discussed 1

SIGNAL WARRANT THRESHOLD ANALYSIS – AM AND PM PEAK HOURS

The intersections of Marksheffel/Vollmer and Marksheffel/Sterling Ranch were analyzed to determine if the thresholds for Four-Hour and/or Eight-Hour Vehicular-Volume Traffic-Signal Warrant thresholds would be reached or exceeded, based on the projected short-term peak-hour traffic volumes only. In order for an Eight-Hour Vehicular Volume Traffic Signal Warrant to be satisfied, the volume threshold would need to be met for six additional hours of the day and in order for a Four-Hour Vehicular Volume Traffic Signal Warrant to be satisfied, the volume threshold would need to be met for two additional hours of the day. For example, the four-hour warrant would be satisfied with the volume thresholds met for one hour in the morning, two hours (instead of the one-hour peak) during the afternoon peak period, and an hour during the mid-afternoon.

This “cursory”/planning-level analysis has been provided at the Preliminary Plan level to identify intersections which may need to be signalized in the short-term future. Detailed analysis of all applicable signal warrants should be evaluated with Filing submitted. The satisfaction of warrants does not indicate that a signal must be installed. The decision to require a signal to be installed rests with the County.

Table 3 shows the results of the analysis for the intersection of Marksheffel/Vollmer and Table 4 shows the results of the analysis for the intersection of Marksheffel/Sterling Ranch. As shown in Tables 3 and 4, the projected short-term morning and afternoon peak-hour traffic volumes at both intersections are projected to meet the thresholds for both Four-Hour and Eight-Hour Vehicular Volume Traffic Signal Warrants. This analysis indicates that traffic signal warrant(s) may be met at both of these intersections prior to buildout of SRE Phase 1 Preliminary Plan. Detailed analysis should be provided with each future filing within the Preliminary Plan. Escrow towards these improvements may also need to be provided with each filing.

