




January 5, 2023

TO: Public Safety & Transportation Committee
 THROUGH: Carl Goldsmith, Director of Public Works 
 FROM: Mike Barbier, Civil Engineer II
 SUBJECT: **No Right Turns on Red Traffic Signals – Main at Parkside and Main at Hickory**

Request

Staff recommends that the Village amend Section 10-14-3 of the Traffic Code to prohibit right turns on red traffic signals on westbound Parkside at Main and westbound Hickory at Main.

Background

Right turns on red traffic signals are generally permitted at intersections. In practice, this leads to reduced delay for the right turning vehicles and increased efficiency of the intersection. However, there are situations when the safety risk outweighs those benefits.

The Manual on Uniform Traffic Control Devices (MUTCD) Section 2B.45 states that: "A NO TURN ON RED sign should be considered when an engineering study finds that one or more of the following conditions exists:

- A) **Inadequate sight distance to vehicles approaching from the left** (or right, if applicable);
- B) Geometrics or operational characteristics of the intersection that might result in unexpected conflicts;
- C) An exclusive pedestrian phase;
- D) An unacceptable number of pedestrian conflicts with right-turn-on-red maneuvers, especially involving children, older pedestrians, or persons with disabilities; and
- E) More than three right-turn-on-red accidents reported in a 12-month period for the particular approach."

The Village currently has right turn on red signal prohibitions at 10 intersections. These locations are:

1. Eastbound traffic on St. Charles Rd. at Westmore Avenue
2. Northbound and southbound traffic on Highland Ave. at Roosevelt Rd.
3. Northbound and southbound traffic on Main St. at Roosevelt Rd.
4. Westbound traffic on Madison at Main Street.

5. Eastbound traffic on St. Charles Road at Main Street 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m.
6. Westbound traffic on Route 64 (North Avenue) at Main Street between the hours of 12:00 p.m. to 1:00 p.m. and 4:00 p.m. to 6:00 p.m. on Monday - Friday.
7. All approaches: Main Street and 22nd Street, when pedestrians are present.
8. All approaches: Main Street and 16th Street, when pedestrians are present.
9. Westbound traffic on Parkside Avenue at Main Street between the hours of 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m.
10. All approaches: Westmore-Meyers Avenue at Madison Street 8:00 a.m. to 4:00 p.m., Monday - Friday

The issue at the subject intersections is condition A from the MUTCD Section 2B.45, sight distance for vehicles approaching from the left. With the construction of Lilac Station at the southeast corner of Main at Parkside and the new Library at Main at Hickory, the intersection sight distances at those intersections will be reduced.

