New Mexico DEPARTMENT OF TRANSPORTATION

August 12, 2020

Mr. Terry Brown, P.E.
P.O Box 92051
Albuquerque, New Mexico 87199

Subject: ABQ School of Excellence Expansion Traffic Impact Study
NM 556 (Tramway Blvd) at Lomas Blvd. (MP 14.1)
Albuquerque, New Mexico

Dear Mr. Brown:

This letter is to inform you that the **FINAL** Traffic Impact Study (TIS) for the proposed ABQ School of Excellence Expansion Project west of NM 556 on Lomas Blvd dated June 4, 2020 has been reviewed. See Exhibit A for the conceptual site plan and its proposed access point. The TIS recommendations can be found in Exhibit B. Since the time of this submittal revisions were made to the analysis and an addendum to the recommendations was submitted, see Exhibit C for this letter.

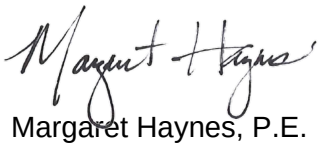
At this time, the NMDOT has no objection to the full access at Driveway "A" on Lomas Blvd. located 850-feet from NM 556. Although Driveway "A" is outside of NMDOT's jurisdiction it does not meet the State Access Management Manual's full access spacing requirements from the signalized intersection of NM 556 and Lomas Blvd. Based on this TIS, NMDOT has the following conditions regarding final concurrence of this development:

1. This development shall maintain staggered start times for middle/high school and elementary school as proposed in the attached email in Exhibit D.
2. This development shall extend the northbound left turn lane at NM 556 and Lomas Blvd to a total length of queue plus deceleration. This equates to 450-foot queue storage, 300-foot deceleration lane, plus 175-foot taper.
3. This development shall extend the southbound right turn lane at NM 556 and Lomas Blvd to a total length of 300-feet plus 175-foot taper. The existing lane configuration including the 5-foot bike lane shall be incorporated into the design.
4. This development shall extend the eastbound left turn lane at NM 556 and Lomas Blvd to a total length of queue plus deceleration. This equates to 230-foot queue storage, 200-foot deceleration lane, plus 125-foot taper.

5. This development shall extend the eastbound through lane at NM 556 and Lomas Blvd along the total length of the median.
6. This development shall extend the right turn deceleration lane on Lomas Blvd at Driveway "A" to prevent excessive queues reaching the signalized intersection of NM 556 and Lomas Blvd.

If you have any questions, please feel free to call me at 505.288.2086 or email me at Margaret.Haynes@state.nm.us

Sincerely,



Margaret Haynes, P.E.
District 3 Assistant Traffic Engineer

Copies:
Nancy Perea, NMDOT D3 DTE
Jill Mosher, NMDOT D3 ADE
Brad Julian, NMDOT GO
Kasey Miller, NMDOT GO
Keith Thompson, NMDOT D3
Peter Kubiak, NMDOT D3
Jeanne Wolfenbarger, COA
Matthew Grush, COA
Jim Roeder, COA
Tim Brown, COA
file

Attachments:
Exhibit A – Preliminary Site Plan
Exhibit B – TIS pages 21-22 – Summary of Deficiencies, Anticipated Impacts, and Recommendations
Exhibit C – Addendum letter from Terry Brown dated August 10, 2020
Exhibit D - Email from Terry Brown dated July 13, 2020

