



GEORGIA ROADS

A Newsletter of Georgia's Technical Assistance Program

Vol. 18, No. 1 SUMMER 08



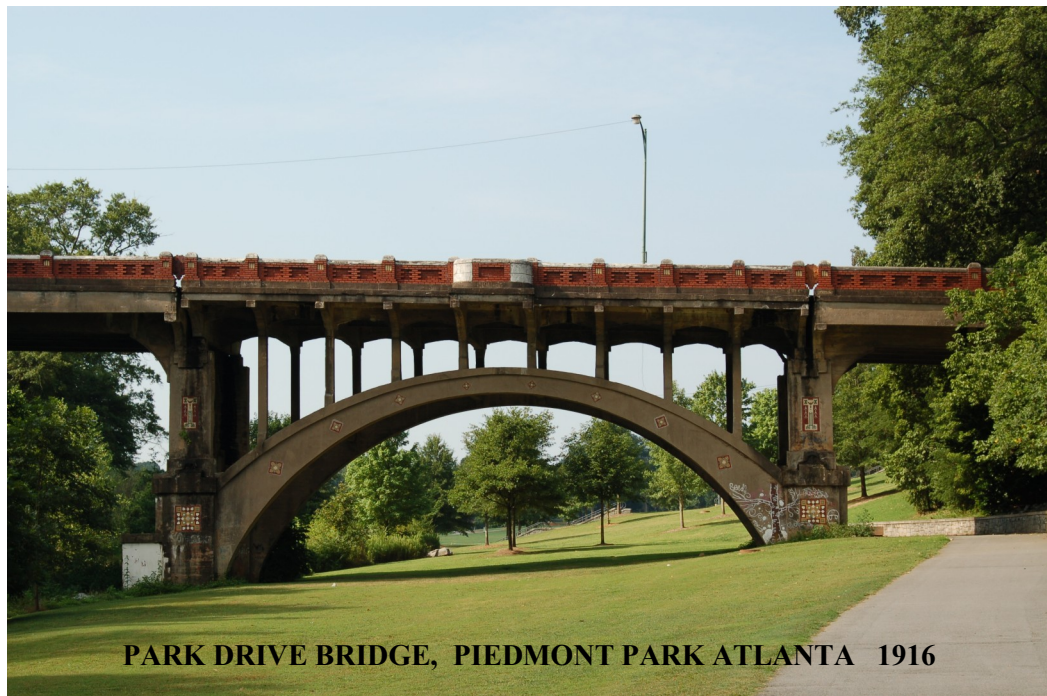
"BETTER ROADS THROUGH COOPERATION"

Georgia Roads New Look!

LTAP has redesigned the newsletter to support a new way of doing business. The LTAP newsletter will now be distributed by email. This will allow LTAP to reach more readers while lowering expenses.

Printed copies will be mailed to state, city and county transportation offices instead of to individuals. Individuals can still receive Georgia Roads by email.

If you would like to receive a copy by email fill out and return the card on the back cover, register on the LTAP Training website, or contact this office.



PARK DRIVE BRIDGE, PIEDMONT PARK ATLANTA 1916

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Bridge Maintenance and Inspection Training

Local governments in Georgia should take additional steps to improve their bridges. That's the recommendation of the recent audit by the Georgia Department of Audits and Accounts that found local bridges were *Structurally Deficient* at a rate more than three times that of state-maintained bridges.

The audit, entitled "Condition and Maintenance of Georgia Bridges" completed in June, also found that when compared to other states, Georgia bridges overall were generally in good condition.

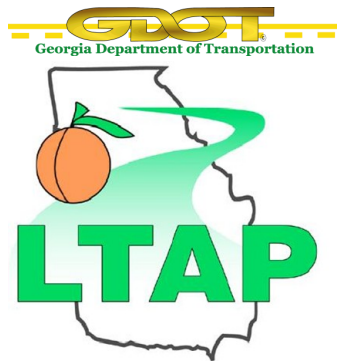
Georgia has more than 14,700 bridges and the State of Georgia, through GDOT, is responsible for maintaining more than 6,600 state and federal bridges. Local governments, on the other hand, are responsible for maintaining more than 7,800 bridges on local roadways.

