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October 22, 2020

Scott Mathot, PE
Town of Truckee
10183 Truckee Airport Road
Truckee, CA 96161

RE: Soaring Ranch Phase 2 Development—
Intersection Evaluation

Dear Mr. Mathot:

Per your request, LSC Transportation Consultants, Inc. has prepared an intersection evaluation regarding proposed Phase 2 of the Soaring Ranch Project, located on the south side of Soaring Way within the Town, immediately adjacent to the Soaring Phase 1 (Raley's shopping center) uses. First, 'existing conditions' traffic volumes are described, including the currently under-construction Phase 1 (Raley's) and Truckee Tahoe Lumber Company (TTLCo) developments located along the south side of Soaring Way. Next, the site-generated traffic volumes are estimated, and the trip generation of the current proposal is compared to that of Phases 1 and 2 from the 2016 Raley's traffic study. Finally, traffic operational impacts are evaluated for the following intersections, and potential mitigation measures are identified and assessed:

1. State Route (SR) 267/Brockway Road/Soaring Way
2. Brockway Road/Hope Court
3. Soaring Way/Joerger Drive

Project Description

The proposed Soaring Ranch Phase 2 (Phase 2 Project) land uses are as follows:

- 31,523 square feet of Commercial Floor Area, consisting of the following uses:
  - 15,984 square feet of "Shopping Center"
  - 6,339 square feet of "General Office Building"
  - 9,200 square feet of restaurant uses, with the following mix:
    - Quality Restaurant (20%, or 1,840 square feet)
    - High-Turnover (Sit-Down) Restaurant (50%, or 4,600 square feet)
    - Fast Food without Drive-Through Window (30%, or 2,760 square feet)
- 70 multi-family residential units (rental units)
  - 41 market rate units

- 21 workforce housing units
- 8 affordable housing Units (low-income)

All of the residential units would be rental units. Access to the project site would be provided via two driveways along the south side of Soaring Way, east of Joerger Drive. The western driveway would be shared with the Raley's shopping center, as shown in the site plan (Attachment A).

Existing Traffic Volumes

Existing volumes at the SR 267/Brockway Road/Soaring Way and Brockway Road/Hope Court intersections are provided in the *Brockway Road Corridor Study Update* (Scenario 1: "Existing With Phase 1 and TTLCo", LSC Transportation Consultants, Inc., August 20, 2020). Through traffic volumes at the adjacent intersections were estimated by balancing the eastbound and westbound traffic volumes along Brockway Road and Soaring Way. Year 2016 volumes at the Soaring Way/Joerger Drive intersection were developed as a part of the *Raley's Phase 1 Traffic Impact Analysis*. These volumes were then increased to 2020 conditions based on growth trends from published Caltrans data on SR 267 north and south of Brockway Road. Finally, the estimated traffic volumes generated by the currently-under-construction Phase 1 and TTLCo developments were added to the intersection. The resulting 'existing no project' intersection PM peak-hour turning-movement volumes are shown in Table 1.

TABLE 1: Existing No Project (Raley's Phase 1 and TTLCo) Volumes

Scenario 1

	Northbound			Southbound			Eastbound			Westbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Soaring/ Joerger	109	1	8	7	2	175	72	180	110	3	269	9	945
SR267/Brockway	306	976	51	176	507	143	177	135	300	45	223	285	3324
Brockway Road/Hope Court	1	0	4	0	0	0	0	608	1	14	658	0	1286

Source: LSC Transportation Consultants Inc.

Trip Generation

Trip generation is the evaluation of the number of vehicle-trips that will either have an origin or destination at the project site. Trip generation for the proposed project evaluates the number of vehicle trips that would be generated by the proposed land uses under existing year conditions. This analysis is conducted by first identifying appropriate "base" trip generation rates, multiplying these rates by the proposed land use quantities associated with the Phase 2 Project, and then applying appropriate adjustment factors to reflect the specific characteristics of the project and its location. Daily one-way vehicle-trips and peak-hour one-way vehicle-trips must be determined in order to analyze the potential impacts from the proposed project development. The trip generation analysis is summarized in Table 2.

The traffic engineering profession has developed an extensive database regarding the traffic generated by common land use types, as documented in the Institute of Transportation Engineer's (ITE) *Trip Generation, 10th Edition* manual and supplement (ITE, 2019). This document is typically used as the basis for traffic analyses in the Town of Truckee. In addition, incorporating locally-observed trip generation rates into the trip generation analysis is considered herein for the

proposed residential uses. The trip generation associated with the Phase 2 Project is primarily based upon the ITE trip rates, modified as discussed below to reflect various factors that tend to reduce the traffic generation of the project. As shown in the upper portion of Table 2, standard ITE trip generation rates are applied to the proposed commercial uses to estimate daily and PM peak-hour trip generation. This analysis is in accordance with the "Recommended Procedure for Selecting between Trip Generation Average Rates and Equations" methodology presented in the *Trip Generation Handbook, 3rd Edition* (ITE, August 2017). The trip generation of the proposed residential units is based on ITE's "Multi-Family Low-Rise" land use (ITE Land Use Code 220).

