

MEMORANDUM

To: Gregory Jackson, Village Manager
Village of Long Grove

Fr: Geoffrey L. Perry, P.E., Village Engineer

Date: January 24, 2022 (UPDATED)

Re: Checker Road Traffic Calming
Proposed Options Summary
Village of Long Grove

In response to traffic volume and safety concerns expressed by residents on Schaeffer Road and Checker Road, between North Arlington Heights Road and West Lake Cook Road, our office has summarized potential traffic calming options for your consideration. As previously discussed, motor vehicles are using these Village roads as a cut-through to bypass the intersection of Arlington Heights Road and Lake Cook Road. This has led to many complaints and reported incidents of unsafe conditions for children to get on/off the school bus, unsafe traffic conditions for bus drivers, residents' inability to exit their driveway, and speeding vehicles.

The Village and Vernon Township have conducted traffic and speed studies along Schaeffer Road and Checker Roads, both confirming the high volume of speed and cut-through traffic.

A "No Right Turn" restriction sign was previously installed on northbound Schaeffer Road, prohibiting the turn onto eastbound Checker Road. This restriction sign was ultimately removed as motor vehicles were making a left-turn at the intersection and then turning around on N. Schaeffer Road, to travel east. This caused more congestion on Checker Road, in the residential area on N. Schaeffer Road.

Intersection improvements at Arlington Heights Road and Lake Cook Road to address the delays and lack of capacity to negate the perceived advantage of using Schaeffer Road / Checker Road may help deter drivers from using this cut-through route. In September 2019, residents contacted State Representative Mary Edly Allen and Cook County increased the left turn time (eastbound Lake Cook Road to northbound Arlington Heights Road) by 5 seconds. This change, however, did not eliminate the Village's concerns on Schaeffer and Checker.

Long Grove has requested intersection improvements at this location to mitigate the cut-through traffic on Schaeffer and Checker. Intersection improvements at Arlington Heights Road and Lake Cook Road that increase capacity and alleviate the bottleneck would be expected to result in drivers staying on the main roadways rather than using the local roads as a cut through route. Last week, a Request for Qualifications ("RFQ") was issued by the Village of Buffalo Grove for improvements to the Lake-Cook Road corridor, from Arlington Heights Road to Raupp Boulevard. We understand that a portion of this work will be funded by the Cook County Department of Transportation and Highways ("CCDOH").

Below is a summary of the traffic calming options reviewed by our office:

Option 1: Traffic Choker

Install a choker on Checker Road at/near 1877 Checker Road. The choker would narrow the existing pavement from 24-feet to 18-feet for a length of 25-feet with 25-foot tapers on each side; see attached exhibit. Curb and gutter would be installed for the entire length with a wooden fence to physically direct drivers to slow down and center the vehicle through the choker. Stop signs will be installed on each side of the choker and vehicles will alternate passage, similar to the operation at the covered bridge and along Long Grove Road near Willow Valley Road.

Pros

- Our office has estimated a project cost of approximately \$25,000.
- This option could be removed, should it be deemed ineffective.
- This option will cause vehicles to stop at the choker and there may be an ancillary benefit as cut-through vehicles may abandon this the route given additional delays experienced at the choker.

- Local drivers are familiar with this type of traffic calming measure as there are chokers on Long Grove Road, at the Village's western limits, and on Cuba Road in Kildeer.
- The 18-foot width is adequate for emergency response and snow removal vehicles.

Cons

- There is potential that vehicles may fail to stop at the choker, resulting in increased unsafe driving maneuvers.
- We were unable to find any published follow-up studies documenting the effectiveness of a choker, following installation.
- Chokers are generally considered for addressing vehicle speeds versus vehicle volumes.
- Emergency response vehicles would also have to stop at the choker.
- This option may create an increased queuing of vehicles and driver frustration on Checker Road due to drivers having to stop for oncoming traffic through the choker.

Option 2: Speed Table

Install a speed table at/near 1877 Checker Road. A speed table is the installation of a raised, textured material across the entire width of a roadway that would act as a visual and physical "ramp" over a designated travel length, with the top of a speed table being a flat section. Signage, in accordance with the Manual of Uniform Traffic Control Devices ("MUTCD") would be installed with this option. With the design speed of 30 mph on Checker Road, the speed table would require a total length of 32-feet and a minimum 10-foot flat section. The speed table would have an overall vertical elevation change of roughly 3-4 inches.

Pros

- Our office has estimated a project cost of approximately \$15,000 each. However, price varies with the amount of material (or slope) installed at each table.
- This option could be removed, should it be ineffective.
- Speed tables can provide decreased vehicle speeds (average 5 mph within vicinity) and increased safety for school bus routes and pedestrians.
- Vehicles do not need to come to a full stop.
- A speed table is safer and easier to maneuver for motorcyclists and emergency vehicles than a speed bump.
- Temporary options exist that can be mounted to the pavement should that be desirable prior to permanent construction.