Exhibit A

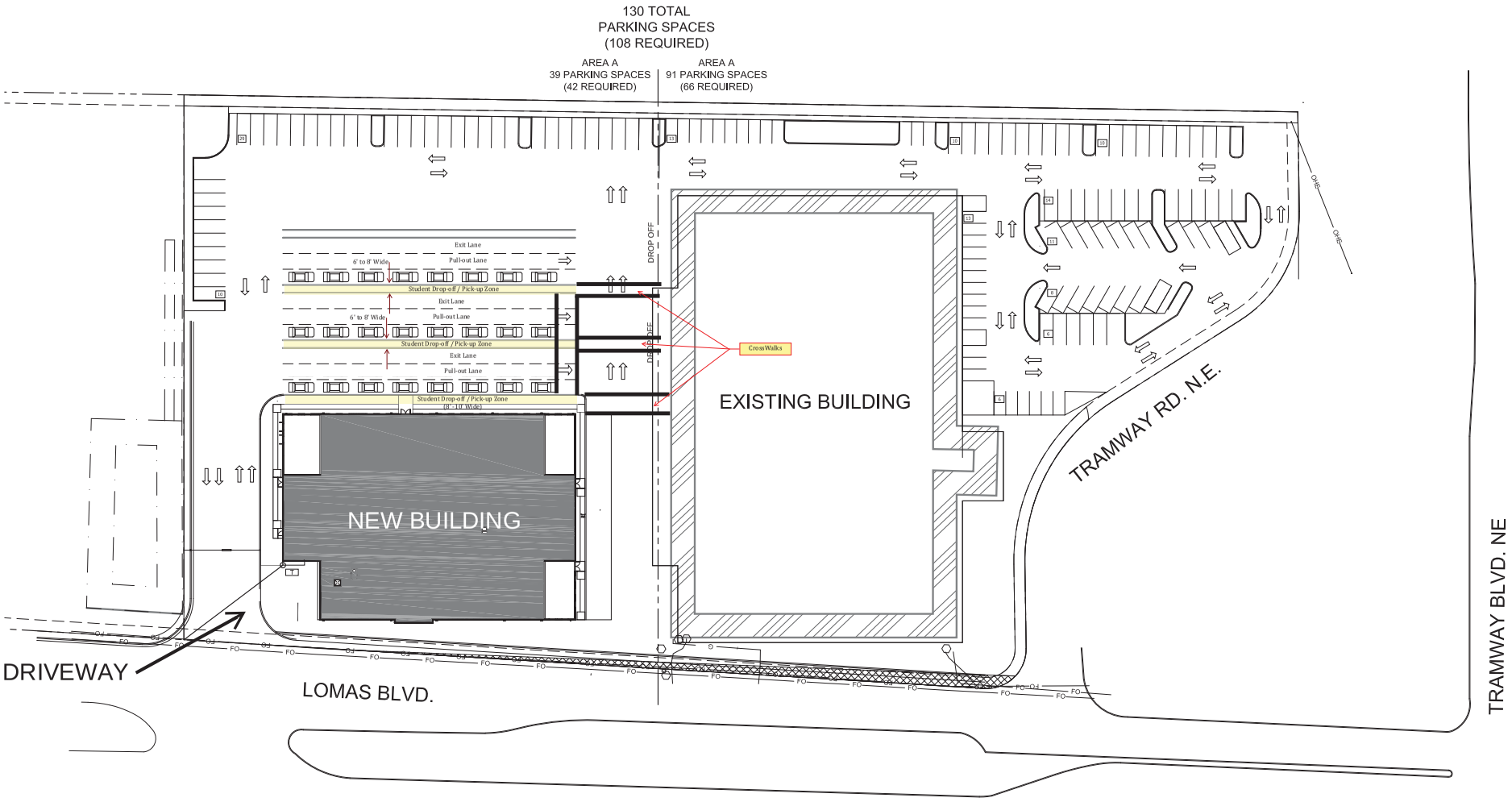

130 TOTAL
PARKING SPACES
(108 REQUIRED)
AREA A
39 PARKING SPACES
(42 REQUIRED)
AREA A
91 PARKING SPACES
(66 REQUIRED)
DROP OFF
DROP OFF
Exit Lane
Pull-out Lane
6' to 8' Wide
Student Drop-off / Pick-up Zone
Exit Lane
Pull-out Lane
6' to 8' Wide
Student Drop-off / Pick-up Zone
Exit Lane
Pull-out Lane
Student Drop-off / Pick-up Zone
(8' - 10' Wide)
CrossWalks
EXISTING BUILDING
NEW BUILDING
ONE
ONE
TRAMWAY RD. N.E.
TRAMWAY BLVD. NE
DRIVEWAY
LOMAS BLVD.

