Commonwealth of Virginia's
Strategic Highway Safety Plan

2006-2010

FINAL DRAFT

Thank You!

Safety Partners

This Strategic Highway Safety Plan presents the combined efforts of Virginia's safety partners to improve transportation safety in the Commonwealth. The Virginia Department of Transportation would like to thank the following organizations for their participation in the creation of this plan.

The Surface Transportation Safety Executive Committee would like to extend a special thank you to the many individuals that took the time to comment and shape the future of transportation safety in Virginia.

"Together we will reduce injuries and deaths from crashes in Virginia"

AAA Mid-Atlantic
Alliance for Community Choice in Transportation
American Traffic Safety Services Association
Bike Walk Virginia
Commonwealth Transportation Board
DriveSmart Virginia
Eastern Virginia Medical School
Federal Highway Administration
Federal Motor Carrier Safety Administration
Hampton Roads Planning District Commission
Harrisonburg Transportation Safety Commission
Inova Fairfax Hospital
Mothers Against Drunk Driving
National Highway Transportation Safety Administration
Old Dominion University
Richmond Highway Safety Commission
Stafford County Transportation Commission
Supreme Court of Virginia
Thomas Jefferson Planning District Commission
Traffic Records Coordinating Committee
Transportation Safety Board
Virginia Alcohol Safety Action Program
Virginia Association of Chiefs of Police
Virginia Commonwealth University
Virginia Department for the Aging
Virginia Department of Education
Virginia Department of Health
Virginia Department of Motor Vehicles
Virginia Department of Rail and Public Transportation
Virginia Safe Kids
Virginia Sheriffs' Association
Virginia State Police
Virginia Tech
Virginia Transportation Research Council
Virginia Trucking Association
Virginia's Smart, Safe, and Sober Partnership
Washington Regional Alcohol Program

TABLE OF CONTENTS

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Executive Summary

In the past, the Commonwealth of Virginia has viewed motor vehicle crashes as mainly a transportation issue. Injuries and deaths were compared using traditional transportation-oriented measures such as the number of vehicle miles traveled (VMT), the level of congestion, or the type of facility. Virginia has the 12th safest system in the country by these measures and our death rate has shown a reduction over time. However, this death rate reduction has been due to increased vehicle miles traveled, not from reducing the actual number of people injured or killed. Safety experts from across the country are adopting a multi-perspective approach by changing from a transportation-based measure (crashes per million VMT) to a health-based measure (per 100,000 population).

Transportation safety public policy in the United States as well as Virginia has focused on crash survivability and not crash prevention. Although significant progress has been made in improving vehicle and roadway safety; driver behavior has become worse, allowing other countries to surpass us in making significant reductions in injuries and deaths from motor vehicle crashes[1]. To match or exceed our counterparts in the industrialized world, focus must be shifted to correcting poor driver behavior and providing information about unexpected roadway and traffic conditions ahead. Intensified traffic law enforcement followed by strong adjudication is necessary to correct poor driver behavior. Engineering measures and vehicle safety improvements will continue to have long term safety benefits as they take longer to deploy.

In this plan, one can find the combined efforts of all safety partners in Virginia to improve traffic safety in Virginia. A multi-perspective approach is adopted to identify problems in three emphasis areas: human factors, environmental and fundamental. State-of-the-art countermeasures are put forward to address these problems based on current research, intense discussions with safety partners, and past experience.

The top plan highlights to reduce injuries and deaths in Virginia are identified as:

- Raise public awareness and develop a safer driving culture
- Focus on teen drivers, aggressive drivers, impaired drivers and seat belt use through legislation, education, enforcement, and adjudication.
- Improve intersection safety for all users in congested areas
- Keep drivers on the roadway and minimize the consequences if they depart
- Incorporate transportation safety planning into all levels of government
- Improve traffic records system to be more current and accurate.

With strong support from our safety partners, and the citizens of the Commonwealth of Virginia, we are confident that the implementation of this plan will bring transportation safety in Virginia to a new level and ultimately realize the goal of providing the safest transportation system in the country.

Introduction

Background

In the past, the Commonwealth has viewed motor vehicle crashes as mainly a transportation issue. Historically, injuries and deaths from motor vehicle crashes have been compared using traditional transportation-oriented measures such as the number of vehicle miles traveled, the level of congestion, or the type of facility. Virginia has the 12th safest system in the country by these measures and our death rate shows a reduction over time. However, in the past decade Virginia's reduction in death rates has been due to the increased number of vehicle miles traveled, not the number of people injured or killed being reduced. Safety experts from across the country are changing from a transportation-based measure (VMT) to a health-based measure (per 100,000 population).

While much progress has been made, we must adopt a multi-perspective approach to make further gains in transportation safety within Virginia. Over the past decade, there have been 1.4 million crashes causing 805,000 injuries and 9,200 deaths with an annual cost estimated at $5.5 billion. For the decade, there were more deaths than the populations in any one of the following towns or cities: Norton, Emporia, Bedford, Covington, Buena Vista, Galax, Lexington, or Franklin. Since this affects our residents and visitors, we must raise transportation safety as one of the Commonwealth's top public health issues.

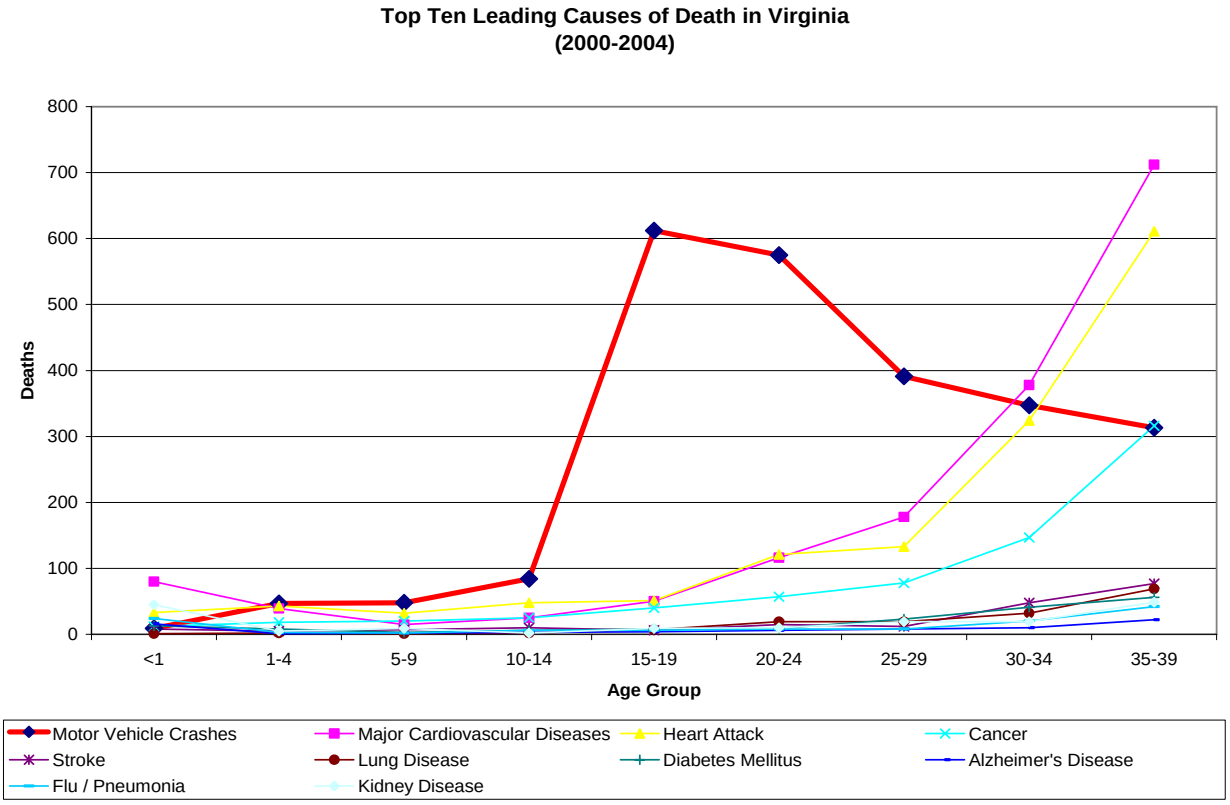
Transportation Safety as a Health Issue

Motor vehicle crashes affects our citizens, particularly our youth, more than any disease or crime. According to NHTSA's Top 10 Leading Causes of Death in the United States, for ages 4 through 34, crash deaths were first over heart disease cancer, stroke, homicides, suicide, drowning, poisoning, falls, fire, HIV or diabetes[2]. Figure 1 shows that for ages 1 through 29 crashes are the leading cause of death in Virginia. Crash victims are usually working age adults whose families are often left without a primary source of financial support. Crashes substantially impact the local community by way of medical costs, lost wages, insurance costs, taxes, police, fire and emergency services, legal and court costs as well as property damage. These crashes rob our families of their dreams and aspirations and replace them with unforeseen economic burdens, physical disabilities, and mental anguish.

Safety Facts: Annually in Virginia, because of motor vehicle crashes:

- 1 in 91 is injured[4]
- 1 in 198 is sent to the hospital for treatment[4]
- 1 in 282 is incapacitated[4]
- 1 in 7,850 is killed[4]
- Virginia's annual death rate is 12.4 per 100,000 residents[4], higher than the worldwide average (34 reporting countries) of 11.7[3] and the best state at 7.2 per 100,000.
- Virginia's injury rate is 1049 per 100,000 residents[4], which is higher than the U.S. average of 950 per 100,000[7].
- Figure 2 shows severe crashes by county and city. Half of all of Virginia's severe crashes occur in 13 populated jurisdictions.

Truly, this is one of Virginia's top public health concerns.



Source: Virginia Department of Health, Center for Health Statistics

Figure 1: Top Ten Leading Cause of Death in Virginia

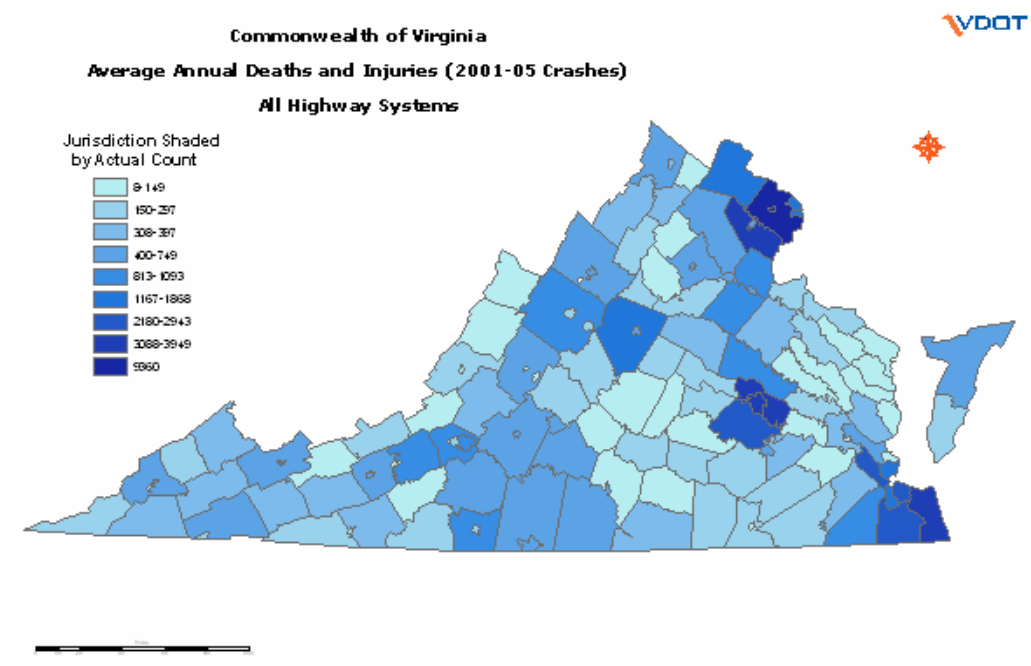


Figure 2: Virginia Average Annual Injuries and deaths by Jurisdiction Formation of the VA Surface Transportation Safety Executive Committee

In reaction to this public health crisis, a multi-secretariat committee has been formed to create, implement, and evaluate the Commonwealth's Strategic Highway Safety Plan. This committee's role is to ensure consistent communication and cooperation between all safety stakeholders into an integrated action plan. The purpose of the plan is to identify Virginia's key safety needs and guide investment decisions to achieve significant reductions in deaths and serious injuries on all public roads. The plan was developed by the Virginia Department of Transportation (VDOT) in a cooperative process with federal, state, local, and private sector safety stakeholders, and its implementation will:

- Address our safety challenges on all public roads so that safety programs can align and leverage the Commonwealth's resources across all stakeholder programs.
- Provide a comprehensive framework, with specific data-driven goals, objectives, and emphasis areas for reducing highway deaths and serious injuries on all public roads for the next five years.
- Integrate the four-E approach of transportation safety - Engineering, Education, Enforcement and Emergency medical services (EMS).
- Improve travel time reliability and congestion by decreasing crashes.

Mission Statement

To save lives and to reduce injuries related to motor vehicle crashes through the integration of education, enforcement, engineering, and emergency response actions.

Vision Statement

To become the safest surface transportation system in the country for all modes by 2025.

Virginia's 2010 Goal

To reduce from 2005 levels, the annual number of injuries and deaths due to motor vehicle crashes by 275 deaths and 16,000 injuries by 2010.