Local Trip Generation Data

Given the importance of traffic issues in the Tahoe/Truckee Region, there is a concern that the standard ITE trip generation rates (based on nationwide observations, much of which are made in larger urban areas) do not necessarily reflect traffic generation characteristics of the Tahoe/Truckee area. This analysis uses ITE trip generation rates, which is supported by local data as described below. An analysis of trip generation rates in the North Tahoe/Truckee area was recently conducted by LSC (under the direction of Placer County) as an element of the North Tahoe Resort Triangle Transportation Plan. Traffic, bicyclist and pedestrian counts were conducted at lodging, multi-family residential and single-family residential sites. Incorporating the locally-observed trip generation rates into the trip generation analysis for the Phase 2 Project is considered herein for the proposed multi-family uses.

Daily trip generation data was only collected at one multi-family residential site (Frishman Hollow, a very-low-income housing development in Truckee that consists of 16 two-bedroom and 16 three-bedroom units). The observed daily trip rates were about 50%-70% higher than the standard ITE rates for multi-family housing. The *Trip Generation Handbook* provides guidance on the use of local data to estimate trip generation. Data should be collected at a minimum of three sites. Given that daily trip generation data is only available from one local site, and that the proposed Soaring Ranch units are better-served by commercial uses, the observed daily trip rates at Frishman Hollow do not appear to be applicable to the proposed project.

PM peak-hour trip generation data was only collected at one market-rate multi-family site (Lake Forest Glen condominiums in Tahoe City). The observed PM peak-hour rate was approximately 43% lower than the standard ITE rate for multi-family housing. However, to remain conservative in this analysis and as PM trip generation data is only available from one local market-rate site, which has a mix of permanent and seasonal residences and pools, tennis courts and other amenities, the observed PM rates are not applied to the proposed market-rate units.

PM peak-hour trip generation data was collected at four existing low-income and very-low income housing developments, as follows:

- Kings Beach Housing Now (1-, 2- and 3-bedroom units)
- Sawmill Heights (studios, 1-, 2-, 3- and 4-bedrooms)
- Henness Flat (2- and 3- bedrooms)
- Frishman Hollow (2- and 3-bedrooms)

TABLE 2: Soaring Ranch Phase 2 - Trip Generation

Description	ITE Code	ITE Land Use	Quantity	Units	Trip Generation Rates[1] Daily	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Reduction for Internal Trips[2] Daily	Reduction for Internal Trips[2] Peak Hour	Reduction for External Non-Auto Trips	Project Generated Vehicle Trips at Site Access[3] Daily	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Reduction for Diverted Trips	New Trips on External Roadways Daily	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Proposed Commercial Land Uses																				
Retail Store	820	Shopping Center	15.98	KSF	37.75	1.83	1.98	3.81	27%	9%	3%	427	26	28	54	34%	282	17	19	36
Office Space	710	General Office Building	6.34	KSF	9.74	0.18	0.97	1.15	27%	29%	3%	44	1	4	5	0%	44	1	4	5
Restaurants			9.20	KSF																
	931	Quality Restaurant	1.84	KSF	83.84	5.23	2.57	7.8	27%	23%	3%	110	7	4	11	25%	83	5	3	8
	932	High-Turnover (Sit-Down) Restaurant	4.60	KSF	112.18	6.06	3.71	9.77	27%	23%	3%	366	21	13	34	43%	209	12	7	19
	933	Fast Food without Drive Through Window	2.76	KSF	346.23	14.17	14.17	28.34	27%	23%	3%	677	29	30	59	50%	339	15	15	30
Total Commercial			**31.52**	**KSF**								**1,624**	**84**	**79**	**163**		**957**	**50**	**48**	**98**
Proposed Residential Units																				
Market Rate Units	220	Multi-Family Low Rise	41	DU	7.32	0.35	0.21	0.56	30%	11%	5%	200	12	7	19	0%	200	12	7	19
Workforce Housing Units	220	Multi-Family Low Rise	21	DU	7.32	0.35	0.21	0.56	30%	11%	5%	103	7	3	10	0%	103	7	3	10
Low-Income	220	Multi-Family Low Rise	8	DU	7.32	0.35	0.21	0.56	30%	11%	5%	39	3	1	4	0%	39	3	1	4
Total Residential			**70**	**DU**								**342**	**22**	**11**	**33**		**342**	**22**	**11**	**33**
TOTAL PHASE 2 PROJECT									***28%***	***18%***	***3%***	***1,966***	***106***	***90***	***196***	***33%***	***1,299***	***72***	***59***	***131***

NOTE: KSF = 1,000 square feet of floor area

NOTE: DU = Dwelling Unit

NOTE 1: Trip generation rates are based on Trip Generation, 10th Edition (ITE, 2017).

NOTE 2: Internal trip reductions are based on the methodologies and procedures outlined in the Trip Generation Handbook, Third Edition (ITE, September 2017).

NOTE 3: The trips at the site driveways are not all new trips on the adjacent roadway network.

Source: LSC Transportation Consultants INC.

The observed weighted average weekday PM peak-hour trip rate (approximately 0.59 vehicle trips per unit) was about 5% higher than the standard ITE rate for multi-family housing (0.56). Developments with larger units had significantly higher observed trip rates than those with more studio or 1-bedroom units. As the proposed Soaring Ranch units are relatively small (studios and 1-bedroom units), the observed PM rates at the developments with all larger units (Henness Flat and Frishman Hollow) are not considered to be applicable. The Sawmill Heights trip rate (0.62) is also not appropriate given that those units are located relatively far from commercial attractions. The Kings Beach Housing Now site is relatively similar to the proposed Soaring Ranch site, although it has some larger units. The observed average weekday PM peak-hour trip rate at Kings Beach Housing Now was approximately 0.51 vehicle trips per unit, or about 9% lower than the standard ITE rate. After the 5% non-auto reduction (discussed below) is applied to the ITE rate, the effective trip rate is 0.53 vehicle trips per unit and is comparable to the Kings Beach Housing Now rate(?).