The GDOT State Bridge Maintenance Unit, Bridge Inspection Section inspects all state and local bridges a minimum of once every two years, in accordance with the National Bridge Inspection Standards. After a bridge is inspected the Bridge Inspectors enter the inspection data including recommended repairs into the Bridge Information System (BIMS) database. BIMS is linked to Highway Maintenance Management System, (HMMS) database. GDOT bridge maintenance crews access HMMS to determine the required bridge repairs. BIMS creates a letter listing recommended bridge repairs and that is

(See [Bridge Maintenance](#) p.6)



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The Local Technical Assistance Program (LTAP) is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation and/or universities. Its purpose is to disseminate the latest state-of-the-art technologies in the areas of roads, highways and bridges to municipal and county highway and transportation personnel.

The Georgia LTAP is supported by FHWA and the Georgia Department of Transportation. The Georgia Roads Newsletter is one of the LTAP activities. The opinions, findings or recommendations expressed in this newsletter are those of the Georgia LTAP Center and do not necessarily reflect the views of the FHWA nor the Georgia Department of Transportation.

The Georgia Roads Newsletter is distributed free of charge to counties, cities, towns and others with transportation responsibilities.



Videos

Edge Rut Repair-GDOT

Planning for Disaster: Hurricanes

DVDs

Flagging Operations and Procedures

Work Zone Safety for Roadway Maintenance Operations

Introduction to Construction Inspection

Geosynthetics in Transportation

Highway Safety and Trees: The Delicate Balance

CD

Erosion Control Handbook for Local Roads

Roadside Design Guide 2002

Snow and Ice Control

Publications

Asphalt Pavement Maintenance

Operating Techniques for the Tractor Loader Backhoe

Highway Design Handbook for Older Drivers and Pedestrians

ASK US ABOUT OTHER TOPICS



Cover Photo: Park Drive Bridge over the Southern Railway was built in 1916. This bridge is one of the oldest bridges in Georgia still in use. It was built jointly by the City of Atlanta, Fulton County, Southern Railway, and the North Boulevard Park Corp. H.N. Hurt was the Chief of Construction and C.E. Kaufman was the Engineer. Case & Cothran were the contractors. It is a Deck Arch style bridge.



The LTAP Office has a limited number of books and manuals left over from training classes that are available on a first come basis until they are gone. Please email or phone your requests.

1. Improving Sight Distance on Local Roads and Streets
2. Exploring the AASHTO GREEN BOOK: Fundamentals of Geometric Design
3. Geometric Design of Very Low-Volume Local Roads (ADT < 400) 2001
4. Pavement Preventive Maintenance NHI
5. PACES– Road Surface Management
6. Gravel Roads-Maintenance and Design
7. Gravel Road Maintenance—DVD
8. Highway Construction Inspection
9. Inspectors Job Guide and Highway Maintenance Tables 2004
10. Traffic Engineering Fundamentals
11. Basic Surveying Manual
12. Improving Operational Safety on Local Roads and Streets
13. Basics of a Good Road & Construction Inspection
14. Full Road Closure for Work Zone Operations-A case study
15. Basic Asphalt Recycling Manual
16. Bridge Scour and Stream Instability countermeasures HEC
17. Introduction to Highway Hydraulics-3 volumes
18. Drainage: The Key to Roads that Last
19. Highway Capacity Analysis-HCS+
20. Access Management Manual
21. Selection and Use of Professional Engineers, Architects and Professional Consultants



The American Public Works Association, Georgia Chapter sponsored a Golf Tournament in memory of Dennis Rice, late GDOT LTAP Director. The event was a great success. Dennis's family attended and enjoyed fellowship with his APWA friends. A substantial donation was made to the Rice Family Trust.



