Operational Safety for Public Works Responders

April 3-9, 2006

Louisiana’s local public works and transportation agencies worked long hours in extreme and dangerous conditions in response to the devastation wrought by Katrina and Rita. Many agency leaders reported a spirit of camaraderie and commitment by staff that enabled their departments to meet the ongoing challenges of the back-to-back storms. Despite long hours, harsh working conditions, limited communications, and personal hardship, most agencies reported only minor injuries to staff during the response activities.

Public works employees are familiar with the many risks and dangers of their profession. Most agencies conduct regular safety meetings, and LTAP and other organizations present many opportunities for safety training. Working under the extreme conditions of 2005’s unprecedented hurricane season...

Basic Maintenance Leveling and Grade Preparation

LTAP Presents New Course Offering

The new LTAP course, “Performing Basic Maintenance Leveling and Grade Preparation” was presented across the state during March and April. The program included both classroom training and hands-on activities in the field. Designed for less experienced workers who conduct basic leveling tasks as part of their jobs, the class was enthusiastically received by participants. Over 180 public works employees participated in the program and an extra class had to be scheduled to accommodate the registrants in one area.

Many participants indicated they gained a better understanding of performing the basic leveling steps and calculations and would use this understanding as...

Check Your Work Zone Savvy

- Do more work zone crashes occur at night or during the day?
- Do more fatal work zone crashes occur on weekdays or weekends?
- Do more work zone crashes occur in any particular season?

See the article on page 2 for answers.
Work Zone Safety Week

April 3-9, 2006, was designated as National Work Zone Safety Week. This week served to remind drivers and the transportation industry that roadway work zones present potential hazards that can be minimized through proper design and management and by driver attentiveness. As our nation’s road system ages, road work will naturally increase. Road work is becoming increasingly common especially in Louisiana’s storm-impacted areas.

Agencies can use this week to highlight the importance of work zone safety to their employees and to their communities. LTAP’s free on-site work zone safety or flagging workshops can be incorporated into local safety programs and LTAP can even assist in community awareness programs. Call (225) 767-9184 today to schedule your workshop or other assistance.

Sobering and Startling Statistics

From 1999 to 2003 an average of 1,020 fatalities occurred nationally in motor vehicle crashes in work zones.

Of these, 85 percent of those killed were drivers or occupants.

On average, from 1999 to 2003, about 15 percent of the fatalities resulting from crashes in work zones were non-motorists (pedestrians and bicyclists).

More than 40,000 people are injured nationwide as a result of motor vehicle crashes in work zones.

Of the 1028 fatalities in 2003, 230 occurred in crashes involving large trucks.

In 2003, approximately half of all fatal work zone crashes occurred during the day.

In 2003, more than two times as many fatal work zone crashes occurred on weekdays as on weekends.

In 2003, fatal work zone crashes occurred more often in the summer and the fall.

Sources: (FHWA website) Fatal crashes and fatalities – Fatality Analysis Report System (FARS), Injuries – General Estimates System

The FHWA reports that, on average nationally, a driver will encounter a work zone approximately every 50 miles. Traffic has increased at a faster rate than the addition of new roadways. This, coupled with the increased age of the existing road system, inevitably leads to more road work, which in turn leads to more work zones.

Safety Q and A

Question: What percentage of pedestrian fatalities occur in rural areas as opposed to urban areas?

Answer: 28 percent of pedestrian fatalities occur in rural areas as opposed to 72 percent in urban areas. This statistic challenges conventional wisdom that pedestrian fatalities are strictly an urban problem. A recently competed report identified characteristics of rural pedestrian fatalities. Visit www.walkinginfo.org/rd/safety.htm to access the report “Pedestrian Safety on Rural Highways” to find out more.
Implementing the New Work Zone Safety and Mobility Rule

The new rule on work zone safety and mobility, finalized in September of 2004 (with full implementation required by 2007), strives to “minimize the impacts of work zones and ultimately improve transportation and safety.” The rule, which applies to both state and local agencies depending on the type of project is characterized by the following provisions:

- Development and implementation of an overall, state-level work zone safety and mobility policy to institutionalize work zone processes and procedures.
- Development of standard processes and procedures to support policy implementation, including procedures for work zone impacts assessment, analyzing work zone data, training, and process reviews.
- Development of procedures to assess and manage work zone impacts of individual projects.

