Roadway Safety
Professional Capacity
Building Program

Through engaging peer workshops, the RSPCB Program matches agencies seeking solutions to roadway safety issues with trailblazers who have addressed similar challenges and emerged with a roadmap and noteworthy practices for approaching the issue.

U.S.Department of Transportation
Federal Highway Administration

VIRGINIA PEER EXCHANGE: CONTRIBUTIONS OF SHSP AND HSIP IN DRIVING DOWN FATALITIES

An RSPCB Peer Exchange

INTRODUCTION

The Virginia Department of Transportation (VDOT) hosted a Peer Exchange for Virginia's safety stakeholders to learn from peer states about noteworthy practices for using the Strategic Highway Safety Plan (SHSP) and the Highway Safety Improvement Program (HSIP) to drive down fatalities. The peer exchange was held July 19 and 20, 2016, in Richmond, Virginia. This report summarizes the results of the peer exchange, which was supported by the Federal Highway Administration (FHWA) Office of Safety's Roadway Safety Professional Capacity Building Program and the FHWA Virginia Division Office.

The FHWA Office of Safety and the FHWA Virginia Division Office worked with VDOT to convene representatives from the three peer States: Florida, Louisiana, and Minnesota. In addition to VDOT, other stakeholders from Virginia included representatives from these agencies:

- Virginia's Department of Motor Vehicles (DMV)
- Virginia Highway Safety Office (HSO)
- Federal Motor Carrier Safety Administration (FMSCA)
- City of Richmond

The list of participants is in Appendix A and the full agenda is in Appendix B.

BACKGROUND

To plan the peer event, the FHWA Office of Safety worked with the FHWA Virginia Division Office to research a number of States that have successfully reduced fatalities. Different factors were reviewed from selected States

including fatality trends, HSIP obligation rates, program administration practices, and geographic conditions. Virginia's goal was to learn how other States have overcome challenges in their roadway safety programs and what tools they use to help reduce crashes.

Participating peer States prepared presentations organized around that goal and addressed Virginia's needs through a series of roundtable discussions. The five key topics of discussion during the peer exchange were **SHSP and Safety Culture**, **SHSP Coordination**, **Safety Countermeasure Success**, **District and Local Engagement**, and **Systemic Approach and Deployment**. At the end of the exchange, the Virginia participants synthesized input from the peer States to prepare an action plan for improving Virginia's SHSP and HSIP processes.

PEER EXCHANGE PROCEEDINGS

VIRGINIA SHSP - BACKGROUND

VDOT is updating its SHSP, which was last completed in 2011. Virginia's vision for its SHSP is "Toward Zero Deaths." The number of crashes in Virginia over the past decade has remained flat, while deaths and serious injuries have steadily declined. The reduction in crash severity indicates that the efforts of Virginia's safety partners are working. VDOT plans to set new five-year goals and annual fatality targets in coordination with the Virginia Department of Motor Vehicles.

Virginia's Highway Safety Office Director focused on the State's behavioral programs. He explained that the effort is about saving lives and that safety stakeholders have to lead by example to demonstrate their commitment and create a cultural change. He stated that Virginia DMV reviews fatality numbers by quarter and has taken a new approach to crash data analysis, called PDCA:

- **Plan** – Set goals and how to accomplish them.
- **Do** – Get the funding and talk to partners and get initiatives in place.
- **Check** – Review data quarterly to see if progress is being made.
- **Act** – Make changes based on data and work with partners to organize actions.

He noted that VDOT and its partners use an online crash mapping program called the Traffic Records Electronic Data System (TREDS). TREDS automates and centralizes crash and highway safety related information. It provides interactive crash data reporting, and law enforcement can run reports for their region or town by emphasis area. There are high crash location maps, and other ways to visualize data. TREDS is offered to partners, but it is important to provide training.

The director discussed the following initiatives Virginia has implemented related to impaired driving, young driving, and pedestrian and bicycles:

- The **impaired driving program** includes drunk, drugged, drowsy, and distracted driving.
- The young driver program has a **Young Driver Leadership Summit**, which develops strategies for the SHSP, and emphasizes coordination, collaboration, and evaluation.
- The **pedestrian and bicycle program** conducts

*Virginia's **impaired driving program** initiatives include:*

- ***Drunk driving** – NASCAR and sports outreach; DUI task force projects; and the Center for Highway Safety Forensics' mobile alcohol testing units, training and crash investigation.*
- ***Drugged driving** – ARIDE: Advanced Recognition of Impaired Driving Enforcement.*
- ***Distracted driving** – Distracted Driving Summit and peer-to-peer messaging.*
- ***Drowsy driving** – Working to improve identification of the issue and data with law enforcement.*

coordinated outreach and high-visibility enforcement campaigns, engages in a higher level of Statewide outreach efforts through multiple grantees, and interfaces with impaired-driving program areas, including alcohol-related and distraction-related.

VIRGINIA HSIP - BACKGROUND

VDOT provided an overview on the project delivery process for Virginia's HSIP funding from the past five years. Notable components of Virginia's program include:

- To help decide which projects to fund, use the **SMART SCALE:** "System Management and Allocation of Resources for Transportation: Safety, Congestion, Accessibility, Land Use, Economic Development and Environment."
- Offer an external SharePoint site for VDOT district offices, including the link for the **Tableau crash tool**, which allows customized filtering and mapping of crash data.
- **Improve forms for project proposals**, including highway improvements, bicycle-pedestrian safety improvements, and highway rail-grade crossings.

Virginia's **systemic improvement program** is under development. Previously, systemic projects were mainly related to intersections, but now this work is more often related to shoulder projects. Virginia has worked to create a new process flow requiring past and present project delivery to be completed within a reasonable timeline. The State is also is creating a **new project intake portal**. Virginia has **collaborated with partners** on the Roadway Departure Implementation Plan, sharing data, region and district staff meetings, traffic incident management training, planning and outreach advancements, district and statewide coordination on the HSIP, and SMART SCALE project development.

PEER PRESENTATIONS

The following sections summarize the peer presentations and discussion across the five key topic areas.

SHSP AND SAFETY CULTURE

Peers from Florida, Louisiana, and Minnesota discussed how they use their SHSPs to develop and promote safety culture in their States: by engaging partners and coalitions and focusing on consistent messaging.

Florida Department of Transportation (FDOT)

Representatives from FDOT discussed the components an agency needs to promote safety culture and its SHSP:

- **Partners** to develop the plan.
- **Coalitions** to act on the plan.
- **Champions** to support the plan.
- A proactive effort to raise awareness of the plan through **marketing and training**.