This reduction goal is based upon the implementation of many of the strategies identified in this plan. Many of the public policy strategies that focus on poor driver behavior and provide drivers with advanced information about the roadway are required to meet these ambitious goals.

Virginia's Transportation Safety Charter

WHEREAS, the Commonwealth of Virginia seeks to identify and seize all opportunities to enhance the safety of Virginia's surface transportation system by reducing the risk of deaths, injuries, and crashes;

WHEREAS, the United States Congress enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit from 2005-2009;

WHEREAS, SAFETEA-LU establishes a new core Highway Safety Improvement Program that is structured and funded to make significant progress in reducing highway injuries and deaths and creates a positive agenda for increased safety on our highways by almost doubling the funds for infrastructure safety and requiring data driven, results-oriented strategic highway safety planning effort to create an effective integrated and coordinated transportation safety program;

WHEREAS, Virginia established through interagency agreement in January 1999, the Safety Management System Executive Committee;

WHEREAS, Virginia is preparing a new Strategic Highway Safety Plan to meet the current safety challenges for the following elements: driver behavior, special users, bicyclists and pedestrians, intersections, roadway departures, work zones, traffic records, and transportation safety planning;

THEREFORE, be it resolved that the parties to this agreement will commit to continue their support of the work of the Surface Transportation Safety Executive Committee, which includes representation as follows:

The *Executive Steering Committee* shall be comprised of the following agencies:

- Commission of the Virginia Alcohol Safety Action Program (VASAP)
- Department of Education (DOE)
- Department of Health (VDH)
- Department of Motor Vehicles (DMV)
- Department of Transportation (VDOT)
- Virginia State Police (VSP)

Ad hoc Membership shall include:

- Department for the Aging
- Department of Rail and Public Transportation (DRPT)
- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- National Highway Traffic Safety Administration (NHTSA)
- Virginia Transportation Research Council (VTRC)

The Committee shall be co-chaired by VDOT and DMV representatives and shall meet quarterly, at a minimum, although the co-chairs may call special meetings as they determine to be necessary.

The purpose of this Committee shall be to reduce the number of injuries and deaths from motor vehicle crashes in the Commonwealth through the integration and coordination of all transportation safety programs, in particular those programs established to comply with the mandates outlined in SAFETEA-LU and the National Highway Safety Act of 1966.

The general tasks to be preformed by this Committee are as follows:

1. Establish statewide surface transportation safety goals and objectives.
2. Prepare and update the Commonwealth of Virginia's Strategic Highway Safety Plan to reduce the number and severity of traffic crashes by coordinating and integrating broad-based programs into a single plan.
3. Ensure that all opportunities to improve highway safety are identified, prioritized, supported, and implemented as appropriate and evaluated in all phases of enforcement, education, engineering, and emergency response.
4. Regularly gather, analyze, and distribute information for selecting and implementing effective highway safety strategies and projects.
5. Establish multi-disciplinary subcommittees, such as the Traffic Records Coordinating Committee, and develop communication plans as needed, to review, recommend, implement and report on safety emphasis areas.
6. Monitor and report performance annually related to the implementation of the Strategic Highway Safety Plan.

The Honorable Pierce Homer Secretary of Transportation	Date
The Honorable John Marshall Secretary of Public Safety	Date
The Honorable Thomas Morris Secretary of Education	Date
The Honorable Marilyn Tavenner Secretary of Health and Human Resources	Date
Senator Henry L. Marsh, III VASAP Commission Chair	Date

Virginia's Transportation Safety Emphasis Areas

Providing the most efficient and safest surface transportation facilities is of critical importance. The primary performance measures for transportation safety are reductions in the annual number of injuries and deaths that occur statewide. To enhance and to ensure that Virginia's highway facilities are among the safest in the world, the committee selected three emphasis areas to direct our safety programs. The following emphasis areas provide the substance of the Strategic Highway Safety Plan:

Human Factors Emphasis Area

- Driver Behavior
- Special Users
- Pedestrian and Bicyclist Safety

Environmental Emphasis Area

- Intersection Safety
- Roadway Departures
- Work Zone Safety
- Pedestrian and Bicycle Safety

Fundamental Emphasis Area

- Traffic Records
- Transportation Safety Planning

The plan's elements were developed using Virginia crash data from 2001 to 2005. Figure 3 and 4 show a relative comparison between the different crash factors identified in the plan. It is important to note that these factors are not mutual exclusive and may have varying degrees of overlap.

Motor Vehicle Crash Deaths by Factor (2001-2005)

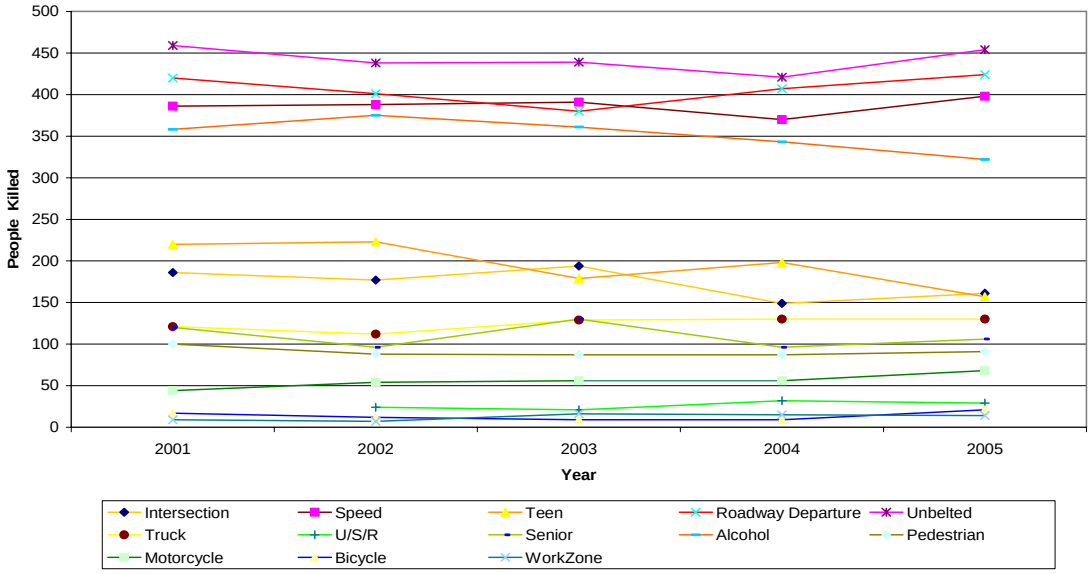


Figure 3 Motor Vehicle Crash Deaths by Factor (2001-2005)

The ***human factors*** emphasis area deals directly with how the user interacts with others in various traffic, roadway, and weather conditions. Other countries have achieved significant reductions in crashes by focusing on correcting poor driver behavior and providing timely information about the roadway ahead. U.S. policy has focused on crash survivability, not crash prevention by focusing safety improvements on the vehicle and roadway. Virginia public policy should address poor driver behavior, such as aggressive driving, impaired driving, and low seat belt use through legislation and adjudication. Special user groups have been identified to include young drivers, older drivers, motorcyclists, and commercial vehicle drivers. All have particular risky behaviors or needs that must be addressed to reduce injuries and deaths from motor vehicle crashes. Lastly, pedestrians and bicyclists are the most vulnerable users in our transportation system and need particular attention and accommodation.

Motor Vehicle Crash Injuries by Factor
(2001-2005)

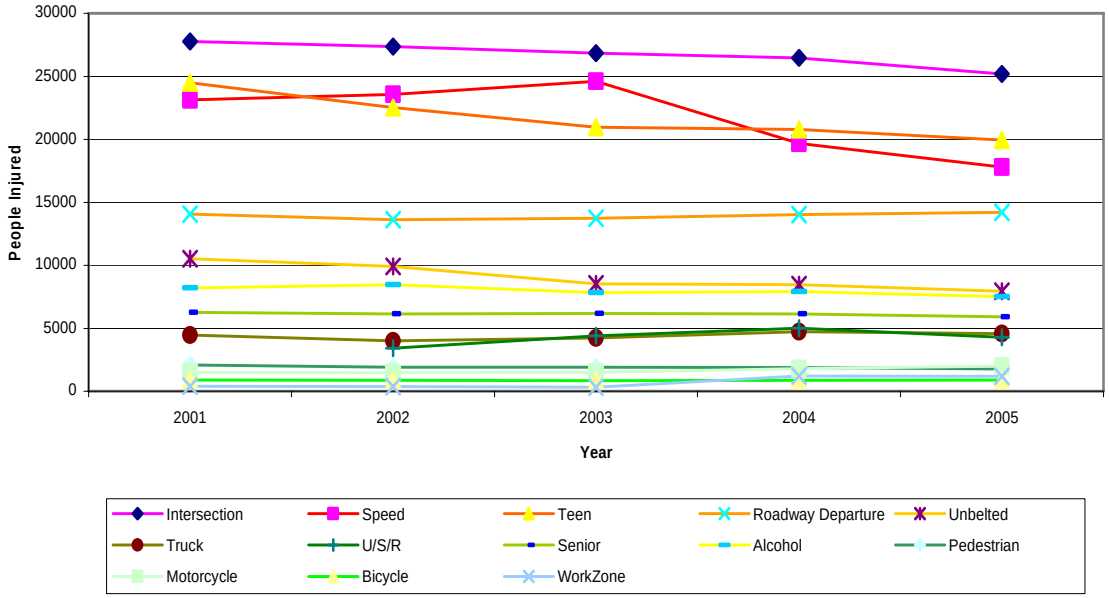


Figure 4 Motor Vehicle Crash Injuries by Factor (2001-2005)

The ***environmental*** emphasis area relies heavily on engineering measures; however, without improvement in human factors the measures implemented will not be effective. Intersection safety points towards the most critical part of the roadway network. Vehicles, pedestrians, and cyclists are all required to use the same intersection space, and crashes can only be avoided if the various users are separated by time. Roadway departures typically result in more severe crashes when compared to other crash types. Reducing the number of drivers leaving the roadway and minimizing the consequences of leaving the roadway are paramount. Work zone safety is also critical due to the additional presence

of construction workers and equipment. As the existing roadway network is reconstructed, the number of work zones will increase. Bicycle and pedestrian networks need to be established or improved where the density and mix of land use and transit suggest that focused accommodations would improve safety.

The ***fundamental*** emphasis area identifies Virginia's safety needs and focuses on defining our safety performance. Timely traffic records are needed for better analysis, problem identification, and planning. Safety measures need to be integrated into all of Virginia's planning processes so that resources are properly directed to address both human factors and environmental problems.

Public Outreach

From the very beginning, this process has included citizen input. Subject matter experts from the Commonwealth, including the private sector and even retirees, have come together to craft this plan. In November 2005, a multi-agency working group formed to lead this safety planning effort. Research and literature reviews synthesized other states' and countries' best practices. Public outreach began with stakeholder surveys and experts from around the state were enlisted based on their willingness to serve. Technical work groups formed to brainstorm the latest tools and strategies within particular emphasis areas. The work groups created a first draft for distribution to the Virginia Surface Transportation Safety Executive Committee. Released to the public in May, a working draft received over 1,200 additional comments. Public interest in transportation safety is high.

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PLAN ELEMENTS

Human Factors Emphasis Area:

Driver Behavior

Problem Identification

Aggressive Drivers

Aggressive driving is increasing in seriousness. In an average year, 41% of deaths (387 people) and 28% of injuries (21,700 people) involved speeding in Virginia. 7,600 drivers were cited for following too close, 23,400 were cited for failure to yield and 26,000 drivers were cited for running traffic control[6]. The National Highway Traffic Safety Administration (NHTSA) defines aggressive driving as the operation of a motor vehicle in a manner which endangers or is likely to endanger persons or property[8]. According to AAA surveys[8], both drivers and law enforcement perceives that the aggressive driving is becoming more frequent. Lack of responsible behavior, lack of adequate enforcement resources to address poor driver behavior; and increased congestion have all contributed to this increase.

A wide range of views exist between judges in whether reckless driving laws are sufficient or if there is a justified need for the existing aggressive driving legislation. Adjudication of aggressive driving charges has often resulted in reckless driving-type sentencing, thereby minimizing the stigma of aggressive driving to the public and media. Another contributing factor is the marketing of high performance vehicles by manufacturers often glamorizes speed and fails to note the danger or illegality of behavior depicted in the advertisements. What the consumer views on their televisions is not legal on public roads anywhere in the country.

Occupant Protection

In an average year, 48% of deaths (442 people) and 11% of injuries (9,100 people) are unbelted[4]. A major concern is the need to increase safety belt use among occupants 15-25 years of age. These young occupants comprise 45% of the unbelted injuries and deaths The reluctance to use a safety belt can be attributed to several factors, such as cultural/ethnic diversity, feelings of invincibility, geographical and environmental differences, and socio-economic background. In addition, proper use of booster seats for children ages 4-8 is a concern.

Increased safety belt use would reduce medical expenses, improve the quality of life, and reduce lost productivity. Safety belts save lives; a person is four times more likely to die in a crash when unbelted. Safety belt use also reduces the incidence of serious injury by approximately 50%.

Virginia does not have a primary safety belt law for occupants over the age of 16. Studies suggest that safety belt use has improved by approximately 9-18% in states that have instituted primary safety belt laws[13,14]. In surveys conducted over several years, 70-80% respondents support a primary safety belt law in Virginia.

