WISCONSIN
TRAFFIC SAFETY REPORTER

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2018

Seatbelt use rates increasing . . . but still room for improvement

David Pabst,
Director
WisDOT
Bureau of
Transportation
Safety

Our 2018 observational survey of seatbelt use in Wisconsin found that 89.3% of passenger vehicle occupants were buckled up. In 2017, the number was 89.4%.

We are very near the national average of 89.7%.

Still, about half of the drivers and passengers killed in state traffic crashes last year were not wearing a seatbelt. In 2017, there were 58,889 convictions in Wisconsin for failure to fasten a seatbelt—the fourth most cited violation, behind speeding, operating while suspended, and no insurance. The simple choice to buckle up protects all vehicle occupants should a crash occur.

As winter approaches, please be sure to buckle up and stay focused

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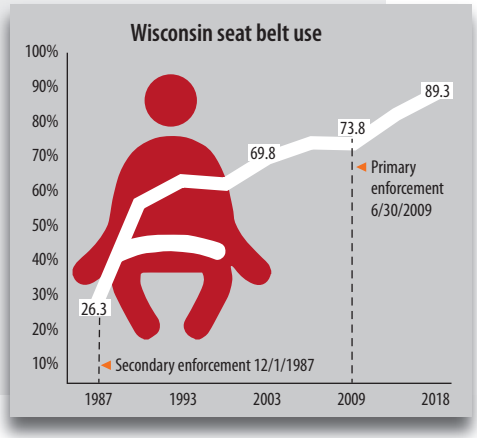

Boosting traffic safety

WisDOT Inter-Tribal Task Force (ITTF)

The WisDOT ITTF articulates and facilitates a clear direction in joint transportation systems between each of Wisconsin's 11 federally recognized Native American Tribes and WisDOT. It was established through a partnership agreement and serves as a policy advisory group for WisDOT. Its goals are to:

- Conduct bi-monthly meetings at various tribal sites around Wisconsin
- Encourage tribal participation in transportation-related data collection efforts
- Identify and support best practices when working with tribal entities
- Facilitate communication between the tribes and WisDOT

The ITTF develops an Annual Work Plan focused on transportation areas related to economic development, safety, shared resources, infrastructure, and mobility. It helps boost traffic safety in Wisconsin's tribal communities by improving data collection and analysis, safety planning, training, and education outreach.

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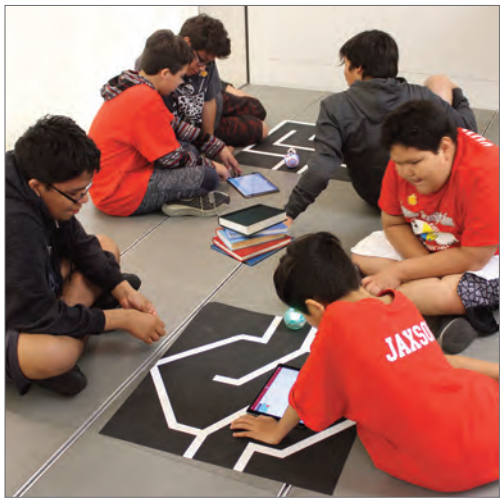

CREDIT: LCOOCC

Major changes are coming in the world of transportation, including advances in intelligent transportation systems (ITS) and in the development and adoption of connected and autonomous vehicles. A wealth of opportunities will be open to young people who learn coding and other IT skills. As part of a summer program, these Native-American middle schoolers are learning coding to control a Sphero, a spherical robot controlled by a smartphone or tablet.

Improving traffic safety information systems

Wisconsin Traffic Records Coordinating Committee

Complete, accurate and timely traffic safety data needs to be collected, analyzed, and made available for decision making. This is crucial for identifying traffic safety problems and designing countermeasures to reduce injuries and deaths caused by crashes.

Nationwide, states maintain their own traffic safety data, and they are working to standardize and link their data systems together. Many states have a Traffic Records Coordinating Committee (TRCC) that includes collectors, managers, and users of traffic records and injury control data.

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High quality crash data is crucial for identifying traffic safety problems, prioritizing them, and evaluating the effectiveness of countermeasures.

Seatbelt use *from page 1*

and alert while driving, and make appropriate adjustments for weather and road conditions. Click here for winter driving tips.

We must continue to spread the word and set the example by putting our phone down, buckling up, and driving sober, as we strive to reduce traffic deaths in Wisconsin.

The Annual Governor's Conference on Highway Safety held in August was very successful. I would like to thank those who participated for devoting their valuable time to focusing on traffic safety. Also a special "thank you" goes to Team BOTS for their tireless efforts spent behind the scenes to make the conference a success. Click here for child passenger safety and TIME (Traffic Incident Management Enhancement) Program award recipients.

WISCONSIN TRAFFIC SAFETY REPORTER

The *Wisconsin Traffic Safety Reporter* is published by the Bureau of Transportation Safety, Wisconsin Department of Transportation. Its purpose is to promote transportation safety, recognize worthwhile programs, and to educate and share ideas with safety professionals.

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Funded by WisDOT and the National Highway Traffic Safety Administration.

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Wisconsin TRCC *from page 1*

Traffic safety data includes information about crashes, citations and adjudication, emergency medical and injury surveillance, roadway inventory, vehicle registration, and driver licensing.

Wisconsin's TRCC, led by the WisDOT Bureau of Transportation Safety (BOTS), includes representatives from organizations involved with highway safety and infrastructure, law enforcement, EMS, and research. It includes federal partners and local agencies and organizations.

The committee meets quarterly to review new technology and to plan, monitor, and analyze safety information improvement projects.

Major recent advances

Among many recent projects the TRCC has supported, two of the most important are the launch of improved crash report forms and an upgraded crash database.

New crash report forms (DT4000 and DT4002)

Improvements in the new crash report form (DT4000) include removal of obsolete fields and addition of new ones that are important for traffic safety. For example, EMS run numbers, cell phone usage, cross-median crashes, role of guardrails, and more intersection control choices (e.g., roundabouts, signals and stop signs). These changes enable officers to describe more precisely what happened in a crash. Since January 1, 2017, law enforcement agencies are using the DT4000 form to submit all crash reports electronically via TraCS. A new Driver Report of Crash Form (DT4002) is also now being used.

New crash database

Wisconsin's old crash database, built on a mainframe computer, had not been substantially altered for about 20 years. The new database is being managed by the Crash Records Unit within the WisDOT Division of State Patrol (see page 7 for latest news). The new database, implemented in a modern Oracle data management system, has far greater capabilities. It was developed by the UW TOPS Lab as part of the WisTransPortal. Through ongoing collaboration between the UW TOPS Lab and WisDOT, WisTransPortal supports transportation operations, planning and research. It provides a central source of traffic operations, safety, and intelligent transportation systems (ITS) data for Wisconsin highways and the local road network.

