

August 6, 2024

C24D2107

Mr. Charles Soules, P.E.
City of Smithville Public Works
107 West Main Street
Smithville, Missouri 64089

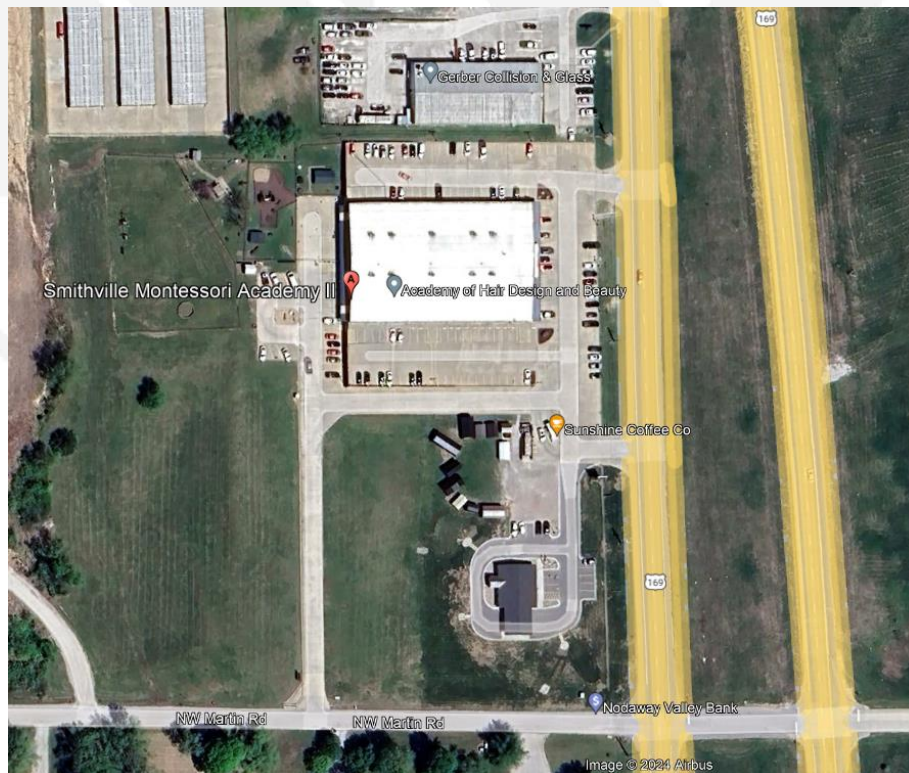
**RE: TRAFFIC IMPACT MEMO
SMITHVILLE MONTESSORRI ACADEMY II
14450 NORTH MISSOURI HIGHWAY 169, SUITE B
SMITHVILLE, MISSOURI**

Dear Mr. Soules:

Kaw Valley Engineering, Inc. (KVE) has had an opportunity to review the traffic impacts of adding an addition to Major Mall at 14450 North Missouri Highway 169 in Smithville Missouri to support the expansion of Smithville Montessori Academy II.

DEVELOPMENT DESCRIPTION

As illustrated on the aerial photo below, Smithville Montessori Academy II (SMA) is located on the west side of Major Mall (lower level).



It is KVE's understanding that the mall owner intends to construct an addition on the west side of the building to support planned increases in enrollment at the Montessori School. A site plan was not provided, but it is assumed that the proposed addition will have limited impact on the existing site circulation. Parking stalls removed for construction should be replaced as needed to support the school and other tenants in the mall in accordance with City of Smithville zoning requirements. No changes to vehicular access are proposed.

The Montessori Academy is a day school with students ranging in age from infant (3 months) to kindergarten (age 6). The current hours of operation are 7:00 AM to 5:30 PM Monday through Friday. The current enrollment is 75 and SMA currently has 13 full-time and 9 part-time employees. After the addition is completed the SMA administration has indicated that the school will need 15 full-time and 10 part-time employees.

