

MEMORANDUM

TO: Tom Kennedy
FROM: Dan Cokley, PE, PTOE
DATE: August 5, 2022
PROJECT: Society Turn Parcel, CO 145, MP 71.75
RE: Land Use Mix TIS - San Miguel County Preliminary Plan
 PUD/Subdivision Application update



The purpose of this memo is to provide an update of the Society Turn Parcel Traffic Impact Study (TIS) completed by SGM and originally submitted for the County Land Use Sketch Plan dated January 20, 2021. The Sketch Plan included the Land Use mix from the 1/20/21 TIS shown below in Table 1a.

TABLE 1A - PROPOSED DEVELOPMENT LAND USE (1/20/21)

Use	Amount	Units
Employee Housing	88	Units
Hotel	150	Rooms
Medical Center	40,000	sf
Office Park	111,075	sf
Retail	9,659	sf

The TIS submitted to CDOT dated October 8, 2021, provided resolution to initial CDOT comments from the 1/20/21 County submittal and included additional employee housing units, fewer hotel rooms and adjustments to Office Park area in response to Sketch Plan comments from the County.

Subsequently, in response to final CDOT comments, a March 10, 2022, Sensitivity Analysis memo tracked ongoing Land Use changes and provided additional definition to the Land Use mix to further specify the potential trip generation within the “Office Park” Land Use category. The 3/10/22 memo identified the upper limit Office Park retail and restaurant areas presented in the Sketch Plan application as “Retail and Eating / Drinking” at 26,800 sf. To provide trip generation, the square footage was categorized per ITE Trip Generation Manual as retail and restaurant uses.

The Land Use mix in the currently CDOT-approved 3/10/22 memo is shown in Table 1b.

TABLE 1B - PROPOSED DEVELOPMENT LAND USE (3/10/22)

Use	Amount	Units
Employee Housing	112	Units
Hotel	125	Rooms
Hospital	40,000	sf
Office Park	104,070	sf
Retail	11,440	sf
Quality Restaurant	8,580	sf
Sit-Down HT Restaurant	8,580	sf

The following table provides the updated land use mix as submitted in the Preliminary Plan PUD/Subdivision application to the County that will be applied to the CDOT Access Permit and associated updated TIS. This updated land use mix further breaks down the uses and densities occurring within the

Office Park designation and shows an increase of 9 Employee Housing units. The Preliminary Plan PUD/Subdivision land use mix is shown in Table 2.

TABLE 2 - PROPOSED DEVELOPMENT LAND USE (PRELIMINARY PLAN)

Use	Amount	Units
Employee Housing	121	Units
Hotel	125	Rooms
Hospital	40,000	sf
Office Park	112,095	sf
Retail	11,440	sf
Quality Restaurant	8,580	sf
Sit-Down HT Restaurant	8,580	sf

As indicated, the change in the Preliminary Plan Land Use consists of an additional 9 Employee Housing units and a reallocation of 8,025 sf of Office Park space. The resulting Trip Generation tables for each Land Use scenario are shown in Table 3 and Table 4 below.

TABLE 3 - PROPOSED DEVELOPMENT TRIP GENERATION (3/10/22)

Land Use	Variable units / ksf	AM IN	AM OUT	PM IN	PM OUT
Multi-Family (Low-rise)	112	11	30	18	13
Hotel	125	31	16	27	26
Hospital	40	23	10	11	25
Office Park	104.07	138	3	23	139
Retail	11.44	27	15	16	22
Quality Restaurant	8.58	3	3	30	11
Sit-Down HT Restaurant	8.58	25	21	38	15
		258	99	164	250

TABLE 4 - PROPOSED DEVELOPMENT TRIP GENERATION (PRELIMINARY PLAN)

Land Use	Variable units / ksf	AM IN	AM OUT	PM IN	PM OUT
Multi-Family (Low-rise)	121	12	32	20	14
Hotel	125	31	16	27	26
Hospital	40	23	10	11	25
Office Park	112.095	145	2	23	146
Retail	11.440	26	15	16	22
Quality Restaurant	8.580	2	2	30	11
Sit-Down HT Restaurant	8.580	26	22	38	15
		265	99	165	258

In review of Table 3 and Table 4, the trip generation increases about 3% from Table 3 to Table 4 for the AM design hour ingress movements and PM design hour egress movements. The critical AM egress movement remains the same volume.

The assignment of traffic at the proposed STP Road A access from the 3/10/22 memo is shown in Figure 1 for the AM (DHV 368) and PM (DHV 426) design hour.