The *ITE Trip Generation Handbook* suggests that the weighted average rate for the local counted sites may be appropriate for use if it's at least 15% higher or lower than the comparative ITE standard rate. As the observed trip rates are relatively close to the standard ITE rate for multi-family housing, the observed PM rates are not applied to the proposed units.

Internal Trips

A portion of the total trips generated by the Soaring Ranch Phase 2 development are expected to be comprised of trips remaining within the site, as is typical of mixed-use developments. For example, some trips generated by the residential uses can be expected to be made to/from an on-site restaurant. It is appropriate to apply a reduction for these internal, as they would not affect the site driveways. Additionally, some trips generated by the proposed project would be made to/from the adjacent Raley's shopping center (such as a trip from a Phase 2 retail store to Raley's). As internal connections are provided between the proposed site and the Raley's shopping center parking areas, these trips also would not affect the site driveways on Soaring Way.

The internal trip generation of the proposed project is estimated based upon the internal capture rates for trip origins and destinations within a multi-use development presented in the ITE *Trip Generation Handbook*. The estimated reductions for trips remaining internal to the site and the adjacent shopping center are shown in Table 2. As shown in the middle column, the overall reduction for internal trips during the PM peak hour equates to approximately 18 percent. Note that this includes internal trips made via both automobile and non-auto modes.

Non-Auto Reduction

The site is located within walking distance of transit stops and a Class I trail (bike path) system. Some of the trips made to/from the site will be via non-auto modes, such as transit, pedestrian and bicycle trips. The trip generation rates presented in the ITE *Trip Generation* manual reflect a negligible level of transit use and the modest level of pedestrian/bicycle travel found in typical suburban settings. The majority of project-generated trips made by pedestrians or bicyclists would be made to/from the adjacent Raley's shopping center. Approximately 3% of external trips made to/from Phase 2 commercial uses and 5% of external trips to/from Phase 2 residential units are estimated to be made by non-auto modes. These reductions are applied in Table 2.

Trip Generation at Site Driveways

The number of vehicle trips generated at the site driveways on Soaring Way is estimated by subtracting the internal trips and external non-auto trips from the total trip generation. As shown in the right-hand portion of Table 2, the estimated total external trip generation at the site driveways is calculated to be approximately 1,966 daily one-way vehicle trips, of which 196 (106 inbound and 90 outbound) occur during the PM peak hour. Note that not all of these trips would be "new" trips to the surrounding roadway network.

Diverted Trip Reductions

A portion of trips associated with the proposed land uses are expected to be "diverted" trips, or trips attracted from the traffic on roadways within the vicinity of the generator (but without direct access to the site). As an example, a Northstar resident commuting to work in downtown Truckee passing by the site along SR 267 might stop at the site, thereby generating new trips on the site access driveway and Soaring Way, but not generating new trips along SR 267. The portion of diverted trips generated by the proposed commercial uses is estimated based upon a review of average pass-by trip percentages provided in the ITE *Trip Generation Handbook* for the proposed land use types. As shown in the right-hand portion of Table 2, overall, about 33 percent of the PM peak-hour project-generated external trips are estimated to consist of diverted traffic.

Trip Generation on External Roadways

Subtracting the diverted trips from the total trip generation yields the number of "new" vehicle trips generated on the adjacent roadway network. As shown in the far-right columns of Table 2, the estimated total external trip generation is calculated to be approximately 1,299 daily one-way vehicle trips, of which 131 (72 inbound and 59 outbound) occur during the PM peak hour.

Trip Distribution and Assignment

Trip distribution for the proposed Soaring Ranch Phase 2 Project under existing year conditions is estimated based upon a review of the trip distribution patterns developed for the *PC-3 Joerger Ranch Specific Plan Traffic Impact Analysis* (2016) and the locations of complementary land uses in the surrounding area. The estimated commercial and residential trip distribution patterns are provided in Table 3. As indicated, almost half (48%) of the external trips generated by the proposed Phase 2 commercial uses are expected to be made to/from SR 267 north of the site (via the SR 267 Bypass). Similarly, the majority (56 percent) of Phase 2 residential trips would be made via the SR 267 Bypass.

TABLE 3: Soaring Ranch Phase 2 - Trip Distribution

Origin / Destination	Distribution of External Project Trips: Commercial	Residential
Soaring Ranch Phase 2		
SR 267 North	48%	56%
SR 267 South	5%	4%
SR 267 South - via Truckee Airport Road	17%	12%
Truckee Airport Road	4%	4%
Brockway Road, West of Martis Drive	21%	19%
Joerger Drive	2%	4%
Hope Court	3%	1%
Total	*100%*	*100%*

Source: LSC Transportation Consultants, Inc. *Soaring Ranch Phase 2.xlsx*

Applying the estimated distribution pattern to the project-generated trips and adjusting the volumes to reflect diverted trips yields the resulting 'project net impact' on PM peak-hour intersection turning-movement volumes shown in Table 4. Adding these volumes to the 'no project' volumes yields the 'existing with project' volumes provided in Table 5.