These provisions are intended to help transportation agencies address work zone considerations from planning through project design, implementation, and performance assessment.

A new guidance document available from FHWA, Implementing the Rule on Work Zone Safety and Mobility, provides assistance in understanding and following the rule’s updated provisions. While most of the requirements of the new work zone rule may apply primarily to “significant” state projects, the guidance encourages transportation agencies to consider including transportation operations and public information components in all TMPs, as appropriate, regardless of whether or not a project is considered significant. The new guide, as well as additional information about the Work Zone Safety and Mobility Rule, is available online at www.ops.fhwa.dot.gov/wz/resources/final_rule.htm. The guide will also be issued in print and CD-ROM formats by the end of this year. For more information, contact Tracy Scriba at FHWA, 202-366-0855, or tracy.scriba@fhwa.dot.gov.

Check out the article at www.tfhrc.gov/focus/nov05/02.htm and FHWA’s Office of Safety Web site for more information: http://safety.fhwa.dot.gov/wz/index.htm.

Local Work Zone Safety Considerations

Local roadway agencies face multiple considerations in planning work zones and properly selecting and setting up devices to be compliant with established standards. These considerations include where the work is being done; traffic volume, speed, and the type of roadway; work duration; visibility, and traffic conflicts. Adequate and accurate advance warning is needed with prompt removal when no longer needed.

Contact David McFarland at LTAP for training and assistance in setting up and manning local work zones; (225) 767-9118.

Basic Maintenance Leveling (cont. from page 1)

they prepare grades. Many participants indicated a need for a more advanced class which LTAP will consider in planning next year’s classes. Topics under consideration for a more advanced class include: establishing elevations for slopes, pipes and ditches; how to transfer bench marks; working with and setting out slope stakes; establishing a final grade; and leveling methods and procedures for installation of culverts, catch basins and drains. If your agency is interested in a more advanced class, please e-mail David McFarland at dmcfar@ltrc.lsu.edu.
Accelerating Concrete Admixtures

A More Effective and Efficient Approach to Concrete Repair

Cracking of Portland cement concrete pavements (PCCP) causes many problems for local and state transportation officials. Whether in rural or urban areas, these cracks can and usually do lead to a pavement structure failure that requires correction, usually by patching.

Patching for high traffic volume concrete pavements needs to be quick, effective, and as economical as possible. Asphalt is one of the most common patching materials because it fulfills most of these requirements. However, over time, asphalt is likely to be affected by traffic loads and thermal expansion and contraction of the PCCP due to the dissimilarities of the two paving materials. This leads to pop outs, bumps, and dips in the riding surface of the patched area. On the other hand, traditional patching with concrete is more effective in the long term life of the pavement but is also more costly in time and money.

Concrete is initially a more expensive material, but patching with concrete can be only slightly more time consuming than patching with asphalt containing modifying admixtures. In the past, only conventional concrete mixes were used for the patching. These mixes needed a longer curing time for the concrete to obtain the strength desired. This curing time also required the patching area or traffic lane to be closed for an extended time, causing delays to the traveling public. Use of accelerating admixtures can considerably reduce the time required for curing and for road closures.

Accelerating admixtures incorporated into an otherwise conventional concrete mix can reduce the curing time to as little as four hours. Consequently, a patching maintenance crew could easily complete a patching job and then open the patched area back to traffic within 12 hours. These accelerated concrete mixes for patching are also available at the nearest ready mix plant. Ready mix plants are familiar with their material ingredients and how they react with accelerating admixtures. Minimal trial batching, if any, would be required for them to prepare a mix design custom ordered to fit the needs of the patching job at hand.

Several factors should be considered when using accelerating admixtures in concrete. Chief among them is the timing of adding the admixture to the mix. In some cases, concrete mix has hardened early in the ready mix trucks because of delays at the job site. In general, it is probably best to add these admixtures at the job site when you know you are ready to pour.