FDOT's central office has about 20 staff responsible for the HSIP and SHSP, the Highway Safety Plan (HSP), Safe Routes to School, and crash data systems. A number of **partners** assist in implementing the plan, including educators, the Federal Motor Carrier Safety Administration, law enforcement such as the Florida Sheriffs Association, and others.

FDOT works with several **coalitions** involved in the Highway Safety Plan (HSP). The most active coalition is Alert

Today, Alive Tomorrow – Bike/Ped, which has developed its own plan. The HSP and the Bike/Ped plan are related and have consistent goals. The coalition has been successful in finding **champions** to talk to peer districts. Florida's Community Traffic Safety Teams (CTSTs) are regional entities funded by the HSP initiative. The CTSTs include representatives who work on the 4Es of highway safety—engineering, enforcement, education, and emergency medical services—and come together to talk about local safety challenges based on crash data or perceptions of safety issues.

Leveraging outreach activities can be effective in **marketing** safety culture and in **training** practitioners. When FDOT representatives attend meetings around Florida, they make everyone aware of the SHSP and they work to engage meeting members in roadway safety. When partners are not aware of the SHSP, FDOT strives to educate them on how they can get involved. The Statewide Design Expo provides a good platform for promoting the SHSP because it brings together FDOT staff and consultants in one room.

Louisiana Department of Transportation and Development (LaDOTD)

To promote safety culture and increase awareness of issues that road users experience, LaDOTD **collaborates with many stakeholders**, including the Louisiana State University research group, FHWA, the Louisiana Center for Transportation Safety, the Louisiana Highway Safety Commission (LHSC), the Local Technical Assistance Program, and the State Police. The safety program is building momentum, particularly through LaDOTD's Safety Summit. It is also helpful that Louisiana's new governor has a focus on transportation.

LaDOTD also uses **regional coalitions** to promote a strong safety culture. It established coalitions based on State police district boundaries. These coalitions are tasked with outreach, marketing, facilitation of monthly meetings, coordination of statewide emphasis area teams, and creation and maintenance of **Regional Safety Action Plans**, which are living documents tailored to a local area. Coalitions use the Statewide SHSP document as a guide and create regional versions that reflect issues based on local and regional data. Regional Safety Action Plans have objectives and strategies, and action leaders are appointed to ensure accountability. Regional coordinators who understand infrastructure and can act as a liaison for local road safety are housed in Metropolitan Planning Organizations (MPOs). Challenges noted include the program's rapid growth and issues with consistency, coordination, communication, and administrative oversight.

Consistent messaging is also key to promoting safety culture using Louisiana's SHSP. The Louisiana Communications Coordinating Council was recently reactivated. Its purpose is to make messaging more consistent. The Louisiana Center for Transportation Safety takes the lead in coordinating council efforts.

Louisiana State Police

Representatives from the Louisiana State Police discussed how **involving law enforcement** in the SHSP can promote safety culture. Law enforcement officers should understand the importance of crash data collection and different enforcement and education strategies. Getting buy-in from law enforcement helps LaDOTD communicate the need for detailed information about crashes, not just basic details. Louisiana is working to improve its crash data collection process and create continuity between different levels of government. Details of this effort include:

- Louisiana has an officer and a co-chair assigned to each emphasis area team.
- The State and regional teams know each other personally.
- Law enforcement decisionmakers are included in the SHSP process.

It was noted that Regional Safety Action Plans should **use data analysis** to **validate the process to identify**

projects. Validation can occur with a pilot program that captures successes. For example, data shows that police involvement in child passenger safety is successful. Documented successes can motivate team members and administrators. As a direct result of the SHSP, the State police are more active in child passenger safety education and outreach, as well as enforcement. These analyses are presented to police department administrators to demonstrate how their outreach efforts have real impacts on safety.

There have been several **legislative efforts and initiatives** passed in Louisiana, including a distracted driving fine increase, a seat belt fine increase, and changes to the State's graduated driver's license law. Many of these initiatives would not have been possible without the foundation set by the SHSP, and partnerships between law enforcement, the Louisiana Highway Safety Commission, and LaDOTD.

Minnesota Department of Transportation (MnDOT)

Minnesota's mission is to "move Minnesota **toward zero deaths** on its roads using education, enforcement, engineering and emergency medical and trauma services." Minnesota's Toward Zero Deaths (TZD) program coordinator discussed Minnesota's SHSP, which features the TZD logo, not MnDOT's logo. By featuring the TZD logo, the State **reinforces the plan's focus on the TZD mission**, and signifies the unification of stakeholders and the relinquishment of a single agency receiving credit for the plan. In addition to a program coordinator for all the TZD regions, Minnesota has co-chairs for the TZD program including the MnDOT Office of Traffic, Safety and Technology Director and the Department of Public Safety Office, Traffic Safety Director.

To coordinate roadway safety efforts, Minnesota uses **eight TZD regions**, each with its own coordinator. Each of these regional partnerships has a local steering committee made up of traffic safety stakeholders and are led by the MnDOT district engineer and State patrol captain. The regional structure aims to coordinate individual traffic safety efforts and change safety culture through grassroots efforts. When safety culture is engrained in workplaces and the community, these efforts will not fall apart if a leader or champion leaves.

MnDOT districts also developed **County Road Safety Plans** to engage local highway agencies in the safety planning process and provide them with technical assistance in applying for State and Federal funding.

MnDOT's Senior Research Analyst for Traffic, Safety, and Technology discussed Minnesota's understanding of how safety partners work together. She noted three facts that influence connectivity:

- Influence of partners.
- Analysis of the cascade of financial contributions.
- Identification of key roles and positions, and how they influence traffic safety outcomes.

Minnesota's unique approach to safety prioritization includes a "bullseye" with higher priority emphasis areas in the center of the bullseye and secondary emphasis areas on the outer rings (Figure 1). Behavioral issues driven by safety culture, such as speeding, distracted driving, and unbelted drivers, are at the center of the bullseye.

Minnesota created a survey to further reveal priorities and safety preferences of stakeholders in different focus areas. The survey was based on a seven-step process that depicts the social ecology that influences a person and their behavior. The survey information is documented in the report Measuring Minnesota's Traffic Safety Culture.

Minnesota has a **TZD Communications Committee** which coordinates messaging and promotions. NHTSA's communications calendar is used to guide efforts.