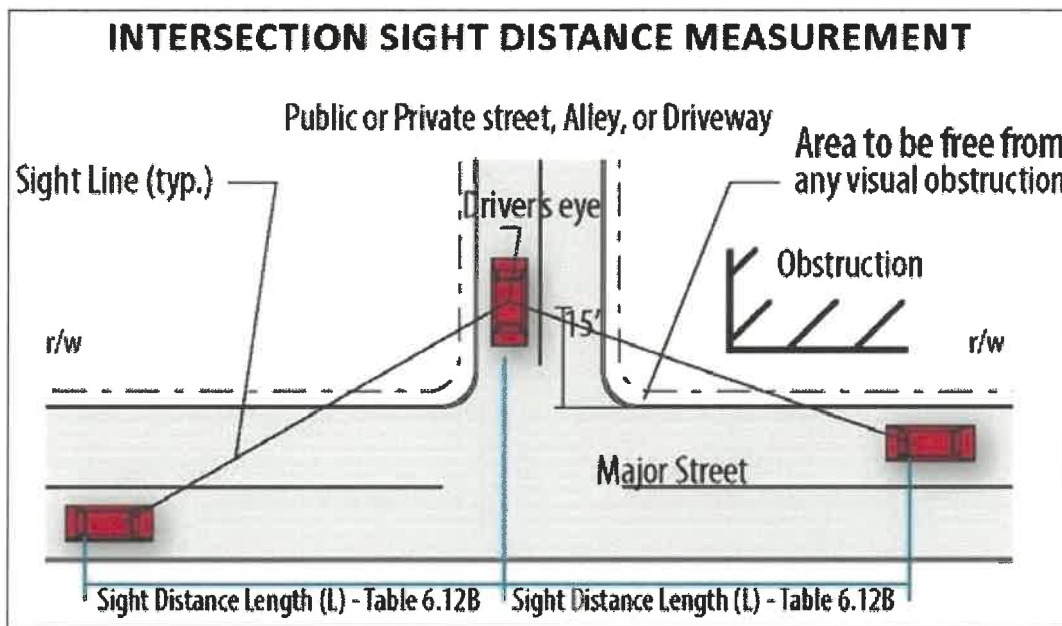


Figure 1: Intersection Sight Distance (AASHTO 2011)

The minimum intersection sight distance (ISD) required varies based on the speed limit. The IDOT Bureau of Local Roads & Streets provides the equation for intersection sight distance:

$$ISD = 1.47 * V_{Major} * t_g$$

Where:

V_{Major} = design speed of major road, mph

t_g = time gap for minor road to enter, assumed to be 7.5 seconds

(IDOT BLRS Equation 28-3.1)

The governing site distance equation (IDOT BLRS 28-3.1) corresponds to the following table:

US Customary	
Design Speed (V_{major}) (mph)	ISD (ft) ⁽¹⁾⁽²⁾
20	225
25	280
30	335
35	390
40	445
45	500
50	555
55	610
60	665

For both of these intersections, the posted speed limit is 25 MPH on Main Street. Our design speed is 5 MPH above the posted speed, which results in a minimum sight distance of **335 feet**. Each permitted right turn on red signal movement should have a clear sight line of 335 feet for a vehicle approaching from their left.

Analysis

Exhibit A shows the Intersection Sight Triangles for Main at Parkside and Main at Hickory with their respective development plans. Both intersections will provide less than the required 335 feet of sight distance for westbound vehicles when construction is completed. While the building and support structures create a sight line obstruction on Parkside, the sight distance issue at Hickory is due to the proposed plantings along Main Street.

Recommendation

Staff recommends amending the Village Traffic Code to prohibit right turns on a red traffic signal for westbound vehicles at both Main at Parkside and Main at Hickory based on the intersection sight distances. Exhibit B shows staff's proposed changes to Schedule XIII of the Village's Traffic Code.

