Local Road Safety:
A Focus for County Elected Officials

By Diego Saltes Lowenthal & Rosemarie Anderson

Each year a disproportionate number of the nation's fatalities occur on local roads. Working together, county elected officials, professional staff and safety officials can leverage their combined knowledge of safety and community issues to reduce road crashes, injuries and deaths. Effective collaboration and communication among community and safety stakeholders are necessary in order to achieve ambitious yet achievable safety goals.

While local roads are less traveled than state highways, they have a higher rate of crashes involving fatalities and serious injuries. In 2013, more than 12,000 people were killed on local roads across the U.S. — a fatality rate greater than 1.5 per 100 million vehicle-miles of travel, according to the National Highway Traffic Safety Administration. This is almost three times the fatality rate of the Interstate Highway System. Also in 2013, the overall cost of crashes on local roads was well over $100 billion, accounting for fatalities, decreased quality of life due to injuries and economic costs (medical, insurance and property loss).

On July 13, 2015, Secretary of Transportation Anthony Foxx signed a resolution reflecting the need to improve safety on county-owned roads and affirming that the U.S. Department of Transportation will work with the National Association of Counties (NACo) to improve road safety in America's communities. This resolution underscores the important role that local elected officials play in improving road safety in their communities.

Smart transportation planning plays a key role in ensuring local road safety. The Federal Highway Administration (FHWA) has outlined nine Proven Safety Countermeasures — evidence-based roadway engineering measures that have not seen widespread implementation nationally – that when implemented can help significantly improve local road safety and reduce fatalities. FHWA has also worked with states and counties to encourage the development of Local Road Safety Plans, which help counties to define key emphasis areas and strategies that impact local roads providing a way forward to save lives in local communities. This document highlights a number of resources that county leaders can use to improve safety on local roads, focused on these two main topics.

A crash in Dunn County, Wis. claimed one victim. Fatalities on local roads are nearly three times the fatality rate of the Interstate Highway System.

Local Road Safety Plans

With the passage of the transportation legislation in 2005, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Safety was established as a new core funding program through the then-new Highway Safety Improvement Program (HSIP). HSIP was structured and funded to reduce highway fatalities and required states to develop a Strategic Highway Safety Plan (SHSP), focusing on results. SHSPs are statewide-coordinated safety plans that provide a comprehensive data-driven framework for reducing highway fatalities and serious injuries on all public roads. Local Road Safety Plans (LRSP) are based on the same concept as the state SHSPs.

While a State's SHSP can assist local leaders in addressing safety on local roads, a locally focused plan is often needed to address the unique conditions in each community. Local road safety officials play a critical role in addressing crash risks and may be able to identify the specific conditions that contribute to crashes in their jurisdictions. An

Joe Marek discussing the importance of local road safety at a wellness fair. Photo courtesy of Joe Marek , Clackamas County, Ore.

LRSP offers a foundation for consensus and focus. It defines key emphasis areas and strategies that impact local roads and provides a way forward to save lives in local communities. The state's plan may provide inputs to the local plan. Likewise, the local plan can feed the state's process.

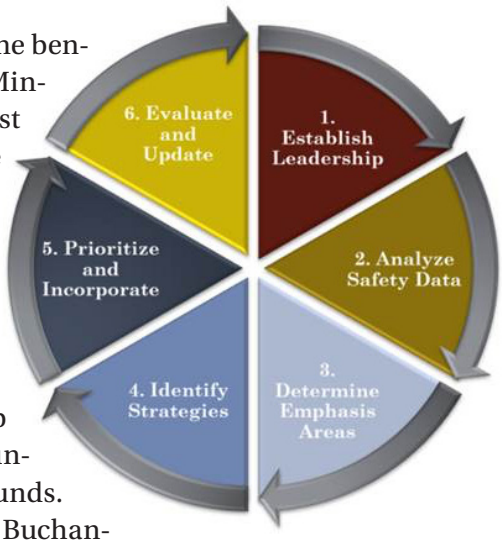
An LRSP also provides local agencies an opportunity to improve relationships with the public, stakeholders, and other governmental agencies by working through a collaborative process. Some benefits realized through the LRSP development process might be the:

- Promotion of road safety awareness,
- Development of lasting partnerships that may benefit future projects,
- Instillation or enhancement of a sense of collaboration among different disciplines, or
- Ability of local agencies to better leverage funding.

According to Rick West, Otter Tail County, Minn. engineer, "LRSPs provide practitioners with a detailed, prioritized county-wide, safety plan to guide and support future safety investments. The benefits far outweigh the challenges and have resulted in a safety culture change in Otter Tail County."