Exhibit B

Summary of Deficiencies, Anticipated Impacts, and Recommendations

The proposed ABQ School of Excellence expansion project will have a significant adverse impact to the adjacent transportation system, but the recommendations of this Study are provided below to mitigate those impacts to the degree possible.

Impact Assessment

The proposed Albuquerque School of Excellence expansion is like many other schools regarding its impact on the adjacent transportation system. As expected, there is congestion near the school during the AM Peak Hour and during the School PM Peak Hour. Both congested periods can be expected to last about 12 to 15 minutes after which time traffic conditions will quickly calm and return to normal. This is the case for most schools in the Albuquerque area of any significant size.

Access Design Specifications

Sight distance at Driveway "A" is adequate. There are no vertical or horizontal curves along this portion of Lomas Blvd., and there are no structures that are blocking sight distance into and out of the driveway.

There is no school zone designated on Lomas Blvd. for the ABQ School of Excellence. The City of Albuquerque Traffic Operations Division has determined that installing a school zone at this location is not appropriate.

Finally, there are children that may walk or ride their bicycles to school. There are sidewalks along Lomas Blvd., but almost no sidewalks connecting into the school site, especially from the west on Lomas Blvd. A sidewalk along the west side of the driveway connecting to the internal school site is suggested. (This would require a pedestrian gate be installed where there is a short fence section).

Mitigation Recommendations

Lomas Blvd. / Tramway Blvd. –

1. Lengthen the existing NBL lane from the existing length of 225 feet long plus transition to a total length of 300 feet long plus transition.
2. Modify the signal timing to reduce the existing delay in the SBT. (City of Albuquerque or NMDOT)
3. Lengthen the existing SBR lane from the existing length of 180 feet long plus transition to a total length of 270 feet long plus transition.

4. Lengthen the existing EBL lane from the existing length of 228 feet long plus transition to a total length of 360 feet long plus transition. Note: this will also require lengthening the northern EBT lane since this lane is the same length as the EBL

Lomas Blvd. /Driveway–

1. Extend the length of the existing WBR turn lane from 130 feet long to 430 feet long plus transition.
2. Extend the length of the existing EBL turn from 170 feet long to 370 feet long plus transition.
3. A sidewalk along the west side of Driveway "A" is recommended to connect the public sidewalk along the north side of Lomas Blvd. to the internal school parking area. (This will require that a short section of fence be replaced with a gate.)

Access –

Access to the ABQ School of Excellence should be via the driveway located 850 feet west of Tramway Blvd. (centerline to centerline). The southbound approach (north leg) of the driveway is designated as southbound right turn movements only and should remain as such.

Onsite Traffic Management –

To mitigate the increased traffic resulting from the expansion of the Albuquerque School of Excellence, the following measures are recommended:

1. Design the parking lot / student drop-off / pick-up areas to optimize traffic flow internally while preserving student safety. The preliminary site plan on Page A-3 in the Appendix of this report demonstrates a viable student drop-off / pick-up plan.
2. Onsite personnel in the parking lot student pick-up / drop-off area to direct traffic would be beneficial.
3. Place cones between entrance lanes during AM and school PM peak hours. Extend the line of cones into the west bound turn bay to prevent weaving between lanes.
4. Class schedules should be offset by at least 20 minutes to flatten out the peak flows of traffic into and out of the school parking lot student pick-up / drop-off area.

School Zone – It is recommended that the City of Albuquerque consider erecting school zone signs along Lomas Blvd. in the vicinity of the ABQ School of Excellence to alert traffic that they are in a school area. The City of Albuquerque has determined this is not a viable option.

Crash Analysis

A traffic and safety analysis using HCS7 Highway Safety Software (HSS) was performed to assess the safety performance of the signalized intersection of Lomas Boulevard, NE and Tramway Boulevard, NE. Existing (No Build) and developed (Build) conditions were analyzed. Tramway and Lomas are classified as a regional principal arterials with existing maximum Annual Average Daily Traffic (AADT) volumes of 27,600 and 10,400 respectively at their

Exhibit C

Terry O. Brown P.E.
Civil / Transportation Engineering

Monday, August 10, 2020

Margaret L. Haynes, P.E. District 3 Assistant Traffic Engineer
New Mexico Department of Transportation
7500 Pan American Freeway NE
Albuquerque, NM 87109

Re: ABQ School of Excellence (Addendum to FINAL Traffic Impact Study)

Dear Margaret:

Please let this letter serve as an Addendum to the FINAL Traffic Impact Study for the proposed ABQ School of Excellence as well as a response to your comments in your e-mail dated August 08,2020 regarding the ABQ School of Excellence.