Plans for further improvements

In 2015, a new federal surface transportation reauthorization bill was signed into law. Known as the FAST Act (Fixing America's Surface Transportation Act), it contains sections requiring the collection, management, distribution and analysis of transportation safety data by local, state and federal agencies.

To assure that the required data are properly, efficiently and effectively collected, as well as being well-managed and available to support increasingly data-driven traffic safety programs, the FAST Act requires each state to craft and update comprehensive Traffic Safety Information Systems (TSIS) Strategic Plans for the improvement of all safety data systems in the state. The Wisconsin TRCC

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The Wisconsin TRCC met at the new Hill Farms State Office Building in Madison on September 26. In 2015, NHTSA conducted a Wisconsin Traffic Records Assessment (TRA) of the state data system, and it provided recommendations for improvements. This year, NHTSA issued the "Traffic Records Program Assessment Advisory (2018 Edition)" with voluntary guidance. It describes ideal traffic records systems, from which states can assess their own capabilities. One item on this TRCC meeting's agenda was identifying the high priority TRA recommendations and who can work on them.

Inter-Tribal Task Force *from page 1*

The 2012 WisDOT study *Crashes on Wisconsin Indian Reservations* provides examples of traffic safety issues for Native Americans in Wisconsin:

- Native Americans were fatally injured on all Wisconsin roads at a rate more than three times higher than their relative percentage in 2009 (2.67 percent of vehicular fatalities vs. 0.86 percent of the state population)
- Crashes on tribal lands result in fatalities at almost four times the statewide rate (1.9 percent vs. 0.53 percent)

For those under 45, the leading cause of death is from injuries suffered in crashes that tend to involve young drivers, low safety belt use, impaired driving, and road engineering deficiencies.

For details about the full range of ITTF initiatives, click here. Recent initiatives include the following:

Middle schoolers learn about transportation-related careers

Across the United States, annual three-week National Summer Transportation Institute (NSTI) programs introduce 7th, 8th and 9th grade students to all kinds of transportation-related careers and encourage them to pursue relevant studies at the collegiate level.

During June, the Lac Courte Oreille Ojibwa Community College (LCOOCC) held its 2018 NSTI program with students from LCO schools and Hayward community schools. Students went on field trips, met with professionals where they work, participated in hands-on activities, and had fun.

Building Bridges: On the Road to Cultural Interchange

This two-day training aims to build cultural competency within WisDOT's workforce. It enhances communication and understanding among state employees and the tribes in Wisconsin. From August through October, Building Bridges trainings were held in Green Bay, Eau Claire, Madison, and Crandon.

The curriculum includes:

- historical and cultural background of Wisconsin's tribes
- review of legal issues on the federal, state, and tribal levels that have shaped the government-to-government relationship between tribes and foreign governments
- historical events and policies that have defined this relationship
- summary of WisDOT Tribal Affairs programs and initiatives that reinforce the partnerships between WisDOT and tribes
- overview of tribal initiatives of critical cultural importance
- tips on working with tribes on projects that affect them

These cultural awareness training programs are held several times every other year.

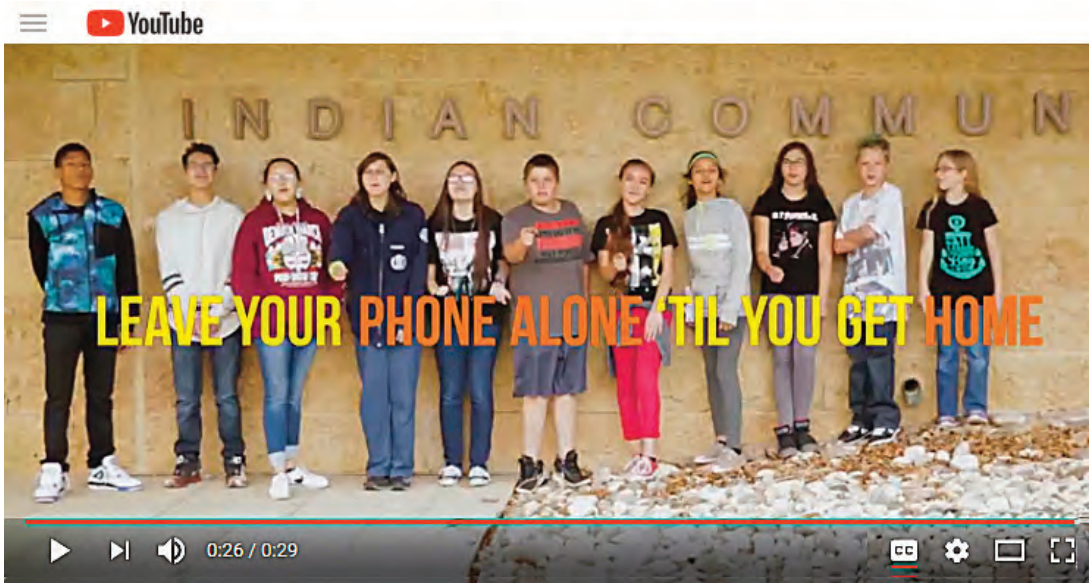
Middle schoolers learn about bicycle safety during NSTI program.

Tribal Transportation Safety Summit

Held August 21, 2018 in Lake Geneva in conjunction with the Governor's Conference on Highway Safety. Topics included: tribal crash data and innovative intersection and interchange designs.

2018 Wisconsin Tribal Transportation Conference

Held by the WisDOT ITTF in Milwaukee on November 6-7. Topics included: how to do business with WisDOT, transportation safety, cultural resources and preservation, and federal Indian law and tribal transportation projects.



The WisDOT ITTF launched this 30-second PSA as part of Distracted Driving Awareness Month in April. During an ITTF One Day Media Camp, students at the Indian Community School of Milwaukee scripted, filmed, and produced the video to help parents, students, and all drivers to better understand the dangers of distracted driving. WisDOT aired the PSA on TV stations statewide during the summer.

