



December 1, 2022

City of New Port Richey
Robert Rivera
Public Works Director
6132 Pine Hill Road
Port Richey, FL 34668

Re: Madison Street Traffic Analysis

Dear Robert:

Pursuant to the June 28, 2022 task order, FDC has conducted an assessment of four Madison St. intersections to determine if traffic conditions warrant installation of additional stop signs in accordance with the guidelines outlined in Section 2B.06 & 2B.07 of the 2009 Manual on Uniform Traffic Control Devices. Specifically, Section 2B.07 provides the following guidance for installation of Stop signs:

- A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
- B. *Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
- C. *Minimum Traffic 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 85th-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.*
- D. *Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.*

Other Criteria that may be considered in an engineering study include:

- A. *The need to control left-turn conflicts*
- B. *The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes*
- C. *Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop*
- D. *An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.*

Each of the subject intersections are evaluated based on the above criteria and recorded in the same format as outlined above:

Madison Street / Kentucky Avenue

Madison Street functions as the 'major street' currently operating under a free-flow condition and Kentucky Avenue functions as the 'minor street' operating under stop control. Both Madison Street and Kentucky Avenue are two-lane undivided roadways with a posted speed of 25 MPH.

The following observations are provided to the MUTCD criteria outlined above. (Traffic data is included in Appendix A.)

- A. Intersection does not meet warrants for traffic signal (or associated interim multi-way Stop sign)
- B. Only two (2) crashes have been reported in the vicinity of this intersection within a 12-month period. Therefore, the intersection does not meet warrants based on quantity of traffic accidents.
- C. Minimum Volumes:
 - 1. Madison Avenue traffic (both approaches combined) exceeds 300 VPH between 5AM and 6PM on an average weekday. (Criteria met)
 - 2. The vehicular volume of the minor street (Kentucky Ave.) only averages 21 VPH which is significantly below the 200 VPH required to meet this criterion (Criteria not met).
 - 3. 85th percentile approach speed of the major street does not exceed 40 MPH – therefore the intersection does not qualify for adjustments to criteria C(1) or C(2).

- D. This intersection does not meet 80 percent of Criteria B, C.1, and C.2. (criteria not met)

Additional Criteria

- A. Crash data does not support exceptional left-turn conflicts. Therefore, this criterion is not applicable.
- B. The subject intersection is immediately adjacent to Richey Elementary School which generates pedestrian traffic.
- C. Intersection geometry is unremarkable, this criterion is not applicable.
- D. Only one roadway is a through street, this criterion is not applicable.

Conclusion – While the intersection does not meet the criteria of 2B.07 A-D, it does meet the *Additional Criteria B*. Specifically, implementation of multi-way stop control would improve pedestrian safety at the existing mid-block school crosswalk located at the intersection. The posted speed limit within Madison Street is 25 MPH, the 85th percentile speed observed during the 7-day traffic study was 35 MPH. While multi-way stop control should not be implemented for the primary purpose of traffic calming or speed control, it is a result thereof, which in this case would support better compliance with the posted speed limit and improve traffic operational characteristics in the neighborhood context.

Mid-block crossing signage (including any advance warning signage) should be removed concurrent with the addition of the stop signs.

Madison Street / Indiana Avenue

Madison Street functions as the ‘major street’ currently operating under a free-flow condition and Indiana Avenue functions as the ‘minor street’ operating under stop control. Both Madison Street and Indiana Avenue are two-lane undivided roadways with a posted speed of 25 MPH.

The following observations are provided to the MUTCD criteria outlined above. (Traffic data is included in Appendix B.)

- A. Intersection does not meet warrants for traffic signal (or associated interim multi-way Stop sign)
- B. The intersection experienced three accidents within a 12-month period (Jan-Dec 2021) and only two of them could have been corrected with a multi-way stop condition. Therefore, the intersection does not meet warrants based on quantity of traffic accidents.
- C. Minimum Volumes:

1. Madison Avenue traffic (both approaches combined) exceeds 300 VPH between 5AM and 6PM on an average weekday (Criteria met).
 2. The vehicular volume of the minor street (Indiana Ave.) averages 23 VPH which is significantly below the 200 VPH required to meet this criterion (Criteria not met).
 3. 85th percentile approach speed of the major street does not exceed 40 MPH – therefore the intersection does not qualify for adjustments to criteria C(1) or C(2).
- D. This intersection does not meet 80 percent of Criteria B, C.1, and C.2. (criteria not met)

Additional Criteria

- A. Crash data does not support exceptional left-turn conflicts. Therefore, this criterion is not applicable.
- B. The subject intersection is located within 1,000 feet of Richey Elementary School which generates pedestrian traffic.
- C. The Madison Street roadway profile crests (6 feet above the Madison / Indiana intersection) approximately 250' north of the intersection. While the existing roadway appears to meet the Minimum Stopping Sight Distance (MSSD) defined in Table 3-25 of the FDOT Greenbook (155' for 25 MPH); the observed 85th percentile travel speed **exceeds** 35 MPH (35 MPH requires 250' MSSD) for several periods within the traffic study.
- D. Both streets are neighborhood collector through streets with similar design, but the operating characteristics are somewhat different (Madison St. carries more than ten times the average VPH of Indiana Ave.) therefore, this criterion is not met.