The changes incurred for the project are a result of the revise analysis prepared by the New Mexico Department of Transportation for the 2020 AM Peak Hour Conditions related to the signalized intersection of Lomas Blvd. / Tramway Blvd. It is my understanding that the NM DOT did not agree with my approach to use Arrival Type IV on Tramway Blvd. to model the progression on Tramway Blvd., but rather assumed a proportion arrival on green instead. In the future, I will know that analysis of a signalized intersection on a State facility that is coordinated must include the coordinated signal(s) adjacent to the signal in question.

Brad Julian was kind enough to share his HCS7 signalized analysis file with me for the revised 2020 AM Peak Hour BUILD Conditions associated with the ABQ School of Excellence. The 2020 AM Peak Hour BUILD analysis was the critical analysis in determining the mitigation requirements at Lomas Blvd. / Tramway Blvd. Based on the Multiple Period Analysis for the 2020 AM Peak Hour BUILD Conditions, the intersection of Lomas Blvd. / Tramway will experience a deficient length for the northbound left turn lane. The Queue Storage Ratio for the northbound left turn lane achieves a maximum value of 1.51 during the 7:45 to 8:00 AM interval. The existing northbound left turn lane is 300 feet long. Increasing the length of the northbound left turn lane from 300 feet long to 453 feet long will contain the calculated queue length (95th Percentile). The posted speed limit on Tramway Blvd. at this location is 50 M.P.H. The required deceleration length for a left turn lane on a 50 M.P.H. roadway is 475 feet (including 175 feet transition). Therefore, based on your requirements, the northbound left turn deceleration lane will need to be extended to a total length of 928 feet (including the 175 feet long transition).

Also based on the Multiple Period Analysis for the 2020 AM Peak Hour BUILD Conditions, the intersection of Lomas Blvd. / Tramway Blvd. will contain sufficient southbound right

Re: ABQ School of Excellence (Addendum to FINAL Traffic Impact Study)

turn lane to contain the calculated southbound right turn queueing (95th Percentile). The Queue Storage Ratio for the southbound right turn lane never exceeds 0.94. The existing southbound right turn lane is assumed in the HCS7 analysis to be 300 feet long. The 300 feet long right turn lane is of sufficient length to contain the calculated queue length (95th Percentile). Your August 08 e-mail states that auxiliary lane lengths must be calculated based on queuing plus deceleration. Therefore, the southbound right turn deceleration lane should be lengthened to a total length of 775 feet (including 175 feet long transition).

The revised HCS7 analysis from the NM DOT demonstrates that the eastbound left turn lane on Lomas Blvd. at Tramway Blvd. has a maximum Queue Storage Ratio of 0.64 assuming that the eastbound left turn lane is lengthened to 360 feet long (as recommended in the Traffic Impact Study). The calculated maximum 95th Percentile Queue Length for the eastbound left turn movement on Lomas Blvd. at Tramway Blvd. is approximately 230 feet. The existing length of the eastbound left turn lane is approximately 210 feet. The posted speed limit on Lomas Blvd. is 40 M.P.H. Therefore, to meet the SAMM requirements, the eastbound left turn lane on Lomas Blvd. at Tramway Blvd. should be lengthened to a total length of 555 feet (including 125 feet long transition). This would include the calculated queue length of 230 feet plus the deceleration distance of 325 feet.

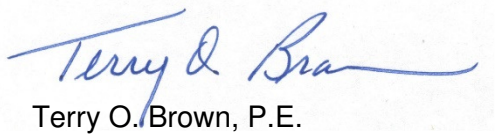
Attached is the Multiple Period Analysis table for the 2020 AM Peak Hour BUILD Conditions associated with the ABQ School of Excellence based on the NM DOT's assumption of proportion arrival on green on Tramway Blvd. at Lomas Blvd.