Impaired Drivers

Driving under the influence of alcohol or other drugs continues to be a major factor in injuries and deaths caused by crashes within the Commonwealth. In an average year, 38% of deaths (352 people) and 10% of injuries (8,000 people) involved drinking[4]. Each year impaired driving costs Virginians approximately $707 million[4]. For teen drivers, underage drinking is a significant problem. In 2005, 809 teens were injured and 32 died as a result of impaired driving[4]. The exact extent to which distracted and drowsy driving contribute to crash-related injuries and deaths is not known; however, these two types of impaired driving behaviors are addressed by this plan.

Drunk or drugged drivers seldom realize the pain and suffering their actions impose on the victims of their behavior. More information is need to determine the extent to which drunk or drugged driving offenders do not appear in court or fail to comply with court-imposed requirements. Methods and mechanisms are also needed to detect offenders who have multiple serious offenses relating to vehicle operation.

A central contributing factor to impaired driving due to underage drinking is the sale of alcohol products to minors. In 2005, Virginia's ABC Retail stores percentage of alcohol sales to minors was 2%[9]. In Virginia's licensed establishments, the percentage of alcohol sales is higher at 11%. 65% of youth obtain the alcohol they drink from their parents or friends[10]. In many instances, underage and college-age impaired driving can be attributed to abuse of alcohol products.

Innovative programs are needed to ensure rehabilitation serves the needs of impaired driving offenders through better prevention, intervention and treatment techniques. Proposed programs need to be based on best practices and reflect current ideas that have proven to be successful in research-proven methods to alter or reduce destructive behaviors. A stable source of revenue is needed to fund programs to abate dangerous behaviors exhibited by impaired drivers.

Unlicensed / Suspended / Revoked Drivers

Virginia has a driver licensing program that is charged with ensuring the competency of drivers who are issued a license to operate on our roadways. In 2005, unlicensed, suspended or revoked drivers were involved in 7,382 crashes causing 4,297 injuries and 29 deaths in Virginia[5]. There are two groups who continue to drive without proper licensure: habitual offenders and unlicensed drivers. It is estimated that three-fourths of suspended or revoked drivers continue to drive. Nationally, they are over-represented in violations and crashes by over 3 to 1[11]. Undocumented immigrants or others avoiding detection make up a large segment of the unlicensed driver population.

Major Strategies

Aggressive Driving

1. Attack aggressive driving in the Commonwealth through increasing the number of targeted driver improvement programs. Educate the public about ways to prevent events that trigger aggressive driving acts, including the development of anger management skills. (Lead Coordinator: DOE, DMV, VASAP)
2. Increase public awareness of aggressive driving behaviors and their destructive consequences around automobiles, trucks and buses and in work zones. (Lead Coordinator: DMV)
3. Implement Smooth Operator program as a statewide program with all the essential support and resources. The program addresses aggressive driving through a press conference kickoff and four week-long enforcement waves that involve the states of Virginia and Maryland and Washington, D.C., along with federal agencies and the private sector. The program addresses the following driving actions that demonstrate disregard for safety:
    - Running red lights and stop signs
    - Following too close
    - Changing lanes unsafely
    - Failing to yield right of way
    - Improper passing
    - Speeding and
    - DUI/DUID

    To combat these actions, an intensive state-wide education and media campaign, in conjunction with increased law enforcement to reinforce the negative consequences of aggressive driving is used. All drivers, including truck and bus drivers, are the targeted audience. (Lead Coordinator: DMV, VSP)
4. Work with the General Assembly to adopt the use of advanced tools and techniques to support enforcement efforts. (Lead Coordinator: VSP)
5. Create a safety social culture that stigmatizes aggressive driving as a socially unacceptable behavior through public awareness, increased law enforcement, stiffer penalties for lawbreakers and behavioral intervention. (Lead Coordinator: DMV)

6. Implement appropriate timing of traffic signal devices, progression, and the installation of signal systems that smooth traffic flows and minimizes stops and starts. (Lead Coordinator: VDOT)

Occupant Protection

1. Encourage the General Assembly to pass a primary seat belt law. No other safety device has the potential for immediately preventing injuries and deaths in motor vehicle crashes. The District of Columbia and 22 states have enacted primary seat belt laws (Lead Coordinator: DMV).
2. Encourage the General Assembly to pass child passenger safety legislation to meet NHTSA recommended guidelines for booster seats. (Lead Coordinator: DMV, VDH)
3. Continue public education and enforcement campaigns such as "Click it or Ticket". Safety belt use has increased measurably since the beginning of "Click It or Ticket". In 2005, Virginia recorded an 80% use rate[12]. While this is an all time high for Virginia, it is still slightly below the 82% national use rate. Continue to aggressively pursue "Click it or Ticket" for the foreseeable future with an aim at achieving a minimum 85% use rate in the 2006-07 year. (Lead Coordinator: DMV)
4. Continue to partner with the military community, which has such a large presence in Virginia and includes one of the largest concentrations of 18-25 year olds. (Lead Coordinator: DMV, Dept. of Military Affairs)
5. Continue education programs on the correct installation of child safety seats. (Lead Coordinator: VDH)
6. Conduct corridor-based seat belt enforcement campaigns on corridors that traverse multiple jurisdictions. (Lead Coordinator: VSP)

Impaired Driving

1. Determine the feasibility and impact of creating a dedicated funding stream (supported through fines and user fees) to support local DUI enforcement programs, public education campaigns and substance abuse prevention, intervention and treatment services. (Lead Coordinator: DMV)
2. Study means to identify and recommend methods for creating regular, periodic reports to law enforcement and court personnel regarding vehicle impoundments to help local officials identify individuals who have committed previous serious offenses. (Lead Coordinator: DMV)
3. Develop and implement a statewide alcohol server education program to promote responsible alcohol service and consumption. (Lead Coordinator: VA ABC)
4. Expand enforcement, training and education programs for alcohol retailers to help prevent underage purchases of alcohol. (Lead Coordinator: VA ABC)
5. Reduce excessive drinking and underage drinking by leveraging the Responsible Servers and Sellers Program (RSVP) and Managers Alcohol Responsibility Training (MART) to develop a policy for ABC licensees to address underage drinking issues they face in their establishments. (Lead Coordinator: VA ABC)
6. Develop a long-term plan designed to increase the availability of DUI and BUI (boating) intervention and treatment services and identify successful programs and approaches. (Lead Coordinator: Substance Abuse Services Council, VASAP)This plan should:
    a. Identify resources and document lead organizations for program implementation;
    b. Recommend methods to increase the availability and intensity of effective intervention and treatment programs to expand the range of available options for judges;
    c. Recommend a coordinated system to conduct or catalog substance abuse needs assessments, by locality, for youth and at-risk populations to document problems, measure progress and guide resource allocation decision-making; and
    d. Identify prevention, intervention and treatment approaches and programs that have documented success.
    e. Identify and promote standardized substance abuse screening tools and treatment programs to enhance intervention and reduce recidivism rates.
    f. Identify and promote standardized assessment tools that can be used by all service providers to match individuals to appropriate intervention and treatment programs

(specifically targeting repeat offenders and those with high blood alcohol concentrations).

7. Expand efforts to create and support community and college coalitions designed to prevent underage and excessive drinking. (Lead Coordinator: VA ABC)
8. Enforce DUI laws by publicizing and enforcing zero tolerance laws for drivers under 21 including programs such as Checkpoint Strikeforce, None for the Road, Holiday Lifesaver Weekend, and on-going selective enforcement projects conducted throughout the Commonwealth. (Lead Coordinator: VSP)
9. Work with the Supreme Court and General District Courts to explore the feasibility of initiating policies and procedures to increase the percentage of court appearances on DUI dockets where problems exist. (Lead Coordinator: VASAP)
10. Encourage local ASAP offices to use victim impact panels. Panels would be composed of volunteers who are willing to discuss with offenders the direct impact that impaired driving and boating had on their lives. (Lead Coordinator: VASAP)
11. Pilot a DUI work release jail program that integrates education and treatment for repeat and high BAC offenders. Serve as an information resource for jails considering programs that integrate education/treatment with incarceration and work release. (Lead Coordinator: VASAP, VDOC).
12. Ensure that the Supreme Court and individual General District Court judges are familiar with the DUI Court concept and encourage, when appropriate, the creation of specially designed DUI Courts and/or Dockets. (Lead Coordinator: VASAP)
13. Study the feasibility of instituting a conformance bond system that would provide a financial incentive to offenders to comply with court orders by returning a portion of the bond upon successful completion of all requirements. (Lead Coordinator: VASAP)
14. Ensure that prosecutors and judges understand that plea bargaining and other diversionary strategies, that fail to fully prosecute DUI offenders, often prevent these offenders from receiving much needed education and treatment interventions from organizations like VASAP. (Lead Coordinator: VASAP)
15. Prosecute, impose sanctions on, and treat DUI offenders by eliminating diversion programs and plea bargains to non-alcohol offenses. (Lead Coordinator: Commonwealth's Attorney)
16. Control high-BAC and repeat offenders by monitoring all VASAP-referred DUI offenders closely and incarcerating offenders. (Lead Coordinator: VASAP, DMV, Commonwealth's Attorney)
17. Encourage the General Assembly to pass appropriate legislation that encourages safe driving habits by targeting drunk, drugged, distracted, or drowsy drivers. (Lead Coordinator: DMV)
18. Provide adequate resources for raised levels of law enforcement and technology where severe crash trends exist. (Lead Coordinator: VSP)
19. Encourage the courts to provide appropriate levels of adjudication, such that judges send a clear message about intolerance towards aggressive driving, driving under the influence, and occupant protection. Penalties should be swift and certain. (Lead Coordinator: VASAP)
20. Continue Checkpoint Strikeforce through saturation patrols and checkpoints. This Campaign is held semi-annually to reduce incidence of drunk driving in Virginia via raising awareness of sobriety checkpoints (Lead Coordinator: DMV). The objectives include:
    - Incorporate state and local law enforcement partners via radio campaign to communicate a number of proactive transportation safety messages;
    - Help increase visibility of sobriety checkpoints; and
    - Educate about drunk driving laws and how drunk driving impacts peoples' lives. Increase perceived risk of arrest for drunk driving in Virginia;
    - Target high-risk drivers (21-35 years of age);
    - Build community support for sobriety checkpoints as a means to identify and apprehend drunk drivers;
21. Provide safe rest areas by improving access as well as security and services in rest areas. (Lead Coordinator: VDOT)
22. Increase driver awareness of the risks of drowsy and distracted driving and to promote driver focus (Lead Coordinator: DMV) by:
    - Conducting education and awareness campaigns targeting the general driving public;

- Enforcing statutes to deter distracted and drowsy driving;
- Incorporating information on distracted and drowsy driving into education programs and materials for young drivers; and
- Encouraging employers to offer fatigue management programs to employees working nighttime or rotating shifts.

23. Increase the 1st offense Administrative License Revocation from 7 to 90 days. (Lead Coordinator: DMV)
24. Institute a suspension period after conviction and before restricted licensing to 30-days or longer. (Lead Coordinator: DMV)
25. Adopt an Open Container Law that meets the criteria outlined by NHTSA. (Lead Coordinator: DMV)

Unlicensed / Suspended / Revoked Drivers

1. Increase the effectiveness of license suspension/revocation (Lead Coordinator: VSP).
   - Routinely link citations to driver record.
   - Create a hot sheet of U/S/R drivers for local law enforcement distribution.
   - Increase enforcement around high risk "hit & run" areas.
   - Stripe or impound U/S/R license plates.
   - Install ignition interlock devices in U/S/R vehicles / monitor electronically.
   - Seize vehicles / incarcerate.
2. Define and implement the strategies that most effectively keep suspended/revoked drivers off of the road (Lead Coordinator: DMV).
3. Develop a model problem-driver identification program (Lead Coordinator: DMV, VSP).
4. Develop and deploy an informal assessment system that drivers/families/medical personnel can use to assess an individual's capability to drive safely (Lead Coordinator: DMV).
5. Link states using databases of driver records and relevant risk factors (Lead Coordinator: DMV).
6. Develop and provide technical aids, such as simulators and electronic media, for private self-assessment and improvement of driver skills (Lead Coordinator: DMV).
7. Enhance the competency of drivers through an improved renewal system (Lead Coordinator: DMV).

Challenges

1. Aggressive Driving – Public Education – Some believe that aggressive driving is a "police problem" that can be solved simply by enforcing the existing laws. By vigorously enforcing speed limits it is perceived that a major component of aggressive driving is being properly managed. The public tends to see only one act as constituting aggressive driving and not the compilation of more than one act which the Virginia code describes.
2. Increasing seat belt use rates has several challenges. Changing cultural norms through education to reach various ages, languages, and incomes will continue to be a challenge. Providing enforcement with the proper legislative tools is currently the major issue.
3. Focus, funding, and manpower of law enforcement resources have become a bigger challenge in the last several years as homeland security has taken center stage. The availability of resources and participation at the local level is particularly important for many enforcement programs to be effective.
4. The barrier of people taking motor vehicle deaths as a public health issue must also be faced. The public must realize that motor vehicle-related injuries and deaths affect over 80,000 people a year in Virginia and that this is a public health issue.
5. Ensuring that agencies do not implement design and control systems that deliberately conflict with driver and pedestrian human factor expectations. When identified after implementation, they should be removed to prevent future injuries and deaths. Resources should be placed in the design phase to eliminate these problems and to meet human factor requirements prior to implementation.

