Central Coast Transportation Consulting
Traffic Engineering & Transportation Planning

MEMORANDUM

Date: October 28, 2019

To: Steve Weinberger, W-Trans

From: Travis Low, Michelle Matson, and Joe Fernandez, CCTC

Subject: Niblick Road Corridor Plan – Draft Existing Conditions Analysis

This memorandum summarizes the existing traffic conditions for the Niblick Road Corridor in the City of Paso Robles. Analysis is included for intersection operations, roadway capacity utilization, corridor travel times, and collision rates.

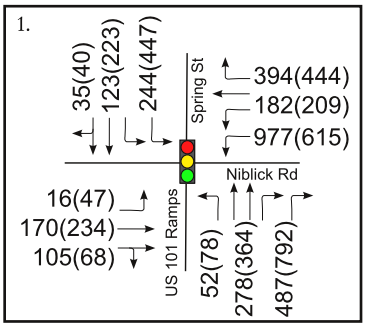
TRAFFIC COUNT DATA

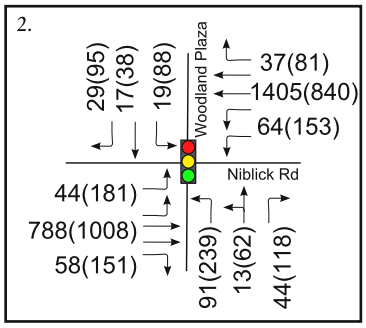
Peak period intersection turning movement counts and roadway segment average daily traffic (ADT) and speed counts were collected in January or August 2019 during clear weather and when local schools were in session. The study locations, existing traffic volumes, and lane configurations are shown in **Figure 1**.

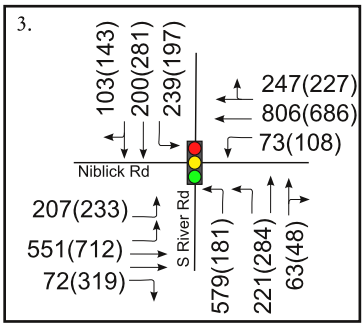
Field observations were conducted in August 2019 concurrent to the counts to observe the existing traffic operating conditions. The traffic count sheets are included in **Appendix A**.

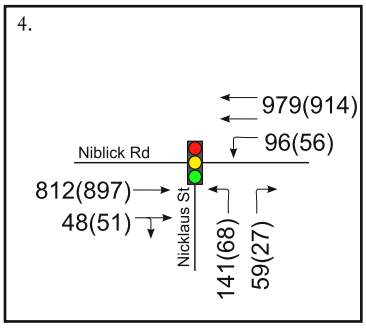
Based on the traffic count data, uniform peak hours for the corridor of 7:15-8:15 AM and 2:45-3:45 PM were selected for the intersection analysis.

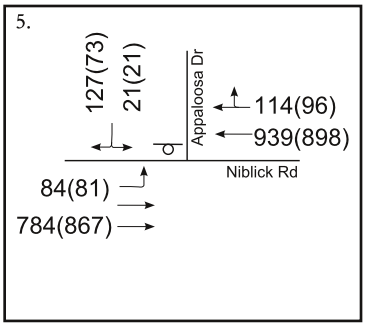
Figure 1: Existing Traffic Volumes and Lane Configurations