The following table summarizes the auxiliary lane lengths required based on SAMM:

Auxiliary Lane	**Total Length**
NB Left Turn Lane	928 feet long (including 175 feet long transition)
SB Right Turn Lane	775 feet long (including a 175 feet long transition)
EB Left Turn Lane	555 feet long (including a 125 feet long transition)

Please call me if you have questions.

Best Regards,



Terry O. Brown, P.E.

attachments as noted

cc: Ronald R. Bohannan, Tierra West, LLC w/attachment

Intersection # 1 Lomas Blvd. / Tramway Blvd.

Conditions: 2020 AM Peak Hour BUILD Conditions

Geometric Data

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Shared Lane	No	0	No	No	0	No	No	0	No	No	0	No
Receiving Lanes		2			2			2			2	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Turn Bay Length	360	0	228	165	0	300	300	0	200	183	0	300
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0

Demand (veh/p)

Time-Period	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
7:00 AM	15	7	0	54	30	39	39	164	11	5	252	36
7:15 AM	20	16	0	68	36	46	62	160	24	12	308	50
7:30 AM	35	19	0	78	41	54	75	222	11	22	328	79
7:45 AM	32	25	0	50	53	52	92	247	31	11	325	97
8:00 AM	47	36	0	51	33	27	60	174	19	12	304	81
8:15 AM	16	21	0	49	36	30	20	142	33	10	275	46

V/C Ratio (X)

Time-Period	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
7:00 AM	0.247	0.094	0	0.66	0.257	0.634	0.375	0.283	0.037	0.037	0.452	0.145
7:15 AM	0.317	0.191	0	0.835	0.306	0.675	0.696	0.288	0.085	0.088	0.581	0.212
7:30 AM	0.387	0.122	0	0.726	0.247	0.592	0.95	0.465	0.044	0.236	0.763	0.416
7:45 AM	0.427	0.195	0	0.532	0.375	0.67	1.085	0.481	0.118	0.124	0.71	0.476
8:00 AM	0.659	0.398	0	0.678	0.365	0.486	0.664	0.316	0.068	0.094	0.586	0.351
8:15 AM	0.256	0.247	0	0.615	0.284	0.426	0.215	0.254	0.116	0.069	0.5	0.188

Delay (s/veh)

Time-Period	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
7:00 AM	47.6	50.9	0	49.2	47	48.5	8.7	9.2	4.2	7.7	12.4	9.5
7:15 AM	45.9	50.2	0	63	47.2	47.6	17.2	10.6	5.3	8.5	16.2	11.8
7:30 AM	36.5	41.7	0	45.9	41.7	41.5	63.6	18	8.7	15	28.6	21.7
7:45 AM	39.9	45.3	0	40.3	45.3	45.5	99.5	15.7	7.4	13.2	24.6	20.7
8:00 AM	48.7	50.7	0	49.9	50.5	48.1	26.2	11.3	5.5	9.2	17.1	14.2
8:15 AM	46.3	50.4	0	45.9	46.1	44.2	9.3	10.2	5.4	7.7	13.5	10.4

Level of Service (LOS)

Time-Period	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
7:00 AM	D	D	Free Right	D	D	D	A	A	A	A	B	A
7:15 AM	D	D	Free Right	E	D	D	B	B	A	A	B	B
7:30 AM	D	D	Free Right	D	D	D	E	B	A	B	C	C
7:45 AM	D	D	Free Right	D	D	D	F	B	A	B	C	C
8:00 AM	D	D	Free Right	D	D	D	C	B	A	A	B	B
8:15 AM	D	D	Free Right	D	D	D	A	B	A	A	B	B

Queue Storage Ratio (QSR)