TABLE 4: Soaring Ranch Phase 2 Project Net Impact on PM Peak-Hour Volumes

	Northbound			Southbound			Eastbound			Westbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Soaring/ Joerger	-10	0	-2	3	0	-1	0	78	-9	0	65	2	126
SR267/Brockway	0	-2	5	44	-16	0	0	20	0	4	15	35	105
Brockway Road/Hope Court	-1	0	2	0	0	0	0	18	0	1	14	0	34

Source: LSC Transportation Consultants Inc.

TABLE 5: Existing With Project (Scenario 1 Plus Soaring Ranch Phase 2) Volumes

Scenario 2

	Northbound			Southbound			Eastbound			Westbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Soaring/ Joerger	99	1	6	10	2	174	72	258	101	3	334	11	1071
SR267/Brockway	306	974	56	220	491	143	177	155	300	49	238	320	3429
Brockway Road/Hope Court	0	0	6	0	0	0	0	626	1	15	672	0	1320

Source: LSC Transportation Consultants INC.

Intersection Level of Service

Level of Service (LOS) analyses are performed at the three study intersections using the methodologies documented in the *Highway Capacity Manual, 6th Edition (HCM6)*, as applied in the

Synchro 10.0 software package developed by TrafficWare. The LOS evaluation assumes implementation of the currently-under-construction intersection improvements associated with the Raley's development approvals. Specifically, the SR 267/Brockway Road intersection is assumed to be expanded to include a separate left-turn, through and right-turn lane on each approach with accompanying signal timing improvements. The new roundabout at Soaring Way/Joerger Drive is also included under existing year conditions. The LOS results are summarized in Table 6, and the detailed LOS calculations are attached.

Under existing conditions without Phase 2 (Scenario 1), the Soaring Way/Joerger Drive roundabout operates at a good LOS A, while the SR 267/Brockway Road/Soaring Way intersection operates at an acceptable LOS D and the Brockway Road/Hope Court intersection operates at an acceptable LOS C. In other words, all study intersections currently operate at an acceptable LOS (assuming completion of the Raley's Phase 1 and TTLCo development projects currently under construction).

With the addition of the proposed Phase 2 project, the Soaring Way/Joerger Drive roundabout would continue to operate at LOS A, with a slight increase in average delays. The SR 267/Brockway Road/Soaring Way intersections would continue to operate at an acceptable LOS D, with an increase in average delays of approximately 9.1 seconds per vehicle. The Brockway Road/Hope Court intersection would improve from LOS C to LOS B, because some trips that currently turn left from Hope Court would instead turn right and go to the Phase 2 site (these trips would be "diverted" to the Phase 2 site). With implementation of the proposed project, all intersections would operate at an acceptable LOS.

TABLE 6: Soaring Ranch Phase 2 - Intersection LOS Summary

			Scenario 1 (With Raley's Phase 1 and TTLC)		Scenario 2 (Scenario 1 + Phase 2)	
Intersection	Intersection Control Type	LOS Threshold	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Joerger/Soaring Way	Roundabout	F[3]	6.1	A	6.6	A
SR 267/Brockway Rd/Soaring Way	Signalized	D	39.1	D	48.2	D
Hope Ct./Brockway Rd	TWSC	F[3]	15.3	C	12.7	B

TWSC = Two-Way Stop-Control

NOTE 1: Level of service for signalized intersections is reported for the total intersection.

NOTE 2: Level of service for roundabouts and other unsignalized intersections is reported for the worst movement.

NOTE 3: The Town of Truckee LOS standard states that "individual turning movements at unsignalized intersections shall not be allowed to reach LOS F and to exceed a cumulative vehicle delay of four vehicle hours."

Source: LSC Transportation Consultants, Inc.

Intersection Queuing Analysis

Traffic queues at specific intersections that exceed the storage capacity of turn lanes or ramps, or that block turn movements at important nearby intersections or driveways can cause operational

problems beyond those identified in the LOS analysis. The 95th-percentile traffic queue lengths (the length that is only exceeded 5 percent of the time during the analysis period) are reviewed at intersection locations where queuing could potentially interfere with adjacent roads or driveways.

Traffic Queues Without Project (Scenario 1)

Under existing year conditions without the proposed project (Scenario 1), the 95th-percentile queues on the eastbound left-turn and right-turn movements at the SR 267/Brockway Road/Soaring Way intersection are calculated to exceed the available turn lane storage lengths. The eastbound traffic queues potentially interfere with turns to/from Hope Court during peak periods, depending on the arrival patterns of eastbound left, through and right-turning vehicles. The average (50th-percentile) eastbound queues do not interfere with the adjacent intersection.

The 95th-percentile queues on the westbound right-turn movement at the SR 267/Brockway Road/Soaring Way intersection well-exceed the available turn lane storage length. The westbound traffic queues currently interfere with the adjacent Soaring Way/Joerger Drive roundabout during peak periods, although the average (50th-percentile) eastbound queues are not shown to interfere with the adjacent roundabout.

Traffic Queues With Project

With implementation of Phase 2 (Scenario 2), the 95th-percentile eastbound left-turn and through traffic queues at the SR 267/Brockway Road/Soaring Way intersection would increase by about one car length. This would minimally increase the potential for the queues to interfere with turns to/from Hope Court during peak periods. The 50th-percentile eastbound queues would not interfere with the adjacent intersection. The 95th-percentile westbound through traffic queue would not be affected by the project, although the westbound right-turn queue would increase by about 4 car lengths during the PM peak hour. This could increase the extent that the westbound traffic queues on Soaring Way interfere with the adjacent roundabout. Furthermore, the 50th-percentile westbound queues could potentially interfere with the roundabout during peak periods, depending on the arrival patterns of westbound left-turning and through vehicles. Provision of permitted/overlap phasing for the westbound right-turn movement onto SR 267 would minimize the potential for westbound traffic queues to interfere with the adjacent roundabout.