ADJACENT ROADWAY CONDITIONS AND TRAFFIC VOLUMES

The internal site configuration and adjacent public roadways appear to have adequate geometry to support the project. Major Mall has three points of access to public rights of way. One driveway intersects with NW Martin Road approximately 390' west of US Highway 169. NW Martin Road adjacent to the development is a two-lane unimproved roadway with good sight lines and a statutory speed of 35 mph. The mall has two right in right out driveways onto SB US Highway 169, 310' and 610' north of NW Marting Road. US Highway 169 is a four-lane divided highway adjacent to the property. The statutory speed on SB US Highway 169 adjacent to Major Mall is 55 mph and all existing driveways appear to have adequate sight lines to support the permissible traffic movements. The Missouri Department of Transportation regularly publishes traffic count maps for the State and Interstate Highway System. In 2023 the southbound lanes on Highway 169 had an AADT of 11,645 VPD with the highest hourly total between 4 PM and 5PM at 867 VPH. Due to volumes of traffic on the mainline, traffic accessing the highway should expect to experience minor delays. Regular Gaps in the mainline traffic area expected due to metering at the Commercial Street Traffic Signal 1/2-mile to the north. Traffic to/from the north will use the highway cross over at NW Martin Street.

EXISTING ESTIMATED AND PROPOSED TRAFFIC PROJECTIONS

A trip generation analysis was completed to predict the number of vehicular trips that SMA may generate during a typical day. This analysis focuses on AM and PM Peak hours as well as additional daily traffic. Vehicle trip generation estimates were determined using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. Due to the age of students, ITE Code 565 for a day care was utilized. The vehicle estimates were based upon the number of existing and planned employees for a location in a suburban/urban setting.

Estimated Existing Traffic Smithville Montessori

ITE Trip Generation: 11th Edition							
Land Use	Employees (Existing)	ITE Code	Daily Traffic	AM Peak Hour	AM Peak Hour Adjacent Street (7 to 9 AM)	PM Peak Hour	PM Peak Hour Adjacent Street (4 to 6 PM)
Day Care	22	565	447	103	99	103	96
	Enter		224	55	52	48	45
	Exit		224	48	46	54	51

Projected Traffic Smithville Montessori

ITE Trip Generation: 11th Edition							
Land Use	Employees (Planned)	ITE Code	Daily Traffic	AM Peak Hour	AM Peak Hour Adjacent Street (7 to 9 AM)	PM Peak Hour	PM Peak Hour Adjacent Street (4 to 6 PM)
Day Care	25	565	504	117	112	117	109
	Enter		252	62	59	55	51
	Exit		252	55	53	62	58

As noted in the tables above, the additional three employees will likely correlate to a minimal increase in traffic. Additional traffic demand is expected due to the planned increases in enrollment and staff counts. In summary, less than 20 additional trips are expected in the peak hours and less than 60 additional trips are expected in a typical day. Distributions are approximately 53% / 47% with direction depending upon time of day.

PROPOSED TRIP DISTRIBUTION

It is anticipated that traffic to/from the Montessori School will mimic existing traffic patterns and gravitate towards US Highway 169. Traffic entering the development will either be making a right-hand turn from the southbound lanes of US Highway 169 or using the crossover at NW Martin Street. Traffic exiting the development will similarly make right hand turns onto the highway. As stated above, traffic to/from the north will use the highway cross over at NW Martin Street.

CONCLUSION

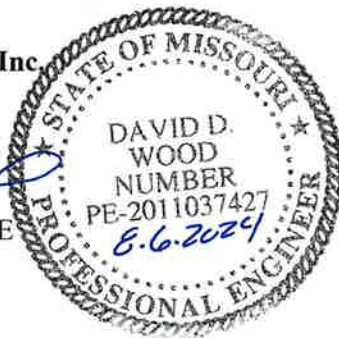
Due to the nominal projected increase in traffic, multiple points of access to the adjacent public right of ways and good sight lines, the impact to the adjacent street network is likely negligible. Most movements are right turn movements with limited conflict points on the adjacent street network. Due to these findings, no improvements to the adjacent street network are expected to be warranted because of the expansion of SMA.

We appreciate the opportunity to be of service to you on this project. This letter may be referenced in support of the development application. If you have any questions or require additional information, please contact me via email at wood@kveng.com, or at (913) 894-5150.

Respectfully submitted,
Kaw Valley Engineering, Inc.



David D. Wood, P.E., PTOE
Traffic Engineer



Cc: Karla Gant, Major Lumber Company
Jack Hendrix, City of Smithville Planning