Memorandum:

To: Dean Bloch, Town Planner  
   Town of Charlotte
From: Jason Charest, E.I.T.  
       CCMPO
Date: January 11, 2010
Subject: Ferry/Lake Road Multi-Way Stop Warrant

I have reviewed the relevant multi-way stop warrants for the Ferry and Lake Road intersection. At this time a multi-way stop is not warranted.

Section 2B.07 of the Manual on Uniform Traffic Control Devices\(^1\) (MUTCD) outlines the requirements of which should be met to install multi-way stop control. The criteria that pertain to this intersection are as follows:

C. Minimum volumes:
   1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and
   2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but
   3. If the 85\(^{th}\)-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.

A 12-hour turning movement count conducted on June 17, 2009 was used to assess the minimum volume requirements. A nearby AADT count conducted in 2004 revealed 85\(^{th}\)-percentile speeds higher than 40 mph and as a result the 70 percent condition was used. The speed data and warrant results can be seen in the succeeding tables.

Table 1: 2004 85\(^{th}\)-Percentile Speeds – Ferry Road (just west of Whalley Road)

<table>
<thead>
<tr>
<th>Year</th>
<th>Westbound 85(^{th}) Percentile</th>
<th>Eastbound 85(^{th}) Percentile</th>
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</thead>
<tbody>
<tr>
<td>2004</td>
<td>56 mph</td>
<td>51 mph</td>
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As shown in Table 2 the Ferry/Lake Road intersection is well below the minimum volume requirements for a multi-way stop control installation according to this summer’s 12-hour count. With the recent closure of the Champlain Bridge, winter seasonal traffic has undoubtedly increased on Ferry Road. However, a doubling or more of Ferry Road traffic over eight hours of the day would not trigger the need for multi-way stop control in and of itself. Traffic on the Lake Road approaches would need to roughly triple at the same time. This is highly unlikely to have happened due to the circuitous nature of leaving the ferry and taking Converse Bay Road to eventually arrive at the Ferry/Lake Road intersection.

An additional criterion that could justify the need for all way stop control would be if the intersection experienced five or more reported crashes within a 12-month period that are susceptible to correction by a multi-way stop installation. A review of the crash data from VTrans revealed two crashes from 2002-2008.

There may be other treatments at the intersection or nearby which could improve safety, such as increasing sight distance for vehicles turning from Lake Rd onto Ferry Rd and/or reducing speeds through traffic calming. The posted 50 mph speed limit on Ferry Road may be too high for the current cross-section of the roadway. VTrans’ standards\(^2\) for a 50 mph rural minor arterial call for an 11 foot lane width with 4 foot shoulders. A radar feedback sign is one of the most cost effective ways to achieve speed limit compliance. Other traffic calming measures such as striping fog (edge) lines and narrowing lane widths could provide moderate speed reductions as well. Please let us know if the CCMPO can be of further assistance to the Town in additional review of these or other alternative measures.

\(^2\)[http://www.aot.state.vt.us/progdev/Standards/04minart.htm#Lane%20and%20Shoulder%20Widths%20on%20Rural%20Minor%20Arterials]