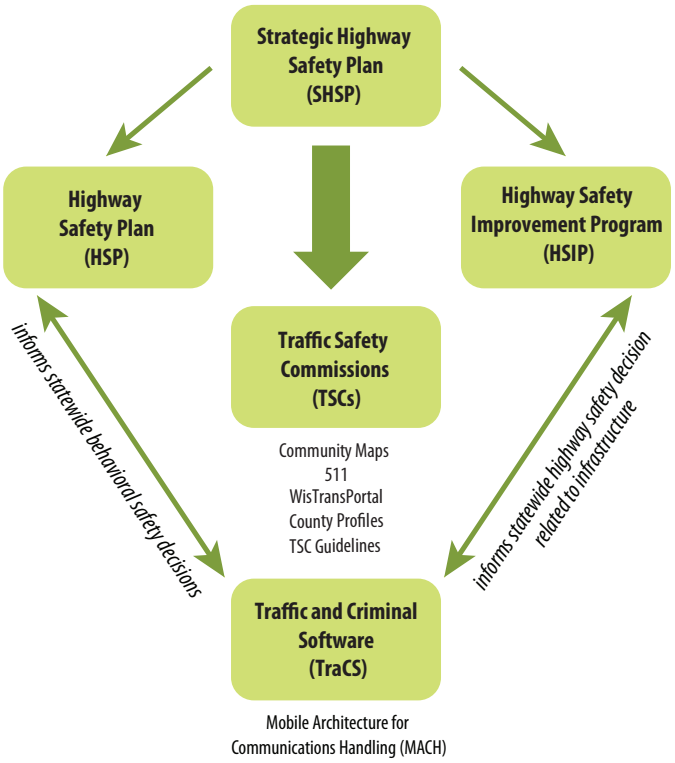
Wisconsin TRCC *from page 2*

has organized the ***2019 Strategic Plan for Traffic Safety Information System (TSIS) Improvements***, which is abbreviated as 2019 TSISP.

The 2019 TSISP is a part of the 2019 Highway Safety Plan (HSP) (see diagram) which WisDOT BOTS has submitted to NHTSA. (See previous HSPs.)

In past years, plans such as the 2019 TSISP have covered multiple years. But, starting with the 2018 Highway Safety Plan and following NHTSA guidelines, a one-year time frame has been adopted. This will allow BOTS to develop a more focused plan that can be more responsive to the rapidly changing technologies and shifting needs of TRCC members. As such, a 2020 TSISP will be developed near the end of federal fiscal year 2019.

The 2019 TSISP was created in concert with other plans, and its content has informed related plans. For example,



Wisconsin's 2017-20 Strategic Highway Safety Plan (SHSP) was developed under the leadership of WisDOT's Traffic Safety Council. Members of the TRCC were involved in drafting the SHSP section addressing data and information improvements, and many SHSP contributors are also TRCC members.

Funded projects

From the 2019 TSISP, the following are examples of the data program improvements that the TRCC has approved for grant funding.

Community Maps crash mapping improvements

Continue improving Community Maps, including making enhancements to the TSC Resources area.

One of the TRCC's goals is to focus on improving the data sources that users can bring into Community Maps, which is widely used by county Traffic Safety Commissions (TSCs), BOTS staff including their law enforcement liaisons (LELs), and law enforcement agencies. Another goal: linkages between the DT4000 crash reports and Community Maps should be made automatically.

TraCS update

Improve the TraCS data form by replacing the existing Vehicle Damage element with a new multi-select list data widget. This will be easier to use and will increase data entry accuracy.

Wisconsin CODES improvements

Wisconsin CODES provides access to crash and injury surveillance data for transportation, safety and public health professionals and the general public. (See article on page 12)

The new project will improve injury surveillance data completeness with data from Minnesota and Illinois state databases.

Next year, CODES staff will begin visiting some county TSCs to give an online CODES presentation.

Law enforcement agencies team up

Improving traffic safety in Milwaukee

This summer, the Milwaukee Police Department, Milwaukee County Sheriff's Office, and the State Patrol teamed up to crack down on reckless and impaired driving, speeding, and other dangerous behaviors on Milwaukee's roadways. All around the city, they did high visibility enforcement (HVE) in targeted areas with the most crashes and reports of speeding and other reckless driving.

Reckless Driving Reduction Initiative (RDRI)

This collaborative RDRI effort, which received funding support from the WisDOT Bureau of Transportation Safety (BOTS), began on May 2 and ended on August 23. At the April 30 news conference launching the RDRI, State Patrol Major Anthony Burrell noted that the goal wasn't to write more tickets. "Our goal," he said, "is to make a long-term impact by changing driver behavior and gaining voluntary compliance."

Each week there were two deployments, and the deployment dates and locations were not advertised ahead of time. They occurred at various times of day and generally focused on limited hot spot areas to enhance getting the public's attention. Deployments included an average total of 10-12 officers, deputies and troopers.

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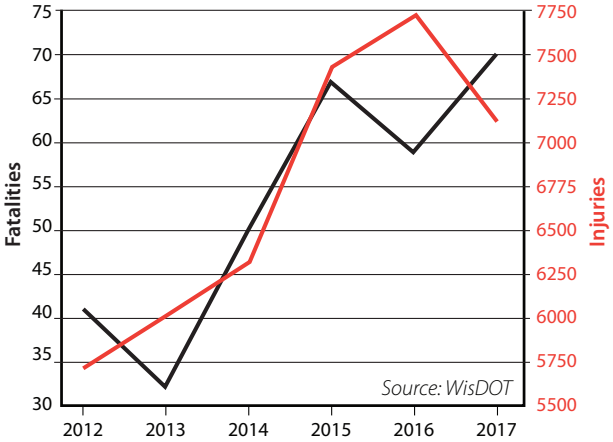
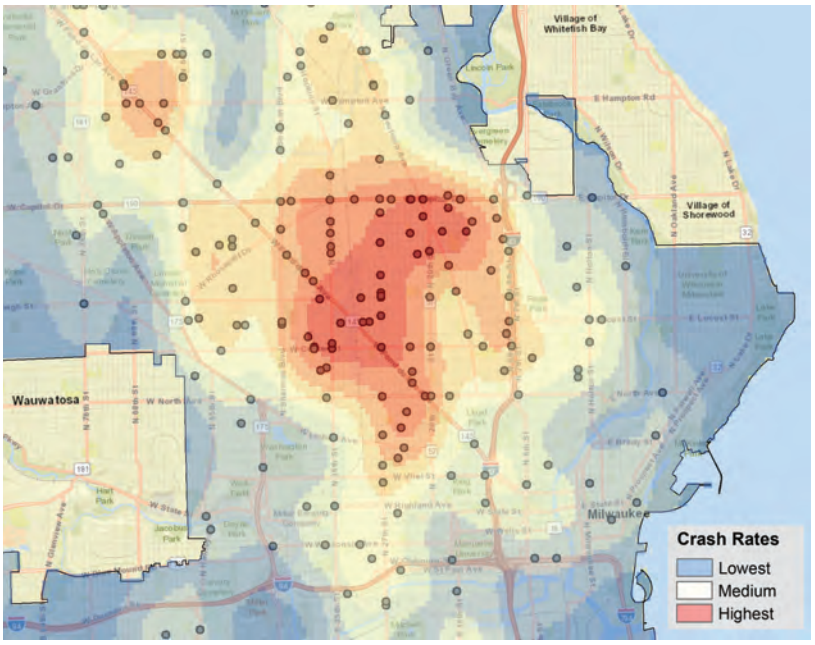
Milwaukee traffic fatalities and injuries



On April 30, Wisconsin State Patrol Major Tony Burrell joined officials from the city and county of Milwaukee to announce joint law enforcement efforts to deter reckless, aggressive and other dangerous driving behaviors in the downtown area.

