

**CUYAHOGA COUNTY
DEPARTMENT OF PUBLIC WORKS
TRAFFIC CONTROL STANDARDS**



Supplement to

O.D.O.T.

TRAFFIC ENGINEERING MANUAL

March 2021

Revisions to the July 2017 edition
are noted by a vertical line in the right page margin.

**CUYAHOGA COUNTY
DEPARTMENT OF PUBLIC WORKS**

TRAFFIC CONTROL STANDARDS

**SUPPLEMENT TO ODOT
TRAFFIC ENGINEERING MANUAL (TEM)**

TABLE OF CONTENTS

<u>SECTION</u>		<u>PAGE</u>
I.	SIGNS AND SIGN ATTACHMENTS	2
II.	GROUND-MOUNTED SIGN SUPPORTS	3
III.	ELECTRICAL SERVICES FOR OVERHEAD SIGN SUPPORTS	3
IV.	SIGN LIGHTING	3
V.	PAVEMENT MARKING	3
VI.	RAISED PAVEMENT MARKERS, DELINEATORS, BARRIER REFLECTORS, AND OBJECT MARKERS	3
VII.	SIGNAL PLAN LAYOUT	3
VIII	TRAFFIC SIGNAL CONSIDERATIONS	4
APPENDIX A	GENERAL NOTES	5
APPENDIX B	POLICY ON THE USE OF REFLECTIVE SHEETING FOR TRAFFIC SIGNS ON CONSTRUCTION PROJECTS	5

I. SIGNS AND SIGN ATTACHMENTS

The bid item "Sign Erected, Flat Sheet" will be used in the following circumstances:

- 1) County Standard Intersection Advance Signs (D-500) shall be installed on all State Highways and County Roads at all intersections with County Roads and State Highways. The signs should be located at a point 500 feet (150 Meters) in advance of the centerline of the crossroad wherever possible. The County Sign Shop will fabricate and furnish these signs, which will be installed by the Cuyahoga County Sign Shop or the Contractor.
- 2) Non-standard municipally designed signs, such as Snow Emergency Route signs, and municipal blanket parking restriction signs, may also be installed under this item. These signs are to be fabricated and furnished by the municipality for erection by the contractor.
- 3) The plans should include a General Note listing the address and phone number for the agency(ies) supplying the signs to be installed under this item, and instructions for obtaining the signs. If more than one agency will supply the signs, a list of which signs are to be furnished by each agency shall be included in the note.
- 4) Custom Corporation Limit Signs and signs fabricated of wood or installed on wood posts will NOT be installed as part of the project.

A. Sign Attachments.

In addition to the standard methods for attaching signs to supports identified in the TEM and the ODOT Traffic Control (TC) Standard Construction Drawings, special mountings may be used, as identified in the County Engineer's Sample Traffic Control Notes.

- 1) Attachment of street name signs by wing mounting to utility poles, and/or signal supports is permitted, as described in Traffic Control Note CUY-T11.
- 2) When signals are rigid mounted to mast arms, any signs attached to the mast arms shall also be rigid mounted by one of the methods identified in the notes.
- 3) When signals are rigid mounted to mast arms, large overhead mounted street name signs shall be attached to the signal mast arms, as described in Sample Traffic Control Note CUY-T10.
- 4) When signal supports, overhead sign supports, utility poles or strain poles are in close proximity to the proposed location of ground mounted signs, signs shall be attached to those poles, in lieu of ground mounted post supports, as described in Sample Traffic Control Note CUY-T12.

II. GROUND-MOUNTED SIGN SUPPORTS

Typical mounting heights for signs installed in tree lawns or where the cross slope is minimal, are referenced in the OMUTCD and in ODOT's Standard Construction Drawing TC-42.20.

III. ELECTRICAL SERVICES FOR OVERHEAD SIGN SUPPORTS

A conduit riser and 2" (51 mm) conduit should be provided from the power source to the base of the pole supporting the lighting fixture or timer. Normally Item 625 - Power Service (which includes a disconnect switch and meter base) should NOT be included in the plan, except where the power company requires a separate meter. (Currently, only CEI, First Energy requires a meter in this county.) CPP also is requiring a meter base and disconnect switch.

IV. SIGN LIGHTING

Not normally used.

V. PAVEMENT MARKING

Except when the municipality specifically requests the use of other types of pavement markings, the County standard of applying Item 646 Epoxy Pavement Marking for concrete pavement surfaces & the "long line" markings on asphalt pavement surfaces and applying Item 644 Thermoplastic Pavement Marking for the "short line" markings on asphalt pavement surfaces shall be used.