The success of an LRSP is dependent on five critical components:

- Having a champion. A champion advocates for the LRSP and gathers the political support to assist in its implementation.
- Developing a clear vision and mission. A strategic vision and mission unite all stakeholders with a common goal.
- Assembling collaborative partners. Partners collaborate to implement the plan.
- Allocating appropriate resources. Manpower and management are essential for ensuring a plan's success, and
- Establishing open communication. The LRSP owners should foster open and frequent communication with stakeholders, community partners and citizens as they develop and implement the plan.



Recognizing the benefits of LRSPs, Minnesota was the first state to complete plans for all of its 87 counties using HSIP funds in 2013. Similar to Minnesota, Iowa has begun to develop LRSP for its counties using HSIP funds. Brian Keierleber, Buchanan County, Iowa, engineer stated, "As I learn how to better utilize it, I will appreciate it more. I feel I know my most hazardous locations and this generally confirms it. It also identified a stretch of roadway that is an issue that I was unaware of. Every day is a learning experience."

In 2014, the State of Washington required county governments to develop an LRSP to access HSIP funds for safety projects. The basic requirements for the LRSP were a focus on low-cost, widespread projects that would reduce the risk of fatal and serious-injury collisions on county roads, based on the priorities in the county's LRSP. Thirty-one of the 39 counties in Washington have completed LRSPs and were successful in acquiring HSIP funds.

Proven Safety Countermeasures

Back plates with Retro-reflective Borders. Back plates are added to a traffic signal in order to improve the visibility of the illuminated face of the signal. The improved visibility is made more effective by framing the back plate with a retro-reflective border, which is made to shine in the dark by vehicle headlights. The use of back plates with retro-reflective borders may result in a 15 percent reduction in all crashes at urban, signalized intersections.

Traffic signals are easier to see, especially in bright sunlight, if they have back plates. At night, headlights cause the yellow border reflect light back to the driver.

Roundabouts. The modern roundabout is a type of circular intersection. Traffic entering the roundabout yields to vehicles already in the circle. Roundabouts improve intersection operations by reducing both delays and conflicts among all roadway users. A roundabout provides channelization at its entrance and deflection around a center island designed to be effective in reducing conflict since vehicles are physically routed towards a safer path than would be the case in the absence of the roundabout. Thus, roundabouts provide robust safety benefits. In particular, converting an intersection from a two-way stop controlled intersection to a roundabout can generally reduce 82 percent of severe injury or fatal crashes and 44 percent of total crashes.

Corridor Access Management. Access management refers to the design, implementation and control of entry and exit points along a roadway. This includes intersections with other roads and driveways that serve adjacent properties. Areas where effective access management has been implemented have experienced a 5 percent to 23 percent reduction in all crashes along two-lane rural highways, and a reduction in severe crashes of 25 percent to 31 percent along urban and suburban arterials.

Pedestrian Hybrid Beacon. Pedestrian hybrid beacons serve as a conspicuous visual alert for vehicle drivers at pedestrian crossings. The beacon is "dark" until a pedestrian pushes a button to activate it. After displaying brief flashing and steady yellow intervals, the device displays a steady red indication to drivers and a "walk" in-

Paved and sloped safety edges can make it easier for a vehicle that has left the roadway to return to the pavement.

dication to pedestrians, allowing them to cross a major roadway while traffic is stopped. After the pedestrian phase ends, the walk sign changes to a flashing orange hand to notify pedestrians that their clearance time is ending. The hybrid beacon displays alternating flashing red lights to drivers while pedestrians finish their crossings before once again going dark at the conclusion of the cycle. Installation of the pedestrian hybrid beacon has been shown to provide up to a 69 percent reduction in pedestrian crashes and up to a 29 percent reduction in total roadway crashes.

The Safety Edge. Preventing vehicles from departing the roadway is a major safety goal. The Safety Edge is a proven technology that shapes the edge of a paved roadway at approximately 30 degrees from the pavement cross-slope during the paving process. The angled edge can help a vehicle safely return to its lane if one or more tires inadvertently leave the pavement. Safety Edge became a standard practice for most state DOTs and studies show that the application of the Safety Edge leads to an estimated reduction of 6 percent in total crashes on two-lane highways.

Medians and Pedestrian Crossing Islands in Urban and Suburban Areas. A median is an area between opposing lanes of traffic, excluding turn lanes. Medians and pedestrian crossing islands offer safe crossing opportunities for pedestrians that do not cross at the intersection and may reduce pedestrian crashes by up to 46 percent and motor vehicle crashes by up to 39 percent in urban and suburban areas.

Road Diet. A Road Diet generally involves converting a road with only vehicle through lanes into a mixture of through lanes, two-way left turn lanes, bicycle lanes, parking, pedestrian refuge islands and transit stops. By reducing speeds and improving mobility for all users, Road Diets can reduce crashes by up to 70 percent in some cases.