Milwaukee speed-related crashes causing fatalities and serious injuries (2015-17)



Data source: WisTransPortal (2018)

During RDRI planning, WisDOT BOTS provided heat maps like this to the State Patrol. Many of the crashes were along highways that form a triangle in the center of the map: W. Fond du Lac Ave., W. Capitol Drive and I-43.

BOTS staff also provided maps showing pedestrian fatalities, which have been a serious problem in Milwaukee.

Improving traffic safety in Milwaukee

from page 5

Data boosts enforcement efficiency

Each of the three agencies has two main sources of data: WisDOT sources and its own internal sources.

The State Patrol uses Community Maps (see below) and other data provided by the WisDOT BOTS to determine areas of high crash rates and identify factors contributing to crashes. The State Patrol increasingly uses predictive analytics when planning deployments.

During 2011-16, crash fatalities in the city of Milwaukee increased 73%. As part of its response, the Milwaukee Police Department implemented the DDACTS (Data Driven Approach to Crime and Traffic Safety) model, which integrates location-based traffic crash, crime, and enforcement data to establish efficient methods for deploying law enforcement resources. DDACTS employs highly visible, targeted traffic enforcement in these areas, and this approach helps reduce both traffic crashes and crime.

In May 2015, the department began its DDACTS initiative, and, in April 2017, it extended it (TSR 20.3 page 6) to include all seven of its districts. District commanders, working with crime analysts, identify DDACTS areas within their districts and then assign officers to traffic enforcement in those areas.

Along with DDACTS-guided enforcement, Milwaukee PD also conducts traffic enforcement based on directed patrol missions that address specific areas and traffic issues. Much of this is in response to citizen complaints about unsafe driving.

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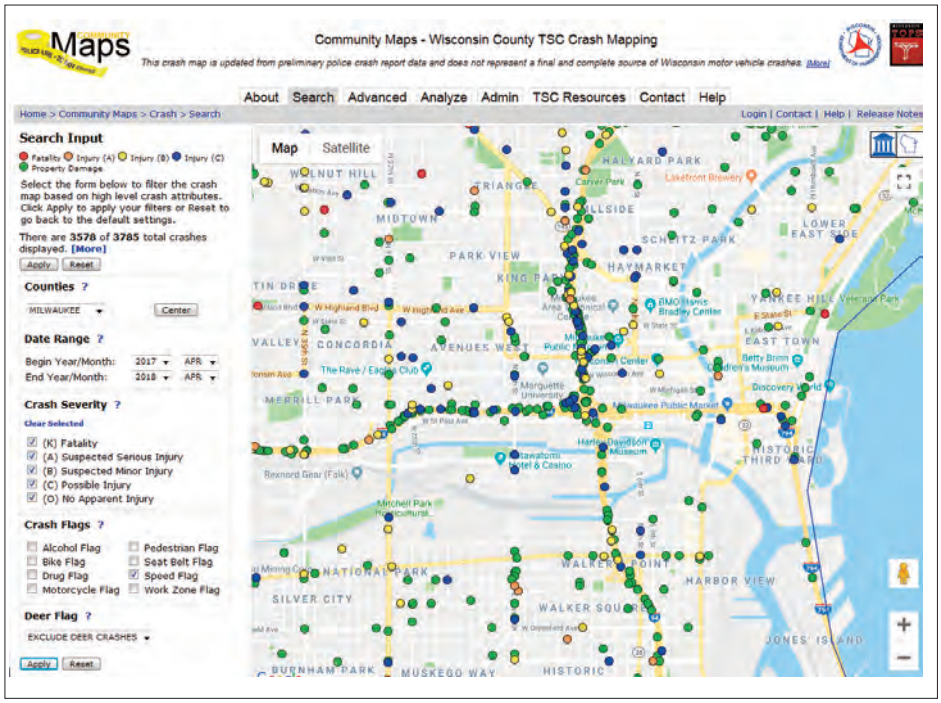
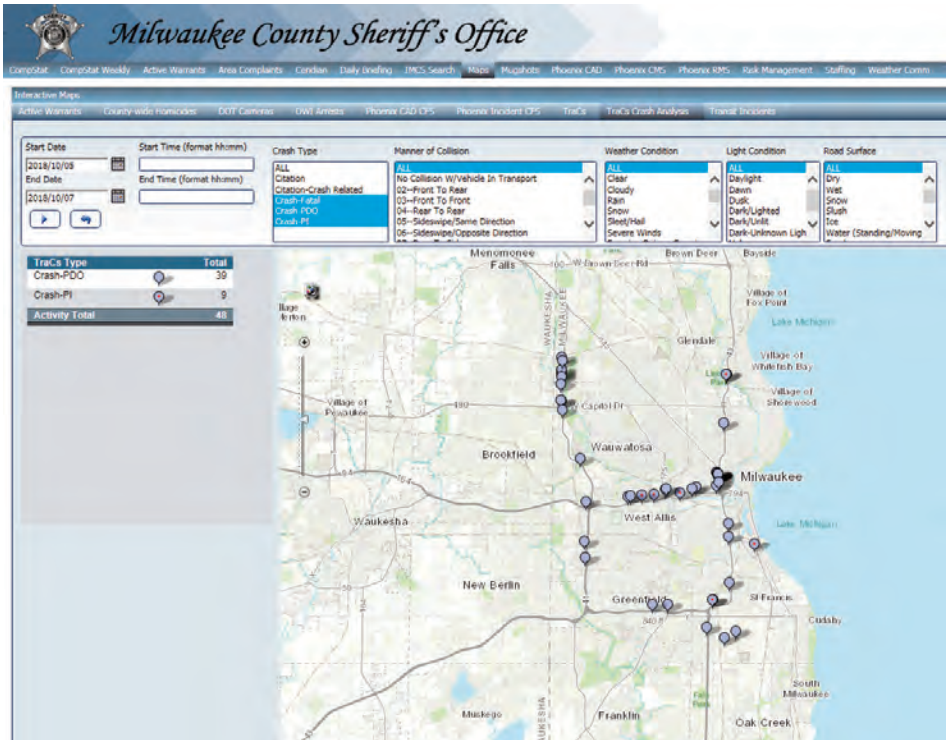
Community Maps example



Community Maps provides Wisconsin law enforcement agencies and county Traffic Safety Commissions with maps of all police-reported crashes. Crashes are updated nightly using geo-coded locations from the DT4000 crash report form. This example shows speed-flagged crashes in part of Milwaukee during the year before the RDRI began.



