CITY OF ALBUQUERQUE



September 29, 2017

Graeme Means High Mesa Consulting Group 6010-B Midway Park Blvd. NE Albuquerque, NM 87109

Re: Mark 3S Holly Development 9300 Holly Ave. NE Traffic Impact Study Engineer's Stamp dated 09-28-17 (C20-D062)

Dear Mr. Means,

The subject Neighborhood Impact Study received on Sep. 29, 2017 has been reviewed and approved by the Transportation Development Section. All comments have been adequately addressed.

PO Box 1293

The final Neighborhood Impact Study shall be valid for a period of three years. Should significant modifications to the approved development proposal occur, the approved study shall be revised to incorporate the changes.

If you have any questions, please feel free to contact me at (505) 924-3630.

Albuquerque

NM 87103

www.cabq.gov

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Sincerely,

Logan Patz Senior Engineer, Planning Dept. Development Review Services

via: email C: Applicant, File



City of Albuquerque

Planning Department Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Mark 3S Holly Development	Building Permit #:	City Drainage #: C20/D062
DRB#: 1005237 EPC#:	17 EPC-40032, 17 EPC-40033	Work Order#:
Legal Description: Lots 6,7,8, Block 20, North Albuquerque A	Acres	
City Address: 9300 Holly Ave NE Albuquerque, NM 87122		
Engineering Firm: High Mesa Consulting G		Contact: J. Graeme Means #13676
Phone#: (505) 345-4250	505) 345-4254	E mail: ameans@highmesacg.com
		E-man. gineans@inginnesacg.com
Owner: Mark 3S Inc.		Contact: Tina Patel
Address: 1720 Louisiana Blvd NE, Albuquerque NM 87110		
Phone#: (505) 220-7587 Fax#:	11.22	E-mail: tnpatel@flash.net
Architect: Benjamin Gardner		Contact: Benjamin Gardner
Address: PO Box 40071 Albuquerque NM 87196		
Phone#: (505) 720-6817 Fax#:		E-mail: benjaming@dpsdesign.org
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-none# Fax#:		E-mail:
HYDROLOGY/ DRAINAGE TRAFFIC/ TRANSPORTATION MS4/ EROSION & SEDIMENT CONTROL FYPE OF SUBMITTAL: ENGINEER/ ARCHITECT CERTIFICATION CONCEPTUAL G & D PLAN GRADING PLAN DRAINAGE MASTER PLAN DRAINAGE REPORT CLOMR/LOMR TRAFFIC CIRCULATION LAYOUT (TCL) TRAFFIC IMPACT STUDY (TIS - NIA) EROSION & SEDIMENT CONTROL PLAN (ESC)	BUILDING P CERTIFICAT O G 2017 PRELIMINAL SITE PLAN H SITE PLAN H SITE PLAN F FINAL PLAT SIA RELEAS FOUNDATIO GRADING PE GRADING / P WORK ORDER CLOMR/LOW	ERMIT APPROVAL E OF OCCUPANCY RY PLAT APPROVAL FOR SUB'D APPROVAL FOR BLDG. PERMIT APPROVAL APPROVAL SE OF FINANCIAL GUARANTEE IN PERMIT APPROVAL ERMIT APPROVAL ERMIT APPROVAL AD CERTIFICATION R APPROVAL IR
OTHER (SPECIFY)	PRE-DESIGN	MEETING
S THIS A RESUBMITTAL?: Yes No	OTHER (SPE	CIFY)
DATE SUBMITTED: 09/06/2017	By: Justin Schara	
DA STAFF: ELECTRONIC SUBMITTAL RECEIVED:		



September 1, 2017

Logan Patz, P.E. Senior Engineer **Transportation Development Section** 600 2nd St. NW, Suite 201 Albuquerque, NM 87102

Re: Mark 3S Holly Development (Montessori One Elementary School) City Project # 1005237

A Neighborhood Impact Assessment (NIA) meeting was held August 25, 2017 with J. Graeme Means, PE (Consultant Team, HMCG) and Racquel Michel and Logan Patz (COA Transportation Development). Per that meeting, the following NIA scope items have been reviewed and addressed as part of the site traffic assessment study.

