State of the Association

President Gives Thoughts on the Louisiana Parish Engineers and Supervisors Association

By George Mikhael
LPESA President

In the first year of my presidency, many of our public works agencies faced daunting challenges in the aftermath of the devastating hurricanes, Katrina and Rita. One of those challenges was the passage of a new statewide building code requiring stronger homes and stricter inspection. LPESA worked closely with the Louisiana Code Council, the Police Jury Association, and LTAP in spreading the word on the new regulations to all governing cities and parishes. We worked successfully with the legislature to secure funding and assistance for training additional inspectors and establishing new multi-parish code offices.

During the past two years, LPESA has worked diligently on the urgent transportation issues facing Louisiana. We helped choose projects submitted under the Safe Routes to School and the Local Road Safety programs. The association also pushed the Blanco administration to dedicate funding for an off system bridges program and a local roads enhancement program. These transportation successes are a direct result of us educating our members on issues and policies that are affecting or will affect our daily life and job performance.

Two vehicles have helped us with this education process; first, with the invaluable assistance of LTAP, we updated and improved our Web site, www.lpesa.org. The site contains information about our conferences, legislative efforts, and links to information useful to the daily work of a public works agency. I want to extend a special thank you to Spencer Boatner and T.J. Dunlevy at LTAP for their incredible work on the Web site.

The second education vehicle, our semi-annual conferences, has improved steadily thanks to LTAP, candid input from our attendees and board, and the invaluable assistance of our associate members. Based on member requests, we have learned about latest rules, regulations, and technology affecting road safety, road construction, bridges, drainage, floodplain management, utility, environment, ethics, training methods, and public bid law.

Thanks to our associate members, we have been exposed to the latest products, tools, and methods

Cont. on page 8
Speed limits are set to allow for efficient and safe travel on roadways of all types. The determination of a speed limit on a given roadway is not always based on a scientific formula; rather, engineers and other practitioners rely on experience and judgment in considering speed limits. The Manual of Uniform Traffic Control Devices (MUTCD) cites the use of the "85th percentile" speed for establishing the limit, which is the speed at or below which 85 percent of motorists drive on any given road. This value is based on the premise that the majority of drivers will travel at a safe and reasonable speed. At the same time, the MUTCD and other guides indicate the need to consider other factors in addition to the 85th percentile speed, such as roadway alignment, roadside characteristics, pedestrian activity, and crash experience. These elements vary tremendously from one road class to another and from rural to urban environments.

It is important to identify a consistent method for setting speed limits, while taking into account all of the potential factors that may influence speed choice on any given roadway. The University of North Carolina Highway Safety Research Center, along with Wade Trim Associates and PB Farradyne, has developed a web-based expert system for identifying reasonable and consistent speed limits across a variety of road types, called USLIMITS (www.uslimits.com).

"This system is unique in that it is based on knowledge derived from experts only in this country," said Raghavan Srinivasan, lead researcher. "We hope that it will be used by practitioners as a tool to help them identify the appropriate speed limit for a speed zone."

Through funding from the National Cooperative Highway Safety Research Program (NCHRP), a panel of experts in highway safety and law enforcement gathered to decide upon a set of rules to follow when determining the speed limit on various types of highways, from rural two-lane roads to urban freeways. One of the goals of this system is to help promote consistency nationwide with respect to how speed limits are established, in the same way the MUTCD provides consistency across the country for traffic signs, markings, and signals.

This system takes a comprehensive approach by using decision rules derived from expert knowledge for three types of highways: limited access freeways, roadways in undeveloped areas, and roadways in developed areas. Prior to identifying an appropriate speed limit, the system takes into account several factors input by the user, including operating speeds, terrain, extent of pedestrian/bike and parking activity (in developed areas), number of interchanges (on freeways), number of driveways and traffic signals (in developed areas), presence of roadside hazards (in undeveloped areas), and crash statistics and traffic volume.

Some types of speed limits are not addressed by this system: statutory limits such as maximum limits established by state legislatures for certain road categories, temporary or part-time speeds limits (work zones, school zones), and variable speed limits that change with traffic, weather, and other conditions.

The expert system can be utilized by anyone who has access to a web browser. Users of the site have access to the user guide, flow charts that illustrate the decision rules, and the study report describing the approach used in developing the system.

This article was reprinted from the summer 2007 edition of Directions, a publication by the University of North Carolina Highway Safety Research Center.
Roundabouts: Tool for Safety?

Problem

Intersection crashes account for more than 45 percent of all crashes nationwide.

In 2004, more than 2.7 million intersection-related crashes occurred, representing more than 45 percent of all U.S. crashes. That same year, intersection fatalities were 9,117, or 21 percent of all traffic fatalities.

Furthermore, approximately 45 percent of all injury crashes, or nearly 900,000 crashes, occurred at intersections. Each year, side-impact crashes, which occur mostly at intersections, cause more than one-third of all vehicle occupant deaths.

Roundabouts are designed to meet the needs of all road users — drivers, pedestrians, pedestrians with disabilities, and bicyclists. A roundabout eliminates some of the conflicting traffic, such as left turns, which causes crashes at traditional intersections. Because roundabout traffic enters or exits only through right turns, the occurrence of severe crashes is substantially reduced. Small angle collisions that may occur as a result of a right-hand turn are typically less severe than other types of collisions.