6. Courts are understaffed and do not have the manpower that would be needed to implement programs and to that would increase the percentage of court appearances on DUI dockets.
7. VASAP would have to create an administrative mechanism to manage volunteer victim panelist participation.
8. The costs associated with a DUI work release jail program that integrates education and treatment for repeat and high BAC offenders is projected to be $1,000,000 per year. This would be prohibitive without grant support. Similar programs operate on a cost-neutral basis, recouping their expenses through payment of fees and third-party insurance reimbursements.
9. Projected costs for each specially-designated DUI court or docket include an additional 78 hours of judicial time per 100 DUI convictions annually, 91 hours of additional court clerk time per 100 DUI convictions annually, and one additional ASAP community corrections case manager per 200 DUI convictions.
10. The Courts have not been responsive to the requests of the National Center for State Courts to undertake the study of implementing a conformance bond system. The system would require administrative costs that the courts may not be able to recoup.

Injuries and Deaths Targeted

Emphasis on changing driver behavior targets reducing crashes attributed to aggressive and impaired drivers and increasing the number of occupants using safety belts.

Aggressive Drivers

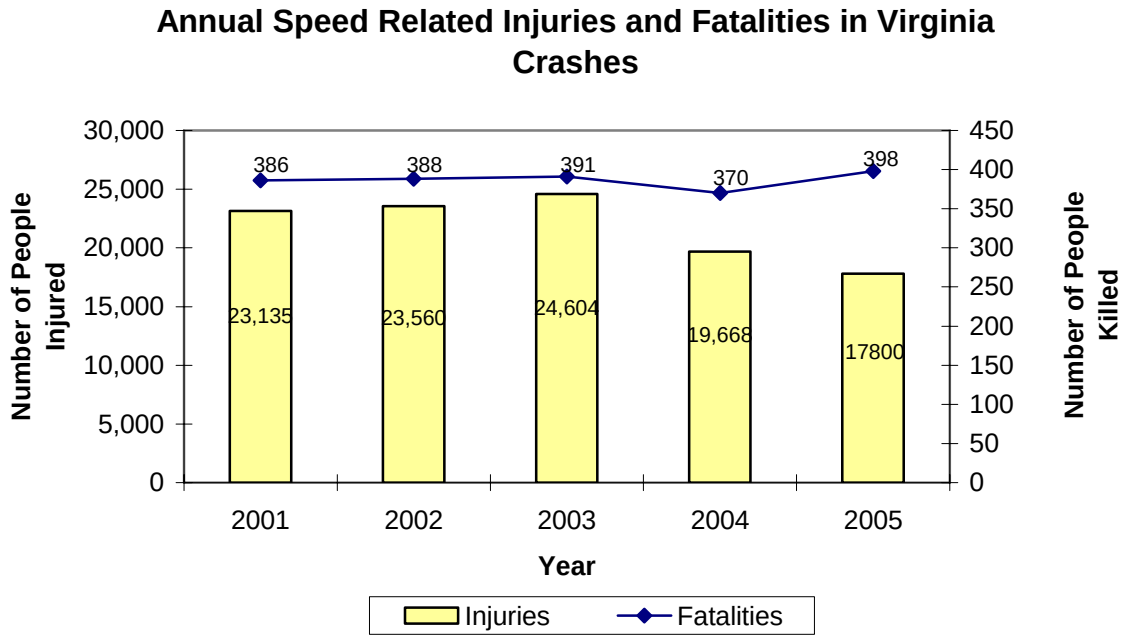

Figure 5 Annual Speed Related Injuries and Fatalities in Virginia Crashes

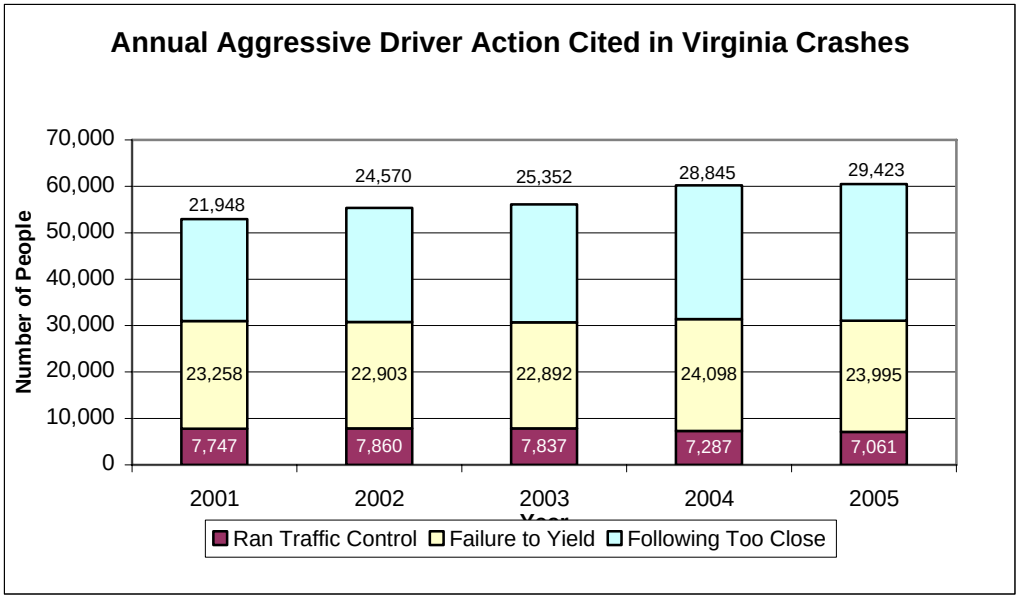

Figure 6 Annual Aggressive Driver Action Cited in Virginia Crashes

Occupant Protection

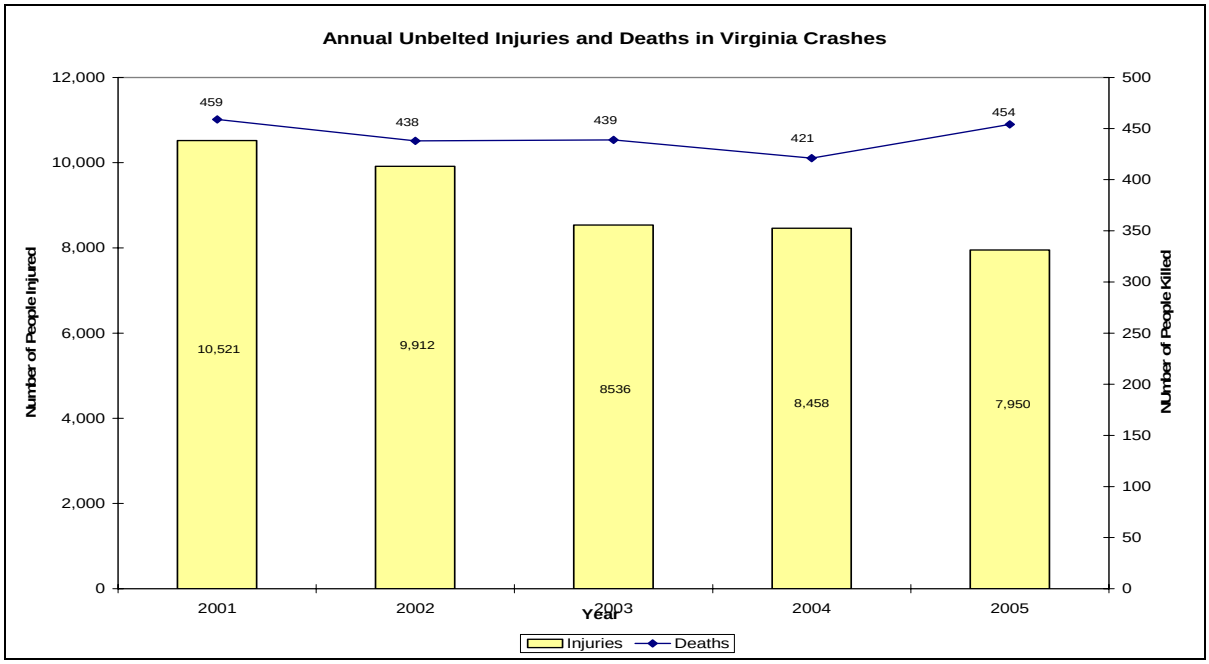

Figure 7 Annual Unbelted Injuries and Deaths in Virginia Crashes

Impaired Driving

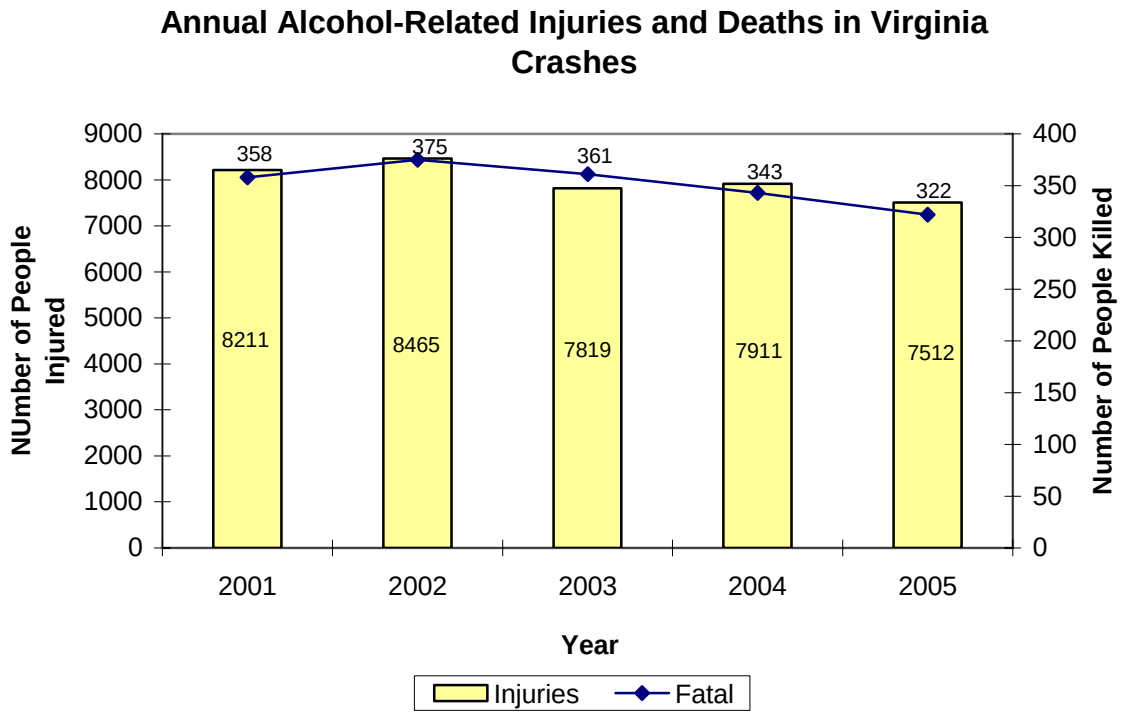

Figure 8 Annual Alcohol-Related Injuries and Deaths in Virginia Crashes

Unlicensed / Suspended / Revoked Drivers

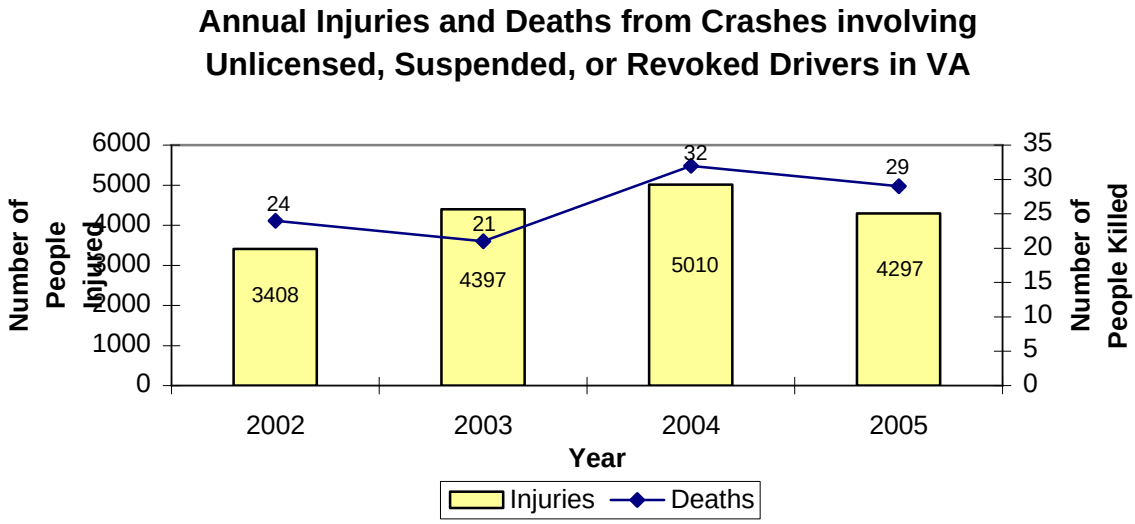

Figure 9 Annual Injuries and Deaths from Crashes involving Unlicensed, Suspended, or Revoked Drivers in Virginia

Human Factors Emphasis Area:

Special Users

Problem Identification

The following user groups need special attention due to their existing or potential over-representation in severe crashes.

Teen Drivers – Drivers are at the highest risk of a crash before the age of 21. Teen drivers have problems with speed, distractions, driver inexperience, safety belt use, and for some, drugs and alcohol. In an average year, 21% of deaths (195 people) and 28% of injuries (21,800 people) involved people under 21 in Virginia[6].