TRAINING CALENDAR

DATE	EVENT	LOCATION
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August

25 **Chain Saw Safety** – Powder Springs

28 **Chain Saw Safety** – Rome, GA



September

4-5 **Highway Safety Effects** – Macon Area office

4 **Human factors** – OMR-Forest Park

24 **Low Cost Safety Improvements** – Lanier Tech-Cumming

25 **Low Cost Safety Improvements** – Macon State

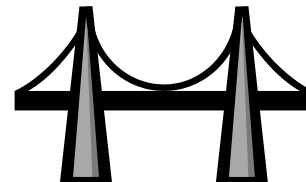
October

6 **Basis of a Good Road** – Augusta Tech

7 **Gravel Roads** – Augusta Tech

8 **Bridge Maintenance and Inspection** – Augusta Tech

14-15 **Traffic Engineering**- Savannah Tech



November

10-14 **Highway Drainage** – 3 locations To Be Determined

There is no charge for these classes for local government representatives. To register for a class please call **1-800-573-6445** or **404-656-4664** . You can also Email us at **LTAP@DOT.GA.GOV**

FHWA Highways for Life Program

Exit Strategy: I-85 Exit Ramp Innovations Demonstrated

Georgia's Lt. Governor Casey Cagle recently commented on the current state of Georgia's transportation system:

The evidence is clear that we must challenge our traditional notions of transportation funding and delivery of projects if we want to meet the needs of our state in the next 20 to 30 years.

Lt. Governor Cagle sees the “band-aid philosophy” as becoming increasingly irrelevant and ineffective at responding to the state's evolving needs. A \$7.7 billion dollar budget shortfall for transportation is expected over the next seven years due, in part, to lower fuel tax revenue. Cagle suggests that road projects take too long to complete, averaging seven years per project, with a majority of that time being lost *before* the first shovel of dirt is moved. Finding a way to reclaim that time, and thus reducing costs, is essential if Georgia is to avoid what Lt. Gov. Cagle calls the coming “crisis.”

Engineers and consultants from the Federal Highway Administration's (FHWA) Highways for LIFE (HfL) program and the Georgia Department of Transportation (GDOT) partnered to construct an exit ramp using technologies intended specifically to prevent the loss of valuable preconstruction time. Design/Build contracting, prefabricated bridge elements, performance incentives to contrac-

and Intelligent Transportation Systems (ITS) were utilized to speed construction and stretch project dollars farther.

On May 1st, 2008, a Product Demonstration Showcase was conducted in West Point, GA, to share the state's use of several combined technologies on a new I-85 exit ramp near the Alabama border. GDOT engineers gave detailed presentations to approximately 50 attendees, combined with a field trip to the site, highlighting the benefits of using and combining the technologies.

Design/Build technology, already familiar to many states, involves contracting both design and construction to a single builder, which is cheaper and allows both processes to continue simultaneously. Using prefabricated elements for the bridge rather than custom design and construction, has hastened the design and implementation. GDOT also created incentives for the contractor, based largely on crash cleanup and safety, in order to minimize congestion and the project's overall intrusiveness on normal highway activity. Speed band monitoring was also demonstrated during the presentation on a live web link. One participant from a neighboring state, when asked about the event, called it “very effective...[it] answered a lot of questions.”

Learn more about these cost-saving innovations by visiting: www.pdshowcase.org, <http://www.fhwa.dot.gov/hfl/innovator/issue06.cfm> or email pdshowcase@ce.ufl.edu.



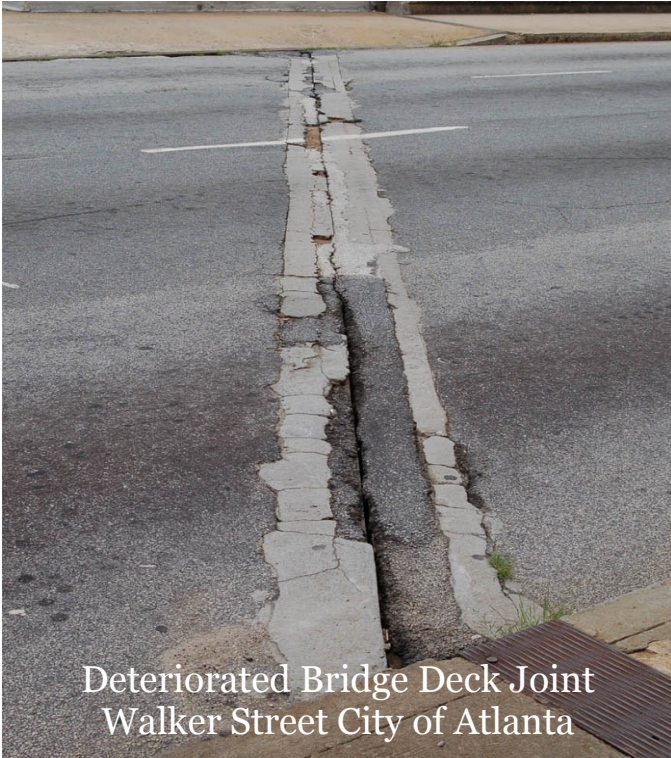
Share your successes (and your challenges) with the LTAP community. If you have tried something new that is working well send in the details and it may be included in the LTAP newsletter. If you have a challenge maybe LTAP can help you address it and include the story in the newsletter. Photos of interesting transportation features in your community can also be submitted to the newsletter.



