

## MEMORANDUM

**To:** Dean Manasses, AIA, LEED AP BD+C  
FGM ARCHITECTS

**From:** Stephen B. Corcoran, P.E., PTOE  
Director of Traffic Engineering

**Date:** May 29, 2014

**Re:** Centennial Elementary School District 135  
Proposed Exit Drive  
Orland Park, Illinois

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This memorandum provides a review of the proposed exit drive at Centennial Elementary School in Orland Park, Illinois. This review was conducted at the request of FGM Architects to assist in improving parent loading at the school. Centennial Elementary School serves students from Kindergarten thru 3<sup>rd</sup> Grade. School hours are from 8:00 AM - 2:30 PM. Parent drop-off occurs between 7:45-8:00 AM, and pick-up occurs between 2:30-2:45 p.m. Parents tend to begin lining up about 15 minutes beforehand, and that a bottleneck effect takes place at the current entry/exit point on Brigitte Terrace.

### Site Configuration

Centennial Elementary School is located in the area bounded by Brigitte Terrace to the north, open space to the south, Haverhill Lane to the east, and Creek Crossing Drive to the west. The school building is located on the north half of the site with bus loading area on the west side of the school and staff/visitor parking on the east side. It is in a residential neighborhood.

### Student Loading Procedures

Students using bus transportation are dropped-off or picked-up in the bus loading area on the west side of the building. Buses enter the lane from Creek Crossing Drive, load students, and exit onto Brigitte Terrace.

Parents bringing their students to school use the existing staff lot on Brigitte Terrace to drop-off students. Vehicles are supposed to enter the lot from the west on Brigitte Terrace, drop-off or pick-up their students along the west side of the lot by the building, and then exit back onto Brigitte Terrace. According to school procedures, parents exiting onto Brigitte Terrace are supposed to turn right-out. Additional on-street loading occurs on Creek Crossing Drive.

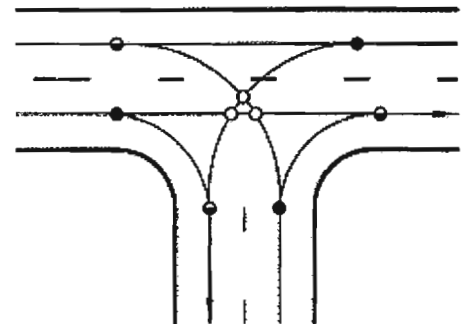
### Existing Problems

The operation of the staff lot for student loading currently experiences problems at the two-way driveway on Brigitte Terrace. This is due to a combination of conflicts between heavy inbound volumes and outbound volumes on the drive, narrow street width, and pedestrian activity. The left- and right-turns into the lot are queuing on Brigitte Terrace which make it difficult for cars to exit the lot and for through traffic to get past the school. **Exhibit 1** shows an example when a school bus had to go in the opposing lane to bypass the queued vehicles in the morning. Left-turns into the staff parking lot are not allowed but the school district has had a problem enforcing this prohibition. Parents coming to the school from the south are using Wolf Road and are taking the most direct route to the school