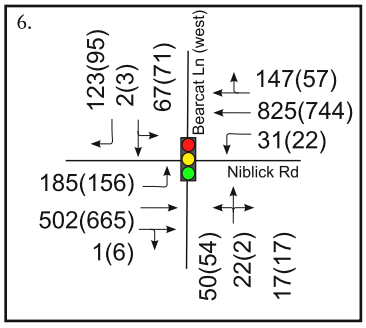


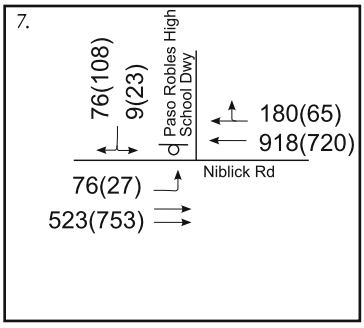


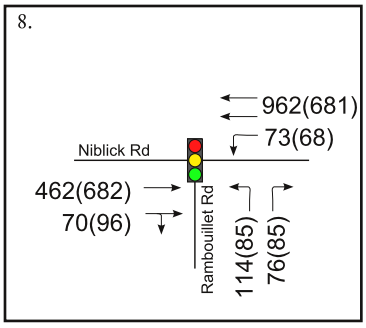


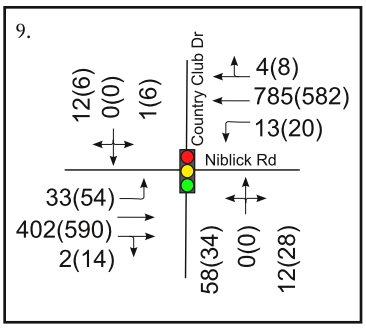


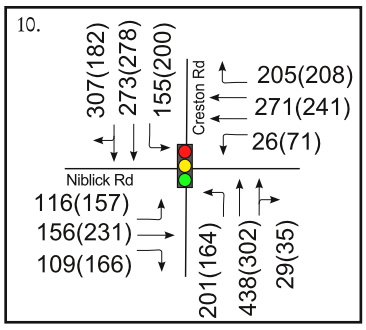


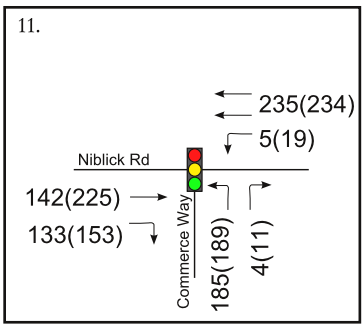












Legend:

- Traffic Signal
- xx(yy) - AM(PM) Peak Hour Traffic Volumes
- Average Daily Traffic Volume
- Stop Sign
- (17) - Study Intersection

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INTERSECTION DELAY/LOS

The study intersections were analyzed using the Synchro 10 software package applying the HCM 6 methodology. Data from signal timing sheets provided by the City was input to Synchro based on time of day. The signal timing sheets are included in **Appendix B**.

Table 1 shows the existing LOS for the study intersections, with the Synchro output sheets in **Appendix C** and warrant analysis sheets in **Appendix D**.

Table 1: Existing Intersection LOS

Existing Intersection Auto Levels of Service					
Intersection	Intersection Control[1]	Count Date	Peak Hour	Delay[2] (sec/veh)	LOS
1. Niblick Rd/Spring Street	Signal	August 2019	AM	34.7	C
			PM	34.5	C
2. Niblick Rd/Woodland Plaza	Signal	August 2019	AM	14.6	B
			PM	21.1	C
3. Niblick Rd/River Road	Signal	August 2019	AM	42.4	D
			PM	28.2	C
4. Niblick Rd/Nicklaus Street	TWSC	August 2019	AM	11.0	B
			PM	6.8	A
5. Niblick Rd/Appaloosa Drive	Signal	August 2019	AM	**17.2 (>200)**	**- (F)**
			PM	3.5 (65.6)	- (F)
6. Niblick Rd/Bearcat Lane (west)	Signal	August 2019	AM	28.3	C
			PM	20.8	C
7. Niblick Rd/Paso Robles High School	TWSC	August 2019	AM	2.0 (29.6)	- (D)
			PM	2.5 (29.6)	- (D)
8. Niblick Rd/Rambouillet Road	Signal	August 2019	AM	9.7	A
			PM	11.2	B
9. Niblick Rd/Country Club Drive	Signal	August 2019	AM	10.5	B
			PM	9.0	A
10. Niblick Rd/Creston Road	Signal	January 2019	AM	27.7	C
			PM	23.1	C
11. Niblick Rd/Commerce Way	Signal	January 2019	AM	6.8	A
			PM	7.1	A

1. TWSC = Two-way stop controlled
2. HCM 6th average control delay in seconds per vehicle. For side-street-stop controlled intersections the worst approach's delay is reported in parentheses next to the overall intersection delay.

Note: Unacceptable operations (LOS deficiency and signal warrant met) shown in **bold** text.

