

## Office of the City Engineer

John C. Rooney, P.E.  
Assistant Commissioner of Public Works/  
City Engineer



City Hall  
730 Washington Avenue  
Racine, WI 53403  
262.636.9191  
Fax: 262.636.9545

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## MEMO

To: John C. Rooney, P.E.

Re: Traffic Study - Intersection Analysis of Carlton Dr., Charles and Carter Streets

From: Ara P. Molitor, P.E.

Purpose: Determine if there is a warranted change required for the control of the intersection.

Method: Field observations, traffic counts, and accident analysis

### ANALYSIS:

#### Existing Conditions

- Carlton Drive is a 36-foot face to face asphalt overlaid roadway through a residential neighborhood. One block west of Charles it curves slightly to the south but that is beyond the SSSD of 165' +/- . At the intersections of both Charles and Carter, the roadways form 90-degree intersections with no noticeable vision triangle obstructions.
- Carter Street is a 36-foot face to face concrete street. Carter St. "Dead Ends" a little over a block to the north (short block to Montclair Dr.); and three short blocks to the south Carter "T's" with Cedar Creek St. and that is the extent of Carter Street in this neighborhood. There is no noticeable vision triangle obstructions with Carlton Dr. Carter St. is "Stop" controlled in both directions at Carlton Dr.
- Charles Street is a 52-foot face to face concrete street. Charles St. "Dead Ends" one block to the north. To the south Charles Street remains a wide cross section for several blocks. Charles St. is also a BUS route until it intersects with Carlton Dr. There is no noticeable vision triangle obstructions with Carlton Dr. Charles St. is "Stop" controlled in both directions at Carlton Dr.
- For analysis purposes, it would be complicated to NOT analyze these two intersections together. There are only 2 accidents total for both intersections, and one of those accidents links the two intersections together.
- The neighborhood is residential, with a school a few blocks SE and a park 1 block north (i.e. dead-ends).

#### Traffic Analysis

Tube counters were deployed on Tuesday 9/26/17 and retrieved on Monday 10/2/17 on all three streets. The data collected was used to determine the ADT for each of the roadways. A directional split count was conducted in conjunction with the tube count, but it did not reveal any unique data (50/50 split).

- The Average Daily Traffic: (see attached)
  - Carlton Drive ADT: 1493 vpd
  - Charles Street ADT: 666 vpd
  - Carter Street ADT: 211 vpd

- Accident Study Findings
  - 2 total accidents reported: 2 Injuries 0 Deaths 0 accident were correctable. (see attached)

### **Intersection Control Warrants**

- **Two way Stop Sign Control** – warranted if any of the following conditions are met:
  - Safe approach speed (SSSD) < 10mph.
    - Charles St. controlled by Stop signs, there is NO vision triangle obstructions that would lower the SSSD below 10 mph at this intersection.
    - Carter St. controlled by Stop signs, there is NO vision triangle obstructions that would lower the SSSD below 10 mph at this intersection.
  - Accident experience of 3 or more right angle accidents per year.
    - Not Met – only 2 reported accidents reported in over 5 years.
  - A total average daily traffic (ADT): 2000<ADT<8000 (intersection ADT)
    - Met for the Charles/Carlton intersection (Intersection ADT – 2159 vpd)
    - Not Met for the Carter/Carlton intersection (Intersection ADT – 1704 vpd)

### **Field Observations**

- For an operator of a motor vehicle going in any direction at either of these two intersections that is obeying the posted speed limits and is not distracted, should have no difficulty navigating safely through these two intersections.
  - The curve on Carlton, west of Charles, is beyond the SSSD of 165' for speed limits of 25 MPH.
  - All the trees in the area are trimmed high enough to see below the canopy and do not obstruct the view at any of the vision triangles.

### **CONCLUSIONS:**

- It is my opinion to leave these intersections “As-Is”. There is no correction that can be done via geometric changes or additional signage and control that could possible improve these intersections.

**Recommendation: more speed enforcement and monitoring.**