



Evaluation of Turn Prohibition Petition

Remove NO TURN ON RED sign at intersection of Water St and Grafton St
April 19, 2023

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| Petition: | Andrew Martin et al. request removal of No Turn on Red sign at the intersection of Water St. and Grafton St. |
| Scheduled Committee Hearing: | April 26, 2023 Traffic & Parking Committee, Item 11a |
| Prepared by: | Todd M. Kirrane., Assistant Director |

The petitioner has requested the removal of the NO TURN ON RED restriction and signage on Water Street at its intersection with Grafton Street.



Existing Conditions

Roadways

Grafton Street is classified by the Massachusetts Department of Transportation (MassDOT) as an Urban Principal Arterial under City jurisdiction. The roadway is approximately 45 feet curb to curb and provides connections to downtown Worcester, Union Station, CSX Rail Yard, and residential/commercial locations to the east. Grafton Street is two-way and provides one general purpose motor vehicle travel lane southbound and two general purpose motor vehicle travel lanes northbound. There is no on-street parking allowed on Grafton Street in the vicinity

of the intersection. The statutory (unposted) speed limit is 30 mph. Land use is primarily commercial. Continuous sidewalks exist along both sides of the street in the study area.

Water Street is classified by the Massachusetts Department of Transportation (MassDOT) as an Urban Minor Arterial under City jurisdiction. The roadway is approximately 32 feet curb to curb and provides connections from Kelley Square and the I-290 off ramp to Grafton Street. Water Street operates one-way northbound and provides one general purpose motor vehicle travel lane and a bike lane south of the intersection, with on-street parking provided on the western (left) side of the roadway, except near the subject intersection. A loop style off-ramp from southbound I-290 joins Water Street near Pond Street, forming a wide, single travel lane that operates as two parallel lanes. Approaching the intersection, the second travel lane is formalized. The statutory (unposted) speed limit is 30 mph. Land use is primarily multi-family residential and commercial. Continuous sidewalks exist along both sides of the street in the study area.

Winter Street is classified by the Massachusetts Department of Transportation (MassDOT) as an Urban Minor Arterial under City jurisdiction. The roadway is approximately 33 feet curb to curb and provides connections to Green Street and Grafton Street. Winter Street is two way and provides one general purpose motor vehicle travel lane in each direction. On Street parking is allowed on the northern curb line. The statutory (unposted) speed limit is 30 mph. Land use is primarily multi-family residential and commercial. Continuous sidewalks exist along both sides of the roadway in the study area.

Intersections

Grafton Street meets Water Street and Winter Street to form a four-legged signalized intersection. The Grafton Street southbound approach consist of a single left/right turn lane entering the intersection and two northbound travel lanes departing. The Grafton Street westbound approach consists of a single through lane and a right turn slip lane entering the intersection and two eastbound travel lanes departing. The Winter Street eastbound approach to the intersection consist of a single shared left or through lane entering the intersection and a single travel lane departing. The Water Street northbound approach consist of a shared right and through lane and a left and through lane. Sidewalks are provided on all approaches and the pedestrian curb ramps meet current ADA/AAB requirements. Each approach has a crosswalk across it. Other than sharrows, there are no formal bicycle accommodations provided.

The traffic signal operates with 4 phases:

- Grafton Street southbound approach
- Water Street approach
- Winter Street eastbound and Grafton Street westbound approach
- All Red exclusive Pedestrian crossing

NO TURN ON RED USAGE

Under Massachusetts General Laws Chapter 89, Section 8 a driver of a vehicle which is stopped as close as practicable at the entrance to the crosswalk or the near side of the intersections or, if none, then at the entrance to the intersection in obedience to such red or stop signal, may make either a right turn but shall yield the right-of-way to pedestrians and other traffic proceeding as

directed by the signal at said intersection. However, this default is not valid when a municipality enacts a No Turn on Red restriction for safety reasons.

Installation of No Turn on Red restriction and signage is governed by criteria established by the Manual of Uniform Traffic Control Devices (MUTCD) and Massachusetts amendments to the manual promulgated by the Massachusetts Department of Transportation (MassDOT). The MUTCD is incorporated by reference in 23 Code of Federal Regulations (CFR), Part 655, Subpart F and is the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel. Chapter 85 Section 2 of the Massachusetts General Laws further establishes that signs, traffic control signals, traffic devices, school zones, parking meters or markings on any way must be in conformance with the MUTCD, as amended.