Bridge Maintenance (continued from p. 1)

sent to the local governments.

While both a 2006 FHWA review and the audit found Georgia's Bridge Inspection program meets or exceeds national standards, the audit also



Deteriorated Bridge Deck Joint
Walker Street City of Atlanta

found that, too frequently, repair recommendations in the letters are never made to local bridges even when the recommendations were for relatively inexpensive, simple repairs.

Locally-maintained bridges, according to the audit, were found to be *Structurally Deficient* at a rate of 13% compared to a rate of 4% for state maintained bridges.

The percentage of *Structurally Deficient* bridges was also found to vary greatly by county. The condition of local bridges varied throughout the state, but the poorest counties did not have the worst bridges, nor did the richest counties have the best.

The audit found three reasons why bridge maintenance is not performed: the perceived cost of routine maintenance; a lack of expertise in bridge maintenance; and a lack of appreciation of the importance of maintenance.

During inspections, bridges receive a *Sufficiency Rating* on a scale of 1 to 100 that indicates its ser-

viceability. Bridges also be rated *Structurally Deficient*— a bridge with significant deterioration in load carrying members. A structurally deficient bridge *does not* imply that it is unsafe. A *Structurally Deficient* bridge is analyzed which may result in posting (reduced weight limits) or closure. Another rating is *Functionally Obsolete* – a bridge that was built to standards that do not meet the minimum federal clearance requirements for a new bridge.

Many of the minor items found during bridge inspections do not immediately threaten safety, but if left untreated can result in higher repair costs and shortened bridge life. However, the audit found some areas for concern and made some recommendations for improvements.

Failure to enforce posted bridge weight limits was also noted in the audit. In several of the sampled counties, the audit found school bus routes using bridges posted with weight limits lower than the bus weight. Failure to post weight limits or close a bridge will result in the local government becoming ineligible to receive funds through GDOT until the problem is corrected.

The main recommendation of the audit was that



Timber Pile Helper Bents
Fortner Road City of Metter 1937

“additional steps should be taken to improve the bridges owned by local governments.”

Encouraging proactive bridge maintenance was central to the audit recommendations, as was the need to provide additional training to improve the maintenance and repair of local bridges.

Tying bridge maintenance training to a local government’s ability to obtain funding for new projects is a necessary step to encourage proactive bridge maintenance at the local level.

Georgia DOT is revising its current bridge maintenance training and has plans to increase the number of classes offered.

Preventative maintenance includes cleaning the bridge deck surface and deck drains of debris, re-sealing deck joints, removing debris from the sub-structure, and painting the bridge steel.

A good preventative maintenance program that includes training can extend the life of a bridge two to three times longer than a neglected bridge.

Today’s high construction costs, tightened budgets, and high energy costs make bridge replacement appear exorbitant ; however most community cannot ignore the capitol outlay because of the economic impact of a detour.

A Bridge Maintenance guide will also be developed and distributed to local governments. The schedule of the classes is still to be determined.

All it takes is a glance around to see that it is not just men working on our roadways anymore. The MUTCD took this into account and replaced the “MEN WORKING” sign. The appropriate sign for this purpose is a gender neutral “WORKERS” word message sign or a worker symbol sign. Please note that “Men Working” signs are not in compliance with the MUTCD and their use should be discontinued. The specifications on the “WORKERS” sign (W21-1 and W21-1a) can be found online at <http://mutcd.fhwa.dot.gov/SHSe/Warning.pdf>.