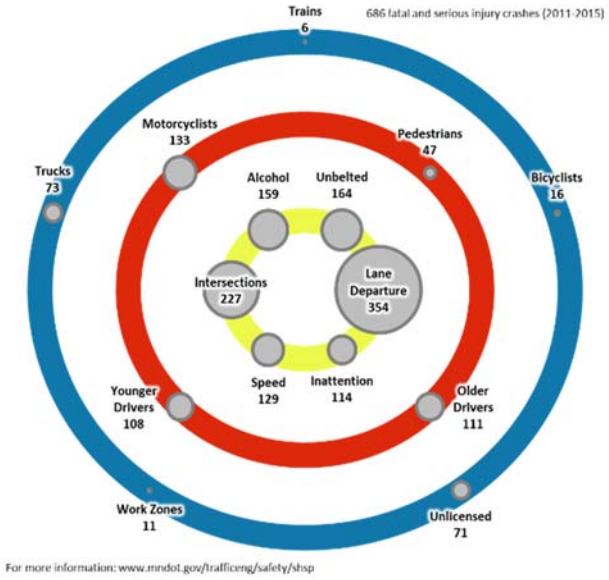

Figure 1. MnDOT's "Bullseye"

Facilitated Roundtable Discussion and Key Takeaways: SHSP and Safety Culture

A facilitated roundtable discussion identified key takeaways for Virginia.

- **SHSPs have helped institutionalize safety** and have brought groups such as law enforcement and emergency responders into the fold as active highway safety partners.
- **Coordination of SHSP communication** is important to provide a unified message to all stakeholders.
- **Safety culture begins at the grassroots.** Regional coalitions can build safety culture at the local level.
- **Safety culture is bolstered by champions** who market the SHSP, raise awareness, and take action.
- **A strong safety culture plays a big role** in improving crash fatality and serious injury rates.

SHSP Coordination

Peers from Florida, Louisiana, and Minnesota discussed how they coordinate the development and implementation of SHSPs using tracking, data sharing, regular meetings, and proactive communication with partners and stakeholders.

Florida Department of Transportation

Florida coordinates a number of moving steps in its safety program: **develop** a plan, **engage coalitions** to act on the plan, **establish meetings** to work on and learn about the plan, use a tracking tool to **analyze the plan**, and **develop supporting data** to focus on emphasis areas.

The Florida SHSP tracking tool is effective for partners to gain awareness and learn about plan details and progress. The tracking tool can shed new light on data—for example, that many lane departure crashes are correlated with unbelted drivers. However, the tool is only useful if it draws from good data. Awareness of the tool also needs to be expanded, which requires marketing and training. Successful coordination in Florida includes using the tracking tool and working with coalitions that help input data into the tool.

Louisiana Center for Transportation Safety

The Safety Initiatives Manager at the Louisiana Center for Transportation Safety (LCTS) addressed SHSP coordination in Louisiana. LaDOTD funded the LCTS to support the SHSP leadership in **managing and implementing highway safety research**, **workforce development and training**, and **communication and outreach initiatives**. The manager's responsibilities include coordinating the communications, marketing and outreach efforts with a top-down-and-bottom-up approach. **Top-down efforts** include working with FHWA, LaDOTD, LHSC, and Louisiana State Police. **Bottom-up efforts** include working with coordinators and partners from nine Regional Transportation Safety Coalitions. DOTD used set-aside HSIP funding to hire these coalition coordinators through MPOs that bridge the gap between State and local entities. Louisiana also has a **designated SHSP Manager** at the LaDOTD Highway Safety Section who manages coalition contracts and serves as liaison between regional coordinators and statewide leaders.

Louisiana has taken a regional approach to coordinate the 4Es across the nine regions in the State. Statewide teams, task forces, and subcommittees discuss 4E solutions. Statewide emphasis area leaders communicate with regional safety coalition coordinators and their respective regional emphasis area leaders to facilitate a well-coordinated regional version of the SHSP. To realize the goals and objectives in the plan, there is a **dialogue and input solicitation** that takes place from the time action plans are developed up until action steps or projects are implemented. **Regular statewide meetings** facilitate that discussion on top of constant email and phone consultations between leaders. Each coalition is comprised of regional coordinator and regional emphasis area leaders, who collaborate with local safety experts, advocates, and MPO staff to ensure the region develops and implements a local version of the SHSP within an agreed timeframe.

Examples of coordinated safety approaches in Louisiana:

- ***T-shirt Design Contest*** *used to raise awareness through friendly competition.*
- ***Incentive Program*** *used to reward students who wear their seatbelts.*
- ***Statewide Program Coordination:*** *"Saved by the Belt," "Sudden Impact," and "No Refusal Policy" implemented in all regions.*

Coalition meetings are held monthly or quarterly. Messages are coordinated with the Louisiana Highway Safety Commission so that ideas are clearly communicated to the public. LaDOTD coordinates messaging with different stakeholders and uses NHTSA's communications calendar as the overarching tool to guide the delivery of **consistent messaging** at specific timeframes.

Coordinating with safety-related events is also an important focus. **Local Road Safety Plan peer exchanges** in 2015 were hosted in different regions across the State to inform local agencies about safety on local roads. Louisiana also distributes an **online newsletter** with information on local road safety, links, articles, and events.

Louisiana's **SHSP Communications Coordinating Council** (CCC) also coordinates communications. The CCC:

- Closely coordinates with LaDOTD Communications, State Police Public Affairs Division, LHSC, and the Regional Coalitions to deploy safety messages via dynamic messaging signs, public service announcements, news publications, social media, agency bulletin boards, and other media.
- Develops an annual safety scheduler and toolkits for all stakeholders to use.
- Coordinates messaging and mobilization campaigns: SHSP exhibits, for example at the Chiefs of Police conference; communication with local police and at town hall meetings; and media campaign sponsors. Paid media is included in the communication and marketing plan.

The SHSP CCC works to form **new public-private partnerships** and identify opportunities for SHSP promotions and media campaign sponsors, such as Shell, AT&T, and Coca Cola, and maintain existing partnerships, such as with State Farm.

> *For a decade, legislators in Minnesota considered **passing a primary seatbelt law**. To emphasize the need for this law, the TZD coordinator went to legislators and shared data on deaths related to unrestrained passengers. This and other outreach helped get a primary seatbelt law passed in Minnesota.*

Louisiana's Data Reports are a useful tool to engage stakeholders with **crash data related to the SHSP posted** statewide and regionally on Louisiana State University's Highway Safety Research Group SHSP Dashboard. Louisiana presented its Data Dashboard with a standard data analysis, which can be used in the planning process. Data analysis allows Data Dashboard users to view the efforts of coordinated messaging. Users can also select by region and then explore locations with the most fatal and serious crashes, or explore emphasis areas and choose targets.

