



# Ohio Department of Transportation

District 9, 650 Eastern Ave., P.O. Box 467 Chillicothe, Ohio 45601-0467 740-773-2691

March 17, 2010

Pastor & Mrs. Joseph Krafthefer  
822 Chapel Cr. Rd.  
Kingston, Ohio 45644

RE: SR 159 & Aldi's / Tractor Supply / Tire Discounters  
SR 159 & Delano Rd.

Dear Pastor & Mrs. Krafthefer:

Thank you for your letter regarding the above referenced intersections. We appreciate your input on these important transportation issues regarding traffic signals. We have received several requests regarding these two intersections.

The Ohio Department of Transportation receives many requests in favor of and in opposition to signals. In order to maintain consistency and ensure that a signal is the appropriate form of traffic control, the Federal Highway Administration publishes a section on traffic signals in their Manual of Uniform Traffic Control Devices (MUTCD). Ohio must comply with these regulations; therefore they are adopted in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD).

These regulations require that in order to consider a traffic signal, a signal warrant must be met. There are 8 different signal warrants in the OMUTCD. The applicable signal warrants are based on the traffic volumes on both the main street (SR 159) and on the side street. The volumes must meet the minimum threshold values in order to meet the signal warrant.

The OMUTCD also points out that there are pros and cons to operating a stop and go traffic signal at an intersection. Engineering judgment plays an important role in determining when a traffic signal is the best form of traffic control for an intersection. *Section 4B.03 Advantages and Disadvantages of Traffic Control Signals* of the OMUTCD is enclosed to explain some of the considerations given when determining if a signal is the appropriate form of traffic control.

## **SR 159 & Aldi's/ Tire Discounters / Tractor Supply**

The traffic signal at SR 159 & Aldi's/ Tire Discounters / Tractor Supply was installed based on projected traffic volumes generated by the development on the East side of SR 159. However, the remaining land has not been developed as expected and the traffic volumes being generated by the Aldi's store are lower than projected. **The amount of traffic currently on the side streets at this intersection is not high enough to meet any of the required signal warrants.**

*Section 4C.01 Studies and Factors for Justifying Traffic Control Signals* of The Ohio Manual of Uniform Traffic Control Devices (OMUTCD) states the following:

*At a location that is under development or construction and where it is not possible to obtain a traffic count that would represent future traffic conditions, hourly volumes should be estimated as part of an engineering study for comparison with traffic signal warrants. Except for locations where the engineering study uses the satisfaction of Warrant 8 to justify a signal, a traffic control signal installed under projected conditions should have an engineering study done within 1 year of putting the signal into stop-and-go operation to determine if the signal is justified. If not justified, the signal should be taken out of stop-and-go operation or removed.*

Enclosed is a copy of the ODOT signal removal process that is being followed for the signal at the intersection at SR 159 & Aldi's/ Tire Discounters / Tractor Supply. The 90 day flashing period has just ended, and ODOT and the City of Chillicothe will be reviewing all feedback received and any crash data from the flashing period. Your letter will be included with the feedback. If the decision is made at that point to continue with the "removal", the signal will remain as a flasher. The equipment will not be removed. It is our intent that the signal will revert back to stop and go operation if/when the traffic volumes are high enough to meet a signal warrant.

#### **SR 159 & Delano Rd.**

This intersection has been studied in 2004, 2007, 2008 and again in 2009 due to requests for a signal. ODOT continues to receive requests regarding this intersection. **The intersection does not currently have enough traffic to meet a signal warrant.** A recommendation has been added to the ODOT District 9 Priority List to install an overhead flasher and intersection lighting to this intersection. It is currently ranked priority 10 on the list. There is currently no funding committed to the project, and it may get constructed if it moves up on the priority list. This list is a document that is continually changing as crash patterns change, projects are added and projects are completed.

Please feel free to contact Patricia Wetzel at (740) 774-8983 if you have any questions or if you wish to discuss this further. Thank you again for your input.

Respectfully,



James A. Brushart  
Deputy Director  
Ohio Department of Transportation  
District 9

Enclosure

C: T. Day, C. Ortman, D. Buskirk, G. Baird, R. Chaffin, P. Wetzel, J. Phillips

### **Section 4B.03 Advantages and Disadvantages of Traffic Control Signals**

Support:

When properly used, traffic control signals are valuable devices for the control of vehicular and pedestrian traffic. They assign the right-of-way to the various traffic movements and thereby profoundly influence traffic flow.

Traffic control signals that are properly designed, located, operated, and maintained will have one or more of the following advantages:

- A. They provide for the orderly movement of traffic.
- B. They increase the traffic-handling capacity of the intersection if:
  - 1. Proper physical layouts and control measures are used, and
  - 2. The signal operational parameters are reviewed and updated (if needed) on a regular basis (as engineering judgment determines that significant traffic flow and/or land use changes have occurred) to maximize the ability of the traffic control signal to satisfy current traffic demands.
- C. They reduce the frequency and severity of certain types of crashes, especially right-angle collisions.
- D. They are coordinated to provide for continuous or nearly continuous movement of traffic at a definite speed along a given route under favorable conditions.
- E. They are used to interrupt heavy traffic at intervals to permit other traffic, vehicular or pedestrian, to cross.