VI. RAISED PAVEMENT MARKERS, DELINEATORS, BARRIER REFLECTORS, AND OBJECT MARKERS

A. Raised Pavement Markers

Raised pavement markers will not normally be installed on county projects, except where the municipality has already installed such markers, in which case, they will be replaced as part of the project.

B. Barrier Reflectors (Permanent)

Barrier reflectors shall be erected on all new or reconstructed guardrail, on all new or reconstructed concrete barrier, and on new and reconditioned bridge parapets when there is NO sidewalk. These reflectors will be omitted on bridge parapets behind sidewalks.

VII. SIGNAL PLAN LAYOUT

A. Traffic signal poles

Mast Arm supports shall be used, except when the municipality specifically requests the use of span wire supports, or where the use of span wire is required due to complex geometric conditions that preclude the use of standard design mast arms.

B. Signal head locations and directions

Signals shall be rigid mounted with backplate, using LED lamps with aluminum or polycarbonate heads. Rigid mounting will be per Standard Construction Drawings TC-81.21 and TC-85.20.

C. Underground Conduit and Pull Boxes

Pull boxes in urban type locations should be specified as polymer concrete type. These should be used in lieu of the precast concrete pull boxes with steel covers, which are shown on drawing HL-30.11. The larger size should be used at the location closest to the controller, and at other locations where there are a large number of conduits and or cables entering the pull box.

Interconnect cable, between intersections should be installed in 2" (51 mm) conduit, and NOT attached to utility poles.

VIII. TRAFFIC SIGNAL CONSIDERATIONS

A. Power Service

Except where the power company requires a disconnect switch and metered service, the power supply to traffic signal controllers shall be by means of a 2" (51 mm) conduit riser and a separate 2" (51 mm) conduit running from the supply pole direct to the controller, and no power service item should be included in the plans. See Section III, above.

Use the following note (whichever is applicable):

FOR 30 AMP SERVICE

RHH or RHW or RHW-2 600V XLPE
TYPE USE-2, 7 STRAND
No. 8 AWG
3-CONDUCTOR

FOR 60 AMP SERVICE

RHH or RHW or RHW-2 600V XLPE
TYPE USE-2, 7 STRAND
No. 6 AWG
3-CONDUCTOR

B. Plan Information

Wiring diagrams shall be shown for each intersection.

- Wiring for 5-section traffic signals shall be specified as Item 632 – Signal Cable, 7 conductor, No. 14 AWG.
- Wiring for 3-section traffic signals and pedestrian signals shall be specified as Item 632 – Signal Cable, 5 conductor, No. 14 AWG.
- Wiring for Pedestrian pushbuttons should be specified as Item 632 – Loop Detector Lead-in Cable, which is a 2 conductor, shielded No 14 AWG.
- Interconnect cable will normally be specified as Item 632 – Interconnect Cable, 6 Pair, No. 19 AWG Solid, REA (PE-39). Fiber Optic Interconnect Cable may be used if the municipality has a policy of using that type of interconnection.
- Install 7-conductor signal wire from the controller to all far side 5-section signal heads, then jumper back to the near side 3-section signal heads with 5-conductor signal wire.

APPENDIX A GENERAL NOTES

See the Traffic Control Section of the County Sample Notes.

APPENDIX B POLICY ON THE USE OF REFLECTIVE SHEETING FOR TRAFFIC SIGNS ON CONSTRUCTION PROJECTS

I. PURPOSE

The purpose of this policy is to establish standards for the reflective sheeting types to be used on traffic control signs installed during capital improvement projects designed and/or constructed under the supervision of the Cuyahoga County Department of Public Works.

II. REPLACEMENT OF SIGNS

For major capital improvements (widening or total reconstruction projects), the Traffic Control portion of the plans shall include the removal of all existing traffic control signs and posts, and replacement with new signs and posts. The intent is to have all signing at the end of the project with full retroreflectivity and life expectancy, and to bring all signing into conformance with the Ohio Manual of

Uniform Traffic Control Devices (OMUTCD). Normally signing is not included within the scope of Operations or Interim Resurfacing Projects, but if signing is included, the guidelines in this policy shall be utilized as appropriate.

Any privately erected signs (such as those erected by service organizations) within the right-of-way are to be removed and not replaced. The plans should include installation of OMUTCD standard "Corporation Limit" (I-H2a) signs at the entrance to each municipality.