Turn Lane Warrant Analysis

The need for new turn lanes at the stop-controlled site access intersections is evaluated using the procedure discussed in the *National Highway Cooperative Research Program (NCHRP) Report 457: Evaluating Intersection Improvements: An Engineering Study Guide* (TRB, 2001). The left-turn lane warrants are based on the graphical plot of the opposing traffic volumes versus the advancing traffic volume (including turning traffic), the percentage of left-turning traffic, and the roadway design speed. Right-turn lane warrants are based on the graphical plot of the volumes of right-turning traffic versus advancing traffic, and the roadway design speed. The design speed of Soaring Way is assumed to be 40 mph for the purpose of this analysis. No new turn lanes are warranted along Soaring Way under existing year conditions, with or without the proposed Phase 2 project.

Trip Generation Comparison With 2016 Study

The trip generation of the current proposal is compared to that of Phases 1 and 2 from the 2016 *Raley's Shopping Center Phase 1 Traffic Impact Analysis* (LSC Transportation Consultants, Inc., 2016), and the results are presented in Table 7. As indicated, the current proposal generates substantially less traffic than the 2016 proposal. For instance, the current proposal would result in only roughly 60 percent of the level of "new" daily trips on external roadways as identified in the 2016 proposal.

TABLE 7: - Trip Generation Comparison Between 2016 Study and Current Proposal

					Project Generated Vehicle Trips at Site Access				New Trips on External Roadways			
						PM Peak Hour				PM Peak Hour		
Description	ITE Code	ITE Land Use	Quantity	Units	Daily	In	Out	Total	Daily	In	Out	Total
2020 Raley's / Soaring Ranch Trip Generation Update[1]												
Raley's Phase 1 (from 2020 Brockway Corridor Study Update)												
Grocery Store	850	Supermarket	35.48	KSF	3,713	169	160	329	2,376	108	103	211
Pad Building	820	Shopping Center	9.29	KSF	288	14	15	29	190	9	10	19
Mountain Hardware	816	Hardware / Paint Store	11.03	KSF	333	11	13	24	246	8	10	18
Total Raley's Phase 1			***55.80***	***KSF***	***4,334***	***194***	***188***	***382***	***2,812***	***125***	***123***	***248***
		Additional Internal Reduction of Phase 1 as a result of Phase 2			*-397*	*-17*	*-18*	*-35*	*-397*	*-17*	*-18*	*-35*
Soaring Ranch Phase 2												
Commercial Land Uses												
Retail Store	820	Shopping Center	15.98	KSF	427	26	28	54	282	17	19	36
Office Space	710	General Office Building	6.34	KSF	44	1	4	5	44	1	4	5
Restaurants												
	931	Quality Restaurant	1.84	KSF	110	7	4	11	83	5	3	8
	932	High-Turnover (Sit-Down) Restaurant	4.60	KSF	366	21	13	34	209	12	7	19
	933	Fast Food without Drive Through Window	2.76	KSF	677	29	30	59	339	15	15	30
Residential Units												
Market Rate Units	220	Multi-Family Low Rise	41	DU	200	12	7	19	200	12	7	19
Workforce Housing Units	220	Multi-Family Low Rise	21	DU	103	7	3	10	103	7	3	10
Low-Income	220	Multi-Family Low Rise	8	DU	39	3	1	4	39	3	1	4
Total Phase 2					***1,966***	***106***	***90***	***196***	***1,299***	***72***	***59***	***131***
TOTAL PHASES 1 & 2					**5,903**	**283**	**260**	**543**	**3,714**	**180**	**164**	**344**
2016 Raley's Phase 1 Study[2]												
Raley's Phase 1												
	850	Supermarket	35	KSF	2,469	117	112	229	1,580	75	72	147
	880	Pharmacy/Drugstore w/out Drive-Through Window	15.00	KSF	689	31	33	64	324	15	15	30
	932	High-Turnover (Sit-Down) Restaurant	6.00	KSF	298	14	9	23	170	8	5	13
Total Raley's Phase 1			***56***	***KSF***	***3456***	***162***	***154***	***316***	***2074***	***98***	***92***	***190***
Soaring Ranch Phase 2												
	820	Shopping Center	116.2	KSF	6,289	267	290	557	4,151	176	192	368
TOTAL PHASES 1 & 2					**9,745**	**429**	**444**	**873**	**6,225**	**274**	**284**	**558**
NET DIFFERENCE IN TRIP GENERATION (2016 Study-2020 Study)					***-3,842***	***-146***	***-184***	***-330***	***-2,511***	***-94***	***-120***	***-214***

NOTE: KSF = 1,000 square feet of floor area
NOTE: DU = Dwelling Unit
NOTE 1: 2020 Trip generation rates are based on Trip Generation, 10th Edition (ITE, 2017).
NOTE 2: 2016 Trip generation rates are based on Trip Generation, 9th Edition (ITE, 2012).

Source: LSC Transportation Consultants INC.

Conclusions

The following conclusions are made as a part of this analysis:

- The proposed Phase 2 project would result in a net increase of approximately 1,299 daily one-way vehicle trips on the surrounding roadway network, with approximately 131 occurring during the PM peak hour. However, the current proposal generates substantially less traffic than the 2016 proposal.