Patching concrete containing reinforcing steel also presents additional concerns. A non-chloride accelerating admixture should be specified since the majority of accelerating admixtures contain chlorides. Chlorides are detrimental to reinforcing steel, as they initiate and accelerate the corrosion process of the reinforcing steel.

Accelerated concrete mixes will reduce the time required for concrete patching and should be considered for a superior and longer lasting maintenance remedy to cracked sections in PCCP. Refer to section 602 in the DOTD Louisiana Standard Specifications for Roads and Bridges 2000 edition for material and construction guidance on concrete patching.

A copy can be referenced on the internet at: http://www.dotd.louisiana.gov/highways/project_devel/contractspecs/default.asp

For more information, contact John Eggers, P.E., Senior Concrete Research Engineer, Louisiana Transportation Research Center, at (225) 767-9103.
Chain Saw Training

Popular Class by ArborMaster Returns in May 2006

According to the Red Cross, the chain saw is a time-saving and efficient power tool. It can also be unforgiving and lethal causing injury and death in the hands of un-informed and unaware operators. It is not, however, the chain saw that causes the accidents or injuries. Rather, it is the environment in which it is used and the skill of the operator that causes accidents. Each year, from 33,000 to 40,000 injuries are reported, the majority of which are in the hand and leg area. Medical costs have been estimated at over $350 million dollars per year, and worker’s compensation claims at over $125 million. These are staggering estimates of the injury and costs associated with the widespread use of this popular tool.

Rip Tompkins, a nationally recognized chain saw user and trainer with ArborMaster, impressed even the most experienced chain saw users with his skill at the special training classes held earlier this year in Washington and Calcasieu Parishes. Several of the class participants rated it one of the best training programs that they have ever attended. One supervisor even said that his crews would have stayed even longer to learn more!

Based on the positive feedback and reports that even inexperienced operators were faced with using chainsaws after the storms of last summer, LTAP will offer this popular class in May in three locations across the state. The training sites were selected to allow plenty of outside demonstrations of proper chain saw use in a natural setting. These classes will be a great opportunity for personnel who regularly use the chain saw as well as novice or only occasional users. Put this on your calendars now and don’t miss this great training opportunity. Rip won’t be back again this year and storm season will soon be upon us again. Class schedule: May 1, Camp Minden, Minden, LA; May 2 – Esler Field/Camp Beauregard, Pineville, LA; May 3 – Slidell area.

The agenda of the class reflects the need for efficient and safe use of this powerful and potentially dangerous tool in all situations but particularly after storm damage:

Agenda

Safety and Risk Management

Chainsaw Operation/Handling
Chainsaw Selection, Chainsaw Safety Features, Reactive forces, Starting Techniques, Ergonomics

Chainsaw Cutting
History and Development of the Face Notch and Back Cut, Function of Hinge Wood, Precision Cutting Methods, Limbing and Bucking Techniques

Felling Procedures
Five-Step Felling Plan, Tree Felling, Pull Lines, Wedges, Mechanical Advantage

Specialized Cutting Situations
Hazardous Cutting Situations after Storms, Spring Poles, Understanding Tension and Compression Wood

Chainsaw Maintenance
Preventative Maintenance, Sharpening and Bar Maintenance

If you’ve never had training on the proper use of the chainsaw, this class could be a lifesaver. If you are lucky enough to have had training, this class can provide you with a valuable refresher and the opportunity to improve your skill. Watch for registration information so you don’t miss this opportunity to learn more about this dangerous and important tool.
Response and recovery from the devastating storms of 2005 continues to occupy many of the Gulf Coast’s local public works departments, state and local governmental agencies, and private organizations. The aftermath of Katrina and Rita clarified the need for a more comprehensive and coordinated approach to emergency response at all levels—from the Federal level down to state and local entities. However, the sheer magnitude of the resulting disasters has complicated emergency response planning efforts for the future, since all levels of responders and planners need to be involved. Bringing these different groups together has been difficult as many agencies are still heavily involved in the recovery efforts, and a comprehensive, collaborative planning effort has taken a back seat to just getting things back to normal.