Senior Drivers –Senior drivers, also known as mature or older drivers, have driven for years and develop driving challenges due to eyesight weakness, hearing loss, cognitive impairment, dementia, prescription drug interactions, and slowing reflexes. On average, drivers over age 70 experience annually approximately 4,200 injuries and 100 deaths from motor vehicle crashes statewide[6]. Some seniors experience high severity crashes due to frailty, not necessarily having more severe crashes than other age groups. Education and driving evaluation/assessments can mitigate the severity of these crashes. statewide[6]

Commercial Vehicles Operators (CVO) – In an average year, large truck- involved crashes injure about 4,400 people and result in about 120 deaths each year[6]. Commercial Vehicle Operators may have problems such as speeding, equipment violations, excessive driving hours, and drug and alcohol use problems. There is no data in Virginia that documents the usage of safety belts in commercial vehicles.

Motorcycle Operators – There are 3 distinct groups of motorcycle riders: inexperienced riders, lifetime riders, and older riders who started riding again after a long period of not riding. On average, motorcyclists experience annually approximately 1,400 injuries and 49 deaths from motor vehicle crashes statewide[6].

Limited English Proficiency (LEP) Drivers – Drivers with limited English fluency may not understand safety messages. Virginia offers many materials in Spanish, but not in other languages. The number of injuries and deaths experienced by this group is unknown due to lack of data.

Major Strategies

Teen Drivers

1. Assess current Standards of Learning curricula for driver education courses for all young drivers. (Lead Coordinator: DOE)
2. Provide additional professional development opportunities and performance measurement for educators to help young learners achieve safe driving goals. (Lead Coordinator: DOE)
3. Implement a full Graduated License Program with other age-based restrictions. (Lead Coordinator: DMV)
4. Implement stronger peer safety education programs and provide resources to schools to make programs effective. (Lead Coordinator: DOE)
5. Provide resources to strengthen and expand parenting programs and parent-teen judicial ceremonies, as parents play a key role in managing their teenagers' driving. (Lead Coordinator: DOE)
6. Connect school parking privileges to students' driving records and safety belt usage. (Lead Coordinator: DMV)
7. Increase enforcement for speed and safety belts violations around high schools. (Lead Coordinator: VSP)

Senior Drivers

1. Upgrade the DMV testing procedures to offer better control of licenses for all drivers. Upgrade driver assessment and evaluation centers to test skills required to drive safely. (Lead Coordinator: DMV)
2. Continue Grand Driver education program on the effects of the natural aging process on driving skills. Provide information to family members through multiple media on how to approach a family member about relinquishing one's license. (Lead Coordinator: VDA)
3. Develop a step-by-step guide designed for physicians who treat older drivers, including information about how different diseases such as Parkinson's, may affect driving. (Lead Coordinator: DMV)
4. Upgrade traffic signage, pavement markings, and traffic signal improvements to improve visibility for older drivers and meet new federal guidelines. Incorporate recommendations found in the FHWA Highway Design Handbook for Older Drivers and Pedestrians. (Lead Coordinator: VDOT)
5. Develop transportation programs for seniors who surrender their license at the local, regional and state levels. (Lead Coordinator: VDRPT)

Commercial Vehicle Operators

1. Educate drivers on the affects of fatigue and hours of service as well as speed and use of safety belts. Utilize Drive Smart Virginia's guide to running a successful safety belt campaign for truckers. (Lead Coordinator: DMV)
2. Continue to review through engineering analysis the adequacy of truck routes and recommend restrictions or geometric improvements.(Lead Coordinator: VDOT)
3. Increase targeted enforcement in high crash areas of speed, equipment, and weight enforcement violations based on crash data analysis. (Lead Coordinator: VSP)

Motorcycle Operators

1. Increase the number of training schools around the state. (Lead Coordinator: DMV)
2. Increase education and awareness through dealerships on motorcycles, mopeds, and scooters similar to the ATV training now offered. (Lead Coordinator: DMV)
3. Require all motorcyclists to complete a training program. (Lead Coordinator: DMV)
4. Increase enforcement of non-compliant helmets and lack of proper endorsements. (Lead Coordinator: VSP)

Limited English Proficiency (LEP) Drivers

1. Increase safety messages in other languages. Develop methods to target and reach the intended audience. (Lead Coordinator: DMV)
2. Improve information provided on crash reports to better understand LEP crashes. (Lead Coordinator: DMV)
3. Develop new outreach and educational initiatives in multiple languages. Partner with schools, refugee and immigrant placement services (i.e. faith based initiatives), LEP programs, and ethnic advisory councils to provide educational and outreach materials. (Lead Coordinator: DOE, DMV)
4. Continue Legal Presence Program and enforcement of Virginia residents using out of state tags. (Lead Coordinator: DMV)
5. Encourage widespread use of signs, markings, and traffic signal indications using symbols instead of words, where appropriate. (Lead Coordinator: VDOT)

Challenges

Education – School-based driver education programs capture most teen drivers, but some drivers received licensing from other States and do not receive the benefits of Virginia's programs. It is important that all educators have the knowledge and skill sets required to effectively reach the intended drivers. Effectively communicating the effects of dangerous driving behavior is a difficult skill to develop. In general, all drivers may need additional education to assist with particular issues. LEP drivers complicate education efforts**.**

Special User Group Dynamics – Some "special users" may feel they are being unfairly targeted for their problems. The development of programs that help the groups themselves will help decrease the feelings of being targeted. Involving special users in the development of programs will reduced perceived unfairness and increase programmatic cultural competencies and thereby increase compliance.

Enforcement – Creating a graduated license for motorcycle operators would be difficult to enforce, as an officer would need to see the driver, who may be concealed behind a full-face shield and tinted visor. Additionally, the officer would need to determine the size of the motorcycle.

Injuries and Deaths Targeted

The Special User element targets reducing crashes of younger and older drivers, motorcycle and commercial vehicle operators. Little is known about the extent of the Limited English Proficiency problem due to the lack of data.

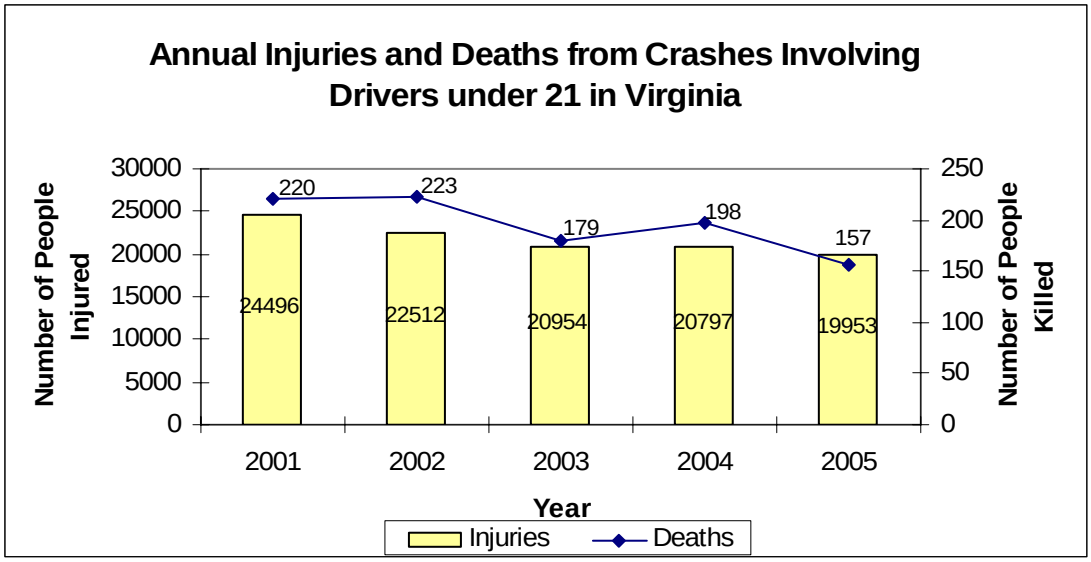

Figure 10: Annual Injuries and Deaths from Crashes Involving Drivers under 21 in Virginia

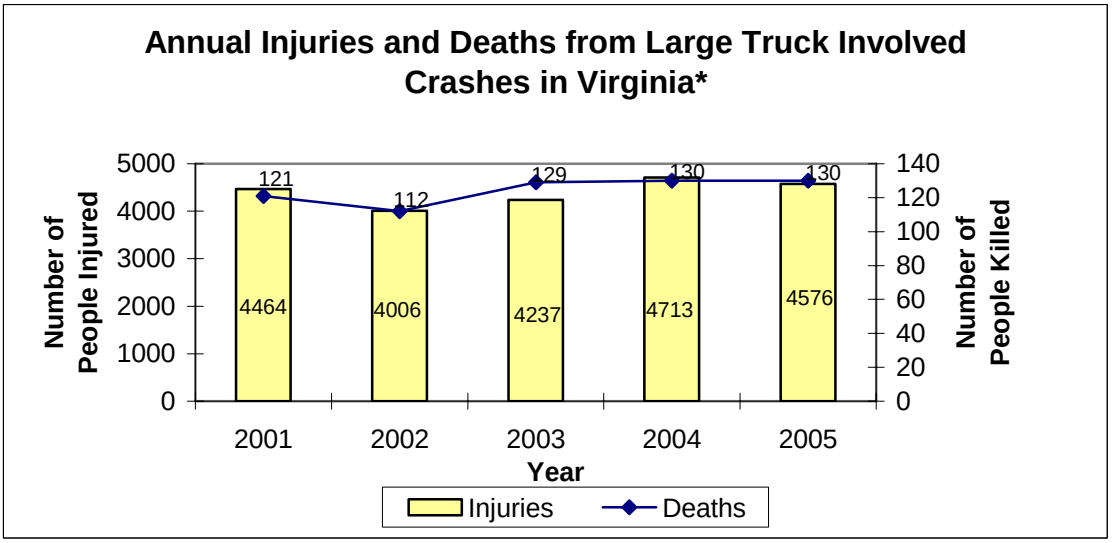

Figure 11: Annual Injuries and Deaths from Crashes Involving Drivers over 70 in Virginia

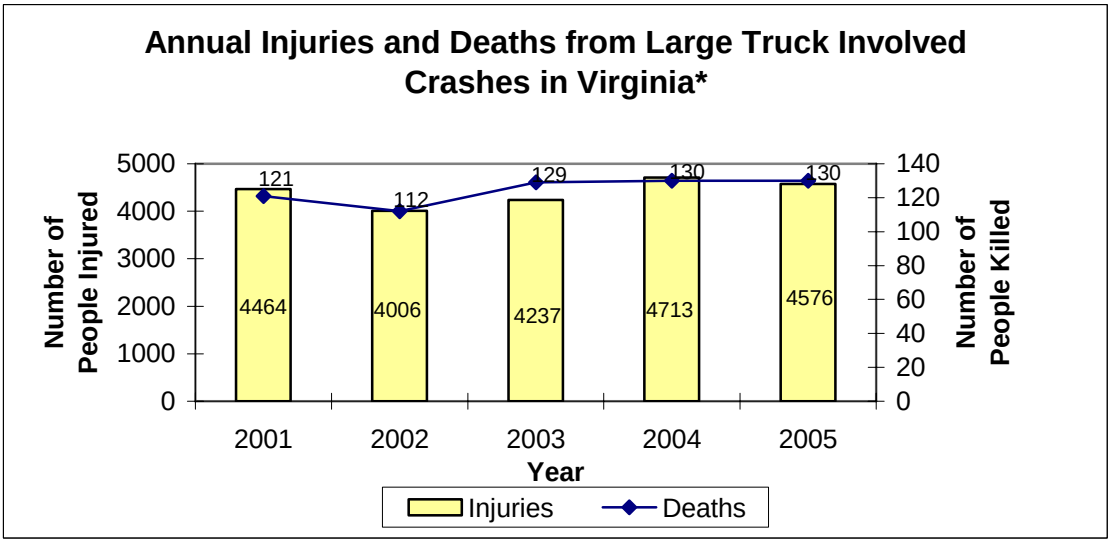

Figure 12: Annual Injuries and Deaths from Large-Truck Involved Crashes in Virginia

Note *: Large trucks include Straight Truck, Flatbed, Dump Truck, Tractor Truck, Tractor-Trailer and Tractor-Double Trailer.