Other signing should be designed not just to replace each sign in kind, but rather to install the signing in a systematic and logical manner.

Posts to be removed will be paid for under "Item 630 – Removal of Ground Mounted Post Support and Disposal." Signs to be removed will normally be paid for under "Item 630 – (*Ground / Pole / Overhead*) Mounted Sign and Storage". The stored signs will be removed from the posts, and neatly stacked on the job site, and will normally be salvaged by the Cuyahoga County Department of Public Works' Sign Shop. Specialty signs, or others if requested by the municipality in advance, may be salvaged by the municipality.

III. USE OF TYPE G OR TYPE H REFLECTIVE SHEETING

All signs other than those listed hereinafter in Section IV (Use of Fluorescent Yellow-Green Reflective Sheeting) and Section V (Use of Fluorescent Pink Reflective Sheeting) will normally be installed using Type G sheeting. Type H sheeting shall be used for all R1-1, R1-2, R5-1 and R5-1A signs.

IV. USE OF FLUORESCENT YELLOW-GREEN REFLECTIVE SHEETING

The 2012 Edition of the OMUTCD mandates the optional use of Fluorescent Yellow-Green sheeting for pedestrian, bicycle and school warning signs. When the fluorescent yellow-green background color is used, a systematic approach featuring one background color within a zone or area should be used. The mixing of standard yellow and fluorescent yellow-green backgrounds within a zone or area should be avoided.

- A. For Cuyahoga County maintained highways (i.e. County Roads in the unincorporated sections of Cuyahoga County in Olmsted and Chagrin Falls Townships), the signs listed in this section are to be fabricated with Fluorescent Yellow-Green reflective sheeting.
- B. Use the C(1) School Warning Signs and the C(2) Vehicular Traffic Signs, Non-vehicular Traffic Signs and Supplemental Warning Plaques listed on Page 7. All existing yellow signs of the code numbers listed below for the signing covered by this policy shall be replaced with fluorescent yellow-green signs within the project work area.

C. The following signs shall be fabricated with TYPE H Fluorescent Yellow-Green reflective sheeting when specified as provided in this section:

1) School Warning Signs:

(S1-1), (S3-1), (S3-2), (S4-3P), (S4-5), (S4-5a), (S4-7P), (S5-H1), (W16-2P), (W16-2aP), (W16-5P), (W16-6P), (W16-7P), (W16-9P), (R1-6) and (R1-6b).

2) Vehicular Traffic Signs, Non-vehicular Traffic Signs and Supplement Warning Plaques:

(W11-2), (W11-9), (W15-1), (W16-1P), (W16-2P), (W16-2aP), (W16-3P), (W16-3aP), (W16-4P), (W16-5P), (W16-6P), (W16-7P), (W16-8P), (W16-8aP), (W16-9P), (W16-10P), (W16-10aP), (W16-13P), (W16-15P) and (W16-18P).

3) Regulatory Traffic Signs, Pedestrian Crossing Signs:

(R1-6), (R1-6b), (R1-9) and (R10-15).

V. USE OF TYPE H FLUORESCENT PINK REFLECTIVE SHEETING

Unless the maintaining municipality(ies) has (have) differing policies regarding installation of Fluorescent Pink Signs, the following Traffic Incident Management Area Signs shall be fabricated with Type H Fluorescent Pink reflective sheeting when specified as provided in this section:

(E5-2a), (M4-8a), (M4-9), (M4-10), (W3-4), (W4-2) and (W9-3).

VI. SIGN ERECTED, FLAT SHEET

County Standard Intersection Advance Signs (D-500) shall be installed on all State Highways and County Roads at all intersections with County Roads and State Highways. The signs should be located at a point 500 feet (150 meters) in advance of the centerline of the crossroad wherever possible. The County Sign Shop will fabricate, furnish and install these signs, under "Item 630 – Sign Erected, Flat Sheet". These signs are normally fabricated with Type G Sheeting, as provided under Section III, above.

Non-standard municipally designed signs, such as Snow Emergency Route signs, and municipal blanket parking restriction signs, may also be installed under this item. These signs are to be fabricated and furnished by the municipality for erection by the contractor. These signs are also normally fabricated with Type G Sheeting. Custom Corporation Limit Signs and signs fabricated of wood or installed on wood posts are specifically excluded from this provision and will NOT be installed as part of the project.