The three safety design features of a roundabout are: yield control of entering traffic, channelized approaches that deflect traffic into the proper one-way, counterclockwise flow, and geometric curvature of the circular road and angles of entry to slow the speed of vehicles.

These three features are critical to the success of a roundabout because they effectively decrease driving speed to typically 30 miles per hour or less.

Roundabouts Promote Safety by Reducing Vehicle-Vehicle Conflict

Roundabouts have fewer conflict points than intersections. A standard four-legged intersection of two two-lane roads has 32 potential conflict points, whereas a roundabout constructed at the same intersection would only have eight conflict points.

Collisions tend to be less severe between vehicles traveling at low relative speeds (i.e. traveling in the same direction at similar speeds) than at high relative speeds (i.e. head-on or right angle crashes at intersections, or crashes between vehicles traveling in the same direction at greatly differing speeds in traffic circles). The roundabout eliminates the possibility of head-on and right angle crashes and also decreases the relative speeds between vehicles.

What is a roundabout and how does its design improve intersection safety?

A roundabout is a one-way, circular intersection in which traffic flows around a center island.
Unsafe pavement edges pose a serious risk to the American driver’s physical and financial health. An estimated 11,000 people suffer injuries and 160 die each year from crashes related to unsafe pavement edges, at a cost of $1.2 billion annually. Road and highway officials and law enforcement face difficulty in assessing the true extent of the problem because crash documentation often fails to include the role of hazardous pavement edges in the sequence of events.

What is the Definition of an Unsafe Pavement Edge?

An edge drop-off of four or more inches is considered unsafe if the roadway edge is at a 90 degree angle to the shoulder surface. Near vertical edge drop-offs of less than four inches are still considered a safety hazard to the driving public and may cause difficulty upon reentry to the paved surface.

How do Unsafe Edges Cause Crashes?

Drivers who slip off a resurfaced road onto an unimproved shoulder are likely to lose control as they attempt to climb onto the roadway. The pavement edge creates a “scrubbing” condition that must be overcome through oversteering. As drivers oversteer to reenter the roadway, they are prone to lose control of the vehicle. Compounding the danger, the rear wheel may catch the edge of the shoulder, swinging the vehicle around. These actions may cause the vehicle to veer into the adjacent lane, where it may collide with or sideswipe oncoming traffic, overturn, or run off the road and crash.

Solutions to the pavement edge drop-off hazard are to: require a 30-35 degree angle asphalt fillet “Safety Edge” as a contract specification in all pavement resurfacing projects and routinely resurface shoulders when roadways are resurfaced.

The asphalt fillet provides a safer roadway edge and a stronger interface between the roadway and the shoulder. The cost of an asphalt fillet is minimal in comparison to the total amount of the resurfacing contract and pays back in countless dollars saved from reduction of fatalities, injuries, property damage, and lawsuits.

The fillet ties the existing shoulder into the resurfaced roadway and allows a vehicle to reenter the roadway safely. Highway agencies are able to restore the shoulder after the resurfacing project is completed.


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The Louisiana Department of Environmental Quality (LDEQ) Phase II Urban Stormwater permits issued in 2003 expire on December 31, 2007. Full implementation of all mandatory program areas (Minimum Control Measures) begins January 1, 2008, and includes:

- Public education and outreach
- Public involvement and participation
- Illicit discharge detection and elimination
- Construction site stormwater runoff control
- Post-construction stormwater management in new development and redevelopment
- Pollution prevention/good housekeeping for municipal operations

Regulations require a Stormwater Management Plan (SWMP), complete with measurable goals for each of the six areas. In each area, there must be a plan, and Best Management Practices (BMPs) must be selected to reach the program objectives and measurable goals. In the construction and post-construction areas, enforceable ordinances must be in place to compel compliance with the program.

The SWMP describes the strategy for achieving compliance in each area and reducing the load in municipal runoff. A Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards and an allocation of that amount to the pollutant’s sources. If the stream or waterbody that receives the stormwater does not meet quality standards and has a TMDL developed or being developed, then the SWMP must show how it will accomplish the required load reductions.

Developing a good program takes time, planning, and funding. EPA will shortly begin checking Municipal Separate Storm Sewer Systems (MS4s) to determine the level of implementation and compliance.

Dr. Rodney Hendrick is a professor and water quality specialist with the Cooperative Extension Service of the LSU Agricultural Center. Dr. Hendrick has worked on water quality with the LSU Agricultural Center for the last 13 years.
Work Order System for Road Maintenance

By Steve J. Theriot, CPA
Office of the Legislative Auditor

Maintaining streets, roads, and bridges requires a major financial commitment by the municipality. The cost of labor, materials, and equipment consumes a large portion of a municipality’s budget. Also, poorly maintained roads result in constant complaints from taxpayers and could be a liability to the municipality if substandard roads contribute to an accident. Therefore, it is important to ensure effective management of a municipality-wide road maintenance program.