Traffic control signals are often considered a panacea for all traffic problems at intersections. This belief has led to traffic control signals being installed at many locations where they are not needed, adversely affecting the safety and efficiency of vehicular, bicycle, and pedestrian traffic.

Traffic control signals, even when justified by traffic and roadway conditions, can be ill-designed, ineffectively placed, improperly operated, or poorly maintained. Improper or unjustified traffic control signals can result in one or more of the following disadvantages:

- A. Excessive delay;
- B. Excessive disobedience of the signal indications;
- C. Increased use of less adequate routes as road users attempt to avoid the traffic control signals; and
- D. Significant increases in the frequency of collisions (especially rear-end collisions).

### **Section 4B.04 Alternatives to Traffic Control Signals**

Guidance:

Since vehicular delay and the frequency of some types of crashes are sometimes greater under traffic signal control than under STOP sign control, consideration should be given to providing alternatives to traffic control signals even if one or more of the signal warrants has been satisfied.

Option:

These alternatives may include, but are not limited to, the following:

- A. Installing signs along the major street to warn road users approaching the intersection;
- B. Relocating the stop line(s) and making other changes to improve the sight distance at the intersection;
- C. Installing measures designed to reduce speeds on the approaches;
- D. Installing a flashing beacon at the intersection to supplement STOP sign control;
- E. Installing flashing beacons on warning signs in advance of a STOP sign controlled intersection on major-and/or minor-street approaches;
- F. Adding one or more lanes on a minor-street approach to reduce the number of vehicles per lane on the approach;
- G. Revising the geometrics at the intersection to channelize vehicular movements and reduce the time required for a vehicle to complete a movement, which could also assist pedestrians;
- H. Installing roadway lighting if a disproportionate number of crashes occur at night;

**401 TRAFFIC CONTROL SIGNALS - GENERAL****401-1 General**

**OMUTCD Chapter 4D** presents information on the design, location and use of traffic control signals. Construction details are shown on the **SCDs TC-81.10 through TC-85.20**. Traffic signal equipment is specified in **CMS Items 632 and 633**, and **CMS 732 and 733**.

**401-2 Installation of Traffic Signals on State Highways**

**Policy 516-002(P)** documents **ODOT** policy regarding installation of traffic control signals and intersection control beacons on state highways. A copy has also been included in the Appendix of this manual (**Chapter 15**).

**401-3 Periodic Review of Signals**

As noted in **OMUTCD Section 4B.02**, changing traffic patterns may render an existing traffic signal either inefficient or no longer necessary. Therefore, the responsible agency should periodically conduct a traffic engineering study to evaluate the efficiency and necessity of traffic signals under its jurisdiction and determine if revisions may be needed. This traffic engineering study may lead to changing the signal timing, signal phasing, vehicle or pedestrian detection, roadway geometry, or the complete removal of the traffic signal.

Traffic signal installations that are not properly designed and maintained for current traffic conditions, or are no longer warranted, can result in the following conditions:

1. Excessive traffic delay.
2. Increased disobedience of the signal indications.
3. The use of less adequate routes in order to avoid such signals.
4. Increased accident frequency, especially rear-end accidents.

Some signalized intersections and/or signalized corridors may be eligible to apply for, and participate in, the Systematic Signal Timing & Phasing Program (SSTPP). See **Section 1213-6** for more information about this program.

**401-4 Removal of Traffic Signals Under ODOT Jurisdiction**

If a traffic engineering study indicates that the traffic signal is no longer justified, the traffic signal should be removed by a uniform procedure that will consider public input, accidents, site considerations and an appropriate replacement type of traffic control device. Therefore, when **ODOT** determines that an existing traffic signal installation no longer meets signal warrants as contained in the **OMUTCD**, or is no longer the appropriate form of traffic control, the **District** shall proceed through the following removal process to document and determine if the signal installation should be removed:

1. To determine if the traffic signal is still needed, the **District** shall prepare a traffic engineering study for the signal installation documenting the following information, as appropriate:
  - a. Warrant analysis summary. If reasons other than the standard warrants were used to justify the signal installation, determine if these reasons are still valid.
  - b. Accident history.
  - c. Site conditions, especially sight distance problems.