One stop-controlled study intersection operates below LOS D. Niblick Road/Appaloosa Drive (#5) operates at LOS F during the AM and PM peak hours. The peak hour signal warrant is met during the AM peak hour due to the sharp peak of school traffic. The warrant would not be met if separate southbound left and right turn lanes were provided or if a median refuge were provided to allow left turns to occur in two stages.

INTERSECTION QUEUING

Table 2 summarizes the existing vehicular queuing for key movements.

Table 2: Existing Queues

Existing Queues				
Intersection	**Movement**	**Storage Length (ft)**	**Peak Hour**	**95th Percentile Queues (ft)[1]**
1. Niblick Rd/Spring Street	WBL	520'	AM	**#577**
			PM	325
	WBR	115'	AM	51
			PM	**123**
	EB	275'	AM	133
			PM	231
	NBL	165'	AM	82
			PM	120
	NBR	405'/180'	AM	31
			PM	144
	SBL	305'	AM	137
			PM	255
2. Niblick Rd/Woodland Plaza	EBL	140'	AM	38
			PM	107
	EBR	100'	AM	5
			PM	13
	WBL	200'	AM	50
			PM	93
	WBT	435'	AM	**#712**
			PM	330
	WBR	85'	AM	5
			PM	34
3. Niblick Rd/River Road	EBL	140'	AM	**#168**
			PM	**148**
	EBT	440'	AM	289
			PM	368
	EBR	440'	AM	29
			PM	69
	WBL	80'	AM	**#126**
			PM	**160**
	NBL	150'	AM	**312**
			PM	110
	SBL	100'	AM	**295**
			PM	**247**
4. Niblick Rd/Nicklaus Street	WBL	150'	AM	97
			PM	62
6. Niblick Rd/Bearcat Lane (west)	EBL	265'	AM	163
			PM	141
	WBL	110'	AM	36
			PM	33
	WBT	310'	AM	**#395**
			PM	257
	SBL/T	200'	AM	72
			PM	73
	SBR	65'	AM	35
			PM	20
8. Niblick Rd/Rambouillet Road	EBT	208'	AM	125
			PM	191
	WBL	100'	AM	77
			PM	75
10. Niblick Rd/Creston Road	EBL	150'	AM	115
			PM	135
	WBL	170'	AM	40
			PM	76
	NBL	230'	AM	**#256**
			PM	#178
	SBL	245'	AM	#197
			PM	#242

1. Queue length that would not be exceeded 95 percent of the time.
# indicates that 95th percentile volume exceeds capacity, queue may be longer.
Bold indicates queue length longer than storage length.

The following queuing deficiencies are noted:

- Niblick Road/Spring Street (#1): The westbound left turn queue length exceeds storage length during the AM peak hour; however, the additional storage length is available in the adjacent left turn "trap" lane. The westbound right turn queue length exceeds storage length during the PM peak hour; however, the additional storage length is available in the bay taper.
- Niblick Road/Woodland Plaza (#2): The westbound through queue length exceeds the block length during the AM peak hour.
- Niblick Road/River Road (#3): Queues exceed storage length during at least one peak hour on the eastbound left, westbound left, northbound left, and southbound left turning movements. The additional storage for the eastbound left turn during the PM peak hour is available in the bay taper.
- Niblick Road/Bearcat Lane (west) (#6): The westbound through queue length exceeds the block length during the AM peak hour.
- Niblick Road/Creston Road (#10): The northbound left turn queue length exceeds storage length during the AM peak hour; however, the additional storage is available in the two-way left turn lane.

ROADWAY CAPACITY UTILIZATION

Table 3 shows the existing capacity utilization for the roadway segments.