NIA Requirement Items Checklist

1) Project Description.

The proposed project is an expansion to the current Montessori One Preschool and Elementary School campus. After several years of successful operation and growth, Montessori One plans to expand their site and add a third building dedicated for infants. They have acquired additional property to the west of the current site, and are proposing new building construction along with site parking, access, and circulation improvements.

The main element of the proposed expansion is a new 11,066 SF building dedicated to an infant development program designed to serve approximately 24 children initially, with maximum capacity of 48. The expansion will include a new drive entrance, new paved parking and landscaping. A new playground will be constructed between the proposed building and the existing building to the west, displacing existing parking. To maintain circulation, there will be modifications to the existing site parking.

This is an infill project, with the new expansion replacing the previous landscape retail and storage yard. The last remaining temporary section of Holly will be paved with permanent pavement and curb and gutter, and the sidewalk extended across the frontage and beyond to the west by this project.

2) Baseline Community Data (identifying existing conditions with respect to adjacent land uses, traffic patterns, traffic turning movements and volumes, nearby multimodal transportation options, area pedestrian movements, and any other relevant information as follows).

Principals: Charles G. Cala, Jr., P.S. + Juan M. Cala + Joseph M. Solomon, Jr., P.S. + J. Graeme Means, P.E. + Joseph E. Gonzales In Memoriam: Jeffrey G. Mortensen, P.E.

The site is located along Holly Ave NE. Holly Ave is a 2-lane, 30 mph local street with residential development to the north and commercial to the south. There is no residential frontage along the street and the transportation modes serving the road include motor vehicles, pedestrians and bicyclists. No changes will result from the proposed development.

3) Site Traffic Assessment (STA).

a. Site total capacity for student enrollment.

The site capacity is a function of the total development. Based upon existing and future development, the site will accommodate 243 students.

b. Anticipated student enrollment.

The site currently contains both a daycare and elementary school. Current enrollment in the daycare is 98 students with accommodation for 130 and the elementary school has 22 students with a capacity of 65. The new facility has an anticipated enrollment of 31 students with a capacity of 48 students.

c. Trip Generation (using Trip Generation Manual, 9th Edition).

Project trips were generated using the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition and estimated trip data from the developers. The ITE manual has a daycare land use, #565, that was used as the primary trip generation. Trips for this land use can be generated based upon the total building area, number of students, or number of employees. The Montessori school has provided their planning estimates for students (48 maximum) and employees (13) for the new 11,066 SF building. Trip generation was performed for each 'unit' type as well as the developer provided data and the results are shown in Table 1.

LU Code	Development	No.	Units	Daily	AM In	AM Out	PM In	PM Out
565	Daycare							
	Based Upon GFA	11066	SF	877	75	67	48	55
	Based Upon Students	48	Students	213	21	19	19	21
	Based Upon Employees	13	Employees	367	34	30	29	33
	Based upon Planning Estimate			244	34	27	24	29
	Final Trip Generation			367	34	30	29	33

Table 1 Trip Generation - Proposed Land Use

The ITE alternatives provide varied results from peak hour trips greatly exceeding the number of students to likely underestimating the demand for the site. After generating the developer estimated trips based upon the anticipated number of students and employees, the best ITE trip generation parameter is the number of site employees. Those values are used for this assessment.

Daycares have many pass-by or diverted link trips, but these trips are not quantified for this land use; therefore, all trips are considered primary. The reroutes are from external intersections and roadways, not those evaluated herein.

d. Analyze appropriate study area including the intersections and site drives listed.

- i. Unsignalized Intersections
 - 1. Ventura Street NE & Holly Avenue NE
 - 2. Holbrook Street NE & Holly Avenue NE
- ii. Driveway Intersections
 - 1. East site entrance to Holly Avenue NE (Existing)
 - 2. West site entrance to Holly Avenue NE (New entrance)

e. Intersection turning movement counts.