Longitudinal Rumble Strips and Stripes on Two-Lane Roads. Many drivers have at some point felt a strong vibration when they accidentally moved away from the center of the road. This vibration may be caused by a countermeasure called longitudinal rumble strips, which are milled or raised elements on the pavement intended to alert inattentive drivers through vibration and sound that their vehicles are about to leave the travel lane. Rumble strips can either be located on the road shoulder, the edge line (placed at the edge of the travel lane), or center line (installed at or near the center line of an undivided roadway). A variation of this countermeasure, rumble stripes are either edge-line or center-line rumble strips where the pavement marking is placed over the rumble strip, as shown in the accompanying picture. Several safety benefits are associated with rumble strips. For instance, centerline rumble strips on rural two-lane roads have been shown to yield a 44 percent reduction in head on or fatal and injury crashes on rural two-lane roads.

Centerline rumble strips on rural two-lane roads can reduce head-on or fatal-injury crashes by up to 44 percent.

Twenty-eight percent of all fatal crashes occur on horizontal curves. Chevron signs send a strong visual cue to slow down.

Delineation and Friction for Horizontal Curves. When a straight road shifts into a horizontal curve, it creates a more demanding environment for the driver, vehicle and pavement. Safety challenges are compounded with nighttime driving or inclement weather. Recent studies show that 28 percent of all fatal crashes occur on horizontal curves. The image below shows a horizontal curve delineated with chevron signs. The safety benefits from this countermeasure are promising: installing chevron signs on horizontal curves on rural two-lane undivided roads can produce a 25 percent reduction in nighttime, non-intersection crashes of all severity types. Increasing the friction on the road surface can also greatly improve safety on horizontal curves. For a pilot by the Pennsylvania Department of Transportation in District 5 along Route 611 in Northampton County, the district agreed to have a contractor apply a high-friction surface product on about 500 feet of roadway at the curve. The district saw wet-pavement-related crashes at the spot drop from 20 in the 10 years prior to the treatment to zero in seven years after it was installed in 2007.

Road Safety Resources for County Elected Officials

An example of curve safety treatments: high-friction surface treatment provides vehicles more traction and chevron signs warn of dangerous curves ahead. Photo courtesy of Scott Davis, Thurston County, Wash.

FHWA recognizes not only the role of elected officials in roadway safety and their responsibility to road users in their communities but also the demands on the time of an elected official. With that in mind, FHWA Office of Safety has partnered with NACo and local officials to develop a number of informational resources to help communities improve road safety (See Resources section on page 8.) These tools can help mitigate safety risks and reduce crashes and related injuries and deaths.

The resources were developed to:

- Give local elected officials a big-picture look at local road safety issues, and also to provide guidance on how to engage, collaborate, and coordinate actions with safety officials; and
- Provide practitioners with information on how to best engage with local officials and make them aware of their vital role in preventing crashes.

They include information on how to:

- Get the best information for safety decision-making such as working with safety agencies to obtain up-to-date crash data or consulting with safety officials to learn how roads may be made safer;
- Encourage close coordination with county engineers and other safety stakeholders, and
- Learn about cost-effective treatments to address safety issues and save lives;
- Communicate safety facts in an understandable format using clear, concise language supplemented with compelling facts and success stories;
- Build and maintain relationships with other safety stakeholders to gather information and reinforce support for initiatives;
- Scale proposals to a level that local officials can address; and
- Involve officials in road safety events and offering public acknowledgment of their support.

"Safety officials can offer a wealth of knowledge to help county officials make the best safety decisions," said Michael Griffith, director, Office of Safety Technologies, FHWA.

Resources

FHWA Office of Safety

http://safety.fhwa.dot.gov/

Road Safety and Local Elected Officials

http://safety.fhwa.dot.gov/local_rural/training/fhwasa16018/

http://safety.fhwa.dot.gov/local_rural/training/fhwasa14093/elected.pdf

Local and Rural Road Safety: Planning, Data, and Funding

http://safety.fhwa.dot.gov/local_rural/

http://safety.fhwa.dot.gov/local_rural/training/fhwasa14088/local_rsp.pdf

http://safety.fhwa.dot.gov/local_rural/training/fhwasa14085/lrr_data.pdf

http://safety.fhwa.dot.gov/local_rural/training/fhwasa14087/local_funding.pdf

http://safety.fhwa.dot.gov/local_rural/training/fhwasa14072/isrltrst.pdf

http://safety.fhwa.dot.gov/rsa/

Proven Safety Countermeasures

http://safety.fhwa.dot.gov/provencountermeasures/

http://www.fhwa.dot.gov/innovation/everydaycounts/edc-3/roaddiets.cfm

U.S. Department of Transportation
Federal Highway Administration

All photos courtesy of FHWA unless otherwise noted.