IMPROVING INTERSECTION SAFETY

Traffic at unsignalized intersections increases with development however experience shows that often times signalizing an intersection may increase the number of accidents not decrease them. There are a number of steps that can be taken to improve intersection safety without adding a signal.

One of the simplest improvements is to increase the sight distances. Drivers should be able to clearly see the intersection as they approach it or they should be provided advance warning signs. At the intersection the driver should be able to see far enough in all directions to safely negotiate the intersection. This sight distance needs to be considered for all vehicles from small cars to semis.

Another extremely effective safety improvement for intersections is to control driveways near the intersection. Eliminating driveways, moving them to a safer location, or making them right in/right out only can all improve safety and congestion at an intersection. These changes can also be advantageous to

the property owner if well designed.

Improving the geometric design of intersections is an excellent way to reduce crashes and it can also be used make the crashes that do happen less likely to be serious. Improving intersection angles, adding turn lanes, restricting left turns, and closing or relocating intersections can all help to improve intersection safety. Construction of roundabout intersections is increasing in popularity due to their ability to efficiently handle traffic and to lessen the severity of most crashes.

Reducing speed limits approaching an intersection and enforcing existing traffic laws are also effective ways of addressing intersection safety. These and other strategies for improving intersection safety are addressed in depth in NCHRP Report 500 Volume 5: “A Guide for Addressing Unsignalized Intersection Collisions”. This guide and other intersection safety guides are available through the LTAP lending Library.

STOP SIGNS AND STOP BARS

STOP signs are defined as regulatory signs in section 2B of the Manual on Uniform Traffic Control Devices (MUTCD). The following information is taken from the MUTCD. The minimum size for a STOP sign is 24" X 24" but 30" X 30" or larger (up to 48" X 48") are recommended on conventional roads. **When all intersecting roads are STOP controlled a supplemental sign shall be used. "ALL WAY" or "4 WAY".**

STOP signs should not be used unless engineering judgment indicates that one or more of the following conditions exist:

- A. Intersection of a less important road with a main road where application of the normal right-of-way rule would not be expected to provide reasonably safe operation.
- B. Street entering a through highway or street
- C. Unsignalized intersection in a signalized area.
- D. High speeds, restricted view, or crash records indicate a need for control by the STOP sign.

STOP signs shall not be installed at intersections where traffic control signals are installed and operating because of the potential for conflicting commands to create driver confusion. Portable STOP signs shall not be used except for emergency and temporary traffic control zone purposes. STOP signs should not be used for speed control. STOP signs should be installed in a manner that minimizes the numbers of vehicles having to stop. Where a two way stop is used, in most cases the street carrying the least volume should be stopped. A STOP sign should not be installed on the major street unless justified by a traffic engineering study. At intersections where a full stop is not necessary at all times, consideration should be given to using less restrictive measures such as YIELD signs.

The following are considerations that might influence the decision regarding the appropriate street upon which to install a STOP sign where two streets with relatively equal volumes and/or characteristics intersect:

- A. Stopping the direction that conflicts with established pedestrian crossing activity or school walking routes.
- B. Stopping the direction that has obscured vision, dips, or bumps that already require drivers to use lower operation speeds.
- C. Stopping the direction that has the longest distance of uninterrupted flow approaching the intersection.
- D. Stopping the direction that has the best sight distance to conflicting traffic.

The use of the STOP sign at highway-railroad grade crossings is described in Section 8B.07 of the MUTCD.

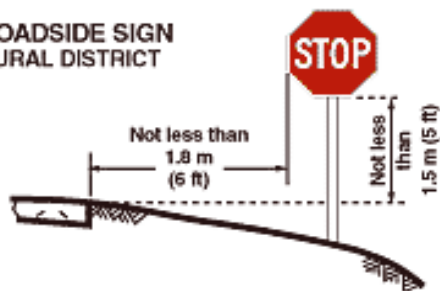
The STOP sign shall be installed on the right side of the traffic lane to which it applies. When the stop sign is installed at this required location and the sign visibility is restricted, a STOP AHEAD sign (see Section 2C.26) shall be installed in advance of the STOP sign. The STOP sign shall be located as close as practical to the intersection it regulates, while optimizing its visibility to the road user it is intended to regulate. STOP signs and YIELD signs shall not be mounted on the same post.