- With implementation of the proposed project, all study intersections would operate at an acceptable Level of Service.

- The eastbound traffic queues on Brockway Road approaching the signalized intersection with SR 267 currently may interfere with turns to/from Hope Court during peak periods. Implementation of the proposed Phase 2 project would minimally increase the potential for the queues to interfere with the Hope Court intersection.

- The 95th-percentile westbound traffic queues on Soaring Way approaching SR 267 currently interfere with the adjacent Soaring Way/Joerger Drive roundabout during peak periods. Implementation of the proposed Phase 2 project could increase the extent that the westbound traffic queues on Soaring Way interfere with the adjacent roundabout. Furthermore, with the project, the average (50th-percentile) westbound queues could also potentially interfere with the roundabout during peak periods. Provision of permitted/overlap phasing for the westbound right-turn movement onto SR 267 would minimize the potential for westbound traffic queues to interfere with the adjacent roundabout.

- No new turn lanes are warranted along Soaring Way under existing year conditions, with or without the proposed Phase 2 project.

Please contact our office with any comments or questions pertaining to this analysis.

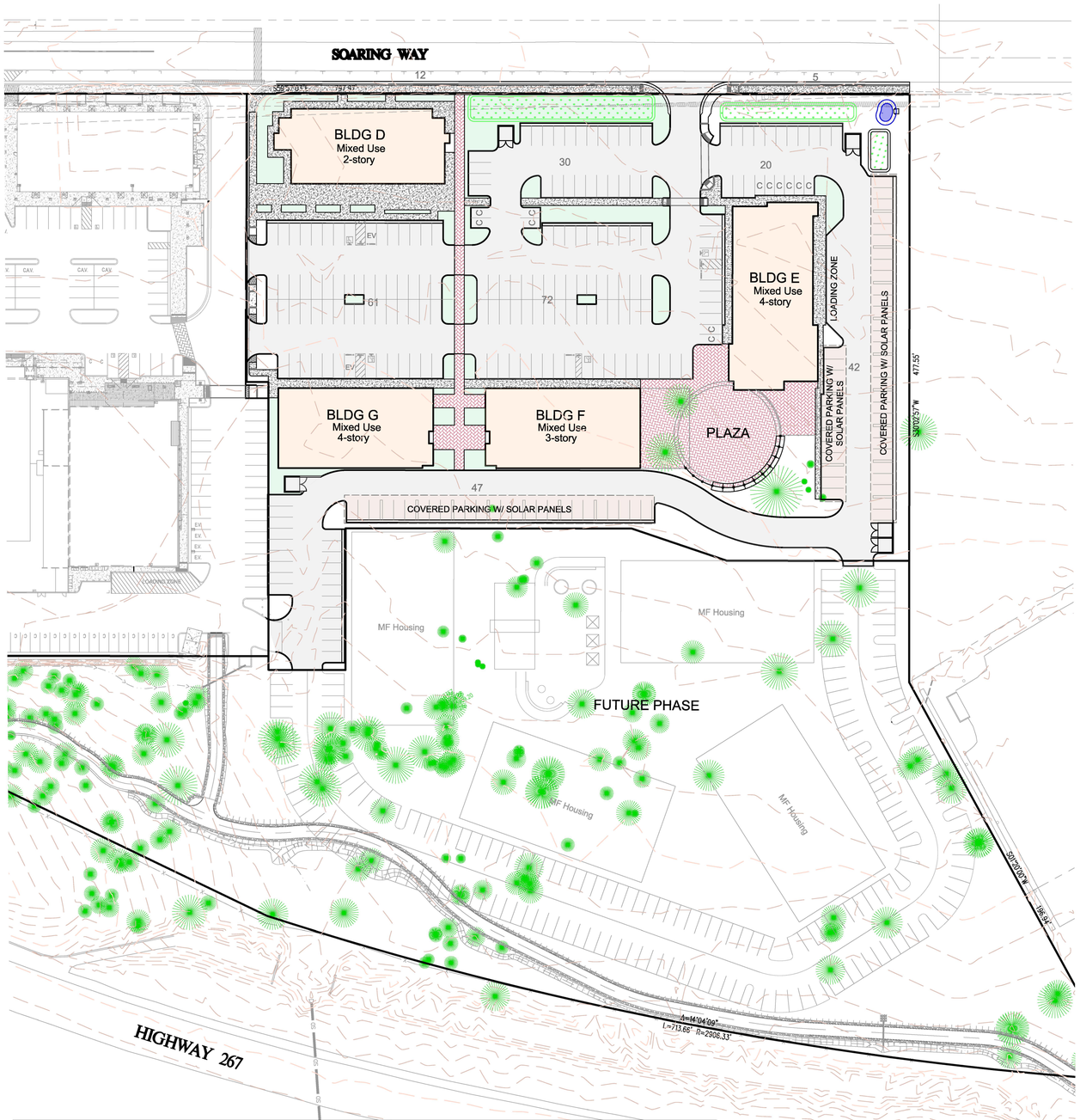
Respectfully Submitted,

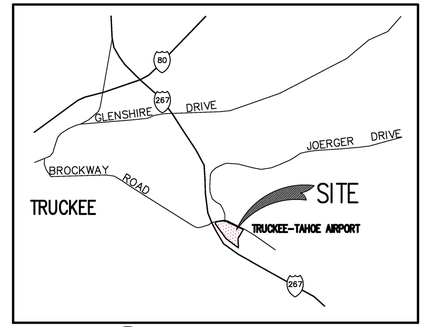
LSC TRANSPORTATION CONSULTANTS, INC.