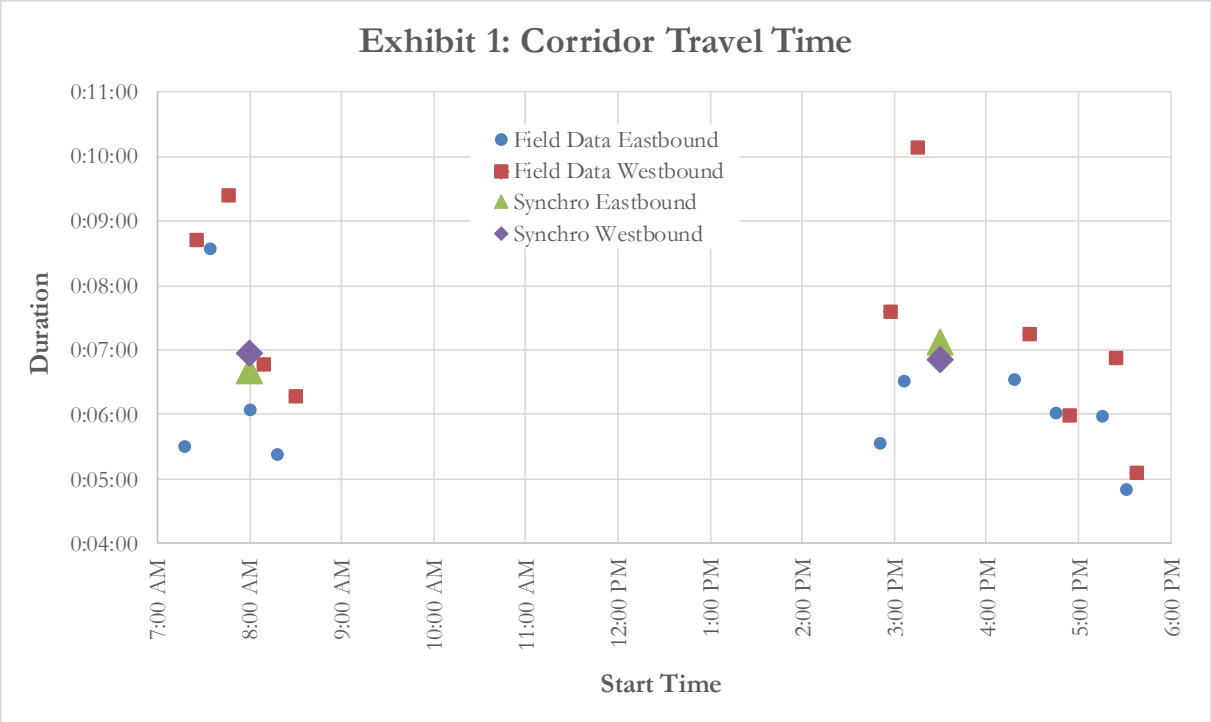
Table 3: Existing Roadway Segment Operations

Existing Roadway Segment Operations					
Street	**Segment**	**Facility Type**	**Lanes**	**ADT**	**Capacity Utilization**
Niblick Road	East of Spring Street	Arterial	4	29,780	80%
Niblick Road	West of Appaloosa Drive	Arterial	4	18,340	49%
Niblick Road	West of Melody Drive	Arterial	4	16,280	44%
Sherwood Road	East of Creston Road	Arterial	4	9,690	26%
Source: City of Paso Robles General Plan Circulation Element, 2011; CCTC, 2019.					

All roadway segments report a capacity utilization below 90%.

TRAVEL TIMES AND SPEEDS

Peak period corridor travel times runs were conducted on Tuesday, August 27, 2019. The limits of the travel time study were Oak Street to the west and Commerce Way to the east, a distance of approximately 2.2 miles. Corridor travel time runs are summarized on **Exhibit 1** with detailed data in **Appendix E**.



Corridor travel times peaked sharply during the start and end times of Paso Robles High School. Travel times ranged from approximately five to ten minutes. For a vehicle traveling at the posted speed and not experiencing any delay at intersections, the travel time would be approximately 3.4 minutes.

Exhibit 1 also shows the travel time calculated by the Synchro software model. The model's reported travel times are consistent with the field observed conditions, indicating that the model is appropriate for use in testing future conditions and the impacts of changes developed through the course of this study.

Speed data was collected during the roadway counts and is shown in **Table 4**.