Minnesota Toward Zero Deaths and Minnesota Department of Transportation

Minnesota's TZD program is an effective platform for Minnesota's successful SHSP coordination. TZD successes include public commitments to change traffic safety culture, collaboration with other traffic-safety advocates, and promoting best practices. Key elements include:

- **Promoting TZD strategic goals, including:**
  - Establish the TZD vision as a priority for all State and local agencies and units of government.
  - Create and strengthen traffic safety partnerships.
  - Promote and implement effective traffic safety initiatives.
- **Taking a 5E Approach**: Enforcement, Engineering, Education and Outreach, Emergency Medical and Trauma Services, and Everyone Else.
- **Hosting TZD Regional workshops** every spring for interested stakeholders. If a partner misses their regional workshop, they can attend another region's workshop to get the same information.
- **Holding the TZD Statewide Conference**, which has grown significantly in the past few years and has draws 1,000 stakeholders, including representatives from bordering States. MnDOT staff present the milestones and successes that from the previous year. MnDOT waives conference fees for representatives from emergency medical providers, to encourage them to attend.

Minnesota communicates crash data from the year-to-date compared to the previous year to its partners make them aware of safety efforts. Partners include the courts, public health, employers, and the education system, as well as many other organizations. They are also in contact through a number of events, including regional campaigns and stakeholder breakfasts.

Minnesota presented a number of examples to demonstrate the value of the TZD program:

- Three state agencies—the Minnesota Departments of Public Safety, Transportation, and Health—meet with legislators annually to discuss the TZD program and give updates on the progress for traffic-related deaths.
- TZD regional coordinators meet with local units of government, originally called **TZD on the Road,** to discuss the mission of TZD with county boards and city councils.
- The Polk County TZD Coalition succeeded in implementing enforcement and education strategies to address driving under the influence. For example, a county engineer on the TZD steering committee

influenced a local bar owner who had applied for a permit to close two county roads to have a street dance. The engineer encouraged the bar owner to provide training to bartenders to cut off bar patrons who have consumed too much alcohol to drive. The bar owner was also put in contact with a cab and limo company to create a service to drive people home after the street dance.

Minnesota described its SHSP data analysis efforts. Minnesota's previous plan was data-driven. However, the approach for the update is to be data-informed, by analyzing several different data sources and synthesizing the results. This ensures that one data source does not drive the entire process. This new method recognizes best practices and highlights promising practices. This analysis also aims to reduce the number of crashes rather than focus on the number of individuals killed or seriously injured, which could skew the results.

> *"Enforcement should be highly **visible**, **targeted**, and **coordinated** at State and local events. Agencies should use interesting and engaging slogans to catch people's attention and make them think about their driving behaviors."*
>
> *-MN TZD Coordinator*

Minnesota noted that crashes do not have only one contributing factor, but often there are the several contributing factors that have common threads. A **Principal Component Analysis** was used to find hidden correlations and analyze data in different ways. Minnesota solicited stakeholder input to receive information from people at crash scenes and provide more information about why these crashes occurred. This analysis used games or exercises to discover the real priorities of stakeholders and identify their split-second reactions. For example, "Game of Loans" was a game that helped stakeholders make connections between contributing factors of crashes. This game allowed people to look beyond their individual emphasis area to address related issues. This game also highlighted that strategic partnerships are very important for improving roadway safety.

Facilitated Roundtable Discussion and Key Takeaways: SHSP Coordination

A facilitated roundtable discussion identified key takeaways for Virginia.

- **Coordinate beyond SHSP development**. Coordination must continue through implementation.
- **Leverage programs such as TZD** to foster collaboration by bringing partners together under one common umbrella.
- **Coordinate messaging** with communication initiatives such as organizing coordinated communication activities, and creating a marketing plan.
- **Add a co-chair** to **Emphasis Area teams** from a different emphasis area to help make overlapping connections between groups.
- **Coordinate at the regional level** to promote SHSP implementation. This process identifies opportunities to identify projects on the local system that will reduce fatal and serious injury crashes.
- **Align SHSP with HSP**. The alignment of goals can be a challenge, but more coordination between emphasis area groups can help this effort.
- **Use coalitions** to mobilize around a problem.
- **Use data and data visualization to bring partners** together. Sharing consistent data supports coordination and can help engage stakeholders.
- **Promote law enforcement training** on data collection.
- **Use tracking tools** for SHSP implementation.
- **Use public-private partnerships** to promote awareness of the SHSP.
- **Review State plans**—for example, MPO Plans—to identify, coordinate, and create consistent goals.

SAFETY COUNTERMEASURE SUCCESSES

Peers from Florida, Louisiana, and Minnesota discussed their successes in implementing infrastructure and behavioral countermeasures to address fatalities and serious injury crashes.

Minnesota Department of Transportation (MnDOT)

MnDOT discussed successful techniques to reduce conflict at intersections. **Reduced conflict intersections** include implementing engineering solutions that decrease the number of movements. J-turns are unpopular in Minnesota but have worked to reduce fatal and serious crashes at a relatively low cost compared to roundabouts or overpasses. Minnesota also discussed **implementing conflict warning systems** at intersections. Minnesota conducted a study in 2015 for 29 conflict warning systems with 30 control sites. Crash rates were reduced by 22 percent, but MnDOT acknowledged that these successful numbers may decline later.

Minnesota raised speed limits from 55 to 60 miles per hour due to political pressure, but engineers were strategic in making these changes and increased speed limits only where roads could handle it. **High-visibility speed enforcement campaigns** were deployed in conjunction with the change. As a result, the change had very little impact on fatal and serious injury crashes. Minnesota also included a lot of messaging and media releases associated with the change.

Louisiana State Police

Representatives from the Louisiana State Police discussed the **DWI "No Refusal" initiative**, which resulted from a strategy in the SHSP. DWI "No Refusal" ensures that people cannot refuse an alcohol blood test, which is important because the evidence of alcohol in blood lessens within the time it takes to obtain a warrant. Medical personnel are trained to understand the process. The process includes blood kit protocol and the reason for the sample, crime lab protocol—warrant versus implied consent—and evidence to be delivered to the lab within seven days. In creating an action plan for this initiative, it was important to the State police to make the public aware of the initiative so that drivers could stop this unsafe behavior.