- d. Public, business, school board or governmental complaints resulting in the original signal installation.
  - e. Present and future developmental growth.
  - f. Known reasons for change in traffic patterns or volumes.
  - g. Capacity analysis for the alternate traffic control scheme most likely to be installed if the signal is removed.
  - h. Analysis of the cost of continued signal operation versus a one time signal removal cost.
  - i. Discussion of traffic volume growth needed to warrant the signal.
2. Based on the traffic engineering study, the **District** shall decide whether to proceed with the removal process or defer signal removal. If the removal is deferred, the **District** shall document the reasons for deferral. The signalized location shall be reconsidered for removal every year until a signal warrant or other determination of permanent retention is satisfied.
3. If the **District** decides to proceed with the removal process, the following steps shall be taken:
- a. Inform the local media, schools, governmental agencies and local emergency/safety forces of **ODOT's** intent to study the signalized location for removal.
  - b. Remove or reduce intersection sight distance restrictions, if needed.
  - c. Install the SIGNAL UNDER STUDY FOR REMOVAL (W3-H12) sign next to the signal heads on each approach.
  - d. Check the controller cabinet wiring to ensure that the color of the flashing indications will agree with the alternate traffic control scheme.
  - e. Install the alternate traffic control devices, such as STOP signs and advance Warning Signs. Existing Stop Lines on the uncontrolled approaches should not be removed at this time.
  - f. Place the signal in flashing operation for ninety days, in conjunction *with item 3e above*.
4. If the signal is put in flashing operation for ninety days in anticipation of removal, the **District** shall monitor accident experience during the ninety-day flashing period:
- a. If accidents of types susceptible to correction by traffic signal control have increased by more than two, the signalized location shall remain in flashing operation for an additional sixty-day period. If more than two such accidents occur in the second sixty-day period, the **District** should retain the signal in stop-and-go operation until the site conditions can be improved to reduce the accident frequency.
  - b. If accidents of types susceptible to correction by traffic signal control have not increased by more than two, continue with the removal process.
  - c. The **District** shall also monitor, investigate and respond to the concerns of the public during this period.
5. If the **District** decides to proceed with the removal process after considering the information gathered in *item 4*:
- a. The signal heads shall be bagged or removed, and the traffic signal turned off for a sixty

day period.

- b. The accidents shall be monitored to determine if the absence of flashing traffic signals results in an increase in accidents. If accidents occur, the **District** may consider conversion of the traffic signal to a flashing intersection control beacon.
6. If it is decided to continue with removal of the signal, the **District** shall remove the signal heads, poles, foundations (1 foot below grade), pull boxes, overhead cables and controller. Underground conduit and cables may be abandoned in place. If the **District** wants to monitor the site for an extended period of time, the poles and cables may be left in place for one year.
7. The **District** shall notify all affected parties of the removal of the signal and the termination of any agreements that were in effect. If a signal permit exists for the signal removal location, the **District** will notify the **Office of Traffic Engineering** of the signal removal so that a statewide database on **Village** signal permits can be maintained.

#### 401-5 Identifying Maintenance Responsibility for a Traffic Signal

Road users often have a need to know the maintaining agency of a traffic signal in order to report malfunctions or signal timing problems. Many agencies install a sign or a decal on the controller cabinet to inform the public of the responsible agency and give a telephone number to report problems.

In general, the maintaining agency of a traffic signal can be determined as follows:

1. **City/Village**: Inside the corporation limits of a **City** or **Village**, the **City/Village** is responsible for the traffic signal unless the signal is located at the end of an Interstate ramp in which case, **ODOT** may maintain the signals.
2. **ODOT**: Outside the corporation limits of a **City** or **Village**, traffic signals at intersections where at least one of the highways is a State or US Route are maintained by **ODOT**. **ODOT** is responsible for all signals at Interstate ramps.
3. **County**: Outside the corporation limits of a **City** or **Village** and the involved highways are not State or US Routes, the **County** will maintain the signal if at least one of the highways is a County Route.
4. **Township**: Outside the corporation limits of a **City** or **Village** and the involved highways are not State, US or County Routes, the **Township** will maintain the signal.

#### 401-6 Village Signal Permit Procedures

Requests by village authorities for permission to install and operate traffic control signals on state highway extensions within villages (**Form 496-8**) should be substantiated by appropriate traffic studies and submitted to the **District Deputy Director**. If it is determined that a traffic control signal is warranted, authorization for the installation of a traffic control signal will be issued to the village authorities.

The authorization is valid for 180 days. During this time, the village shall prepare and submit to **ODOT** an operation plan for the proposed traffic signal installation (**Form 496-9**). Upon approval of this plan, the village may purchase and install the traffic control signal. The fact that the **Director of Transportation** is authorized to determine whether a traffic control signal is warranted does not relieve the village authorities in any way from bearing the costs of purchasing, installing and maintaining the traffic signal equipment.

As soon as the traffic control signal has been installed and put in operation, the certification at the bottom of the form shown in **Form 496-9** should be filled out and returned to the **District Deputy Director**. The final Traffic Control Signal Permit (**Form 496-10**) will then be issued by the