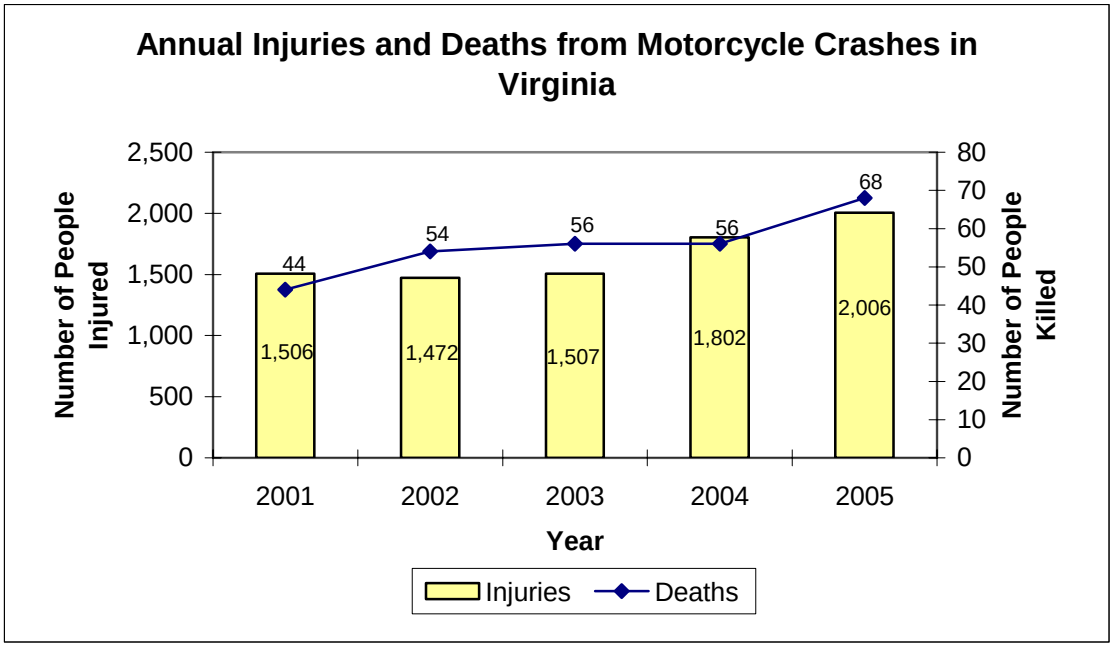

Figure 13 Annual Injuries and Deaths from Motorcycle Crashes in Virginia

Human Factors / Environmental Emphasis Area:
Pedestrian and Bicyclist Safety

Problem Identification

Pedestrian and bicyclist safety is the one element that crosses both the human factors and environmental emphasis areas. Non-motorized travelers are particularly at risk when mixed with vehicular traffic; the following statements identify some of the primary safety issues:

General

- 11% of deaths (104 people) and 4% of injuries (2,782 people) involved walkers and bicyclists in an average year in Virginia (2001-05)[6].
- Non-motorized crashes predominately occur in urban areas. 75% of all non-motorized crashes occur in 18 urban jurisdictions[6]. About 70% of non-motorized crashes occur on Non-VDOT maintained roads, which are usually urban in character[5]. Of the bike and pedestrian crashes on VDOT roadways, approximately 70% occur on urban functional class facilities[5].
- Many roadways lack facilities for pedestrians and cyclists, particularly in suburban areas developed in the last 60 years.
- Non-motorized deaths have remained relatively constant. More research is needed to determine if these findings are the result of less travel or better safety practices.
- Non-motorized crashes occur more frequently on Fridays and less frequently on Sundays[5]. They typically occur during the AM and PM peak traffic hours but are common from 3 to 9 PM[5].

Pedestrians

- Annual pedestrian injuries from crashes have declined to just below 1,800 per year[6].
- People under 25, particularly men, and people over 70 are over-represented age groups for pedestrian crashes[6]. People from 15 to 20 years old are involved in 13.5% of pedestrian crashes[4]. People over 25 appear to have pedestrian crashes less often than people under 25[4]. Males are involved in crashes more frequently than females in every age group[4].
- Pedestrian actions are difficult to ascertain as police reports are usually inconclusive.

Bicyclists

- Bicycle-Involved crashes in Virginia average around 900 annual injuries[4].
- People aged 10 to 20, particularly males, are the most prone to vehicle-bicycle crashes accounting for 26%[4]. People between 25 and 34 years of age appear to have fewer bicycle crashes; however, those 35-45 are involved in more crashes[4].

Major Strategies

1. Identify areas and locations with the potential for, or actually having a disproportionately high number of bike and pedestrian crashes. Focus 4-E countermeasures in major urbanized areas and selected rural areas, particularly in areas where younger, older or disabled persons travel. (Lead Coordinators: VDOT, DMV, VSP, DOE)
2. Promote and implement road safety assessments of high non-motorized risk areas or locations. (Lead Coordinator: VDOT)
3. Link socio-economic, crash, highway inventory and traffic information to better understand the causes of non-motorized crashes. (Lead Coordinator: VDOT)
4. Improve and standardize policies and guidelines, at state and local levels, for planning and designing for non-motorized mobility and accessibility. Provide best practice information to local jurisdictions. (Lead Coordinator: VDOT)
5. Target related infrastructure improvements around areas with existing non-motorized travel and high density such as: schools and community facilities, commercial development, mixed use development, and public transit stops. (Lead Coordinator: VDOT)

6. Make bicycling and walking to school a safer and more appealing transportation alternative to children and their parents by implementing a Safe Routes to School program in high-risk and high-travel areas at the local level. (Lead Coordinator: VDOT)
7. Improve maintenance and cleaning of existing facilities, equipment, signing and marking in high traffic areas. (Lead Coordinator: VDOT)
8. Improve the maintenance and design project process to explicitly incorporate safety reviews to facilitate better design decisions. (Lead Coordinator: VDOT)
9. Reduce bicycle and pedestrian exposure to vehicular traffic and vehicle speed through good engineering judgment (Lead Coordinator: VDOT) by:
    - Providing sidewalks, trails and bike lanes, or wide outside lanes
    - Installing or upgrading traffic and pedestrian signals; improving signal timings to provide, adequate opportunity for pedestrians and bicyclists to cross,
    - Installing intersection and roadway traffic calming to improve non-motorized vehicle, safety including roundabouts, pedestrian refuge islands and raised medians,
    - Installing and maintaining shoulders in rural areas,
    - Standardizing bike and pedestrian signing and marking,
    - Providing speed management technology in higher risk areas such as near schools and elderly living facilities. (VSP)
10. Improve sight distance and visibility through good engineering judgment (Lead Coordinator: VDOT) by:
    - Eliminating screening of non-motorized facilities by physical objects.
    - Lighting sidewalks, roadways, and crossings.
    - Enhancing crosswalk and bike lane conspicuity and visibility for motorists.
11. Designate local and State police to deploy resources at the appropriate places and times, in high-crash areas. (Lead Coordinator: VSP)
12. Improve information provided on crash reports to better understand pedestrian actions causing crashes. (Lead Coordinator: DMV)
13. Enforce and/or modify existing pedestrian, cycling and helmet laws. (Lead Coordinator: VSP, VDOT, DMV)
14. Educate non-motorized users, with programs such as BikeSmart Virginia (Lead Coordinators: DMV, VDH, DOE):
    - About proper interaction with vehicles;
    - To increase bicycle lighting equipment and helmet use;
    - About proper use of visible and reflective clothing;
    - About proper crossing and right of way at intersections;
    - About existing walking and cycling laws and the risks of walking and cycling contrary to existing laws, erratically and under the influence;
    - About proper vehicle passing of users on roadways without separate non-motorized facilities.
15. Develop a public information campaign to target drivers and their responsibility to share the roadways with pedestrians and bicyclists (Lead Coordinators: DMV, VDH, DOE) including:
    - Causes of pedestrians and bicycle crashes, such as common errors by drivers, pedestrians, and cyclists.
    - The current state law regarding bicycle, pedestrian, and vehicle interaction.
16. Educate local policy advocates to introduce bicycle helmet ordinances. (Lead Coordinator: VDH)

Challenges

1. In order to make good decisions, timely and accurate traffic records are necessary for traffic, bicycle, and pedestrian crashes and volumes.
2. Staff may not have appropriate expertise, resources and time, particularly in urban areas, to address bicycle and pedestrian safety needs.

3. Additional bicycle and pedestrian policy implementation may require additional time for program or project delivery
4. In the past, bicycle and pedestrian have received limited funding. These accommodations compete for limited maintenance and construction funding, limited right-of-way, and the high cost of utility protection or relocation.

Injuries and Deaths Targeted

Reducing bicyclist and pedestrian-involved targeted crashes must incorporate both human factors and environmental strategies.

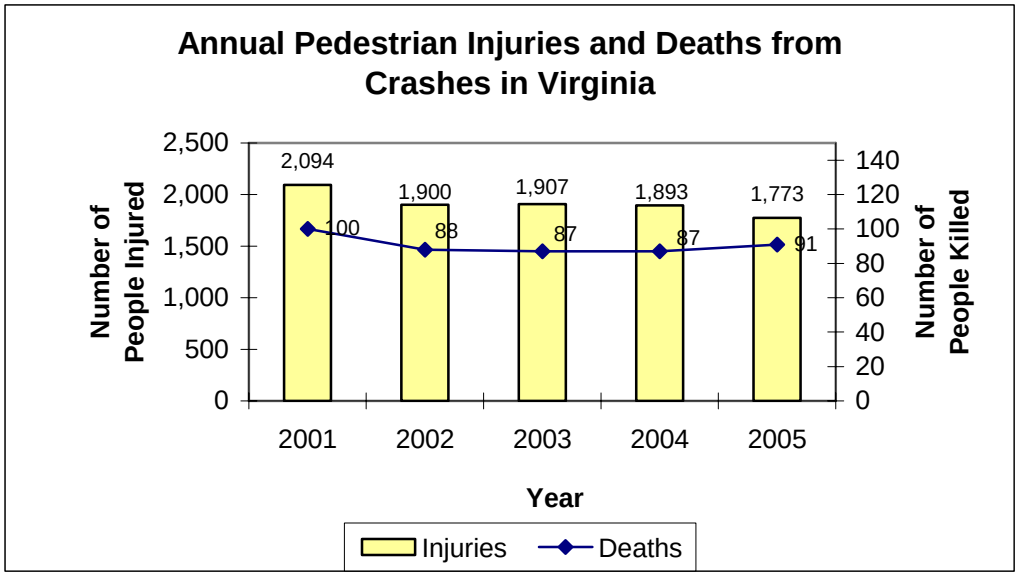

Figure 14 Annual Pedestrian Injuries and Deaths from Crashes in Virginia

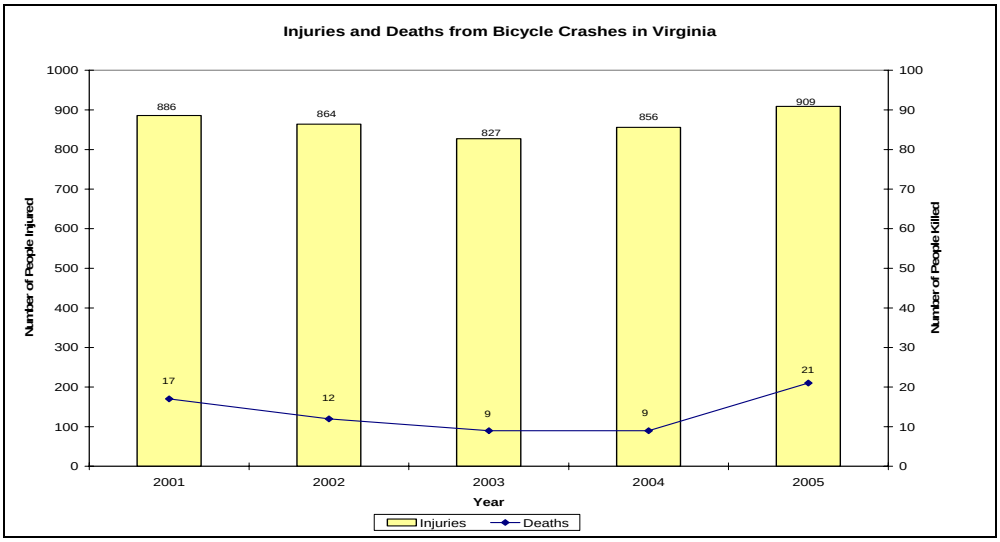

Figure 15 Injuries and Deaths from Bicycle Crashes in Virginia

Environmental Emphasis Area:

Intersection Safety

Problem Identification

Intersections are prone to crashes because different road users (vehicles, pedestrians and cyclists) are required to use the same *space*, and a collision is only avoided if they are separated by time. The following statements identify some of the primary intersection safety issues based on 2001 to 2005 crash data:

- 19% of deaths (173 people) and 34% of injuries (26,700 people) were at intersections in an average year in Virginia (2001-05)[5].
- VDOT-maintained intersections have consistently about 10,000 annual crashes with 15,000 annual injuries from 2001 to 2005. Intersection crashes account for about 18.2% of all Virginia injury crashes[5].
- Towns, cities, and the counties of Henrico and Arlington, which comprise the Non-VDOT road system, experience about 59,000 crashes each year. About 34% of these are angle crashes, which are typically intersection or driveway related. 39% of the angle crashes on the non-VDOT system are severe[5].
- Assessment of crashes within 150 feet of VDOT-maintained intersections reveals that fatal crashes vary from 117 to 152, with the average 131 crashes and 141 deaths each year. This accounts for 15.4% of all Virginia traffic fatal crashes[5].
- About 39% of VDOT intersection related crashes are severe compared to about 37% of all crashes in Virginia[5].
- 67% of VDOT intersection related crashes occur in urban areas where exposure to conflicts is highest. About 45% of urban intersection crashes occur at signalized intersections, while in rural areas, 14% of intersection crashes are at signals[5].
- 44% of crashes at rural VDOT unsignalized intersections are severe, slightly higher than the statewide average of 37%[5].
- Signalized intersections are characterized by higher proportion of rear end crashes than unsignalized intersections in both rural and urban areas. Unsignalized intersections in rural areas have a significant higher proportion of fix object crashes[5]. (See Figure 16)

Potential causes of intersection crashes may include sight distance problems, poor visibility and gap acceptance relationships, excessive speeds, lack of information, improper use of and non-compliance with traffic control devices. Crashes may be related to conflicts at public road intersections with other public roads or with private roads where little information is known about the physical characteristics. Intersection-related crashes may occur upstream some distance due to traffic and could be several intersections upstream of the "problem" intersection in congested conditions. Causal factors of intersection-related crashes are sometimes difficult to ascertain because of insufficient information about physical attributes and traffic characteristics, particularly in towns and cities.