**Exhibit 1:** Eastbound Brigette Terrace Congestion During Morning Arrival

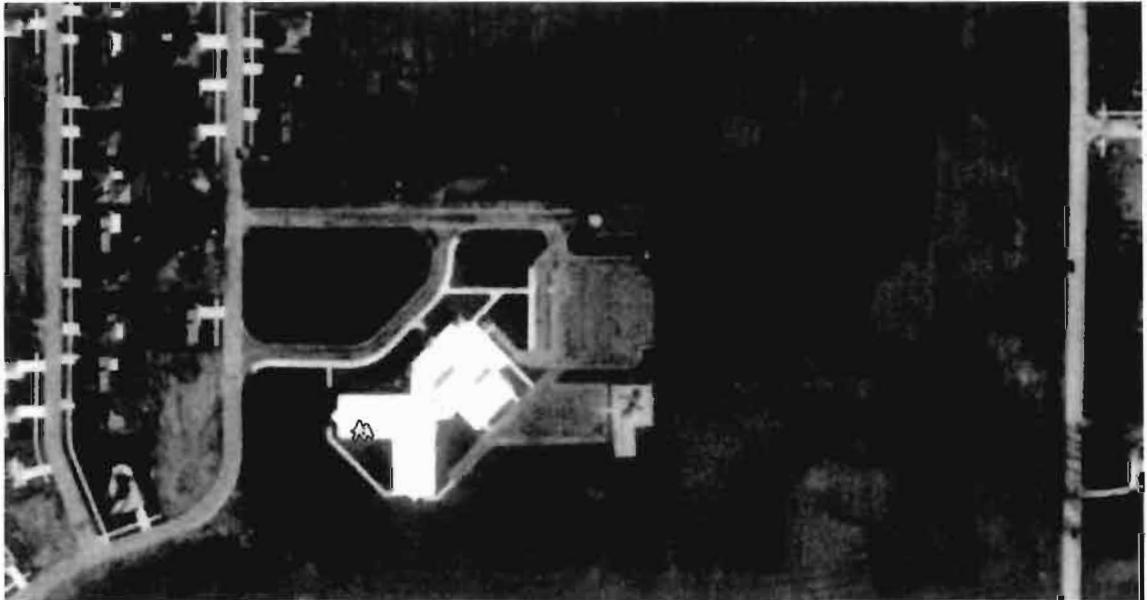
At a typical “T” intersection or driveway, there are nine conflict points between vehicles turning into and out of the driveway (See **Exhibit 2**). There are two additional conflict points for the pedestrians crossing the inbound and outbound traffic.



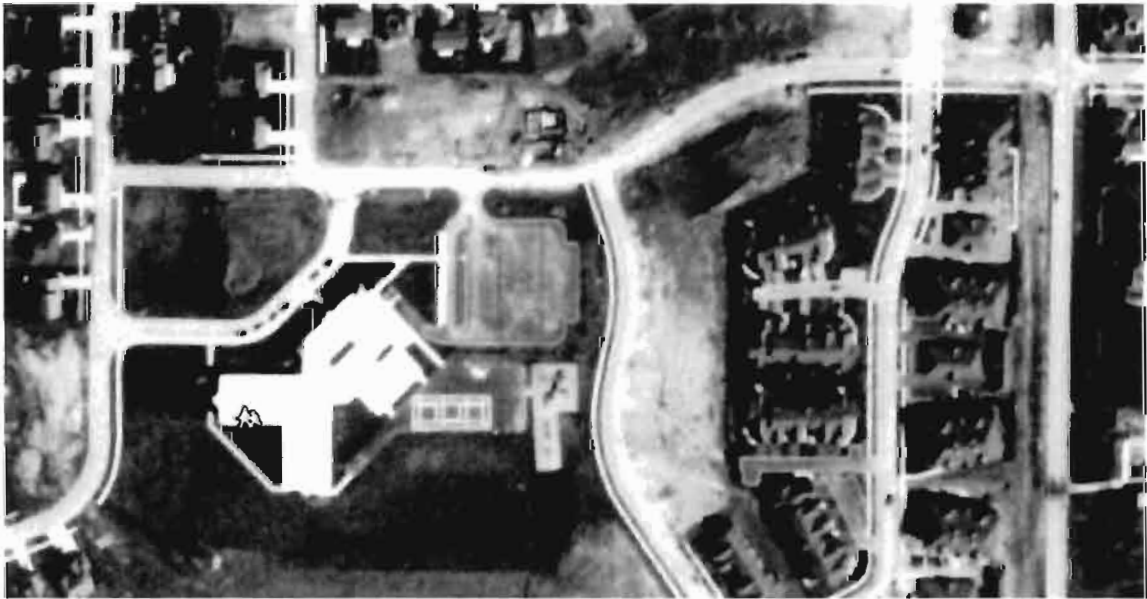
**Exhibit 2:** Vehicular Conflict Points

### Background

When Centennial School was originally built, none of the residential developments to the north and east were built along with their connecting streets. **Exhibit 3** illustrates this with an aerial from 1993. Traffic conflicts in and out of the staff lot were non-existent and worked well. In the late 1990's, the subdivisions and roadways to the east and north were built (see **Exhibit 4**) resulting in higher attendance and traffic at the school and a more complicated access system.