Turning movement counts were collected on August 31, 2017 for each of the three (3) existing study area intersections. The data were collected from 7:00 to 9:00 am and from 4:00 to 6:00 pm. The existing AM and PM peak hour turning movement volumes are contained in Table 2. The actual peak hours varied slightly between intersections.

Intersection	Eastbound		Westbound			Northbound			Southbound				
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	
AM Peak													
Holly Ave @ Ventura St				59		22		273	43	20	394		
Holly Ave @ Holbrook St	2	1	28	23	4	2	47	56	14	6	105	6	
Holly Ave @ Montessori - E		33	53	43	22		42		23				
	PM Peak												
Holly Ave @ Ventura St				109		36		315	67	35	349		
Holly Ave @ Holbrook St	26	9	83	19	2	0	38	74	22	0	67	11	
Holly Ave @ Montessori - E		87	17	9	75		21		14				

Table 2Existing (2017) AM and PM Peak Hour Turning Movement Volumes

The new development is scheduled to open in 2018. Traffic volumes (2011-2015) from MRCOG were examined for area roadways to estimate an appropriate background growth rate. The roadways selected were Ventura St, Holbrook St and Paseo del Norte. Ventura St had an annual growth rate of 1.5% north of Holly Ave and 18.9% to the south. Holbrook St had a negative growth rate of -0.7% and Paseo del Norte has a negative rate of -0.1%. The Ventura rate is likely based upon commercial development along Holly Ave west of Ventura St, and has minimally affected the surrounding area roads.

Given that negative rates were found on Holbrook St and Paseo del Norte, any background growth rate should be considered negligible. The forecast is only for one year, and using a general background growth rate of 2%, the highest existing volume movement (394) would only be increased by 8 vehicles. Given this minimal growth, the trip assignment was added directly to the existing volumes without factoring to generate the Build volumes. Table 3 contains the Build volumes.

Intersection	Eastbound		Westbound			Northbound			Southbound				
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	
AM Peak													
Holly Ave @ Ventura St				73		27		273	58	26	394		
Holly Ave @ Holbrook St	4	2	36	23	5	2	57	56	14	6	105	8	
Holly Ave @ Montessori - E		44	53	43	35		42		23				
Holly Ave @ Montessori -W		33	21	13	51		19		11				
	PM Peak												
Holly Ave @ Ventura St				124		41		315	80	40	349		
Holly Ave @ Holbrook St	28	10	93	19	3	0	46	74	22	0	67	13	
Holly Ave @ Montessori - E		100	17	9	87		21		14				
Holly Ave @ Montessori -W		87	18	11	97		20		13				

 Table 3

 Build (2018) AM and PM Peak Hour Turning Movement Volumes

f. Boundaries of area to be used for trip distribution.

School boundaries are not applicable as this school is not part of the APS school district and thus does not have a limited area.

The trip distribution from the site was prepared based upon existing traffic circulation at the study area intersections. Expansion of the existing site will generate more trips from the local area, but should not significantly enlarge or alter the service area. Based upon that assumption, trip distribution was based upon the 4-hour count turning movements collected in August 2017. The distribution identifies the northbound and southbound movements on Ventura St and Holbrook St, and the east-west movements at the site access along Holly Ave. The distributions at the site access and each intersection area as follows:

Table 4Trip Distribution – Existing Conditions

Location	NB to Holly	SB to Holly	East @ Dwy	West @ Dwy
Holly Ave @ Ventura St	73%	27%		
Holly Ave @ Holbrook St	77%	15%	7%	
Holly Ave @ Montessori - E			62%	38%

These trip distribution percentages were applied to the new site traffic volumes for the Build condition.

g. Type of intersection progression and factors to be used.

The traffic analysis assumes random arrival (HCM Type III) for all peak hour analyses.

h. Traffic assignment (Logical routing on the major street system).