Milwaukee County Sheriff's Office Crash map: example

The Law Enforcement Analytics Division (LEAD) of the Milwaukee County Sheriff's Office (MCSO) utilizes the CompStat model in:

- *analyzing data, including crime and crash trends*
- *tracking resource and performance accountability in all MCSO operations*

To achieve this, LEAD uses state-of-the-art business intelligence software. This example is from MCSO Business Analytics that drives tactical (daily) operations. It shows October 5-7 crashes, with many of them along I-94, I-41 north of Capitol Drive, and near the Marquette Interchange.

Improving traffic safety in Milwaukee *from page 6*

Reckless Driving Reduction Initiative (RDRI)

May 2 – August 23, 2018 results

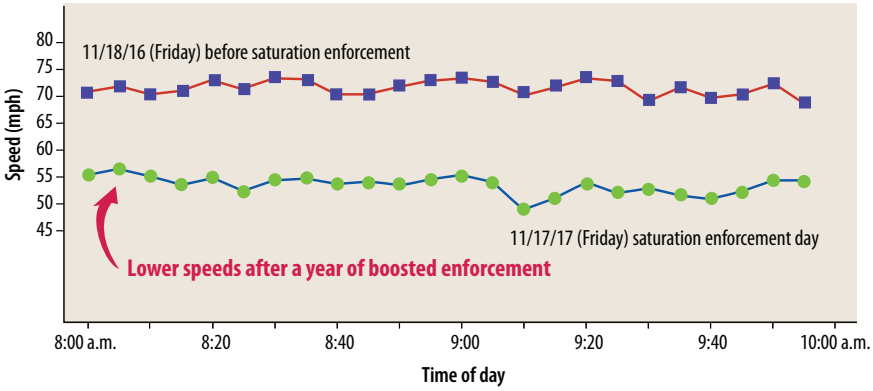
Citations	
Speeding (under 20 mph over limit)	63
Speeding (over 20 mph over limit)	408
Registration	376
Red light, stop sign violations	198
License (city)	504
License (state)	182
Seat belt	313
Child restraint	44
Insurance	410
Total citations	**3,309**
Municipal arrest	**7**
State arrest	**31**
Traffic warning	**1,049**
Total stops	**2,629**

Public reaction to the boosted enforcement was positive. The participating law enforcement agencies feel that their collaboration went well, achieving higher visibility and a "force multiplying" effect. Now, they are assessing overall RDRI results to see how helpful the initiative was, and they are considering how this approach could be improved for future campaigns.

Building on a previous campaign

This summer's Reckless Driving Reduction Initiative built upon a previous collaborative campaign. Last autumn, the Milwaukee County Sheriff's Office and the State Patrol launched a two-month joint speed enforcement pilot project (TSR 20.3, pg 9), with patrols covering the county's entire 158 miles of freeway.

Speed (at detector stations) – Interstate 41/43/894 westbound at 92nd Street



The WisDOT Traffic Management Center (TMC) (formerly the Statewide Traffic Operations Center (STOC)), located in Milwaukee, handles traffic management for the state of Wisconsin. TMC staff helped assess the effectiveness of this pilot project. Hot spot corridors were identified for saturation patrols, and then TMC staff measured average speeds on these corridors both before and after boosted enforcement (see graph with one example). They also measured how long any lowering of average speeds lasted.

Report Your Crash

When does the law require a crash report?

- Injury of a person;
  —or—
- Damage of $1,000 or more to any one person's vehicle or property;
  —or—
- Damage of $200 or more to state or other government-owned property other than a vehicle.

If you received a letter from the Wisconsin Department of Transportation stating you were involved in a reportable crash and requesting you to complete a report, you must complete a crash report.

How to report a crash:

1. Go to: wisconsindot.gov/crashreporting
2. You need your driver license number, vehicle identification number (VIN) or social security number and insurance information.
3. Follow the website instructions to complete your crash report.

To purchase a crash report, go to: https://app.wi.gov/crashreports

Suggestions on using

Crash report forms DT4000 and DT4002

From the WisDOT Crash Records Unit:

1

Report fatalities as soon as possible

EITHER

By sending a teletype by email to *DSPFars@dot.wi.gov* or by FAX to (608) 267-2119

OR

By using the Fatal Notification function in TraCS on the DT4000, which will automatically format the fatal notification and enable you to email it to us.

2

Stop issuing the old MV4002 paper form (obsolete since January 1, 2017) and direct the public to the online Wisconsin Driver Report of Crash (DT4002).

3

Share the WisDOT document number instead of the agency case number. *NOTE: Agency case number does NOT work with WisDOT applications.*

Instruct crash participants to use a "0" (zero) and NOT an "O" (alphabetic letter) when searching for the WisDOT document number.

For people who have a Wisconsin driver's license, advise them to use the driver's license number and the crash date instead of the WisDOT document number.

4

Ask the public to go to WIN Portal to check the status and obtain the crash report online. The Driver Exchange of Crash Information (form generated in TraCS) has this information.

Officers are requested to print the Driver Exchange of Crash Information form and share it with drivers.

State Patrol's Air Support Unit provides a valuable eye in the sky

by Rob Miller, WisDOT Office of Public Affairs

Wisconsin State Patrol Captain Ryan Chaffee

To help fulfill their duties serving and protecting the public, the Wisconsin State Patrol utilizes tools and technologies, that range from troopers, inspectors and K-9 partners on the ground to aircraft overhead. As part of its public safety mission, the State Patrol operates an Air Support Unit (ASU) with several important responsibilities:

- Photographing/documenting natural disasters, like this past summer's flooding, to help coordinate emergency response and facilitate recovery efforts
- Assisting partner agencies with criminal surveillance, crime scene photography, and searches for lost or wanted individuals
- Enforcing traffic laws, especially in areas that are difficult for ground-based units to access, such as construction zones and highway sections with limited shoulders or crossovers
- Planning and oversight of major public events

Currently, the State Patrol has six licensed pilots who utilize three Cessna 172 Skyhawk aircraft located strategically across the state. The three aircraft are shared state assets that are also available to the Wisconsin Department of Administration (DOA), state Department of Natural Resources (DNR), and WisDOT's Bureau of Aeronautics for state business needs.