Presently, no central data warehouse is available to record the location of crashes on the Non-VDOT system for automated and systematic evaluation. More is known about fatal intersection-related crashes due to the intense assessment for the Fatality Analysis Reporting System (FARS). FARS identifies intersection crashes as occurring within the "box" described by the edges of the intersecting roads.

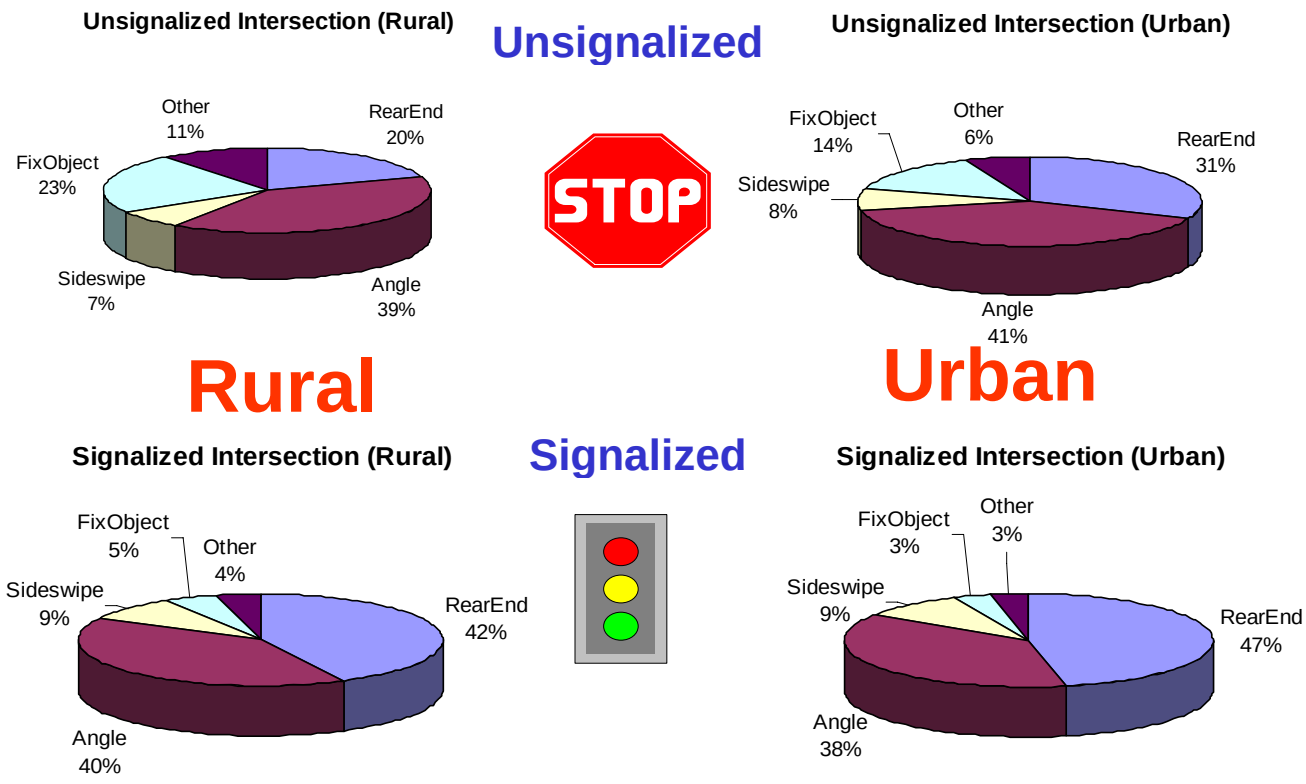

Figure 16 Intersection Crash Collision Type by Traffic Control & Locations

Major Strategies

1. Improve the roadway inventory and the process to identify intersections with a disproportionately large number of or potential for crashes. (Lead Coordinator: VDOT)
2. Promote and implement road safety assessments of identified high crash intersections. (Lead Coordinator: VDOT)
3. Seek ways to link crash data, highway inventory and traffic information to better understand the causes of intersection crashes. (Lead Coordinators: VDOT, DMV)
4. Improve the maintenance and design project process to explicitly incorporate safety review considerations and to facilitate better design decisions. (Lead Coordinator: VDOT)
5. Reduce the frequency and severity of crashes at high crash and high risk intersections through limiting conflicts through geometric, traffic control and lighting improvements (Lead Coordinator: VDOT) by:
   - Applying state-of-the-art access management practices on all public roadways through standards, ordinances and safety assessments.
   - Using safety analysis procedures and software tools to assist with access decisions and working to eliminate redundant access points, particularly near high crash intersections.
   - Assessing the mobility and movements of all intersection users for driver information, capacity and safety on a regular basis through policy, standards and funding requirements.
   - Deploying an Unsignalized Intersection Review Program to regularly assess – traffic signal, signing, and marking needs, traffic control visibility and conspicuity, sight distance, and speed reduction techniques.
   - Considering and using alternative designs and technology to reduce conflicts such as restricting left-turns, using roundabouts, directional openings and jug-handle designs.

- Focusing capacity and traffic control upgrades on the top five percent high crash intersections in each jurisdiction each year.

6. Improve driver compliance with traffic control devices by:
   - Regularly assessing and providing adequate and best practice intersection warning devices at public railroad crossings at high crash and high risk locations. (Lead Coordinator: VDOT)
   - Upgrading signal identification to assist enforcement of red light running at appropriate intersections. (Lead Coordinator: VSP)
   - Deploying enhanced technology for dilemma zone detection and notification and speed management techniques approaching intersections, particularly those with high posted speed limits. (Lead Coordinators: VDOT, VSP)
   - Using automated methods to monitor and enforce intersection traffic control where appropriate. (Lead Coordinator: VSP)
   - Designate local and State police to deploy resources at the appropriate times at high crash intersections. (Lead Coordinator: VSP)
7. Educate users (Lead Coordinator: DOE, DMV):
   - About high crash intersections in each jurisdiction.
   - To better understand and comply with traffic control devices.
   - To better judge vehicle speeds and available gaps between vehicles.
   - To provide proper right of way to all users.

Challenges

1. Intersection inventory attributes are neither comprehensive, nor consistent with police reports. This inventory is not well maintained, mostly unknown in towns and cities, and not easily used or linked to crash data. Crash locations in towns and cities are not presently available in central data warehouse. Collection and dissemination of crash information is difficult. Limited detailed traffic volume information is also available.
2. Staff with expertise, resources and time is sparse. There is a lack of good analysis tools. There is a need for extensive training of latest tools and techniques for intersection safety.
3. These improvements compete for limited maintenance and construction funding. The high cost of right of way and utility relocation add time for program or project delivery. There is also a strong potential for project scopes to increase beyond their original intent.
4. There is also additional time for driver training to cover emergency situations. Driver acceptance and appropriate use of new technology and designs are important.
5. Enforcement resources may be limited to focus on intersections. Legislation is required for automated enforcement and access management laws.

Injuries and Deaths Targeted

Targeting a reduction in intersection related crashes will require a coordinated effort between state and local authorities.

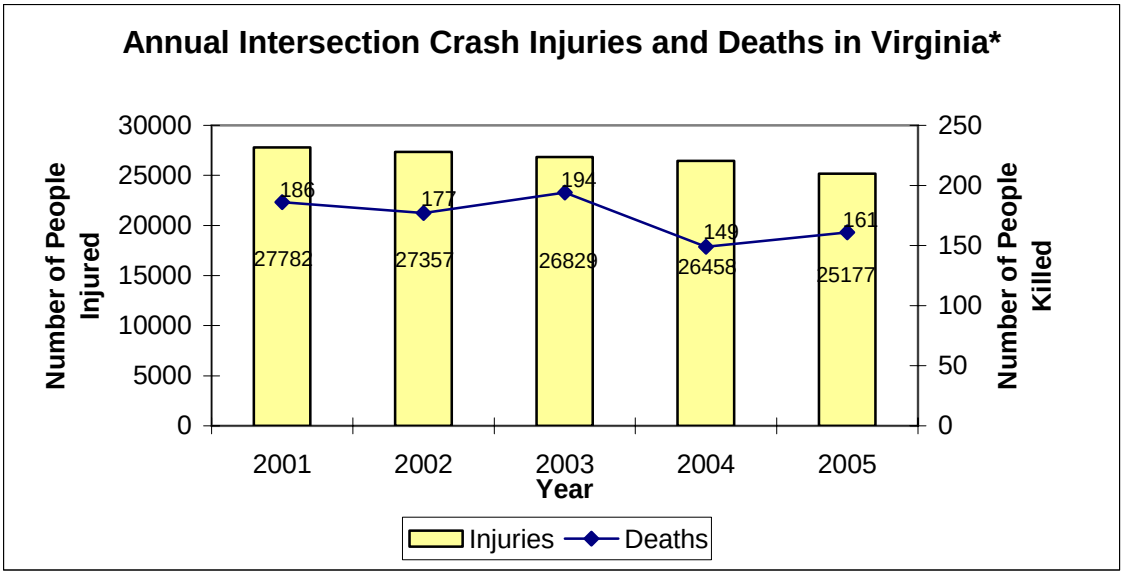

Figure 17 Annual Intersection Crash Injuries and Deaths in Virginia

Note *: All Crashes within 150 ft of VDOT Maintained intersections plus all angle crashes in towns and cities (Non-VDOT maintained roadways)

Environmental Emphasis Area:

Roadway Departures

Problem Identification

Motorists are particularly at risk when their vehicles leave the appropriate travel lanes or the roadway; the following statements identify some of the primary road departure (RD) safety issues based on 2001 to 2005 crash data:

- In an average year, 44% of deaths (406 people) and 18% of injuries (13,931 people) left the travel lane in Virginia[5].
- RD has led to about 10,500 annual injury crashes and about 375 fatal crashes from 2001 to 2005 in Virginia[5].
- Although the proportions have declined in recent years, almost 50% of 23,000 of RD crashes each year are severe (compared to about 37% of all crashes in Virginia). These crashes tend to be severe because of the speed differential involved with vehicles striking a fixed object or an oncoming vehicle. RD crashes account for 15% of all crashes but about 20% of severe crashes[5].
- About 51% of VDOT system RD crashes occur on rural undivided roadways. Of the Primary and Secondary VDOT systems, including local and subdivision streets, 95% of the 56,000 miles are undivided, so RD crashes are dispersed. Finding concentrations may be difficult, so systematic strategies may be more effective[5].
- About 86% of RD crashes involve striking a fixed object with about 48% of those colliding with the roadside earth or a tree. Of the major RD collision types, 45% of fixed-object crashes are severe, 60% of non-collisions are severe, and78% of resulting head-on crashes are severe compared to 37% of all Virginia crashes being severe[5]. (See Figure 18)
- Although more vehicles depart their lanes to the right side, 41% of RD crashes are to the left. Head-on crashes, which are both lane and roadway departures, are primarily to the left by definition. There are on average about 1,500 head on crashes each year in Virginia, with 60% on VDOT maintained roadways. Severity rates for head-on crashes are over 70% on VDOT maintained roads with the most severe (88%) on urban divided roads. Non-VDOT system has less severe crashes with a ratio of 55%[5].

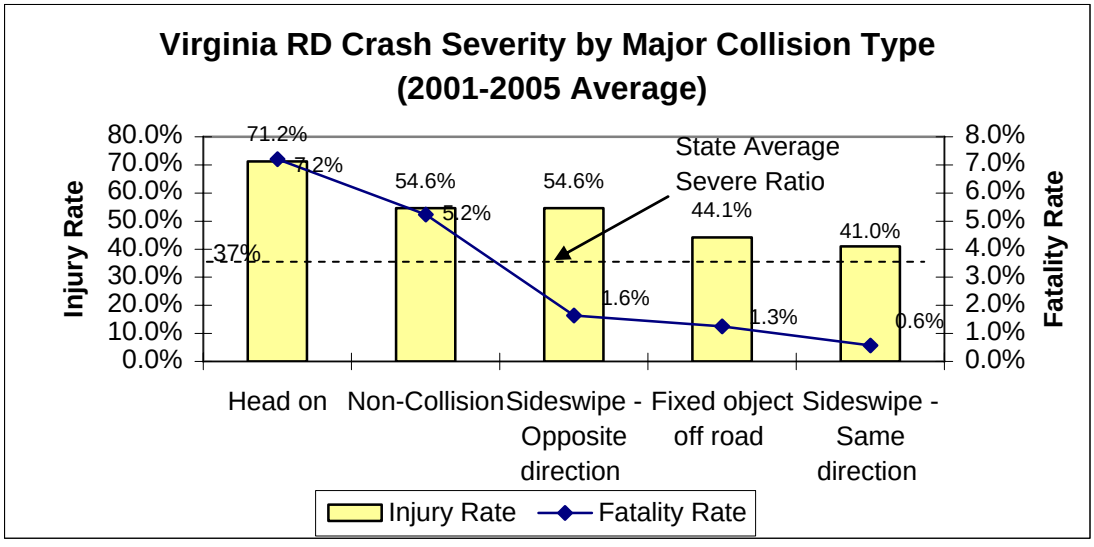

Figure 18 Virginia RD Crash Severity by Major Collision Type (2001-2005)