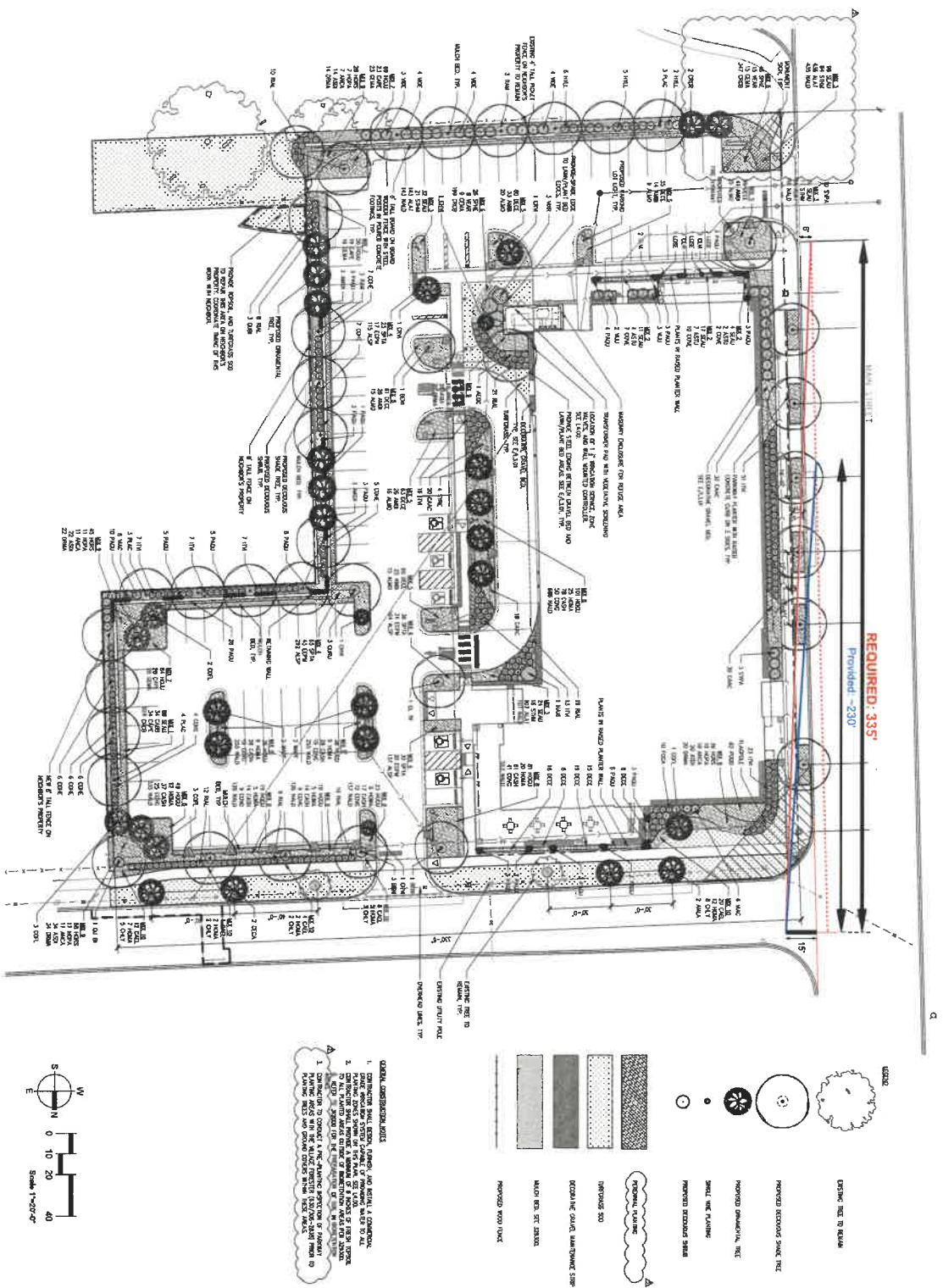


EXHIBIT B

Proposed Changes to Schedule XIII

“SCHEDULE XIII – RIGHT TURNS ON RED TRAFFIC SIGNALS

In accordance with Ordinance #1766, right turns on red traffic signals are prohibited at the following locations:

- a. At one corner: Westmore Ave. and St. Charles Rd. (traffic signal at southwest corner prohibiting eastbound traffic on St. Charles Rd. from turning right)
- b. northbound and southbound traffic on Highland Ave. shall not turn right on red onto Roosevelt Rd.
- c. northbound and southbound traffic on Main St. shall not turn right on red onto Roosevelt Rd.
- d. Westbound traffic on Madison shall not turn right on red onto Main Street.
- e. eastbound traffic on St. Charles Road shall not turn right on red onto Main Street between the hours of 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m.
- f. westbound Route 64 (North Avenue) shall not turn on red onto Main Street between the hours of 12:00 p.m. to 1:00 p.m. and 4:00 p.m. to 6:00 p.m. on Monday through Friday.
- g. All four corners: Main Street and 22nd Street, when pedestrians are present.
- h. All four corners: Main Street and 16th Street, when pedestrians are present.
- i. westbound traffic on Parkside Avenue shall not turn right on red onto Main Street ~~between the hours of 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m.~~
- j. All four corners: Westmore-Meyers Avenue and Madison Street (8:00 a.m. to 4:00 p.m., Monday through Friday)
- k. ~~Westbound traffic on Hickory shall not turn right on red onto Main.”~~