When conducting speed enforcement, State Patrol pilots use a computerized on-board timing device known as VASCAR (Visual Average Speed Computer and Recorder). By using roadway stripes spaced at regular intervals, the VASCAR unit and pilot can quickly and accurately determine a vehicle's speed, which equals the 660 feet between stripes divided by the time required to cover that distance. From their aerial vantage point, pilots are better positioned to identify traffic violations that occur over an extended distance, including speeders, drivers following too close, and reckless or aggressive drivers. When law violations are observed, pilots radio ground-based officers to initiate a traffic stop.

State Patrol ASU photo of flooding along US 14 near Cross Plains taken earlier this year.

"Speeders and reckless drivers endanger everyone traveling our roadways," Lieutenant Chris Jushka, who oversees the ASU, said. "We inform the public about many aerial missions ahead of time by alerting the media and posting signs along the freeway. It reinforces that our goal is not to simply stop and cite motorists, but to enhance public safety through voluntary compliance with traffic laws." Aerial enforcement patrols are often posted on the WisDOT's Facebook and Twitter sites.

Lt. Jushka notes that speeding is much more than a traffic law violation—it's a major public safety issue that contributes to numerous traffic crashes, injuries, and deaths. "Most State Patrol aerial missions are funded with federal dollars that are specifically designated for traffic law enforcement," he said. "To make the most effective use of our flight time and personnel, we analyze data on traffic citations and crash reports to identify specific highway corridors for enforcement activities."

During 61 aerial enforcement missions last year, officers stopped 1,899 vehicles and issued 1,333 citations. Weather permitting, ASU enforcement missions typically last four hours and average between 30-40 traffic stops. Some notable incidents this year:

- An April 19 detail along the Madison Beltline in Dane County was cut short when troopers were called upon to revive a drug overdose victim. Since January of this year, all State Patrol officers carry the opiate-reversing antidote Narcan.
- One of the highest speeds recorded this year was a motorist clocked at 101 mph on I-94 in Eau Claire County on June 11. State law allows for a citation of up to $326 for such a violation. (Per state law, citation revenues are distributed to the state's common school fund and to the county where the citation was issued.)

Other ASU activities this year:

- Heavy rains and flooding in many parts of Wisconsin this summer resulted in significant damage to roads, bridges, and other properties. State Patrol pilots photographed and documented storm-related damage to support Wisconsin Emergency Management and other state and federal agencies
- Helping the DNR locate and recover a drowning victim in a northern Wisconsin lake
- Searching for a homicide suspect in Rusk County; the fugitive was located and taken into custody

"As the only statewide police-manned aerial support unit, the State Patrol receives an ever-increasing number of requests to assist our law enforcement partners at the federal, state, and local levels," Lt. Jushka said. "While traffic law enforcement is one component, the ASU handles a variety of search, surveillance and photographic duties that can only be accomplished from a pilot's perspective."

Better data … improved crash modeling … improved traffic safety

Since 1950, traffic fatality and injury rates in Wisconsin have decreased substantially. In 2009, the fatality rate fell below 1.0 fatality per 100 million vehicle miles traveled (VMT) for the first time since the state started collecting crash records.

But, unfortunately, this downward trend has reversed in recent years (see graph).

The number and types of crashes vary over time with changing travel demand, driver demographics and behavior, highway design and traffic control, vehicle safety features, safety-related laws and policies, and broad economic trends. For instance, the last major recession reduced vehicle miles travelled, which helped lower the number of crash fatalities. But, with the ongoing economic recovery, vehicle miles traveled have increased, contributing to more crashes.

Crash modeling

The upturn in crash fatalities in 2015 nationwide prompted a call to action by NHTSA, encouraging research into the causes of this worrisome increase. In 2016, WisDOT awarded a grant to a team of researchers led by Associate Professor Xiao Qin at UW-Milwaukee. Their research is producing crash models that will shed light on crash causes. Accurate models can also help predict crash trends, which, in turn, can help guide law enforcement deployments, infrastructure investment, and policy changes.

Crashes are usually caused by a combination of factors. Identifying the most influential causes can be a daunting task. Factors contributing to crashes can generally be classified as human, roadway, or vehicle factors. The development of techniques for statistical safety analysis has progressed remarkably due to the standardization and availability of data regarding the characteristics of crashes, roadways, and traffic. Crash modeling can help:

- identify factors contributing to crash occurrence and severity
- predict future crashes
- rank crash hotspots for countermeasures

Better data

"First of all," Qin said, "we need accurate data, and WisDOT is making significant progress in this area." This includes two recent major advances: the launch of improved crash report forms ((DT4000 and DT4002) and an upgraded crash database (article on page 2 includes plans for further improvements).

Research project

The research team is made up of experts from UW-Milwaukee, the UW-Madison Traffic Operations and Safety (TOPS) Lab, and Texas A&M University.

Xiao Qin is in the Department of Civil and Environmental Engineering at UW-Milwaukee. He is also director of the Safe and Smart (S^2) Traffic Laboratory.

Since 2009, pedestrian and bicyclist fatalities (TSR 21.2, page 5) have increased to levels not seen in 20 years. This research project's co-principal investigator is Robert Schneider, a pedestrian and bicyclist safety expert and associate professor of urban planning in UW-Milwaukee's School of Architecture and Urban Planning.

WisDOT Division of Motor Vehicle (DMV) personnel are providing driver characteristic data, and WisDOT Bureau of Transportation Safety (BOTS) staff are helping collect information on the history of enforcement activities (e.g., liquor law violations, OWI arrests) aimed at reducing crashes involving motor vehicles, motorcyclists, pedestrians, and bicyclists.

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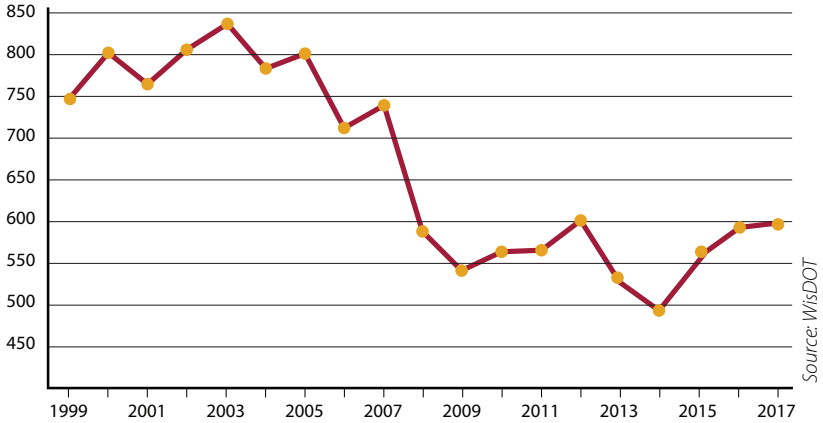
Associate Professor Xiao Qin at UW-Milwaukee

Traffic fatalities in Wisconsin



Better data . . .
from page 9

The research is being done in two phases.