By: Sara T. Hawley P.E.
Sara T. Hawley, PE, Principal

Enclosed: Attachment A: Site Plan
LOS Output

ATTACHMENT A





VICINITY MAP
N.T.S.

LEGEND	
	EXISTING TREES TO REMAIN
	PROPOSED SIDEWALK
	PROPOSED ASPHALT PAVEMENT
	PROPOSED LANDSCAPING (SEE LANDSCAPE PLAN)
	PROPOSED PERVIOUS PAVERS

PROJECT INFORMATION

DEVELOPER/APPLICANT
J-MAR I, LLC
PO BOX 3938
TRUCKEE, CA 96160
CONTACT: DAVID TIRMAN – 530.581.5472

PLANNING & ENGINEERING
MILLENNIUM PLANNING & ENGINEERING
471 SUTTON WAY, SUITE 210
GRASS VALLEY, CA 95945
530-446-6765
CONTACT: ROB WOOD, AICP

PLANNING & ARCHITECTURE
DALE COX ARCHITECTS
PO BOX 459
TRUCKEE, CA 96160
530-550-9144
CONTACT: PETER DEMATTEI

LANDSCAPE ARCHITECTURE
LJM DESIGN GROUP
PO BOX 507
TRUCKEE, CA 96160
530-587-6003
CONTACT: LAURA MELLO

SITE ADDRESS
10001 SOARING WAY
TRUCKEE, CA 96161

APN
19-620-60

SITE AREA
OVERALL SITE = 16.31± ACRES / PHASE 1B = 4.60 ACRES

WATER & ELECTRIC SERVICE
TRUCKEE DONNER PUBLIC UTILITY DISTRICT

SEWER SERVICE
TRUCKEE SANITARY DISTRICT

FIRE PROTECTION
TRUCKEE FIRE PROTECTION DISTRICT

SITE STATISTICS

LAND AREA	AREA	% OF SITE
ASPHALT PAVEMENT	2.28 AC	~49%
CONCRETE (WALKWAYS & PATIOS)	0.31 AC	~7%
BUILDING (FOOTPRINT)	0.79 AC	~17%
OPEN SPACE/LANDSCAPING	1.22 AC	~27%
TOTAL	4.60 AC	100%

PARKING (PHASE 1B ONLY)	PROPOSED	REQUIRED	COMMENTS
RETAIL (15,984 SF)	53	53	1 PER 300 SF
OFFICE (6,339 SF)	25	25	1 PER 250 SF / 1 PER 300 SF
RESTAURANT (9,200 SF)	*56	*56	1 PER 75 SF / 1 PER 300 SF
STUDIO & 1-BDRM UNITS (28)	42	42	1.5 PER UNIT – 1 COVERED
2- & 3-BEDROOM UNITS (41)	82	82	2 PER UNIT – 1 COVERED
GUEST STALLS (25%)	31	31	25% OF TOTAL RES SPACES
TOTAL	289	289	

*REDUCED FOR SHARED PARKING REDUCTION (SEE LETTER OF JUSTIFICATION)

COVERED STALLS = 69 (1 PER RESIDENTIAL UNIT)
COMPACT STALLS = 16 (6% OF TOTAL)

SHEET INDEX

MILLENNIUM PLANNING & ENGINEERING
471 Sutton Way, Suite 210
Grass Valley, CA 95945
530-446-6765
www.millenniumpe.com

SOARING RANCH - PHASE 1B
1001 SOARING WAY
OVERALL SITE PLAN
TOWN OF TRUCKEE CALIFORNIA

REV.	DESCRIPTION	DATE

DESIGNED: REW
DRAWN: DEC
PROJ. NO: 19-0609
DWG: SEE DAYSTAMP
DATE: NOVEMBER,2019

SHEET NUMBER
C1.0

Intersection	
Intersection Delay, s/veh	5.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	369	286	120	188
Demand Flow Rate, veh/h	376	291	122	192
Vehicles Circulating, veh/h	12	188	269	395
Vehicles Exiting, veh/h	575	203	119	84
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.1	5.6	4.5	6.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	376	291	122	192
Cap Entry Lane, veh/h	1363	1139	1049	922
Entry HV Adj Factor	0.982	0.981	0.983	0.979
Flow Entry, veh/h	369	286	120	188
Cap Entry, veh/h	1339	1118	1031	903
V/C Ratio	0.276	0.255	0.116	0.208
Control Delay, s/veh	5.1	5.6	4.5	6.1
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	135	300	45	223	285	306	976	51	176	507	143
Future Volume (veh/h)	177	135	300	45	223	285	306	976	51	176	507	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1856	1870	1870	1856	1870
Adj Flow Rate, veh/h	181	138	306	46	228	291	312	996	52	180	517	146
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	3	2	2	3	2
Cap, veh/h	192	360	456	237	349	296	514	1116	953	202	1005	858
Arrive On Green	0.04	0.19	0.19	0.03	0.19	0.19	0.10	0.60	0.60	0.04	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1856	1585	1781	1856	1585
Grp Volume(v), veh/h	181	138	306	46	228	291	312	996	52	180	517	146
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1856	1585	1781	1856	1585
Q Serve(g_s), s	4.0	7.3	19.3	2.4	12.8	20.7	8.3	52.3	1.5	4.0	20.0	5.3
Cycle Q Clear(g_c), s	4.0	7.3	19.3	2.4	12.8	20.7	8.3	52.3	1.5	4.0	20.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	360	456	237	349	296	514	1116	953	202	1005	858
V/C Ratio(X)	0.94	0.38	0.67	0.19	0.65	0.98	0.61	0.89	0.05	0.89	0.51	0.17
Avail Cap(c_a), veh/h	192	397	487	248	349	296	597	1116	953	202	1005	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	39.8	35.6	35.9	42.6	45.8	11.8	19.4	9.3	31.1	16.5	13.1
Incr Delay (d2), s/veh	49.1	0.7	3.3	0.4	4.3	47.7	1.3	11.0	0.1	35.7	1.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	6.0	12.2	1.9	10.3	17.5	5.0	29.4	0.9	8.6	12.6	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.1	40.5	38.9	36.3	46.9	93.6	13.1	30.4	9.4	66.8	18.4	13.5
LnGrp LOS	F	D	D	D	D	F	B	C	A	E	B	B
Approach Vol, veh/h		625			565			1360			843	
Approach Delay, s/veh		55.8			70.1			25.6			27.9	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	72.0	7.3	25.8	14.7	65.3	8.0	25.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	68.0	4.0	24.0	16.0	48.0	4.0	16.0
Max Q Clear Time (g_c+I1), s	6.0	54.3	4.4	21.3	10.3	22.0	6.0	22.7
Green Ext Time (p_c), s	0.0	5.8	0.0	0.5	0.4	3.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D