The MUTCD 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;
- E. More than three right-turn-on-red accidents reported in a 12-month period for the particular approach; or
- F. The skew angle of the intersecting roadways creates difficulty for drivers to see traffic approaching from their left.

USE AT SITE LOCATION

The existing No Turn on Red restriction and signage was installed at this intersection as part of the federally funded Transportation Improvement Program project overseen by the MassDOT District 3 office in coordination with the City of Worcester. It was installed at the recommendation of the City and MassDOT's design consultant, VHB, as part of the overall intersection alignment and new traffic signal operations.

To determine whether or not the No Turn on Red should remain in place DTM staff has reviewed the 6 criteria established by the MUTCD and found that at least 4, and potentially a 5th, criteria is met:

- B. Geometrics or operational characteristics of the intersection that might result in unexpected conflicts;

The operational characteristics of the traffic signal system has potential safety conflicts for right turn on red from Water Street with all 3 phases when Water Street has a red. For the Grafton Street southbound approach, it is a single lane entering the intersection with motor vehicles turning either left onto Grafton Street or right onto Winter Street with no indication which movement they are making. A vehicle on Water Street making a right turn on red cannot use reasonable judgement to safely determine is a vehicle is making a left turn across their path in time to yield. For the All-Red Exclusive Pedestrian Phase there is a safety concern for potential crashes with pedestrians crossing Water Street and crossing Grafton Street westbound approach

as the vehicles crosses the pedestrian path of travel. Additionally, as it is an exclusive pedestrian phase it is not uncommon for pedestrians to cross diagonally. Essentially the driver would need to look in 3 different directions simultaneously to make the movement.

C. An exclusive pedestrian phase;

As stated previously, the traffic signal operation has an Exclusive Pedestrian Phase which means that all motor vehicle approaches are RED while pedestrians are given the right of way to cross the intersection. The signal is equipped with count down timers to let pedestrians know when to cross and how much time is left. Pedestrians rightfully are not expecting to interact with motor vehicles as they make these exclusive movements. Allowing a right turn on red from Water Street will introduce an expected conflict and potential crashes with pedestrians crossing Water Street, crossing Grafton Street westbound approach, and crossing diagonally. In 2022 the Governor signed into law “An Act to Reduce Traffic Fatalities” which now defined “Vulnerable Roadway Users” as People walking or biking (among others) and encouraged transportation agencies on the state and local level to enact policies and guidelines to protect this user group on our public ways. Prioritizing pedestrian safety over motor vehicle level of service at Exclusive Pedestrian Phases is one way to protect the safety and access of this vulnerable user group.

- A. Inadequate sight distance to vehicles approaching from the left (or right, if applicable);
- F. The skew angle of the intersecting roadways creates difficulty for drivers to see traffic approaching from their left.

Though they would be able to see the lead car, a vehicle that is attempting to make a Right on Red from Water Street onto Grafton Street eastbound may encounter sight distance issues to determine if the movement can be made safely during the Winter Street phase for vehicles entering the intersection at full speed from behind the initial queue. The reason for this is that Winter Street enters the intersection at an angle and the sightlines are additionally compromised by vehicles in the left/through lane, fencing, traffic signal infrastructure, pedestrians waiting on the corner to cross, and other elements. The vehicle would have to pull far into the intersection, beyond the crosswalk, to get a clear sightline, which would put them into the path of oncoming traffic.

- D. An unacceptable number of pedestrian conflicts with right-turn-on-red maneuvers, especially involving children, older pedestrians, or persons with disabilities;

Several communities in Massachusetts, as well as nationally, are making it a City (Town) wide policy to ban Right Turn on Red movements either at all traffic signals or all traffic signals with exclusive pedestrian phases because of the documented safety issues it poses. They are doing this in support of their Vision Zero and Complete Streets Policy directives that seek to eliminate traffic fatalities and severe crashes involving pedestrians, cyclists, micro-mobility users, etc. by increasing safe, healthy, equitable mobility for all. The City of Worcester has a Complete Streets Policy and is in the process of developing a Vision Zero/Safe Streets for All policy to achieve similar goals. Though staff would wait until the policy is in place to determine future city-wide initiatives, we believe that keeping those currently in place is a reasonable approach at this time.

In addition to reviewing the MUTCD, DTM staff contacted MassDOT District 3 for their comments and they voiced concern with removal based on sightlines and other conditions.

Recommendation

DTM recommends a vote to File this request.