The trip assignment is listed below in Table 5 and is based upon the percentages identified in the trip generation and distribution.

Intersection	Eastbound		Westbound			Northbound			Southbound			
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
AM Peak												
Holly Ave @ Ventura St				14		5			15	6		
Holly Ave @ Holbrook St	2	1	8		1		10					2
Holly Ave @ Montessori -W			21	13			19		11			
PM Peak												
Holly Ave @ Ventura St				15		5			13	5		
Holly Ave @ Holbrook St	2	1	10		1		8					2
Holly Ave @ Montessori -W			18	11			20		13			

Table 5 New Trip Assignment

The volumes assigned to the Montessori driveway were assigned exclusively to the new driveway, thus no new trips were assigned to the existing driveway.

i. Method of intersection capacity analysis – planning or operational (2010 Highway Capacity Manual or equivalent, i.e. HCS, Synchro, Teapac).

The Highway Capacity Manual (HCM 2010) defines operational measures of effectiveness for all types of roadways and junctions in terms of qualitative levels of service. This study is concerned with levels of service for unsignalized intersections. Stop controlled intersections may be two-way stop controlled, all-way stop controlled, or roundabouts (yield controlled). Each unsignalized intersection considered herein was two-way stop control, meaning that main street through-movements are not reported in the analyses results because they should experience no intersection related delay. Unsignalized intersection levels of service are a function of the side street approaches and main street turns; therefore, an overall intersection level of service is not calculated. Table 6 contains brief definitions of unsignalized intersection LOS and the control delay values.

Level of Service	Average Control Delay per Vehicle	Definition
А	$\leq 10.0 \text{ sec}$	Little or no delay
В	10.1 sec to 15.0 sec	Short traffic delays
С	15.1 sec to 25.0 sec	Average traffic delays
D	25.1 sec to 35.0 sec	Long traffic delays
Е	35.1 sec to 50.0 sec	Very long traffic delays, approaching capacity
F	> 50.0 sec	Over capacity, excessive delay

Table 6Unsignalized Intersection Levels of Service

The unsignalized intersection analyses were evaluated using Synchro 9.0. While this program is primarily a signalized intersection tool, it also performs unsignalized intersection analyses that are consistent with the Highway Capacity Manual methodology.

2017.014.1 September 6, 2017 Page 6

A series of assumptions must be made for all level of service analyses. For this study, the following analysis assumptions were made, and they apply to existing and forecast analyses:

Lane Width - Measured in Field (nominally 12 feet) Truck Percentage - Assumed 2% minimum or as identified in counts Existing Peak Hour Factors: Measured in field, applied by approach average Forecast Peak Hour Factors: Same as Existing Saturation Flow Rate - 1900 pcphpl Roadway Grades - All analyses assume flat grades Arrival Type - Random on each roadway

j. Traffic Conditions for analysis:

- i. Existing analysis <u>X</u> yes <u>no year 2017</u>.
- ii. Project completion year with proposed development 2018.

4) Analysis of the neighborhood impacts, including but not limited to:

a. Impacts on pedestrian and bicycle circulation, and pedestrian and bicycle routes.

Pedestrians and bicyclists will not be impacted by the Montessori expansion. There are currently sidewalks along Holly Ave on both sides of the street except along undeveloped parcels, including the parcel being developed herein. The development will improve pedestrian circulation and safety along Holly Ave. The surrounding area has sidewalk along each road except where parcels have not been developed.

There are no striped or signed bicycle facilities along the local roadways in the vicinity, through cycling is permitted along all city streets. A regional east-west trail is located along Paseo del Norte, immediately south of the project site.

b. Impact that motorists arriving and departing from the school site will generate on traffic operations in the general vicinity.

Traffic analyses were performed for the existing and Build AM and PM peak hour conditions. All analyses were conducted using Synchro 9.0 and the results produced using the Highway Capacity Manual 2010 methodology. The unsignalized intersection measures of effectiveness (MOEs) were assessed for level of service [LOS], average control delay [Delay], and the 95th percentile queue length [Queue]. The study area intersection results are provided in Table 7.