Cons

- The effectiveness of the speed table can vary greatly based on quantity, spacing, and slope of the ramps.
- Multiple speed tables may be needed to have a positive impact on driver speed and overall volume.
- Emergency response vehicles would have to slow down for the speed table.
- Vehicles do not need to come to a full stop.
- Snow plowing could damage the speed table, leading to increased maintenance.
- Adjacent residents will experience additional road noise from all vehicles that go over the speed table.

Note: There is a significant difference between a speed table and a speed bump. A speed bump is more abrupt and we do not recommend use of a speed bump on local, collector roads due to traffic volumes, speeds and snow removal operations.

Option 3: Speed Hump

Install a speed hump at/near 1877 Checker Road. A speed hump is similar to a speed table; however, it does not utilize the flat section at the top of the ramp. This option will still have a more gradual slope than a speed bump. All MUTCD required signage would be installed with this option. With the design speed of 30 mph on Checker Road, the speed table would require an overall length of 22 feet with an overall vertical elevation of roughly 3-4 inches.

Pros

- Our office has estimated a project cost of approximately \$7,500 each. However, price varies with the amount of material (or slope) installed at each table. Speed humps can also be pre-manufactured or installed with traditional asphalt or concrete pavement.
- This option could be easily removed, should it be ineffective.
- This option should provide decreased vehicle speeds (Average 5 mph within vicinity)
- Although vehicles do not need to come to a full stop, they will have a significant decrease in speed at the hump
- A speed table is safer and easier to maneuver for motorcyclists and emergency vehicles than a speed bump.
- Temporary options exist that can be mounted to the pavement should that be desirable prior to permanent construction.

Cons

- The effectiveness of the speed hump can vary greatly based on quantity, spacing, and slope of the hump.
- Multiple speed humps may be needed to have a positive impact on driver speed and overall volume.
- May delay emergency vehicle response.
- All vehicles will slow down at different rates and to different extents.
- Can cause jarring, which could lead to loss of vehicle control.
- Emergency response vehicles would have to slow down for the speed table.
- Snow plowing could damage the speed hump, leading to increased maintenance.
- Adjacent residents will experience additional road noise from all vehicles that go over the speed hump.

Option 4: Increased Speed Monitoring

Speed monitoring, using radar to monitor and notify drivers of their speeds could be installed. Increased police enforcement would be needed to document vehicle speeds and issue violations.

Pros

- Alerts drivers of their current speed.
- Provides a visual presence of enforcement.
- Monitoring radars can either be purchased, for less than \$3,500 each, or borrowed for a period of time.
- Additional police enforcement is at the discretion of the Village.
- No physical change of the roadway is proposed, thus no change to emergency vehicle or snow removal operations.

Cons

- Radar devices show the vehicle speed but do not record information to issue a violation.
- Radar devices can be effective when in place. However, drivers typically revert to prior tendencies if/when the devices are removed.
- Radar can impact vehicle speed. However, this option does not address traffic/cut-through volume.
- This option has been utilized in the past and not resulted in “lasting” improvement.
- No physical change of the roadway is proposed, which has greatest impact on driver behavior.

Option 5: Increased Signage or Markings

Several signage options exist that can be installed along the bypass route to help deter drivers. The signage may also help manage high traffic speeds and lead to more safe conditions for residents. Signage options include Speed Limit Signs, Electronic Speed Limit Display Sign, Blinking Stop Signs, Yield Signs, or other wayfinding signage to help deliver a message to drivers.

Pros

- Easy to install and relatively low cost at less than \$250 per traditional sign.
- Signs can be periodically moved to increase effectiveness or removed if not effective.

- No physical change of the roadway is proposed, thus no change to emergency vehicle or snow removal operations.

Cons

- Effectiveness is unknown and drivers can “ignore” the signs. Effectiveness may be low impact given limited observed success with signage installations in the Village.
- Too many signs can be considered signage clutter.
- Lighted signs will change the character of the corridor
- No physical change of the roadway is proposed, which has greatest impact on driver behavior.

Another option of lowering the speed limits was considered by our office. However, driver speed is very much a function of driver comfort which is related to the “design speed” of the road, which is primarily a function of the horizontal and vertical alignment of the road. Without changes to these physical characteristics, (i.e. vertical or horizontal deflections) we would not anticipate a noticeable change in driver speed if the speed limit was changed. Similar to some of the options above, a lower speed limit would also require additional patrol and enforcement. Lastly, posted speed limits must be consistent with State of Illinois policy to be considered legally enforceable.