Phase I

- Review literature
- Summarize the characteristics, availability, and quality of crash, traffic volume, and roadway geometric data
- Recommend optimal statistical models
- Decide on crash prediction variables
- Decide on the most appropriate modeling techniques for safety analysis
- Test and validate methods
- Implement models

Phase II

A causality analysis will be performed to evaluate the impact of impaired driver involvement on crash fatality or incapacitating injuries. Various potential confounders, including driver characteristics, driver behavior, collision type, site-specific characteristics, and environmental conditions, will be analyzed. The causal inference will be estimated using a potential outcome framework, and the covariates will be balanced by the Propensity Score Matching method. Results of the analysis will indicate whether or not impaired driver involvement in a crash has causal effect on the fatality or incapacitating injuries, and, if so, the increased risk of being killed or incapacitating injuries in a crash will be estimated.

- Research crash causes
- Provide fact sheets, summary statistics and models from both phases, and marketing materials for WisDOT.

Implementation plan

- WisDOT will acquire information on variables that are highly correlated with traffic crashes in Wisconsin
- WisDOT will be provided with applications that are ready for implementation, and it will learn of effective communication methods it can use when sharing findings with practitioners
- The research team will provide WisDOT with recommendations for collecting data on newly identified variables

The research team will work closely with the WisDOT Traffic Safety Engineering Workgroup and the Traffic Safety Council to determine where and how to implement the findings and recommendations.

This newsletter will report on the research outcomes and how WisDOT is making use of them.

For further details, contact Martin Broyles, WisDOT BOTS, at *Martin.Broyles@dot.wi.gov*

Amy Miles profile . . . *from page 14*

Study of roadside oral fluids testing device

Starting in 2016, the Forensic Toxicology Section was a key partner in a Dane County study of the effectiveness of a roadside oral fluid testing device. The study found that the device (Alere DDS2 Mobile Test System) was convenient for law enforcement to use, and it reliably detects the presence of drugs. The device tests for the six major classes of drugs and yields a positive or negative result.

"The study results have been shared with states nationwide," Miles said. "Hard work and dedication from the partnering law enforcement officers in Dane County involved in the project made it such a success. From this study, WSLH has trained more than 1,000 toxicologists, judges, attorneys, and law enforcement personnel all across the country on the benefits of a roadside oral fluid testing device and how to implement their own program. One study outcome was the realization that many alcohol-impaired drivers are on the road, with a BAC greater than 0.10, who also have drugs on board. Current WSLH policy is to cancel drug testing (if requested) if the BAC exceeds 0.10. As a result, we are under-reporting the drug-impaired driving issue in Wisconsin."

Miles praises the skill and dedication of the FTS staff, who ensure that testing is done the right way every time. "I also have such great respect for the law enforcement officers in Wisconsin," Miles said. "They strive to be the best at what they do."

Contact Amy at *amy.miles@slh.wisc.edu*.

Award recipients

2018 Governor's Conference on Highway Safety

August 21-23, Grand Geneva

Child Passenger Safety (CPS) Hero Awards

- Click here

2018 TIME (Traffic Incident Management Enhancement) Program award recipients

- Click here (Fall 2018 Newsletter, page 5)

State Patrol assists with Harley anniversary

Labor Day Weekend in Milwaukee

Officers with the Wisconsin State Patrol Motorcycle Unit assisted with traffic law enforcement and event security for the Harley Davidson 115th Anniversary Celebration, August 29 - September 3 in southeast Wisconsin. During the unit's five-day deployment, two State Patrol supervisors and five troopers stopped 354 vehicles, issued 405 citations and 570 warnings, and made one criminal arrest.

The unit worked with Milwaukee Police and County Sheriff's officials to provide several motorcycle escorts, including for "Willie G." Davidson, grandson of company co-founder William S. Davidson. Motorcycle officers also helped other State Patrol squads in responding to crashes and assisting motorists along the Milwaukee County Freeway System.

For Harley-Davidson, safety is always a high priority:

- New Rider Course
- Skilled Rider Course

HARLEY-DAVIDSON MOTOR COMPANY

At the beginning of the parade, the Motor Unit of the Milwaukee Police Department leads the way.

HARLEY-DAVIDSON MOTOR COMPANY

(l–r) "Willie G." Davidson, State Patrol Sergeant Kyle Amlong and Trooper Scott Thiede

Police and Civilian Skills Competition

Click for details or video.

Wisconsin CODES Project

Linking crash data with health outcomes to help improve traffic safety

by Wayne Bigelow, consulting scientist, Center for Health Systems Research and Analysis (CHSRA) at UW-Madison

The Wisconsin CODES (Crash Outcome Data Evaluation System) Project was developed by CHSRA at UW-Madison for the WisDOT Bureau of Transportation Safety (BOTS) in 1992. CODES provides information about the health outcomes and costs associated with motor vehicle crashes (MVC) in Wisconsin. It provides this information for the state as a whole, for all counties, and for 70 of the largest cities and villages in the state.

Funding for CODES comes from the Wisconsin Traffic Records Coordinating Committee (TRCC) (see page 1) via NHTSA grants.

CODES reports and information can be viewed at www.chsra.wisc.edu/codes.

CODES provides this information by linking together WisDOT crash data with inpatient discharge data and emergency department data provided by the Wisconsin Hospital Association. Also, Minnesota inpatient and emergency department data for Wisconsin residents treated in Minnesota for crash-related injuries are added to the CODES data. This is needed because of the significant percentage of crash victims who are transported to Minnesota hospitals from Wisconsin areas contiguous to Minnesota.

Each year:

- these data sets are merged
- injury severity information is developed
- estimated costs are generated

The injury severity information is derived from data provided by the Association for the Advancement of Automotive Medicine. Cost estimates are developed based on NHTSA research, in particular *The Economic and Societal Impact of Motor Vehicle Crashes in 2010 (Revised)*.

Data is available in a variety of formats and at different levels of aggregation.