Stop lines, when used to supplement a STOP sign, should be located at the point where the road user should stop. If only one STOP sign is used it should not be placed on the far side of the intersection. Where two roads intersect at an acute angle, the STOP sign should be positioned at an angle, or shielded, so that the legend is out of view of traffic to which it does not apply. Where there is a marked crosswalk at the intersection, the STOP sign should be installed in advance of the crosswalk line nearest to the approaching traffic. At wide-throat intersections or where two or more approach lanes of traffic exist on the signed approach, observance of the stop control may be improved by the installation of an additional STOP sign on the left side of the road and/or the use of a stop line. At channelized intersections, the additional STOP sign may be effectively placed on a channelizing island.

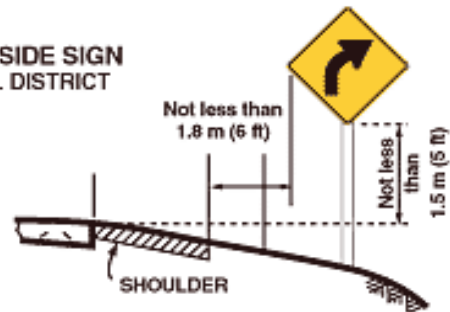
See <http://mutcd.fhwa.dot.gov/> for more.

Figure 2A-1. Examples of Heights and Lateral Locations of Signs for Typical Installations