		No Build		Build								
Intersection	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)						
AM Peak												
Holly Ave @ Ventura St												
WB Left Turn	С	21 s	25'	С	21 s	25'						
WB Right Turn	В	11 s	25'	В	11 s	25'						
SB Left Turn	А	8 s	25'	А	8 s	25'						
Holly Ave @ Holbrook St												
EB Left Turn	В	11 s	0'	В	12 s	0'						
EB Through-Right	А	9 s	25'	А	9 s	25'						
WB Left-Through	В	12 s	25'	В	12 s	25'						
WB Right	А	9 s	0'	А	9 s	0'						
NB Left Turn	А	8 s	25'	А	8 s	25'						
SB Left Turn	А	7 s	0'	А	7 s	0'						
Holly Ave @ Montessori - E												
WB Left Turn	А	8 s	25'	А	8 s	25'						
NB Approach	А	10 s	25'	В	10 s	25'						
Holly Ave @ Montessori - W												
WB Left Turn				А	7 s	0'						
NB Approach				А	9 s	25'						

Table 7Measures of Effectiveness

		No Build		Build							
Intersection	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)					
PM Peak											
Holly Ave @ Ventura St											
WB Left Turn	С	22 s	50'	С	23 s	50'					
WB Right Turn	В	11 s	25'	В	11 s	25'					
SB Left Turn	А	8 s	25'	А	8 s	25'					
Holly Ave @ Holbrook St											
EB Left Turn	В	10 s	25'	В	11 s	25'					
EB Through-Right	А	9 s	25'	А	9 s	25'					
WB Left-Through	В	11 s	25'	В	11 s	25'					
WB Right	А	0 s	0'	А	0 s	0'					
NB Left Turn	А	8 s	25'	А	8 s	25'					
SB Left Turn	А	0 s	0'	А	0 s	0'					
Holly Ave @ Montessori - E											
WB Left Turn	А	8 s	0'	А	8 s	0'					
NB Approach	А	10 s	25'	А	10 s	25'					
Holly Ave @ Montessori - W											
WB Left Turn				А	8 s	0'					
NB Approach				В	10 s	25'					

Table 7Measures of Effectiveness

The analyses indicate that the level of service for the study area intersections currently operate at good levels of service. The Build analyses indicate that average control delay may increase by at most one (1) second per approach, a negligible increase. No operations deficiencies were identified.

c. Automobile and pedestrian conflict points.

Automobile and pedestrian conflict points arise where transportation system users cross paths, such as driveways and intersections. Following construction of this site, the primary deficiency left along Holly Ave will be immediately west of the site where approximately 300' of sidewalk will be missing. It is anticipated that this will be completed when the site is developed.

d. Noise and air quality impacts resulting from stacking of idling vehicles or vehicle circulation.

This is not applicable as there is no drop-off lane on site, all student drop-off requires the parent to park and sign-in the student.

e. Consistency with existing or planned transit routes and stops.

This is not applicable as there are no transit routes or stops along Holly Ave.

f. Other potential impacts as determined.

No additional impacts are anticipated as a result of this development.

g. Need for drop-off and pick-up queuing lane.

This is not applicable as there is no drop-off and pick-up queuing lane for this school, all students must be signed in and out by parents.

h. An evaluation of reasonable alternatives, if any, and their anticipated effectiveness in mitigating potential impacts, including justification or why no other reasonable alternative existed.

No additional alternatives were considered or evaluated. Adding a new access point to serve the expanded site will serve to spread out the added trips and minimize the impact that would occur if added to the existing access point. Also, having a separate access to the new platted lot makes sense if the campus uses are divided in the future.

If you have any questions or comments to these study items, please feel free to contact us.

Sincerely,

HIGH MESA CONSULTING GROUP

Harwick

Neyin Harwick, PTOE, NMPE 14360 Senior Traffic Engineer

NH:jds



9-28-2017