Report Builder

Report Builder is a simple way to create your own tabular reports from the CODES linked data. The system provides a variety of health outcome measures which are outputted in tabular form. They can then be downloaded into Excel or other software of your choice for further manipulation and analysis. To build a report, all you need to do is:

- "Select" the data you want to examine
- "Choose" the data elements to create rows in the report
- "Create" the report comprised of the selected row measures and 22 outcome measures in columns

You can download the data as a CSV (comma separated values) file or as an XML file for inputting into the table software of your choice. The option labeled "Export Data to Excel or CSV" exports the data as a CSV file. The option labeled "Export Data to XML" exports the data in XML, a flexible format that can also be used with a wide variety of software tools. The system contains Excel templates which enable users to download the data directly into a formatted and labelled Excel spreadsheet.

Report Builder allows users to easily select specific groups of MVC victims, such as persons involved in alcohol or drug-related crashes, construction zone crashes, and also by demographics and crash locations. Data is currently available for 2009-2016, with 2017 available soon. Users can select individual years or any combination.

continued on page 13

Linking crash data with health outcomes . . . *from page 12*

Community Crash Reports

- 10-page reports developed for 72 counties and 70 cities and villages
- They include tables and charts and cover a period of five years. Information is available, by year and in total, for ER visits and charges, inpatient stays, charges and deaths
- Information is broken out by type of motor vehicle crash victim: passenger vehicle occupants, truck occupants, motorcyclists, bicyclists, and pedestrians
- Comparisons between community rates of ER visits and hospitalizations vs Wisconsin statewide rates are also provided

Community Injury Reports

- Annual 12-page reports developed for 72 counties and 70 cities and villages
- They contain both tabular and chart based information. Injuries are classified according to the National Center for Injury Prevention and Control's recommendations
- Information is available for ER visits and costs, inpatient hospitalization, charges, and deaths
- Comparisons between community rates of ER visits and hospitalizations and statewide rates are also provided
- In addition to information on injuries, data related to Underlying Intent of Injury (unintentional, self-inflicted, assault, and other) is provided

State-Level Reports

Annual reports available for a variety of conditions, such as crash characteristics, locations, and demographics. Reports are available for:

- Passenger vehicle occupants
- Motorcyclists
- Bicyclists
- Pedestrians

Special Analyses

Each year, CHSRA produces short reports relating to three issues of particular relevance to motor vehicle crashes and to WisDOT BOTS:

- Alcohol-related crash costs and morbidity
- Motorcycle helmet use and crash outcomes
- Seatbelt use outcomes

CODES Data

Special CODES extracts are available to interested parties. In recent years, data was provided to analysts at UW-Madison, the Comprehensive Injury Center at the Medical College of Wisconsin, and to researchers at other universities and in countries as far away as Thailand.

Next year, CODES staff will visit several county Traffic Safety Commissions to give an online CODES presentation. We also anticipate that we will be able to include EMS data with CODES in the next couple of years.

Learn more at *www.chsra.wisc.edu/codes*.

Contact Wayne Bigelow at Wayne_Bigelow@chsra.wisc.edu.

Get to know … Amy Miles

Amy Miles

Director of the Forensic Toxicology Section (FTS) Wisconsin State Laboratory of Hygiene (WSLH)

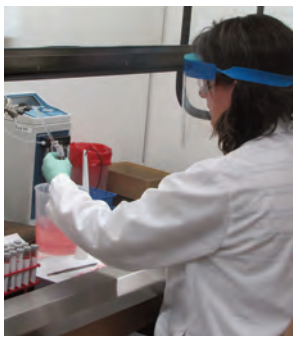
The Forensic Toxicology Section (FTS) at the Wisconsin State Laboratory of Hygiene (WSLH) provides alcohol and drug testing, interpretation of WSLH results, and court testimony for law enforcement agencies, coroners and medical examiners in Wisconsin. Testing provided to coroners and medical examiners assists county officials with routine death investigations. Testing for law enforcement agencies is limited to traffic safety and other motor vehicle matters (boats, ATVs, and snowmobiles) in support of Wisconsin's impaired driving laws.

Each year, the FTS receives about 19,000 specimens for alcohol and/or drug testing. About 10% of them are for death investigations. For traffic safety testing, blood or urine samples may be analyzed for alcohol content. A blood specimen must be submitted if testing is required for drugs other than alcohol. About 4,000 specimens are tested for drugs.

Click here for a two-minute tour of the Forensic Toxicology Section's lab.

Amy Miles serves as Director of the FTS. Her responsibilities include:

- Approve instrumentation, method validations, and standard operating procedures in accordance with requirements of the American Board of Forensic Toxicology
- Provide support and oversight for the quality assurance program
- Provide assistance and training regarding drugs and alcohol and their effects on human performance for the section's chemists, law enforcement personnel, prosecutors, judges, and other groups statewide and nationally
- Serve as lab liaison to the Drug Recognition Expert (DRE) program at the state and national levels
- Appear in court, locally and nationally, to testify on analytical findings and provide expert witness testimony on alcohol and drug pharmacology and metabolism and human performance



Technician in the lab of the Forensic Toxicology Section

Miles has given hundreds of presentations at state and national conferences and in-service trainings.

Each year, FTS staff testify in more than 300 trials across the state. They also train law enforcement officers on the effects of alcohol and drugs, and what to look for during crash investigations or traffic stops.

The FTS welcomes opportunities to partner with local and state agencies, researchers, educators, and professional groups. Click here for information about speakers and presenters.

Miles grew up in Verona, and her interest in science began during her senior year in high school when she interned at the National Wildlife Health Center, working with red-crowned cranes. She went on to receive a BS in biology (focus on environmental sciences) from Edgewood College. In 1999, she started work as an FTS chemist, and, in 2014, she was promoted to director of the section.

Driving under the influence of drugs (DUID) is surging

DUID is a fast growing and all-too-often deadly problem nationwide and in Wisconsin. The most recent national data shows that drugged driving is increasing while drunk driving is declining. Of fatally-injured drivers, 40 percent test positive for drugs, which is almost the same as those testing positive for alcohol. A large and growing number of drugs can impair driving; many are illegal, but others are available by prescription or over-the-counter.

"Over the last two decades," Miles said, "the landscape of impaired driving has significantly changed. Alcohol used to be the main focus in impaired driving cases, and drug-impaired driving always seemed to be segregated into its own bucket. From 2014-17, drug testing at the WSLH has increased more than 60%. This is due largely to better training for law enforcement to detect, observe and articulate the signs of drug-impaired driving. It is also due to the expanded capabilities of WSLH testing. Although WSLH currently has a comprehensive drug testing panel, there are still a large number of novel psychoactive substances that remain undetectable. This spring, the lab installed a new instrument that can test for more drugs and do it more quickly."

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