LTAP has coordinated several informal “after-action” reviews with local public works officials in cooperation with the Louisiana Police Jury and the Louisiana Municipal Association. Representatives of parish and municipal public works departments provided feedback about the biggest problems from last year and challenges for the future. LTAP is using this information to develop a workshop to help public works agencies better plan for future emergencies.

All the feedback gathered by LTAP from the public works departments was remarkably similar, regardless of whether the agency was from a parish or municipality or had experienced the fury of Katrina or Rita—or both. All groups reported the same types of problems regarding the critical nature of the situations. Following is a compilation of the most commonly cited problems that occurred in the immediate aftermath of the storms:

- **Physical Communications.** Land lines, cell phones and radio systems failed in many locations. Some communities were completely cut off from the outside world and couldn’t even communicate internally.
- **Administrative Communications.** Accurate and timely information was unavailable due to communication failures between the many groups involved in the response efforts. This occurred at the local, state, and federal levels.
- **Fuel Acquisition and Distribution.** Fuel requirements for local responders and the local communities far exceeded readily available supplies. This shortage was compounded by the fuel requirements for the many external response and relief organizations.
- **Planning and Preparedness.** The magnitude of the disasters and the length of time that emergency situations existed surpassed the level of planning for many public works agencies. Specific issues that were impacted by a lack of preparation included:
  - *Debris management* — Plans which included removal and management, monitoring and contracts were not in place in many areas.
  - *Utility restoration* — Restoration of utilities was hampered by fuel shortages, equipment flooding, and manpower shortages caused by the extreme situations.
  - *Self sufficiency* — Short-term plans did not address the longer-term needs to sustain a response effort with regards to personnel, including housing, food, fuel, pay and other supplies for displaced workers. Other resources were also in short supply and plans did not take into account the massive devastation and competition for all types of supplies and equipment for an extended time.
  - *Support of non-public works personnel* — In many areas, the public works departments became the focal point to support other local governmental agencies and response services.
- **Dealing with External Agencies.** FEMA, the Red Cross, the National Guard, the Corps of Engineers,
The American Public Works Association (APWA) participated in a "Public Stakeholder's Summit" with other first responder organizations to discuss the White House report detailing the federal response to Hurricane Katrina. Along with other state and local authorities, APWA highlighted post-hurricane challenges faced by members in the Gulf States. APWA Government Affairs Manager Dan Jensen was able to directly question Department of Homeland Security Secretary Chertoff about two of the biggest problems faced by APWA members in the Gulf Coast: inconsistencies in response and the reimbursement process, and the need for FEMA to provide better resources to public works during future catastrophes. Chertoff assured APWA that the forms, reimbursement process, and access to FEMA decision makers will be given the highest priority as the government restyles its response procedures before the new hurricane season starts on June 1.


Author: Dan Jensen, APWA Government Affairs Manager

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**APWA Represents Members at National Hurricane Response Review**

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reminded all public works professionals, from managers to field personnel, that safety must always be a priority.

LTAP’s new course “Operational Safety for Public Works Responders” provided additional knowledge and skills to help front line public works responders meet the critical safety challenges of future emergency response operations. Over 300 participants from across the state joined LTAP to learn from their shared experiences and review information on critical safety hazards that occur during “routine” emergencies.

The class addressed the many hazards which often occur as a result of natural disasters and included the challenge of responding to multiple uncontrolled hazards. Specific topics included:

- Downed Trees and Power Lines
- Heat Stress and Physical Exhaustion
- Exposure to Excessive and Prolonged Noise
- Respiratory Distress from Exposure to Chemicals, and/or Carbon Monoxide
- Flying Debris and Worksite Injuries
- Working around Heavy Machinery
- Hypothermia
- Traumatic Stress Disorder

Additional guidelines for operating heavy equipment safely during routine and emergency situations will also be presented in LTAP’s upcoming new class, Heavy Equipment Operational Safety and Preventive Maintenance.