Notes

User approved changes to right turn type.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	608	1	14	658	1	4
Future Vol, veh/h	608	1	14	658	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	620	1	14	671	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	621	0	1320	621
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	699	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	960	-	173	487
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	493	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	960	-	170	487
Mov Cap-2 Maneuver	-	-	-	-	170	-
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	486	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	355	-	-	960	-
HCM Lane V/C Ratio	0.014	-	-	0.015	-
HCM Control Delay (s)	15.3	-	-	8.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Intersection Delay, s/veh	5.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	439	355	108	190
Demand Flow Rate, veh/h	447	362	110	194
Vehicles Circulating, veh/h	15	178	352	454
Vehicles Exiting, veh/h	633	284	110	86
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.7	6.2	4.9	6.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	447	362	110	194
Cap Entry Lane, veh/h	1359	1151	964	868
Entry HV Adj Factor	0.982	0.981	0.982	0.979
Flow Entry, veh/h	439	355	108	190
Cap Entry, veh/h	1334	1129	946	850
V/C Ratio	0.329	0.315	0.114	0.223
Control Delay, s/veh	5.7	6.2	4.9	6.6
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	155	300	49	238	320	306	974	56	220	491	143
Future Volume (veh/h)	177	155	300	49	238	320	306	974	56	220	491	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1856	1870	1870	1856	1870
Adj Flow Rate, veh/h	181	158	306	50	243	327	312	994	57	224	501	146
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	3	2	2	3	2
Cap, veh/h	184	360	457	230	354	300	522	1112	950	200	1000	855
Arrive On Green	0.04	0.19	0.19	0.03	0.19	0.19	0.10	0.60	0.60	0.04	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1856	1585	1781	1856	1585
Grp Volume(v), veh/h	181	158	306	50	243	327	312	994	57	224	501	146
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1856	1585	1781	1856	1585
Q Serve(g_s), s	4.0	8.5	19.3	2.6	13.7	21.5	8.4	52.5	1.7	4.0	19.3	5.3
Cycle Q Clear(g_c), s	4.0	8.5	19.3	2.6	13.7	21.5	8.4	52.5	1.7	4.0	19.3	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	184	360	457	230	354	300	522	1112	950	200	1000	855
V/C Ratio(X)	0.99	0.44	0.67	0.22	0.69	1.09	0.60	0.89	0.06	1.12	0.50	0.17
Avail Cap(c_a), veh/h	184	396	486	236	354	300	604	1112	950	200	1000	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.4	40.4	35.6	35.7	42.9	46.0	11.7	19.6	9.5	34.0	16.5	13.3
Incr Delay (d2), s/veh	62.1	0.8	3.3	0.5	5.5	78.3	1.2	11.1	0.1	100.0	1.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.4	7.0	12.2	2.0	11.0	22.0	5.0	29.5	1.0	14.4	12.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.5	41.2	38.9	36.2	48.3	124.3	12.9	30.7	9.6	134.0	18.3	13.7
LnGrp LOS	F	D	D	D	D	F	B	C	A	F	B	B
Approach Vol, veh/h		645			620			1363			871	
Approach Delay, s/veh		59.3			87.4			25.7			47.3	
Approach LOS		E			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	72.0	7.6	25.9	14.8	65.2	8.0	25.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	68.0	4.0	24.0	16.0	48.0	4.0	16.0
Max Q Clear Time (g_c+I1), s	6.0	54.5	4.6	21.3	10.4	21.3	6.0	23.5
Green Ext Time (p_c), s	0.0	5.8	0.0	0.5	0.4	3.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.2
HCM 6th LOS	D

Notes

User approved changes to right turn type.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	626	1	15	672	0	6
Future Vol, veh/h	626	1	15	672	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	639	1	15	686	0	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	640	0	1356	640
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	716	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	944	-	165	475
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	484	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	944	-	162	475
Mov Cap-2 Maneuver	-	-	-	-	162	-
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	476	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	475	-	-	944	-
HCM Lane V/C Ratio	0.013	-	-	0.016	-
HCM Control Delay (s)	12.7	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-