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## **TRAFFIC CALMING STUDY**

### **C&O Club**

January 10, 2011

Prepared for:

C&O Club  
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## **1.0 INTRODUCTION**

This report summarizes Northwest Design Group's (NDG) assessment of the current C&O Club road system and recommendations related to safety and traffic calming options. Our services were authorized by our agreement dated November 17, 2010.

The C&O Club is a condominium association / residential subdivision located in Section 24, T34N, R8W, of City of Charlevoix & Charlevoix Township, in Charlevoix County, Michigan. The association manages about 0.9 miles of road within the subdivision.

We understand that the association has ongoing concerns about pedestrian safety, and have employed some traffic calming measures to address these concerns. The scope of this project, as described in our agreement, includes:

- On-site observation and assessment of the current road system;
- Recommendations related to safety and traffic calming options.

“Traffic calming involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability, and other public purposes”, as defined by the Institute of Traffic Engineers (Ewing, 1999). The goals of traffic calming measures are to reduce vehicle speeds, improve safety, and enhance quality of life. These goals can be accomplished through education, enforcement and/or engineering (i.e. road geometry or physical barriers).

## **2.0 CURRENT ROAD SYSTEM ASSESSMENT**

NDG observed the current road system in October and December 2010. The system consists of two roads, Stroud Court and C&O Club Drive.

Stroud Court is located about 500 feet from Lake Charlevoix, starting at Mercer Boulevard and terminating at a turnaround about 0.3 miles to the northeast. The road is narrow and winding with homes on the lake side of the road. It is signed for children playing with a speed limit of 10 mph. There is one set of speed bumps positioned to create a chicane (an artificial feature creating extra turns in a roadway) during the summer. We understand that this road does not see heavy vehicle or pedestrian traffic, especially compared to C&O Club Drive. It is our opinion that the current traffic calming measures (narrow width, winding alignment, signage and seasonal speed bump chicane) are warranted and adequate for this road.

C&O Club Drive is located along Lake Charlevoix, about 150 feet from shore, starting at Cherry Street and terminating at a turnaround about 0.6 miles to the northeast. The road is approximately 15 feet wide with long straight sections between horizontal curves. There are relatively densely spaced homes on both sides of the road, except along the first 0.15 miles where there are none. Stone pillars are located beside the roadway at Cherry Street and at about 0.1 miles into the subdivision. The road is signed for children playing and a 15 mph speed limit. Several sets of speed bumps, positioned to create chicanes, are placed along the roadway during the summer, starting just

past the second set of pillars. The speed bump chicanes are placed at logical locations and spaced in such a way to allow most vehicles to maneuver through without hitting the speed bumps. Pedestrian access from Stroud Street is provided at about 0.34 miles from the start of C&O Club Drive, and is often used to access the beach area that is located about 0.42 miles from the beginning. We understand that this road is heavily used during the summer months by both vehicles and pedestrians, and that vehicle speeds are often a concern. It is our opinion that the current traffic calming measures (education, narrow width, winding alignment in some areas, signage, landscape elements and seasonal speed bump chicanes) are warranted and should continue as is. There are additional measures that we recommend be considered for this roadway, though, as discussed in the next section.

### 3.0 OPTIONS AND RECOMMENDATIONS

The following table summarizes engineered traffic calming devices that we consider applicable options for this road system. They are provided to show available options, not necessarily recommended options.

<b>TRAFFIC CALMING MEASURES</b>		
<b>Vertical Speed Control Measures</b>		
<b>Device</b>	<b>Description</b>	<b>Approximate Cost</b>
Speed Humps	Rounded raised area across the road, typically 12 to 14 feet in length and 3 to 4 inches high	\$4,000 each
Speed Lumps	Speed hump typically 6 to 7 feet wide that allows most emergency vehicles to straddle the hump	\$2,000 each
Speed Tables	A long speed hump typically 22 feet in length with a flat section in the middle and ramps on the ends	\$5,000 each
Raised Crosswalk	A raised plateau, with ramps on the approaches	\$5,000 each
<b>Horizontal Speed Control Measures</b>		
Lateral Shifts and Chicanes	Curves or bends inserted into what would otherwise be a straight road alignment.	\$50 / foot of realigned road
<b>Narrowings</b>		
Chokers	Edge islands used to narrow the road	\$5,000 / Each
Center Islands	A raised island along the centerline of the street that narrows the travel lanes.	\$12,000 / Each
<b>Signage</b>		
Road signs	e.g. “Stop”, “Share the Road” and/or “Traffic Calmed Area”.	\$500 / sign
Vehicle activated radar speed signs	Can include camera and data collection capabilities	\$5,000 / sign

We recommend continuing the use of the traffic calming measures currently being utilized, including education for residents, signage, landscape elements and speed bump chicanes. From an engineering standpoint, we concur with the current approach. The following are additional measures that we recommend, in order of priority, to be utilized based on the association's perceived needs and available funds:

1. Continue to educate and solicit help from residents, via letters, meetings, etc.
2. Add "Stop" sign at the south end of the beach area.
3. Add "Traffic Calmed Area" sign near the first house entering the property.
4. Add seasonal speed bump chicane (3 speed bumps spaced at 16 feet) near the first house entering the property. Seasonal installation should be: Install after first thaw. Remove after first freeze.
5. Utilize a vehicle activated radar speed sign. Add camera for enforcement if needed.

We appreciate the opportunity to be of service. If you have any questions concerning this report or require additional information, please do not hesitate to contact us.

Respectfully submitted,

LUCAS C. PORATH, P.E.  
Civil/Transportation Section Manager

## REFERENCES

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