This initiative begins with a DWI checkpoint or saturation patrol. Patient care is paramount during a blood draw. Drivers may need medical attention before their blood is drawn. Police cannot be selective when implementing this initiative—consistency is important to deter impaired driving. The State tracks arrests involving blood warrants and tracks the total number of Driving While Intoxicated (DWI) trials. A decreasing trend of DWI trials will create a strong public safety message.

Louisiana State Police stressed the **importance of persistence**. Officers return to every parish in the State to encourage local law enforcement to join the DWI "No Refusal" initiative because it saves lives. This initiative addresses the emphasis areas of impaired drivers and sends a strong public safety message.

Florida Department of Transportation

FDOT discussed Florida's study on different **safety countermeasures**, such as **rumble strips**, **longitudinal rumble striping**, and **high-friction surface treatments** (HFST). In Florida, HFSTs coincided with large reductions in crashes. Other successful countermeasures include using **access management strategies** and **road diets**, also known as **lane elimination**.

> ***Rewarding Positive Behavior:*** *"FDOT teamed up with Chick-fil-A and handed out sandwiches to people who* ***used crosswalks*** *correctly."*
>
> *-FDOT State Safety Engineer*

The longitudinal rumble striping that Florida uses is not as deep as typical rumbles and is also made so bicyclists can use the roadway. Rumble striping is placed along the roadway lines to make drivers aware that they are leaving the roadway. With this countermeasure, six-lane arterials saw larger crash decreases than four-lane arterials.

Facilitated Roundtable Discussion and Key Takeaways: Safety Countermeasure Successes

A facilitated roundtable discussion identified key takeaways for Virginia.

- **Road diets**: Virginia has seen success in road diets, with two-thirds fewer crashes. Often, road diets are cheap solutions, but education and outreach is key because people sometimes dislike the change.
- **Warning messages**: These are minimally effective in Virginia. There can be maintenance issues and they can drain resources.
- **Impaired driving enforcement**: Virginia is working to improve impaired driving enforcement. They have paid for full time positions for DUI enforcement and are working to move forward and build initiatives with several different stakeholders to approach the problem of impaired driving from different angles.
- **Positive messaging**: Virginia noted that you cannot only educate through enforcement and repercussions—there has to be positive messaging, and it is important to reach the intended audience and sub-groups. It is important to have those discussions at the agency level and start investing in changing social norms. These initiatives can also benefit from being tied into national campaigns and partner campaigns—Maryland and Virginia work together regionally.

District and Local Engagement

Peers from Florida, Louisiana, and Minnesota discussed approaches for engaging stakeholders at the local and regional levels to keep them informed and involved and to always promote safety on the local roads.

Florida Department of Transportation

To share best practices for district-level engagement, the Traffic Safety Program Engineer at FDOT District 3 presented on the process for delivering projects in a mostly rural area of Florida. **Local outreach** has been an important aspect of this work. He must **promote and educate** on the importance of safety projects to community and elected officials. Often times, engineers do not communicate their ideas effectively to stakeholders, but many communication issues can be avoided if partners are identified and engaged from the time a project is started. For one project, FDOT discussed the project with an elected official and then the **elected official became the champion** for the project at an MPO board meeting.

Each year, FDOT has a list of projects with clear dates of when they should be initiated, and when they should be approved by the FDOT headquarters office. The district hosts **annual workshops** that inform partners of the

process of completing application forms. These workshops particularly help rural counties and local agencies with their applications. Collaboration is key for a successful safety project program. Key points discussed included:

- Include safety in the **district's annual work program cycle**.
- **Conduct** annual workshops.
- Communicate through **Community Traffic Safety Teams** (CTSTs).
- Don't develop projects in a vacuum—**communication should be continuous**.
- Ensure **local officials are involved**.

The district has enhanced its safety focus by **elevating safety into the 3R process**: Resurfacing, restoration, and rehabilitation. In Florida, many miles must be resurfaced, and safety corrective actions are often overlooked. FDOT provides design for local counties as a part of **Districtwide Studies and Design programs**, for which FDOT staff serve as consultant-managers. Pushbutton projects are projects that have critical safety needs. These projects require a State DOT and large contractors to mobilize quickly. The Florida Transportation Commission also provides leadership toward making safety a priority in Florida.

For project delivery, input from CTSTs is used to inform high crash lists. Lighting is an example of a systemic project identified for rural areas. Sometimes these projects are identified by citizens and local officials, and other times by the State. This year, systemic projects in Florida will be funded through HSIP. Districts strive to have more projects ready than what can be funded, so if more money is presented, a project can be pushed through last minute. **Consultant staff** build the applications.

For the HSIP project funding cycle, FDOT maintains a **centralized SharePoint site.** The central office reviews and prioritizes projects to help advance work program projects.

Louisiana Department of Transportation and Development

In Louisiana, the HSIP must go through several processes to achieve the goal of reducing fatal and serious injury crashes. LaDOTD uses data to identify how to spend taxpayer dollars where the biggest need is apparent. Data is used to establish a baseline of what is considered average safety performance, and locations are compared to the average. LaDOTD strives to make this information accessible and easy to use so that data-driven projects are submitted to the safety program.

Figure 2. Louisiana's Safety Program Snapshot

Louisiana's Safety Program snapshot (Figure 2) shows where resources are being spent and the number of fatalities in each district. Some districts are much better at applying for projects and receive more funding. Eventually, LaDOTD would like to see a correlation between awarded funding with higher number of fatalities to address these issues. LaDOTD wants to institutionalize using project lists for accessing funding and setting priorities. LaDOTD has changed the model that determines which projects are eligible, which has led to more flexibility in the types of projects selected.

LaDOTD uses its **Level of Service of Safety Dashboard** to provide a visual data experience for district users. Districts receive extra application points if they coordinate with local agencies, such as MPOs and transportation commissions. To enhance consistency, they use tools, such as a crash data analysis tool that provides a general data analysis. LaDOTD is also developing an online application. **State documentation** includes a **standard checklist**, **crash data analysis**, **crash modification factor documentation**, **benefit-cost analysis**, and **road safety audit reports**. LaDOTD's Highway Safety Analysis Toolbox offers a number of resources for HSIP project selection. Louisiana provides **crash data analysis tools** training, **Crash Modification Factors** training, and hosts **district workshops** with engineers.

In Louisiana, the SHSP and HSIP create an environment for better-informed decisionmaking, better-targeted investments, and fewer serious crashes. There is a project selection guide to help MPOs, because it can be overwhelming. The guide helps ensure a transparent process and the submission of data-driven projects. Louisiana is considering creating a budget allocation per district so that if funds are left on the table by a district, the money is redistributed.