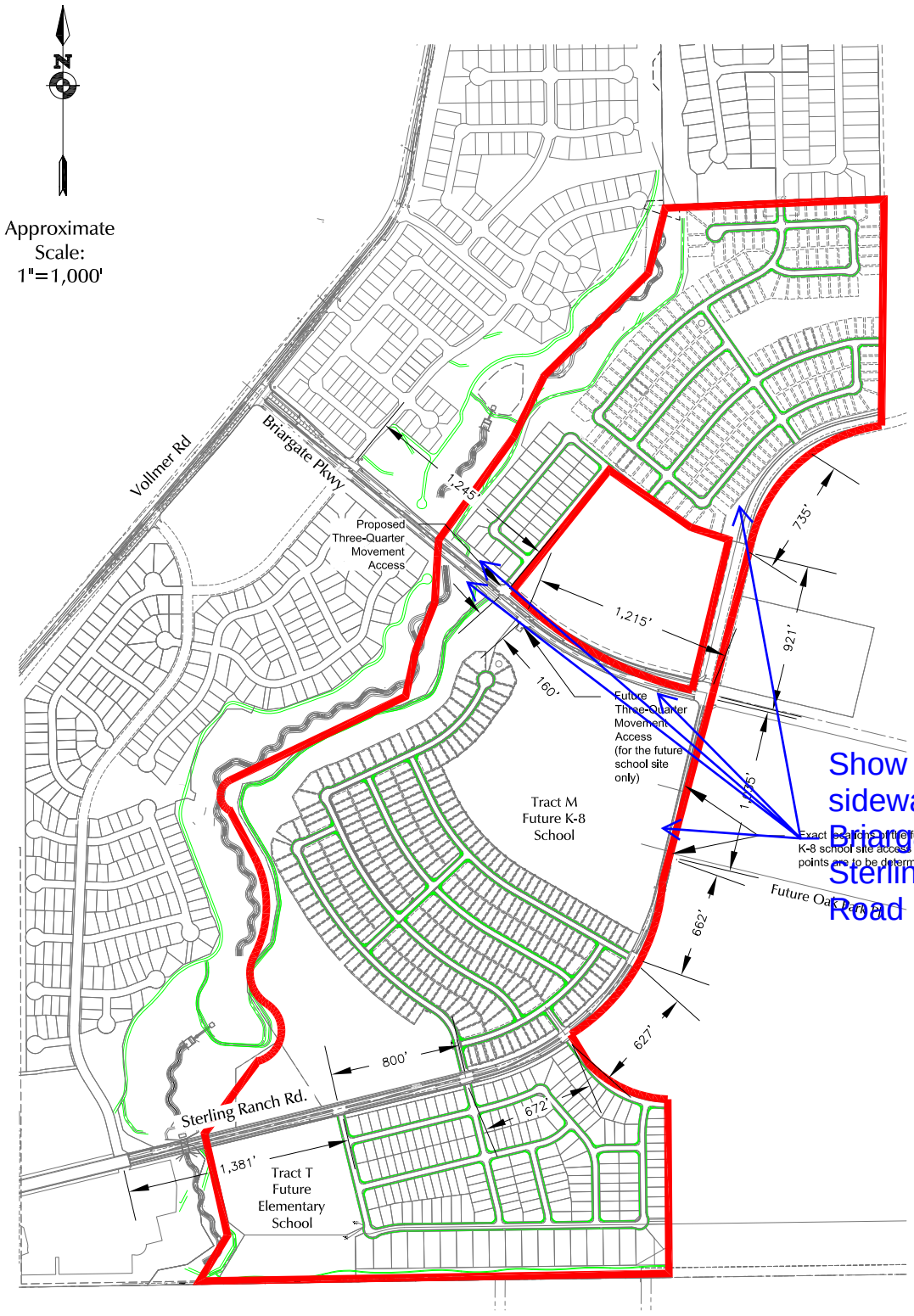
Page: 3

Number: 1 Author: dsdrice Subject: Cloud+ Date: 3/8/2023 6:20:39 PM -07'00'

Intersection # 307 (Tract M entrance) is not discussed

Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:51:58 AM

LSC Response: The additional information has been added as requested.



LEGEND:

Trail & Sidewalks

X,XXX' - Centerline Spacing of Intersections

TRANSPORTATION CONSULTANTS, INC.

Figure 2

Site Plan

Sterling Ranch East Rezoning and Preliminary Plan (LSC# S224440)

Page: 4

Number: 1 Author: dsdrice Subject: Callout Date: 3/8/2023 5:21:50 PM -07'00'

Show and label sidewalks along Briargate and Sterling Ranch Road

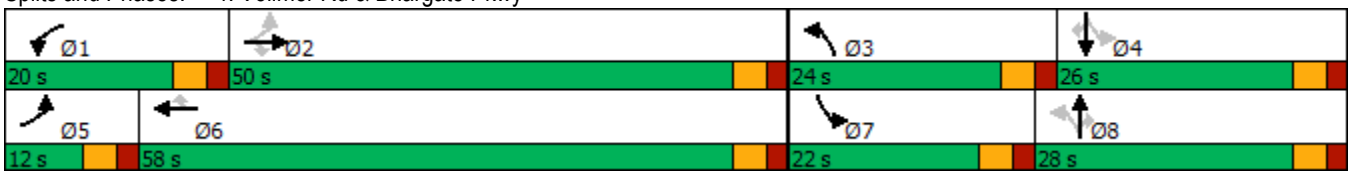
Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:52:01 AM

LSC Response: The figure has been revised as requested.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	922	184	190	690	67	300	415	246	96	211	118
Future Volume (vph)	227	922	184	190	690	67	300	415	246	96	211	118
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	50.0	50.0	20.0	58.0	58.0	24.0	28.0	28.0	22.0	26.0	26.0
Total Split (%)	10.0%	41.7%	41.7%	16.7%	48.3%	48.3%	20.0%	23.3%	23.3%	18.3%	21.7%	21.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	2.0	0.0	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	3.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	52.1	47.1	45.1	15.0	55.1	53.1	35.8	20.7	20.7	22.7	12.7	12.7
Actuated g/C Ratio	0.47	0.42	0.41	0.14	0.50	0.48	0.32	0.19	0.19	0.20	0.11	0.11
v/c Ratio	0.65	0.63	0.26	0.43	0.41	0.09	0.79	0.64	0.51	0.38	0.55	0.39
Control Delay	24.6	27.9	4.2	48.1	19.1	1.3	46.4	46.7	8.8	31.6	51.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	27.9	4.2	48.1	19.1	1.3	46.4	46.7	8.8	31.6	51.6	7.1
LOS	C	C	A	D	B	A	D	D	A	C	D	A
Approach Delay		24.0			23.7			36.8			34.7	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 28.5	Intersection LOS: C
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy



Page: 5

Number: 1 Author: dsdrice Date: 3/8/2023 7:26:57 PM -07'00'
-2.0 0.0 0.0 -2.0

Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:52:08 AM
LSC Response: The analysis has been updated to remove the lost time adjustments.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	923	58	49	816	49	139	135	28	47	58	100
Future Volume (vph)	272	923	58	49	816	49	139	135	28	47	58	100
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	25.0		10.0	25.0	
Total Split (s)	22.0	68.0	68.0	12.0	58.0	58.0	15.0	30.0		10.0	25.0	
Total Split (%)	18.3%	56.7%	56.7%	10.0%	48.3%	48.3%	12.5%	25.0%		8.3%	20.8%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	2.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	80.0	70.6	68.6	66.2	61.7	59.7	32.0	24.0	120.0	21.0	20.0	120.0
Actuated g/C Ratio	0.67	0.59	0.57	0.55	0.51	0.50	0.27	0.20	1.00	0.18	0.17	1.00
v/c Ratio	0.63	0.47	0.06	0.16	0.47	0.06	0.42	0.38	0.02	0.21	0.20	0.07
Control Delay	15.3	16.4	0.4	10.6	21.5	2.0	38.1	44.6	0.0	33.7	45.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	16.4	0.4	10.6	21.5	2.0	38.1	44.6	0.0	33.7	45.0	0.1
LOS	B	B	A	B	C	A	D	D	A	C	D	A
Approach Delay		15.4			19.9			37.5			20.5	
Approach LOS		B			B			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 77.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Sterling Ranch Rd & Briargate Pkwy

Page: 6

Number: 1 Author: dsdrice Date: 3/8/2023 7:27:36 PM -07'00'
-2.0 -2.0 0.0 0.0 -2.0

Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:52:11 AM
LSC Response: The analysis has been updated to remove the lost time adjustments.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	1014	184	210	745	74	300	415	283	109	211	118
Future Volume (vph)	227	1014	184	210	745	74	300	415	283	109	211	118
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0	15.0	8.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	20.0	20.0	20.0	20.0	20.0	13.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	53.0	53.0	20.0	61.0	61.0	22.0	28.0	28.0	19.0	25.0	25.0
Total Split (%)	10.0%	44.2%	44.2%	16.7%	50.8%	50.8%	18.3%	23.3%	23.3%	15.8%	20.8%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	3.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	55.1	50.1	48.1	15.0	58.1	56.1	35.6	20.3	20.3	25.3	14.5	14.5
Actuated g/C Ratio	0.48	0.44	0.42	0.13	0.51	0.49	0.31	0.18	0.18	0.22	0.13	0.13
v/c Ratio	0.68	0.67	0.25	0.49	0.44	0.09	0.83	0.67	0.59	0.43	0.50	0.37
Control Delay	26.6	28.8	4.7	51.1	19.3	1.6	52.7	50.0	12.0	33.9	50.1	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	28.8	4.7	51.1	19.3	1.6	52.7	50.0	12.0	33.9	50.1	6.5
LOS	C	C	A	D	B	A	D	D	B	C	D	A
Approach Delay		25.2			24.5			39.9			34.3	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.3	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 29.8	Intersection LOS: C
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Vollmer Rd & Briargate Pkwy

Page: 7

Number: 1 Author: dsdrice Date: 3/8/2023 7:27:45 PM -07'00'
0.0 -2.0 0.0 0.0 -2.

Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:52:14 AM
LSC Response: The analysis has been updated to remove the lost time adjustments.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	329	924	131	155	827	105	193	190	83	86	87	133
Future Volume (vph)	329	924	131	155	827	105	193	190	83	86	87	133
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		Free	4		Free
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	25.0		10.0	25.0	
Total Split (s)	22.0	68.0	68.0	12.0	58.0	58.0	15.0	30.0		10.0	25.0	
Total Split (%)	18.3%	56.7%	56.7%	10.0%	48.3%	48.3%	12.5%	25.0%		8.3%	20.8%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	2.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	3.0	5.0	5.0	3.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	77.0	65.0	63.0	61.8	56.8	54.8	35.0	25.0	120.0	25.0	20.0	120.0
Actuated g/C Ratio	0.64	0.54	0.52	0.52	0.47	0.46	0.29	0.21	1.00	0.21	0.17	1.00
v/c Ratio	0.77	0.51	0.15	0.54	0.52	0.14	0.57	0.52	0.05	0.36	0.30	0.09
Control Delay	24.6	18.6	2.8	19.4	24.0	5.3	41.3	47.6	0.1	38.3	46.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	18.6	2.8	19.4	24.0	5.3	41.3	47.6	0.1	38.3	46.8	0.1
LOS	C	B	A	B	C	A	D	D	A	D	D	A
Approach Delay		18.5			21.6			36.6			24.2	
Approach LOS		B			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 22.7	Intersection LOS: C
Intersection Capacity Utilization 83.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Sterling Ranch Rd & Briargate Pkwy

Remove lost time adjustments

Page: 8

Number: 1 Author: dsdrice Date: 3/8/2023 7:27:53 PM -07'00'
-2.0 -2.0 0.0 0.0 -2.0

Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:52:18 AM
LSC Response: The analysis has been updated to remove the lost time adjustments.

Number: 2 Author: dsdrice Subject: Callout Date: 3/8/2023 7:28:16 PM -07'00'

Remove lost time adjustments

Author: kdferrin Subject: Sticky Note Date: 3/15/2023 8:52:24 AM
LSC Response: The analysis has been updated to remove the lost time adjustments.