**Exhibit 3: 1993 Aerial Photo**



**Exhibit 4: 1998 Aerial Photo**

### Possible Solutions

Several solutions to improve traffic flow were reviewed by the district. One alternative was to provide a police officer at the current drive to control traffic flow. Assuming that a police officer would be available, he would not be able to expedite the drop-off or pick up in the parking lot and the resulting queues back onto the street.

Another option is to use barricades on Bridgette Terrace to enforce the left-turn prohibition into the parking lot. This was determined not to be feasible because it would block other neighbor's drives on the north side of the street and interfere with snow plow operations. It would create a safety problem when traffic from the east bypasses the drive and makes a u-turn on Brigitte Terrace to get into the eastbound line entering the parking lot.

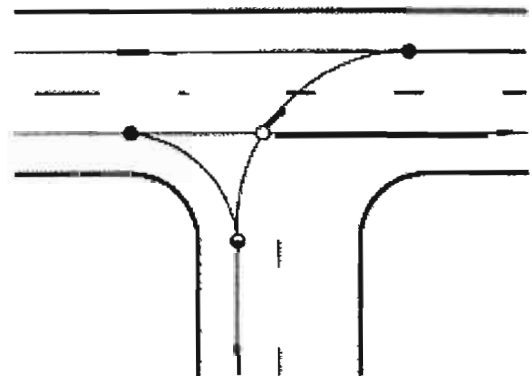
Widening the mouth of the current drive will not solve the roadway width and blockages along Brigitte Terrace. Also, it creates a wider crossing for pedestrians with more exposure to vehicles when crossing on the sidewalk at the drive.

Another alternative considered was constructing the new exit drive out to the north onto Brigitte Terrace or closer to Brigitte Terrace on Haverhill Lane. The staff parking lot today has 175 to 200 feet of frontage on either road. Locating a new drive 50 to 75 feet from the intersection of Brigitte Terrace and Haverhill Lane is too close and does not meet accepted traffic engineering practice.

### Proposed Plan

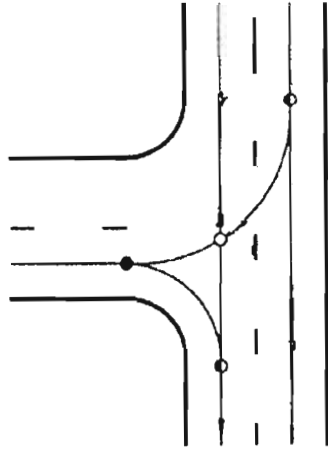
The proposed plan creates an exit only drive on Haverhill Lane to reduce the amount of traffic and the number of conflicting traffic movements at the Brigitte Lane driveway to improve the flow in and out of the school grounds. A copy of the plan is attached to this memo. The Brigitte Terrace drive would be one-way inbound and the Haverhill Lane driveway one-way outbound.

Parents would enter the staff lot as they currently do from both directions and use the loading zone on the west side of the site. Instead of going back to Brigitte Lane, they would head east to Haverhill Lane to exit. This will separate traffic flows, reduce conflicts and improve safety. The Brigitte Terrace drive will only allow inbound traffic and reduce the number of conflicts from 9 to 4 locations (see **Exhibit 5**).



**Exhibit 5: Inbound Only Vehicular Conflicts**

Pedestrian traffic would only have to watch for traffic coming from one direction.



The Haverhill Lane drive will be exit only which will also reduce the number of conflicts from 9 to 4 (see **Exhibit 6**). The new drive is located 270 feet south of Brigitte Terrace which aligns with the south side of the lot and is far enough away from the intersection for good traffic flow.

#### **Exhibit 6: Outbound Only Vehicular Conflicts**

At meetings with the school district, residents raised concerns for the student pedestrian traffic on Haverhill Lane in the mornings and afternoon as they walk to and from their bus stop locations in the area. The school

district representatives then spent several mornings and afternoons observing pedestrian traffic. They found virtually no pedestrian foot traffic along Haverhill in either the morning or afternoon times when this new drive would be in use. The school bus stops that are in the area do not coincide with this time or location.

#### **Conclusion**

Based on EEA's review, the proposed exit drive will improve the traffic flow at Centennial Elementary School by reducing conflicts and congestion on Brigitte Terrace. It will improve pedestrian safety because students will not have traffic coming from two directions.