Time-Period	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
7:00 AM	0.2	0	0	1.62	0	0.66	0.17	0	0.05	0.04	0	0.22
7:15 AM	0.27	0	0	1.12	0	0.75	0.37	0	0.14	0.1	0	0.36
7:30 AM	0.42	0	0	1.02	0	0.81	0.99	0	0.09	0.28	0	0.81
7:45 AM	0.4	0	0	1.34	0	0.81	1.51	0	0.24	0.13	0	0.94
8:00 AM	0.64	0	0	1.57	0	0.45	0.52	0	0.12	0.11	0	0.66
8:15 AM	0.22	0	0	1.41	0	0.48	0.1	0	0.2	0.08	0	0.3

Intersection Delay and LOS

Time-Period	Delay (Secs)	LOS
7:00 AM	19.1	B
7:15 AM	23	C
7:30 AM	31	C
7:45 AM	32.1	C
8:00 AM	23.4	C
8:15 AM	19.4	B

K. **Speed Change Lanes:** Speed change lanes should be designed based on the following specifications. The criteria for determining the need for speed change lanes are described in Section 17. Schematic illustrations of speed-change lanes are included in Appendix E.

(1) **Length of Deceleration Lanes:** Deceleration lanes typically consist of three components: transition taper, deceleration distance, and queue storage. Each of these components are described below. Deceleration lanes should be designed so that a turning vehicle will develop a speed differential of 10 mph or less at the point it clears the through traffic lane. The length of the lane should allow the vehicle to come to a comfortable stop prior to reaching the end of the expected queue in the lane. Table 18.K-1 contains standard deceleration distances and transition tapers. Vehicle queue storage lengths are discussed in Paragraph

Lomas Blvd. (40 MPH)

Tramway Blvd. (50 MPH)

Table 18.K-1
Deceleration and Acceleration Lengths (feet)

Speed Change Lane Condition	Posted Speed (mph)									
	25	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
Deceleration Distance										
Stop Condition	150	200	250	325	400	475	550	650	725	850
Slow to 15 mph	130	175	230	300	370	450	525	620	700	820
Deceleration Taper										
Length for 12-foot Lane	50	75	100	125	150	175	200	225	250	250
Straight Line Ratios (L:W)	4:1	6:1	8:1	10.5:1	12.5:1	14.5:1	16.5:1	18.5:1	21:1	21:1
Acceleration Lane Length	NA	190	270	380	550	760	960	1,170	1,380	1,590
Acceleration Taper										
Length for 12-foot Lane	NA	100	120	150	170	180	230	270	300	300
Straight Line Ratios (L:W)	NA	8:1	10:1	12.5:1	14:1	15:1	19:1	22.5:1	25:1	25:1

This table assumes level terrain and acceleration distances for the passenger car/pickup design vehicle. Refer to the text discussion of Sub-Section 18.K for additional guidance regarding the design of speed change lanes.

(a) **Transition Taper**: Deceleration tapers should be straight line tapers with rounded beginning and ending points. Deceleration taper lengths and ratios are provided in Table 18.K-1. Deceleration taper lengths do not require adjustment for grade. Exceptions to the deceleration tapers in Table 18.K-1 include:

i. On urban highways with posted speed limits between 45 mph and 55 mph, left-turn deceleration tapers may be designed using 300-foot radius/600-foot radius asymmetric reverse curve tapers according to the width of the speed-change lane and/or median.

Exhibit D

Haynes, Margaret, NMDOT

From: Terry Brown <terryobrown@outlook.com>
Sent: Monday, July 13, 2020 7:01 AM
To: Haynes, Margaret, NMDOT
Cc: Julian, Brad, NMDOT; Perea, Nancy, NMDOT; Bohannan, Ronald; Niski, Jonathan; Brown, Timothy J.; Ayik, Mustafa
Subject: [EXT] RE: ABQ School of Excellence - School Schedules

Categories: Red Category

Margaret,

I have been coordinating with the school principal (headmaster) with regard to structuring the school start-up and ending schedule to "flatten the curve" (that is, spreading out the peak period over a one hour period of time instead of all of it occurring within about 15 minutes). The following describes what is expected to be the school schedule. The text below has been reviewed and approved by the principle (Mustafa Ayik) as well as key members of the ABQ School of Excellence staff:

As a result of the shut-down ordered by the Governor of New Mexico, the ABQ School of Excellence has plans for opening the Fall, 2020 semester with a modified schedule. Approximately 1/3 of the students will be attending classes at the school on Mondays and Tuesdays, 1/3 of the students will be attending classes at the school on Thursdays and Fridays, and the final 1/3 will be attending online classes from home. Total targeted enrollment for Fall, 2020 is 1049 students. On the days that school classes will be held (Mondays, Tuesdays, Thursdays, and Fridays), there will be two start times and two ending times. The start times and ending times for each group of students are summarized as follows:

COVID – 19 Schedule (AM / PM):

Mid-High / High School – Begin Class at 7:45 am / End class at 3:20 PM (1/3 of students on Mondays and Tuesdays, 1/3 of the students of Thursdays and Fridays, and 1/3 of the student online).

Elementary School Students (K-5) – Begin class at 8:05 AM / End class at 2:45 PM (1/3 of students on Mondays and Tuesdays, 1/3 of the students of Thursdays and Fridays, and 1/3 of the student online).

Each of the two sessions above will have approximately 1/3 of the students (and, therefore, approximate 1/3 of the trips) assumed in the traffic impact study.

Additionally, it should be considered that the school has a breakfast program for the students that begins at 7:15 AM. Approximately half of the students participate in the breakfast program, so arrive between 6:55 AM and 7:25 AM.

There are also after school day-care and tutoring programs to benefit the students and their parents.

Based on this information, the Traffic Impact Study should over-estimate the trip generation rate for the expanded school during the State of New Mexico shut-down period (Phase 2).

When the COVID-19 crisis is over the schedule will return to what will be the normal schedule for the foreseeable future. Best estimation of that schedule is as follows:

Post COVID – 19 Schedule

For all students:

AM Schedule:

Pre-class breakfast program begins at 7:15 am and extends until 8:00 am (roughly 50% of students participate in the breakfast program)

Mid-High and High School Students begin class at 7:45 AM (approx.. 494 students)

Elementary (K-5) students begin class at 8:05 AM. (approx.. 432 students)

PM Schedule:

High School Students eligible to leave to attend Community College Classes – 2:00 PM (About 80 Students)

Elementary School class dismissal for the day – 2:45 PM (approx. 432 students)

(After school tutoring program / study hall, etc. for elementary students begins 2:50 PM until 5:30 PM) (approx.. 200 students)

Mid-High and High School class dismissal for the day - 3:10 PM. (approx. 494 students)

(After school tutoring program / study hall, etc. for mid-high and high school students begins 3:15 PM until 5:30 PM) (approx.. 250 Students)

To summarize the post-COVID conditions will be that students will begin arriving (for the breakfast program) about 6:55 am, mid-high / high school classes will begin at 7:45 am, and elementary classes will begin at 8:05 am. That should spread out the arrival of the students for about an hour. Similarly, school will gradually end with select high school students leaving campus at 2:00 to attend community college courses, elementary school ending at 2:45 pm, mid / high school ending at 3:10 pm, and there will be after school tutoring / study hall time from about 2:50 to about 5:30 pm. Students, then will be exiting the campus at various intervals beginning at 2:00 until about 5:30 pm.

Please call me if you have questions or need additional information.

Best Regards,

Terry O. Brown, P.E.
P. O. Box 92051
Albuquerque, NM 87199-2051
(505) 883-8807 – Office
(505) 270-6981 – Cell
e-mail: terryobrown@outlook.com

From: Haynes, Margaret, NMDOT <Margaret.Haynes@state.nm.us>
Sent: Wednesday, July 8, 2020 10:39 AM
To: Terry Brown <terryobrown@outlook.com>
Cc: Julian, Brad, NMDOT <Brad.Julian@state.nm.us>; Perea, Nancy, NMDOT <Nancy.Perea@state.nm.us>; Bohannan, Ronald <rrb@tierrawestllc.com>; Niski, Jonathan <jniski@tierrawestllc.com>; Brown, Timothy J. <tjbrown@cabq.gov>;