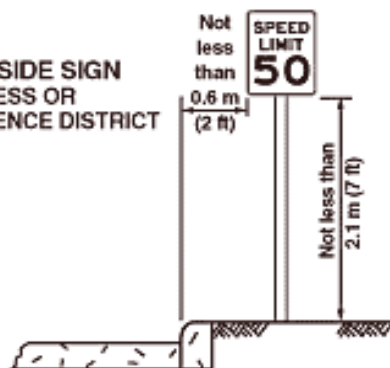
**ROADSIDE SIGN
RURAL DISTRICT**



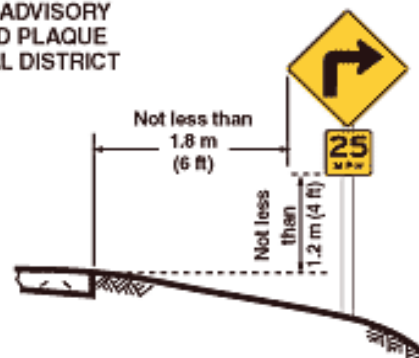
**ROADSIDE SIGN
RURAL DISTRICT**



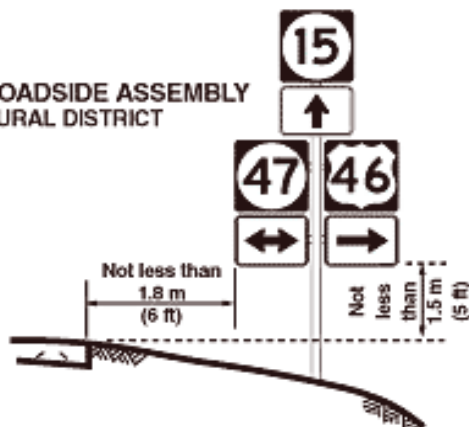
**ROADSIDE SIGN
BUSINESS OR
RESIDENCE DISTRICT**



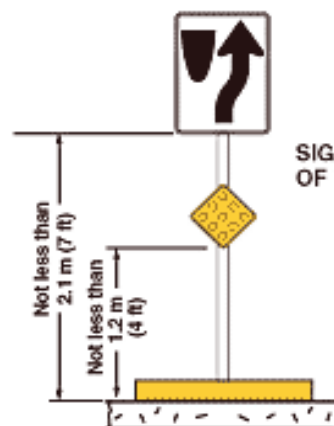
**WARNING SIGN
WITH ADVISORY
SPEED PLAQUE
RURAL DISTRICT**



**ROADSIDE ASSEMBLY
RURAL DISTRICT**

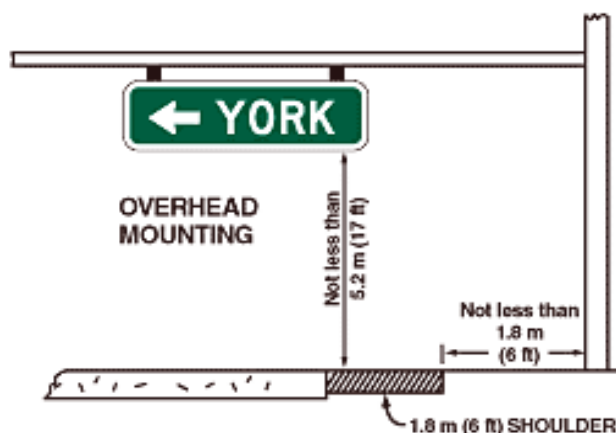


**SIGN ON NOSE
OF MEDIAN**



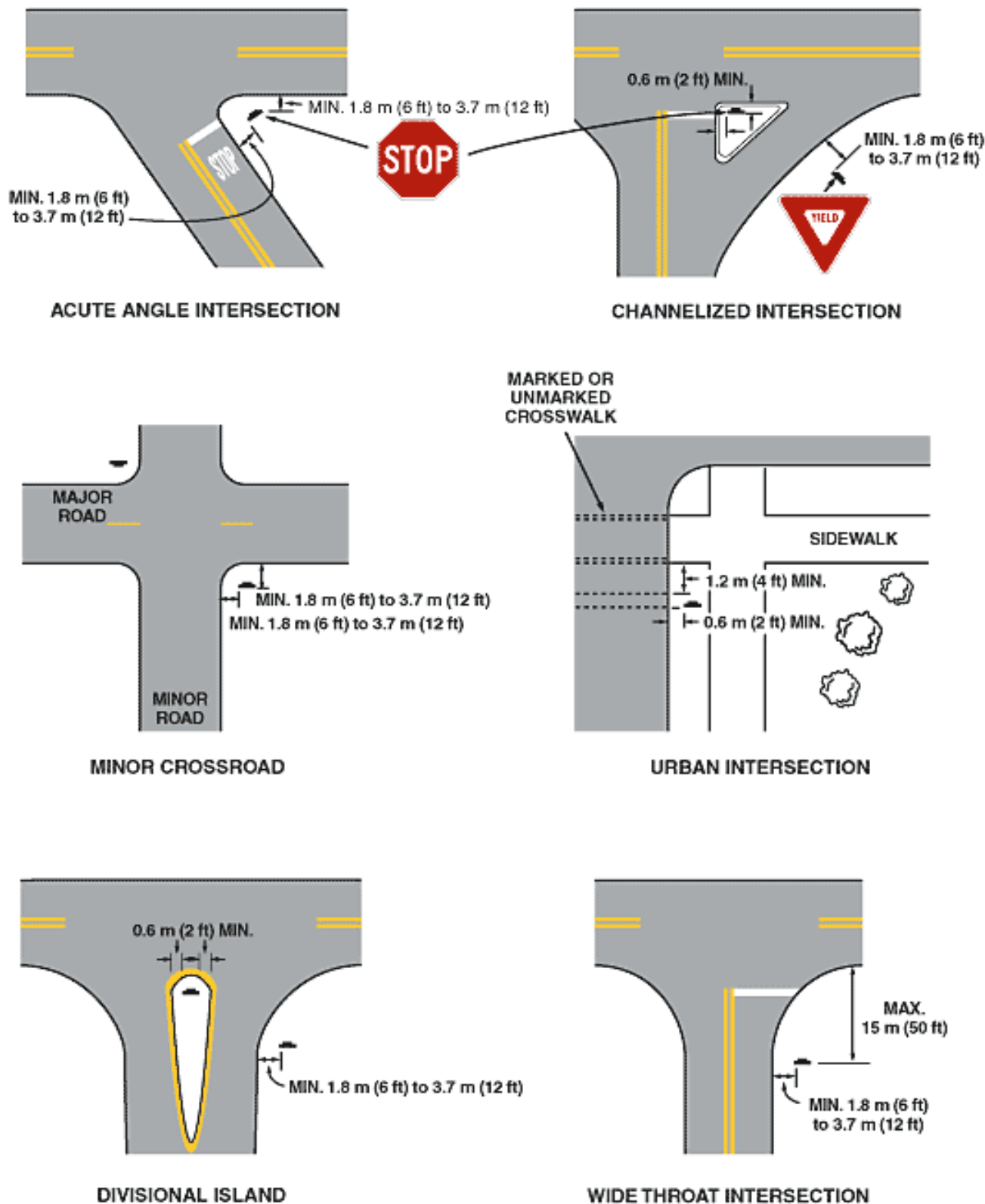
Note:
See Section 2A.19 for reduced lateral offset distances that may be used in areas where lateral offsets are limited, and in urban areas where sidewalk width is limited or where existing poles are close to the curb.