Conclusion – While the intersection does not meet the criteria of 2B.07 A-D, it does meet the *Additional Criteria B and C*. Specifically, this intersection is within 1,000 feet of an existing elementary school and implementation of multi-way stop control would improve pedestrian safety at the existing marked crosswalk. Additionally, the posted speed limit within Madison Street is 25 MPH however, the 85th percentile speed observed during several periods the 7-day traffic study exceeded 35 MPH (with three drivers exceeding 65 MPH). These speeds create a situation where southbound drivers traveling along Madison do not have adequate MSSD to respond to drivers entering or crossing their travel path. Installation of multi-way stop control will improve both pedestrian and vehicular operational characteristics in the neighborhood context.

Given, the change in operation characteristics along Madison Street, the City should consider either temporary educational signage alerting the motoring public of any new stop sign or installation of a permanent advance warning sign. Given the existing Madison Street roadway profile, the

southbound approach to Indiana Avenue should include installation of a permanent advance warning sign (30"X30" W3-1 installed 105' in advance of the stop sign).

Madison Street / Illinois Avenue

Madison Street functions as the 'major street' currently operating under a free-flow condition and Illinois Avenue functions as the 'minor street' operating under stop control. Both Madison Street and Illinois Avenue are two-lane undivided roadways with a posted speeds of 30 MPH and 25 MPH respectfully.

Traffic volumes are included in Appendix C.

- A. Intersection does not meet warrants for traffic signal (or associated interim multi-way Stop sign)
- B. No accidents were reported at this intersection within a 12-month period. Therefore, the intersection does not meet warrants based on quantity of traffic accidents.
- C. Minimum Volumes:
 - 1. Vehicular volume entering from the major approaches exceeds 300 VPH weekdays 6AM to 8PM (exceeding 8 hr. threshold)
 - 2. The vehicular volume of the minor street (Illinois Ave.) averages 27 VPH which is significantly below the 200 VPH required to meet this criterion (Criteria not met).
 - 3. 85th percentile approach speed of the major street does not exceed 40 MPH – therefore the intersection does not qualify for adjustments to criteria C(1) or C(2).
- D. This intersection does not meet 80 percent of Criteria B, C.1, and C.2. (criteria not met).

Additional Criteria

- A. Crash data does not support exceptional left-turn conflicts. Therefore, this criterion is not applicable.
- B. The intersection is not near locations that generate high pedestrian volumes. Therefore, this criterion is not applicable.
- C. Intersection geometry is unremarkable, this criterion is not applicable.
- D. Both streets are neighborhood collector through streets with similar design, but the operating characteristics are somewhat different (Madison St. carries more than seventeen times the average VPH of Illinois Ave.) therefore, this criterion is not met.

Conclusion – This intersection does not meet warrants for additional stop signs in accordance with the guidelines outlined in Section 2B.06 & 2B.07 of the MUTCD.

Madison Street / Gulf Drive

Madison Street functions as the 'major street' currently operating under a free-flow condition and Gulf Drive functions as the 'minor street' operating under stop control. Both Madison Street and Gulf Drive are two-lane undivided roadways with posted speeds of 30 MPH and 25 MPH respectfully.

Traffic volumes are included in Appendix D.

- A. Intersection does not meet warrants for traffic signal (or associated interim multi-way Stop sign)
- B. The intersection experienced four accidents within a 12-month period (Jan-Dec 2020) of which three of them may have been minimized with a multi-way stop condition. The MUTCD requires five or more crashes that are susceptible to correction by a multi-way stop installation qualify for installation of additional stop signs.
- C. Minimum Volumes:
 - 1. Vehicular volume entering from the major approaches exceeds 300 VPH weekdays 6AM to 8PM (criteria met).
 - 2. The vehicular volume of the minor street (Gulf Ave.) exceeds 200 VPH for the same 8 hours that the major approach exceeds 300 VPH. (it is assumed that the average delay \geq 30 seconds given the quantity of trips observed; however granularity of the traffic data prevents computation of the actual delay). (Criteria met).
 - 3. 85th percentile approach speed of the major street does not exceed 40 MPH – therefore the intersection does not qualify for adjustments to criteria C(1) or C(2).
- D. This intersection does not meet 80 percent of Criteria B. (criteria not met)

Additional Criteria

- A. Crash data does not support exceptional left-turn conflicts. Therefore, this criterion is not applicable.
- B. The subject intersection is located within 1,300 feet of Gulf High School and 0.6 miles from Gulf Middle School which generates high pedestrian volumes.
- C. Intersection geometry is unremarkable, this criterion is not applicable.
- D. Only one roadway is a through street, this criterion is not applicable

Conclusion – The subject intersection meets the threshold for multi-way stop signs because traffic volume exceeds the minimum thresholds of MUTCD Section 2B.07(C)(1) and 2B.07(C)(2). It should be noted that the subject intersection is located in close proximity to two public schools however, the traffic

study was conducted in July so it is likely that peak VPH and associated delay will be higher when school is in session.

The posted speed limit within Madison Street is 30 MPH, the 85th percentile speed observed during peak volume periods of the 7-day traffic study was 37 MPH. While multi-way stop control should not be implemented for the primary purpose of traffic calming or speed control, it is a result thereof, which in this case would support better compliance with the posted speed limit and improve traffic operational characteristics in the neighborhood context.

Additionally, the intersection's proximity to two public schools generates a significant quantity of pedestrian traffic. In order to improve east / west pedestrian safety, curb ramps and a high-intensity cross-walk should be installed across Madison Street to connect the Gulf Drive sidewalk to the Madison Street sidewalk.

Sincerely,



David Fleeman, PE
Sr. Project Manager

This item has been digitally signed and sealed by David Fleeman, PE, on the date adjacent to the seal.

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