		AM DESIGN HOUR				
SH 145		368				SH 145
	77	PCE (3% HEAVY VEHICLES)			181	
		30		69		
ROAD A						
		258	TOTAL	99		
		INGRESS		EGRESS		
		PM DESIGN HOUR				
PERMIT VOLUME						
		426				
	49	PCE (3% HEAVY VEHICLES)			115	
		75		175		
ROAD A						
		164	TOTAL	250		
		INGRESS		EGRESS		

**Figure 1 - March 2022
Road A Trip Assignment**

The assignment of traffic at the proposed STP Road A access for the Preliminary Plan Application is shown in Figure 2 below for the AM (DHV 374) and PM (DHV 435) design hour.

		AM DESIGN HOUR				
SH 145		374				SH 145
	79	PCE (3% HEAVY VEHICLES)			185	
		30		69		
ROAD A						
		265	TOTAL	99		
		INGRESS		EGRESS		
		PM DESIGN HOUR				
PERMIT VOLUME						
		435				
	49	PCE (3% HEAVY VEHICLES)			115	
		77		181		
ROAD A						
		165	TOTAL	258		
		INGRESS		EGRESS		

**Figure 2 - Preliminary Plan (8/22)
Road A Trip Assignment**

In review of Figures 1 and 2, the trip assignment maintained for the AM design hour excepting a slight increase in westbound left turns, while egress volumes increased slightly during the PM design hour.

Table 5 presents a comparison of the results of the 2042 Total Traffic capacity analysis between the 3/10/22 Land Use from the approved study and the Preliminary Plan Land Use for the proposed STP access Road A and the SH 145 Roundabout. (Table 5 is also comparable to Table 13 of 10/8/21 TIS)

TABLE 5 - 2042 TOTAL INTERSECTION LOS AND MOE BY MOVEMENT SUMMARY

			2042 TOTAL TRAFFIC									
			<u>Overall LOS</u>		<u>Overall Delay</u>		<u>LOS</u>		<u>Delay</u>		<u>95th Q</u>	
Approach	Movement		3/10/2022	Pre Plan	3/10/2022	Pre Plan	3/10/2022	Pre Plan	3/10/2022	Pre Plan	3/10/2022	Pre Plan
STP	NB Left	AM	A	A	3.7	3.7	E	E	38.4	39.3	65	71
Road A		PM	A	A	4.2	4.3	D	D	25.8	26.1	72	71
	NB Rigt	AM					C	C	15.7	15.7	11	20
		PM					B	B	10.4	10.4	16	21
	WB Lef	AM					B	B	11	11.1	122	126
		PM					A	A	8	8	55	55
SH 145	NB	AM	C	C	18	18	C	C	19.5	19.6	152	146
		PM	A	A	7.3	7.3	B	B	10.8	10.9	192	184
		WB Lef	AM				A	A	5.1	5.1	8	13
			PM				A	A	7.5	7.5	18	19
		EB	AM				C	C	24.5	24.5	847	672
			PM				A	A	8.1	8.2	125	123

MOE results in Table 5 show the LOS for all movements remains the same, the Delays remain the same or increase insignificantly, and the 95th percentile queue lengths do not change significantly when directly compared to the 3/10/22 approved study results.

Therefore, this analysis shows the proposed Preliminary Plan land use and associated traffic volumes are not a significant change when compared to the approved study and the results clearly indicate that the October 2021 TIS conclusions remain valid and the proposed mitigation measures are not changing.

The conclusions and proposed mitigation measures from the October 2021 TIS are re-stated below.

Summary of Conclusions

- The existing roadway network and adjacent intersections operate at an acceptable LOS in the total traffic scenario.
- The proposed access operates at an acceptable LOS in the total traffic scenario.
- A new access permit is required. The new permit volume is calculated to be a DHV of 435 in passenger car equivalents.

Proposed Mitigation Measures

- The STP Road A access intersection requires the following auxiliary turn lanes
 - WB left turn deceleration lane with storage length
 - EB right turn deceleration lane
 - EB right turn acceleration lane
- The STP Road A access intersection can provide acceptable sight distance, design sight triangles must be developed and maintained as clear zone with the development of this access to accommodate passenger vehicles, single-unit, and multi-unit trucks.
- The STP Road A access shall provide a two-lane egress (minimum 100 ft) to avoid internal blocking of the NB right turn egress lane by potential NB left turn queuing
- The STP Road A access shall provide NB right turn channelization to maximize efficient operation of the NB right turn lane and EB acceleration lane.