Minnesota Department of Transportation

In the past, MnDOT was inundated with requests to conduct road safety audits and corridor studies. Ottertail County, with MnDOT's assistance, initiated a pilot program to review all roads systematically. This approach was successful and other States signed on to have **County Road Safety Plans**. Minnesota follows a nine-month process (Figure 3) to develop, fund, and implement projects at the local level.

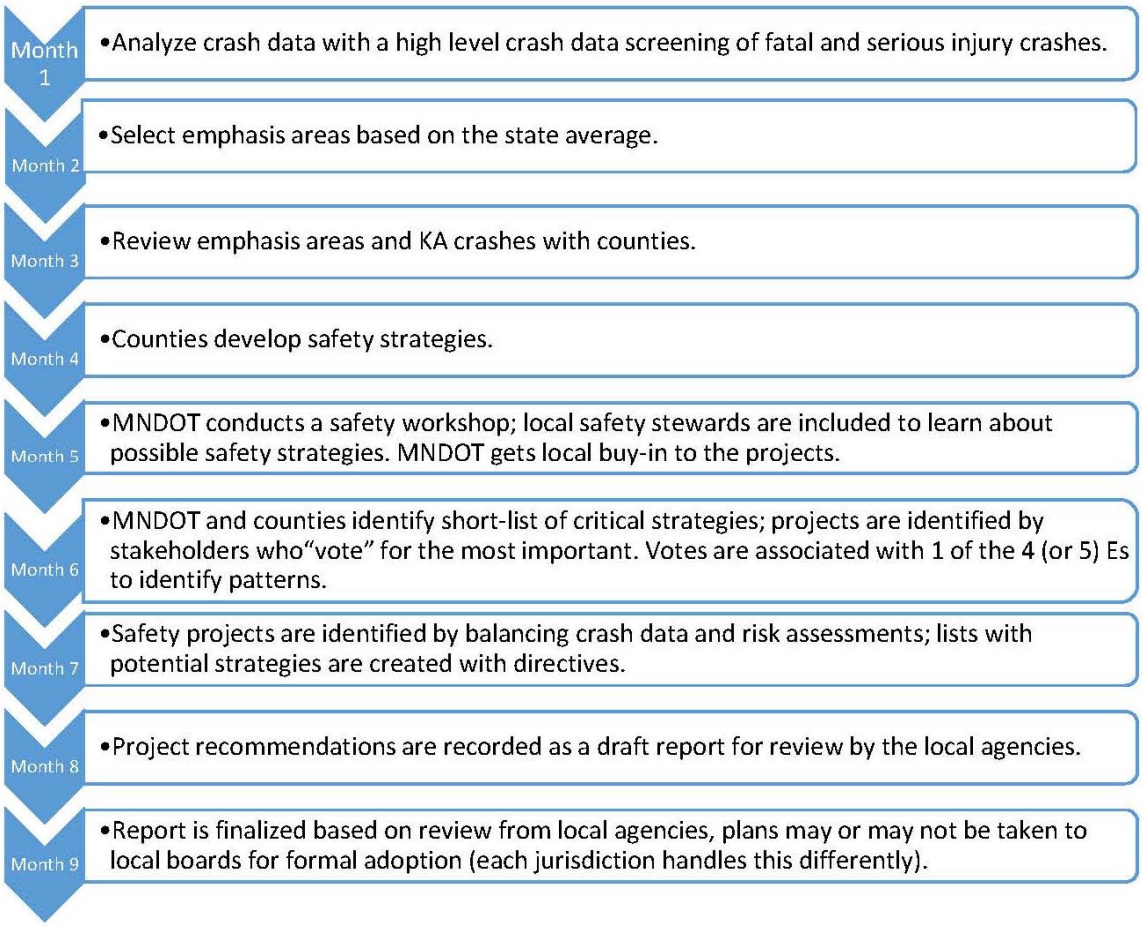

Figure 3. MnDOT's process for developing CRSPs

Minnesota has developed many handbooks, including ***Traffic Safety Fundamentals Handbook*** and ***Bicycling and Pedestrian Fundamentals***, which simplify complex transportation planning and engineering topics. These handbooks help facilitate conversations with local agencies. Behavioral ideas from these workshops are sent to the Governors Highway Safety Office (GHSO). In addition, some GHSO representatives participate in these workshops and present on ideas that can affect behavioral change. For projects that are outside the plans, MnDOT funds risk-based projects. There have also been projects listed in the plan, but were not funded. Lower-risk roads are usually passed over.

Facilitated Roundtable Discussion and Key Takeaways: District And Local Engagement

A facilitated roundtable discussion identified key lessons and ideas for Virginia to take away on improving district and local engagement for roadway safety.

- **Local should go beyond cities**: In many States, only 20 percent of fatal crashes occur in cities, and city roads make up only 40 percent of total roadways. Data from cities do not always reveal compelling patterns. In cities, road safety projects have to compete with many other funding priorities. Progress on road safety is typically better when working with counties rather than cities.
- **Host training for locals**: Virginia has a fall meeting every year with locals and a webinar format for training has also been used. VDOT aims to continue this training. Other considerations include:
  - Behavioral training.
  - Promote countermeasures presented in the ***National Cooperative Highway Research Program Report 600: Human Factors Guidelines for Road Systems*** to identify treatments that achieve the biggest bang for the buck.
- **Integrate Safety with Paving**: In Northern Virginia, a lot of funding is dedicated to repaving roadways. Counties sometimes want safety projects while local agencies only want to repave, and this disagreement can strain relationships. There needs to be **more safety included in roadway design**; safety improvements should be considered when repaving roadways. Some districts have safety funds to pair with resurfacing efforts, and VDOT hopes this will help to get safety integrated. Action items:
  - **Review and evaluate success** for this initiative
  - **Share success stories** with the rest of State.
- **Conduct Outreach**: Align outreach with highway safety efforts during spring meetings with local agencies. Highway Safety Office is doing grant solicitation, and this is an opportunity to reach more people who work on improving road safety.
- **MPO and Planning District Commissions**: Work with these groups on safety planning efforts. Many of their performance measures are the same as those in the SHSP, but they do not have a safety component in their plans.
- **Attend and be involved** with **Technical Advisory Committee** meetings.

Systemic Approach and Deployment

Louisiana, Minnesota, and Florida peers discussed the systemic approach and deployment of safety countermeasures in their States.