The following is an example of a simple road maintenance program. The specific forms cited below can be found at www.lla.state.la.us/Government_Assistance/Best_Practices.

General Guidelines

The municipality-wide road maintenance program includes, but is not limited to, the following:

- Cutting grass
- Patching potholes
- Placing and removing culverts
- Grading gravel roads
- Cleaning ditches and brush
- Repairing bridges
- Placing gravel on roads
- Picking up trash
- Replacing and installing signs

The road superintendent has full authority and responsibility to prepare and administer the municipality-wide road maintenance program. The road superintendent will prioritize maintenance work to be done based on the needs of the municipality taken as a whole. He will prepare a weekly work schedule from the work orders and will deviate from this schedule only when he receives notice of a defect in the municipal road system and when, in his opinion, the defect constitutes a hazard to public safety (an emergency situation).

Individual aldermen or council members are prohibited from directing the specific work of municipal employees.

The following is a description of the procedures for the forms to be used in administering the municipality-wide road maintenance program:

Road Service Complaint Form

Complaints are received by telephone or facsimile, in writing, or verbally from the taxpayers of the municipality, municipal employees, and elected officials. All complaints should be forwarded to the road superintendent’s secretary, who should complete the pre-numbered, two-part form (one copy remains in the office, and the other copy is used to determine if the work should be scheduled as a work order). The following information must be documented:

- Date the request is received
- Person receiving the request
- Name, address, and telephone number of the requester
- Location and nature of work needed
The road superintendent will review the complaint and determine if he will investigate the nature of the work requested or will assign it to a road foreman to investigate.

The road superintendent will either approve or disapprove the work to be done based on his investigation of the work requested or the information provided by the road foreman. If disapproved, a reason will be documented on the form. If approved, a work order will be prepared.

The completed Road Service Complaint Form will be filed numerically in the public works office. If the request is not approved, a copy will be provided to the elected official for that district.

**Work Order**

All work performed, except routine grass cutting, should have a Work Order. The road superintendent or his designee will initiate the Work Order. The road foreman is responsible for completing the portions of the forms pertaining to actual employees used, equipment used, and materials used.

The work order is a pre-numbered, three-part form, used as follows:
- Yellow copy remains in the office.
- White original and remaining copies are given to the road foreman to complete and use for the job. When completed, the road foreman will give them to the road superintendent for his review. (White original is then filed with the yellow copy).
- Blue copy is submitted, with material receipts, to the finance department.

**Work Order Log**

The Work Order Log is used to account for the numerical sequence of work orders and as a brief summary of the work performed. Also, the log documents whether the work order is complete and, if complete, the date of completion. The road superintendent can use this form in giving his monthly report to his supervisor or for his report at the monthly board meeting.

**Weekly Work Schedule**

The road superintendent prepares the Weekly Work Schedule from the work orders. The Weekly Work Schedule is prepared on Friday and is posted in the Public Works Office on Monday morning.

The road superintendent uses the schedule to organize the work to be done, keep track of the work being done, and monitor the work progress.

The Weekly Work Schedule is filed in the public works office.

**Truck/Tractor/Trailer Weekly Checklist**

The Truck/Tractor/Trailer Weekly Checklist must be completed by the driver every Friday afternoon. Any defect must be brought to the attention of the appropriate road foreman. The road foreman will see that the defect is corrected and document the corrective action taken.

The road foreman is responsible for approving the checklist and notifying the road superintendent of any preventive maintenance that should be scheduled.

The road foreman should submit the checklist to the road superintendent for his review. The road superintendent should make arrangements for scheduling any required preventive maintenance.

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Association, cont. from page 1

that improve the quality of our work and increase job performance.

Before I end up on my second year as president, I will continue, in cooperation with the Police Jury Association, to push for funds to inspect and repair off-system bridges. I look forward to working closely with our next president and board members and achieving our goal of 100% parish membership. I have great confidence in my successor and look forward to his continuing to improve our association.

I want to express my sincere gratitude to all of you in LPESA and the police jury board members and executives. It has been quite an experience for me to serve as LPESA president, striving to fulfill our mission of improving the ability of public servants to safeguard life, health, and property and to promote the public welfare and establish high standards of integrity and performance.

Upcoming Events

Intersection Focus: State Implementation Workshop
January 22 – January 24, 2008
Baton Rouge, LA
TTEC Room 175

ATSSA Convention
February 11-12, 2008
New Orleans, LA

Don’t forget to check out our video library catalog at www.ltrc.lsu.edu/ltap/info.html.

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The Louisiana Local Technical Assistance Program was established at the Louisiana Transportation Research Center on the LSU campus in 1986. The purpose of the center is to provide technical materials, information, and training to help local government agencies in Louisiana maintain and improve their roads and bridges in a cost-effective manner. To accomplish this purpose, we publish a quarterly newsletter; conduct seminars, workshops, and mini-workshops covering various aspects of road and transportation issues; provide a lending library service of audio/visual programs; provide technical assistance through phone and mail-in requests relating to transportation technology; and undertake special projects of interest to municipalities in Louisiana. LTAP also coordinates the Louisiana Local Road Safety Program.