**OVERHEAD
MOUNTING**



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Figure 2A-2. Examples of Locations for Some Typical Signs at Intersections



Note: Lateral offset is a minimum of 1.8 m (6 ft) measured from the edge of the shoulder, or 3.7 m (12 ft) measured from the edge of the traveled way. See Section 2A.19 for lower minimums that may be used in urban areas, or where lateral offset space is limited.

Postage



GEORGIA DEPARTMENT OF TRANSPORTATION
 LOCAL TECHNICAL ASSISTANCE PROGRAM
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 Atlanta, GA 30303-3743



Working with Georgia Cities and Counties to Improve Transportation



Pile Encasements Cypress Lake Road Bulloch County

LTAP INTERNET FORUM

Georgia LTAP has an internet forum for discussions of Transportation issues at:

<http://tomcat2.dot.state.ga.us/WECS/MB/displayForums.cfm>

This is part of the LTAP training registration site and uses the same username and password. Please contact us if you have trouble logging in and we can reset your password.

Questions can be addressed by GDOT subject matter experts and by any other registered users and the answers are there for everyone to see and learn from. Here are some recent questions:

I hope you can help me find some information on the regulations regarding speed limit signs. I have looked in the MUTCD, but it is not clear. We have had police officers complain that they have lost speeding ticket cases because the defendant said that there were not enough speed limit signs posted. I need to know what the mandatory distance between each 25MPH speed limit sign should be on a city street.

Has your community secured state or federal assistance to replace/rebuild public parks, campgrounds or other recreational areas following a natural disaster (i.e. tornado, flooding, or other similar occurrences)?

Please go to the forum to see the responses or to respond.



NEW SUBSCRIBER OR UPDATE YOUR INFORMATION

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Name _____

Organization _____

Address _____

City/State _____ Zip Code _____

Phone _____ Fax _____

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Comments: _____

Call Toll Free: 1-800-573-6445

Email: LTAP@dot.ga.gov Fax: 404-656-3564 Ph: 404-656-5364

CUT OR FOLD AND TAPE IF INCLUDING COMMENTS

ABOUT THE CONTENT OF GEORGIA ROADS....

I find the writing to be (check one below):

_____ too technical _____ not technical enough _____ at the technical level I want

I rate the appearance to be (check one):

_____ not appealing _____ not clear enough _____ appealing _____ clear

Rank the following subject areas from 1 to 6 in order of importance to you:

One being the most important

_____ Research _____ Technology and Engineering _____ Innovative ideas

_____ APWA membership news _____ Maintenance _____ Questions and Opinions

I feel this newsletter (check all that apply)

_____ keeps readers up to date on innovation, technology, and maintenance

_____ provides me with useful information of local interest

_____ provides me with useful in my job

Comments: _____

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**Georgia Department of Transportation
Local Technical Assistance Program**

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GEORGIA ROADS

Is a technical newsletter about local roads published by the Georgia Department of Transportation Local Technical Assistance Program. It is written for Georgia's municipal and county employees who are responsible for planning and managing local roads. All of your comments, questions, and suggestions are welcome. Please call us toll free at 1-800-573-6445