Louisiana Department of Transportation and Development

LaDOTD discussed its systemic approach using **aggregated crash-based data associated with road features**. The systemic approach is not reactive; it is proactive. A medical analogy was used, comparing the systemic approach to the treatment of a medical condition based on risk factors. Fatalities are a moving target and focusing on site-

specific locations can have a high local impact, while **systemic projects can have a high system impact**, resulting in greater overall reduction in fatal and injury crashes.

Louisiana conducted a pilot project with **cable median barriers**, which resulted in a significant benefit. **Two-thirds of fatalities in Louisiana are roadway departures**, so much energy goes towards reducing this crash type, and cross-median crashes are very detrimental. These sites are high-risk because they typically include high speed, loss of control, and are located in rural areas with no barriers or tree lines present and specific median widths. The **benefits are reduction of severity and potential for cross median crashes** due to a more forgiving material—cable versus concrete or guardrail. It is also more cost-effective. **Disadvantages** include **overrides and under rides**, **increased total crashes that include property damage**, and **costly maintenance**. When LaDOTD completed 105 miles of roadways with cable median barriers, the agency saw an increase in overall crashes, but a very high reduction in fatalities and severe injuries.

Louisiana also analyzed **enhanced delineation** and **HFSTs** on horizontal curves. They aggregated all of the crash data and saw that rural, two-lane roads have the highest risks. They identified the target crash type, roadway departure, and used statistics for different roadway characteristics to identify high-risk roadway features. The solutions included HFST, curve warning signs, 6-inch edge lines, and chevrons.

Minnesota Department of Transportation

MnDOT discussed **systemic safety improvements** using a public health model to describe **surrogates that can indicate risk**. Surrogates are road attributes, such as types of roadway segments, intersections, and dangerous curves that are typically linked to higher crash risk. The systemic approach encourages projects that leverage these surrogates to identify locations that may be unsafe. The institutionalized approach for safety focuses on high-crash areas. Minnesota has also leveraged surrogates to begin a conversation about identifying high-risk locations for systemic improvements that have not necessarily been high crash locations.

Minnesota found the most crashes on urban roadways occurred with higher Average Daily Traffic and are multi-lane, with four or more lanes. Minnesota also looked at rural roads, because they wanted to leverage this opportunity and make data-driven decisions. For example, **one project recommendation used a flow chart for lane departure crashes**. MnDOT then sat down with county engineers to see where the model failed, and made adjustments with location-specific knowledge. At selected project sites, they implemented cable median barriers.

Minnesota also **evaluated its systemic approach**, using data from before 2013 and results from 2014 and 2015 after the systemic approach was implemented. Minnesota found it **important to have data to support the systemic approach**. Minnesota also looked at bicycle and pedestrian crashes, and applied this logic to evaluate the projects that aligned with the systemic approach projects from 2013. Statewide results improved in 2014 and 2015.

Florida Department of Transportation

FDOT mainly focuses on **intersection, lane departure, and bicycle-pedestrian projects** for systemic implementation. Florida is a focus State for all three. New **countermeasures** are included in **design standards** and include systemic improvements such as lighting, countdown pedestrian signals, signal back plates, and striping. Systemic program implementation does not have a formal process. Florida's main obstacle to analysis and implementation is related to data needs. For example, Florida does not have curve data.

In an effort to compile and analyze curve data, Florida examined existing plan sets to compile basic curve data.

The second phase involves tying into its inventory of signs and ball-banking curves. It is a multi-year, multi-million dollar project to develop a systemic approach. Florida's **lane departure implementation plan** uses a more systemic approach and strategies have been implemented, including a **lighting project to address nighttime pedestrian crashes**. FDOT is tracking progress on a SharePoint site.

Facilitated Roundtable Discussion and Key Takeaways: Systematic Analyses

The roundtable discussion began with participants identifying current practices related to deploying systemic countermeasures in Virginia.

- In Virginia, **back plates for signals are now standard**. Virginia is also working on a new standard to **include flashing yellow arrows at traffic signals**. Details are provided in Virginia DMV's Driver's Manual.
- Virginia struggles with **project management of safety measures** because by the time a decision is made they must include change orders.
    - **Include placeholders in the contract for bike lanes** because a change order represents a long and expensive process.
    - Look into **using indefinite delivery**, **indefinite quantity**, or **on-call contracts**. Virginia has a budget for consulting but not for construction.
- Virginia is working to **improve impaired driving enforcement**. They have paid for full-time positions for DUI enforcement personnel. They are working to move forward and build initiatives with several different stakeholders to approach impaired driving from different angles.
- Recommendations to Virginia for **addressing unsignalized intersections** include:
    - Louisiana installs an intersection warning sign on the main line to bring attention to potential cross traffic.
    - Florida noted the following standard countermeasures for a 3-way stop control intersection: An oversized STOP AHEAD sign, enhanced striping, and reflective object marker signs opposing the minor leg.
    - For rural 2-way stop intersections with flashing beacons, Florida installs oversized STOP and "Cross Traffic Does Not Stop" signs and removes the beacons.
    - Minnesota includes flashing beacons for 4-way stop intersections only.
    - Minnesota is addressing high crash intersections with improved lighting, signing, and pavement markings.
    - Florida and Minnesota noted that drivers are confused by flashing beacons.

Key takeaways for Virginia from the peer States' presentations included:

- **Do not regard systemic and traditional approaches as competing**.
- **Invest in social norms** by tying messaging to national campaigns and partner campaigns.
- **Develop guidance for reviewing risk factors**, similar to Minnesota and as Louisiana did for cross-median crashes.
- **Improve standards**:
    - Use the *Manual on Uniform Control Devices* to address standards for signalized intersections.
    - Create rumble strip and stripe standards for less than optimal conditions. Standards may encourage implementation across the State and decrease costs. This can be a public relations opportunity to present this countermeasure as something that will save lives.
    - Develop a design for conflict warning systems, conduct more research, and include other States' design standards.

    - Research how crosswalk markings are related to land use on the primary roadway system.
- **Create a reporting tool** to track outputs at multiple locations that are not continuous. Tracking should focus on the places that are systemic to help develop standards.
- **Consider a primary versus a secondary law related to unbelted occupants** and include higher fines. These laws must be introduced by politicians—work with coalitions to educate politicians.
- **Fund communication consultants** to maintain websites.
- **Encourage DUI Task Forces** to focus on **social norming and positive messaging**.
- **Deploy countermeasures systemically.**
    - Investigate on-call contracts such as Indefinite Delivery/Indefinite Quantity (IDIQ) for signals. The number of signal locations is finite; IDIQ contracts would be more complicated for countermeasures such as rumble strips.
- **Police training:** Work with the Traffic Records Coordinating Committee on training enforcement for data collection and encourage insurance companies to join the conversation.