Table 4: Existing Roadway Speeds

Existing Roadway Daily Speeds				
		Speed (Miles per Hour)		
Street	Segment	Posted	Average	85th %
Niblick Road	East of Spring Street	40	43	47
Niblick Road	West of Appaloosa Drive	40	39	42
Niblick Road	West of Melody Drive	40	40	43
Sherwood Road	East of Creston Road	40	41	43
Source: Metro Traffic Data and CCTC, 2019.				

Although there is congestion in the peak hours the spot speeds are close to the posted speed limit. The posted speed limit also complies with the California Vehicle Code (CVC).

COLLISION RATE ANALYSIS

The collision rate analysis was conducted using the Statewide Integrated Traffic Records System (SWITRS) database since the City's Crossroads database showed fewer collisions than SWITRS. The results of the collision rate analysis are shown in **Table 5**.

Table 5: Collision Rate Analysis

Collision Rate Analysis						
Intersection	MVE or ADT[1]	SWITRS Collisions[2]	Actual Rate[3]	State Ave. Rate[4]	Collisions Significant[5]	Significant?
1. Niblick Rd/Spring Street	12.09	22	0.61	0.43	27	No
2. Niblick Rd/Woodland Plaza	10.33	15	0.48	0.43	24	No
3. Niblick Rd/River Road	12.37	41	1.10	0.43	28	**Yes**
4. Niblick Rd/Nicklaus Street	7.57	8	0.35	0.28	14	No
5. Niblick Rd/Appaloosa Drive	7.49	5	0.22	0.14	9	No
6. Niblick Rd/Bearcat Lane (west)	7.05	4	0.19	0.43	18	No
7. Niblick Rd/PRHS driveway	6.35	1	0.05	0.14	8	No
8. Niblick Rd/Rambouillet Road	6.30	8	0.42	0.28	13	No
9. Niblick Rd/Country Club Drive	4.86	6	0.41	0.43	14	No
10. Niblick Rd/Creston Road	8.25	18	0.73	0.43	20	No
11. Niblick Rd/Commerce Lane	2.80	2	0.24	0.28	8	No
TOTAL		**130**				
Roadway Segment						
Niblick Rd (Spring to Woodland Plaza)	29,776	40	2.09	1.42	35	**Yes**
Niblick Rd (Woodland Plaza to Bearcat West)	18,343	53	4.92	1.42	30	**Yes**
Niblick Rd (Bearcat to Creston)	16,283	32	2.53	1.42	29	**Yes**
Niblick Rd (Creston to Commerce)	9,685	7	1.99	1.67	15	No
TOTAL		**132**				

1. MVE = Million Vehicle Entering (per year, for intersections). ADT = Average Daily Traffic (for roadway segments). Daily traffic entering intersections was calculated using the average of the AM and PM turning movement count volume multiplied by 10.
2. Based on 3 years of SWITRS data (2016-2018). Intersections: includes collisions within 250' of the intersection.
3. Collision rates are in units of collisions per million vehicle entering (intersections) or collisions per million vehicle miles (roadway segme
4. Average rate for similar facilities from Caltrans "2016 Collision Data on California State Highways".
5. Based on Caltrans Significance Test. Source: Caltrans Table C Task Force Summary Report, 2002.

Based on SWITRS data, there are significantly high collision rates at the following locations:

- Niblick Road/River Road intersection
- Niblick Road (Spring Street to Woodland Plaza) roadway segment
- Niblick Road (Woodland Plaza to Bearcat Lane West) roadway segment
- Niblick Road (Bearcat Lane West to Creston Road) roadway segment

Between 2013 and 2018, five collisions involving pedestrians and seven collisions involving bicycles occurred on the Niblick Road corridor. Three bicycle and two pedestrian collisions occurred between Woodland Plaza and River Road; however, no pattern was observed. Four of the bicycle collisions occurred at the intersection of Melody Drive, two were auto right-of-way violations and the other two the cyclists were traveling on the wrong side of the road. Additional collisions were also noted at the Melody intersection.

Please let us know if you have any questions.

APPENDICES

Appendix A: Traffic Counts and Speeds
Appendix B: Signal Timing Sheets
Appendix C: Synchro Output Sheets
Appendix D: Warrant Analysis Sheets
Appendix E: Travel Time Data Sheets