LESSONS LEARNED FROM THE PEER EXCHANGE AND ACTION PLANNING

Several commonalities between participating States emerged during the exchange. All participating States have used coalitions and DOT district offices to promote safety culture and improve safety program coordination. Louisiana and Minnesota have regional safety plans that reference the State's SHSP but include specific projects targeted to the region. Communications are a key component to successful programs, with specific committees coordinating initiatives to promote consistent messaging. Dashboards and tracking tools are used to keep stakeholders engaged and active in the SHSP development and implementation process. All three peer States promote systemic countermeasures in their programs for infrastructure improvements and behavioral program approaches. Additionally, all States coordinate closely with their Highway Safety Offices.

Virginia identified a list of action items to consider during the close of the two-day peer exchange. The key points are summarized here:

SHSP and Safety Culture

- Among peers, encourage making a strong safety culture the social norm; reach out to stakeholders and identify additional stakeholders; focus on positive messaging.
- Reinvigorate regional safety coalitions.
- Work to strengthen the TZD message; brand and market the SHSP.
- Institutionalize traffic safety in the work place.
- Train law enforcement officers on the importance of data collection.
- Improve data visualization to tell engaging stories about road safety.

SHSP and Coordination

- Improve SHSP tracking tool.
- Formalize coordination of highway safety efforts between regional GHSO and VDOT District Offices.
- Engage and empower law enforcement.
- Review other plans, like MPO plans; identify opportunities to provide feedback and integrate MPO plan objectives and insights with the State's SHSP.

Successful Countermeasures

- Investigate implementing a No Refusal Initiative.
- Work on establishing primary versus secondary seatbelt laws.

- Establish standards on conflict warning systems, cross walk markings, and bike-pedestrian strategies.
- Raise awareness about the effectiveness of J-turns; consider recruiting district offices to sponsor a pilot project.
- Establish DUI Task Forces.

District and Local Engagement

- Continue hosting training for locals including webinars and annual training.
- Share success of pilots that integrate safety projects with paving.
- Investigate and pilot streamlined project delivery and contract mechanisms.
- Align outreach with HSO efforts for grant solicitations.
- Share data and network screening tools.
- Work more with planning district commissions and MPOs.

Systemic Approach and Deployment

- Develop risk factors information.
- Consider reflective and oversized signs as well as advanced warning signs for unsignalized intersections.
- Develop new rumble strip and stripe standards; conduct outreach to raise awareness about changes.
- Learn more about mumble strips.
- Investigate better process for tracking systemic outputs and outcomes.

FHWA-SA-18-011

APPENDIX A: PARTICIPANT LIST

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APPENDIX B: EVENT AGENDA

VIRGINIA PEER EXCHANGE

CONTRIBUTIONS OF SHSP AND HSIP IN DRIVING DOWN FATALITIES

JULY 19-20, 2016 RICHMOND, VIRGINIA

DAY ONE: 8:00 a.m. – 5:00 p.m.

AGENDA			
8:00 a.m.	**REGISTRATION**		
8:30 a.m.	WELCOME AND INTRODUCTIONS	-	Virginia DOT (Chief Engineer) - Virginia FHWA Division, Jessie Yung, Acting Division Administrator
9:00 a.m.	WORKSHOP OVERVIEW • Peer Exchange Focus • Overview of Agenda	-	Karen King, FHWA Division Office, Jennifer Warren/Karen Scurry, FHWA Office of Safety
9:15 a.m.	HIGHLIGHTS OF VIRGINIA'S SHSP AND HSIP	-	Stephen Read, Virginia DOT - John Saunders, Virginia DMV
9:45 a.m.	Q &A		
10:00 a.m.	**BREAK**		
10:15 a.m.	SHSP AND SAFETY CULTURE	-	Peer States o Lora Hollingsworth, Florida o April Renard, Major Carl F. Saizan, Jr., Louisiana o Kristine Hernandez, Katie Fleming, Minnesota
11:00 a.m.	FACILITATED ROUNDTABLE DISCUSSION AND KEY TAKEAWAYS	-	All participants
11:45 a.m.	**LUNCH**		
12:45 p.m.	SHSP COORDINATION	-	Peer States o Joe Santos, Florida o Rudynah Entera Capone, Louisiana o Brad Estochen, Kristine Hernandez, Minnesota
1:45 p.m.	FACILITATED ROUNDTABLE DISCUSSION AND KEY TAKEAWAYS	-	All participants
2:30 p.m.	**BREAK**		
2:45 p.m.	SAFETY COUNTERMEASURE SUCCESSES • Infrastructure • Behavioral	-	Peer States o Joe Santos, Florida o April Renard and Major Carl F. Saizan, Louisiana o Brad Estochen, Kristine Hernandez, Minnesota
3:30 p.m.	FACILITATED ROUNDTABLE DISCUSSION AND KEY TAKEAWAYS	-	All participants
4:15 p.m.	ACTION PLANNING - Prioritize key takeaways/actions	–	All participants
4:45 p.m.	WRAP-UP		
5:00 p.m.	**ADJOURN**		

DAY TWO: 8:00 a.m. – 2:00 p.m.

AGENDA			
8:00 a.m.	WELCOME AGENDA FOR DAY 2	-	Virginia DOT Karen King, FHWA Division Office, Jennifer Warren/Karen Scurry, FHWA Office of Safety
8:15 a.m.	DISTRICT/LOCAL ENGAGEMENT	-	Peer States o Michael Lewis, Florida o April Renard, Louisiana o Brad Estochen, Minnesota
9:00 a.m.	FACILITATED ROUNDTABLE DISCUSSION AND KEY TAKEAWAYS	-	All participants
9:45 a.m.	**BREAK**		
10:00 a.m.	SYSTEMIC APPROACH/DEPLOYMENT	-	Peer States o Joe Santos, Florida o April Renard, Louisiana o Brad Estochen, Minnesota
10:45 a.m.	FACILITATED ROUNDTABLE DISCUSSION AND KEY TAKEAWAYS	-	All participants
11:30 a.m.	ACTION PLANNING - Prioritize key takeaways/actions	–	All participants
12:00 p.m.	WORKING LUNCH/CONTINUE ACTION PLANNING - Long and short term actions for Virginia to integrate into HSIP/SHSP (discuss benefits/barriers), champions	-	Virginia participants with input from peer states
1:45 p.m.	WRAP-UP		
2:00 p.m.	**ADJOURN**		