Major Strategies

With most of roadway departure crashes resulting in hitting a fixed object or a non-collision and the high severity of head-on crashes, vehicles should:

- be prevented from leaving both sides of the travel lanes,
- have reduced likelihood of overturning or crashing into roadside objects, and
- have minimized severity from fixed object crashes

1. Identify corridors and locations with a disproportionately large number of actual and/or potential for RD. (Lead Coordinator: VDOT)
2. Promote and implement road safety assessments of identified high crash corridors or locations. (Lead Coordinator: VDOT)
3. Seek ways to link crash data, highway inventory and traffic information to better understand the causes of RD crashes. (Lead Coordinators: VDOT, DMV)
4. Improve the operations, maintenance and design project process to explicitly incorporate safety review considerations and to facilitate better design decisions. (Lead Coordinator: VDOT)
5. Reduce the likelihood of vehicles leaving the travel lane(s) by:
   - Deploying centerline, edgeline, and shoulder rumble strips.
   - Improving, expanding and maintaining roadway delineation and visibility features and devices.
   - Upgrading and improving shoulders where possible and maintain shoulders to reduce edge drop-offs.
   - Assessing driver information and installing highly visible signing and marking of passing zones on two-lane roads; considering passing lanes and smart travel technology where cost effective (Lead Coordinator: VDOT)
6. Minimize the adverse consequences of leaving the roadway at high crash and high risk locations by:
   - Reviewing and improving roadside safety devices, where appropriate, as part of Restoration, Rehabilitation and Reconstruction projects.
   - Modifying roadside clear zones particularly in the vicinity of obstacles.
   - Removing, relocating, shielding or delineating trees, utilities and other fixed objects.
   - Installing appropriate medians and median barriers in narrow widths where left-side roadway departure crashes occur. (Lead Coordinator: VDOT)
7. Designate local and State police to deploy resources at the appropriate places and times. (Lead Coordinator: VSP)
8. Educate drivers to (Lead Coordinators: DOE, DMV):
   - Properly negotiate curves.
   - Drive appropriately for traffic and weather-related conditions.
   - Properly make passing maneuvers following signing and marking, particularly on two-lane roads.
   - Recover safely after leaving the travel lanes.
9. Educate EMS about RD crashes and the secondary incidents sometimes caused by EMS response. Develop a comprehensive incident management approach that will ensure appropriate and timely EMS responses on high crash or high risk RD corridors, particularly in rural areas. (Lead Coordinator: VDH)

Challenges

1. Information collection and dissemination needs to be timely and accurate. Traffic volume, crash and roadway inventory data are all important to have available. There needs to be a consistent way to measure potential risk versus actual.
2. Staff with expertise, resources and time is sparse. There is a lack of good analysis tools. There is a need for extensive training of latest tools and techniques for RD safety.

3. RD safety improvements compete for limited maintenance and construction funding. The high cost of right of way and utility relocation add time for program or project delivery. There is also a strong potential for project scopes to increase beyond their original intent.
4. There is also additional time for driver training to cover emergency situations. Driver acceptance and appropriate use of new technology and designs are important.

Injuries and Deaths Targeted

Roadway Departure crashes are generally dispersed, requiring systematic strategies; however, roadway segments may be identified where specific 4-E countermeasures will be effective.

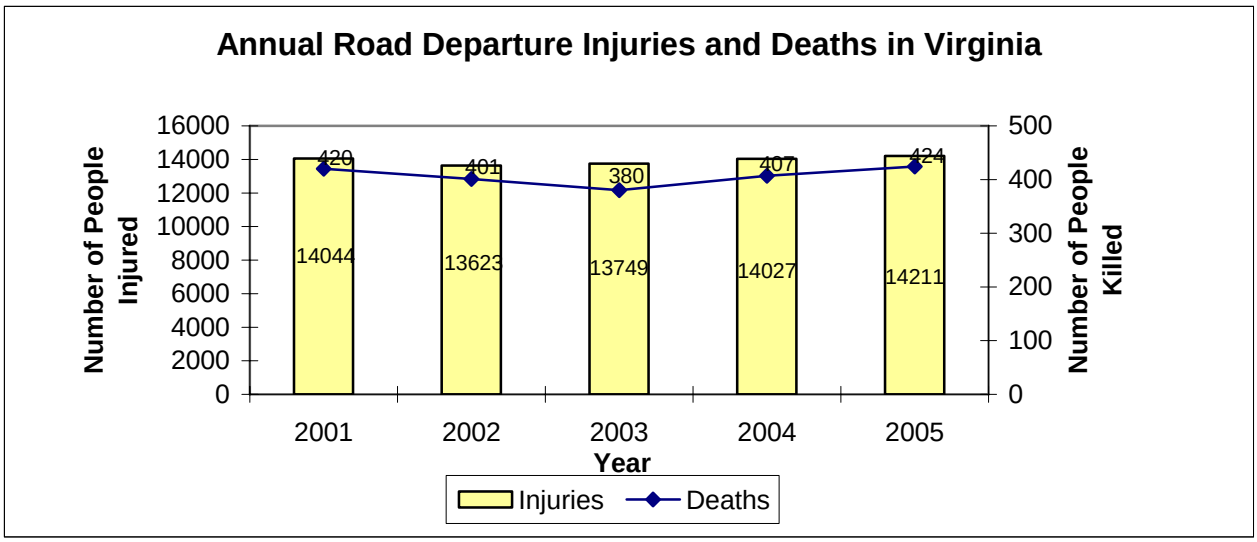

Figure 19 Annual Road Departure Injuries and Deaths in Virginia

Environmental Emphasis Area:

Work Zone Safety

Problem Identification

From 2001 through 2005, there were 6,564 crashes statewide reported in work zones resulting in 3,478 injuries. In 2004, new work zone codes were added to the crash report and reportable crashes increased nearly four times to 2,360, resulting in 1,200 injuries. 2% of deaths (15 people) and 2% of injuries (1200 people) occurred within a work zone in an average year in Virginia (2004-05). Work zone crashes for 2005 show a 7.2% increase in total crashes, a 2.2% reduction in injury crashes and a 6.6% reduction in fatal crashes over the same period in 2004. Since 2001, work zone crashes have also resulted in 61 deaths. Each crash can cause great harm to highway workers whose protection is often limited to temporary traffic control devices such as cones and plastic drums.

A five year study of work zone crashes in Virginia on state maintained roadways from 1999 through 2003 revealed the following:

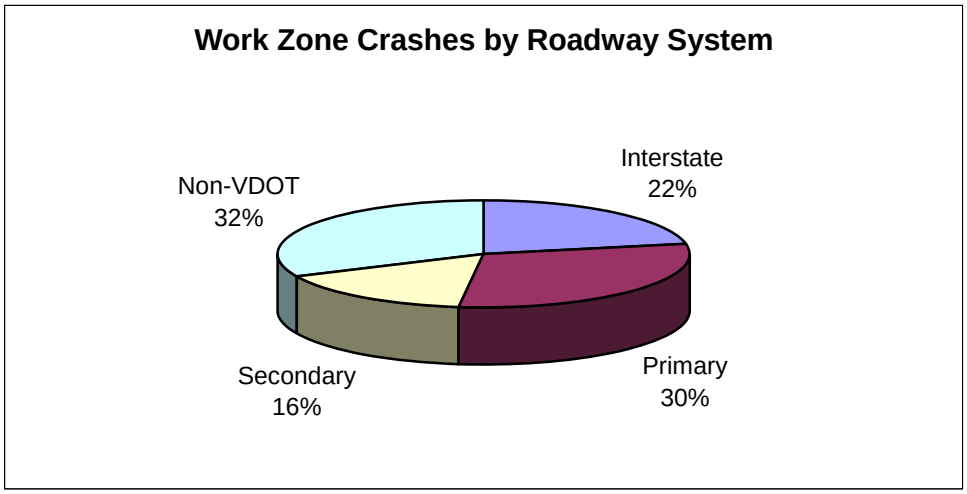

Figure 20 Work Zone Crashes by Roadway System

- **Work Zone Crashes by Driver by Age Group and Gender:**
  - 24% were 21-30 yrs. old (61% male)
  - 22% were 31-40 yrs. old (63% male)
  - 18% were 41-50 yrs. old (62% male)
  - 14% were 15-20 yrs. old (57% male)
  - 12% were 51-60 yrs. old (66% male)
  - 6% were 61-70 yrs. old (63% male)
  - 5% were > 70 yrs. old (61% male)

- **Work Zones Crashes by Charged Driver Infractions:**

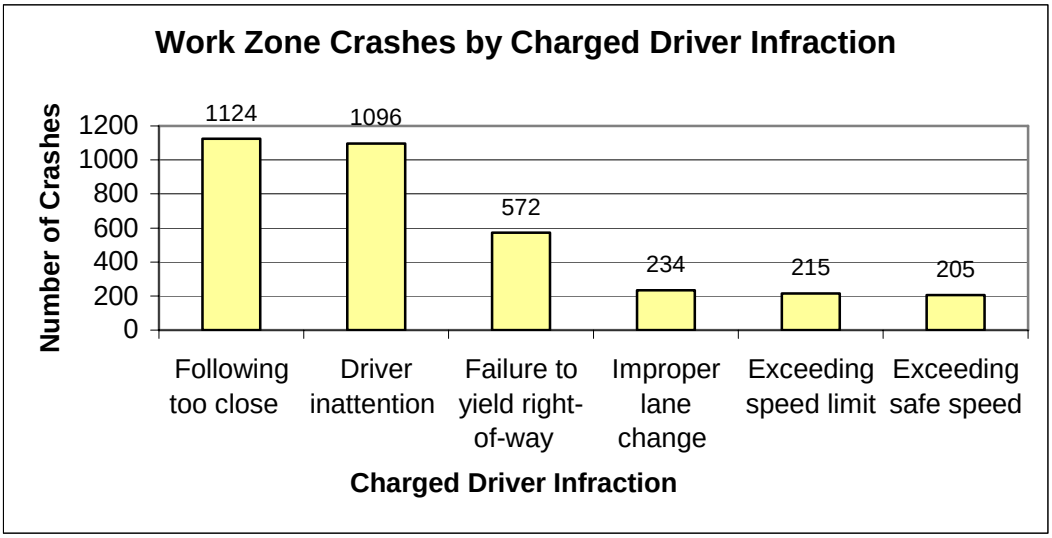

Figure 21 Work Zone Crashes by Charged Driver Infraction

Focusing on high volume, high speed work zones and reducing rear end collisions, driver inattention, and excessive speeds are all necessary to bring reductions in severe crashes. By targeting motorists between the ages of 15-50 years old, we will make our work zones safer.

Major Strategies

1. Improve work zone design and implementation with better data analysis and with more detailed plans. Traffic flow and safety needs to be considered in the early design phase of construction and maintenance projects. (Lead Coordinator: VDOT)
2. Develop mandatory work zone safety training for work zone designers, installers, and reviewers. Trained personnel will enhance the implementation of temporary traffic control plans. Work crew leader accreditation will ensure compliance in construction, maintenance, utility, and permit work zones. (Lead Coordinator: VDOT)
3. Provide motorists real-time work zone information and traffic conditions through the use of smart travel technology on high volume roadways. Up to date queue lengths, travel times, or delays enable motorists to choose another route, reduce congestion, and provides advance warning. (Lead Coordinator: VDOT)
4. Improve traveler information and route planning by requiring advance notification of work zone lane closures and openings. This information can be placed into the 511 system, allowing real time information access to anyone in Virginia. This will also allow for accurate lane closure information on Changeable Message Signs. (Lead Coordinator: VDOT)
5. Investigate the use of brighter traffic control devices in work zones to improve visibility and delineation of the travel way. Enhancements include brighter sheeting for plastic drums, use of all weather continuous pavement markings, and improved sign sheeting for long-term post-mounted signing. (Lead Coordinator: VDOT)
6. Deploy speed display trailers in high-volume, high-speed construction projects and coordinate increased enforcement with the Virginia State Police. The combined use of speed display trailers and the presence of the law enforcement should reduce excessive speeds and acts of following too close. (Lead Coordinator: VSP)
7. Increase public awareness of the dangers of driving through work zones and how to safely navigate them. Avenues for increased awareness include: National Work Zone Awareness Week, VTCA/VDOT Work Zone High School Drivers Education Awareness, Public

Information Plans for all significant projects on the national highway system, and funding for driver awareness campaigns. (Lead Coordinator: VDOT)

Challenges

1. The development of Traffic Control Plans requires: more manpower; funding to purchase the analyzing tools and training time to become proficient, and additional time to adequately monitor and evaluate the effectiveness of the temporarily traffic control.
2. The training of all personnel involved in the design, installation, and review of work zone traffic control requires: funding, time needed to attend, and availability of state forces while training is being performed.
3. The use of smart travel technologies requires: funding, training in their use, development of their specifications, and manpower required for monitoring and evaluating the devices and/or systems in the field.
4. Notification of Work Zone Lane Closures requires policy development and distribution, and time required by contractors/VDOT personnel and Smart Traffic Centers to track closure times.
5. The use of brighter Work Zone Traffic Control Devices requires additional funding to purchase, and time to develop/revise policy and time needed to implement.
6. The use of speed trailers in work zone with coordination by the Virginia State Police requires: funding for purchasing speed trailer and available state police/law enforcement to monitor and implement the program.
7. Increasing the public's awareness to work zone hazards requires funding and additional manpower to implement.

Injuries and Deaths Targeted

Work Zone safety is critical due to the presence of construction workers and equipment.

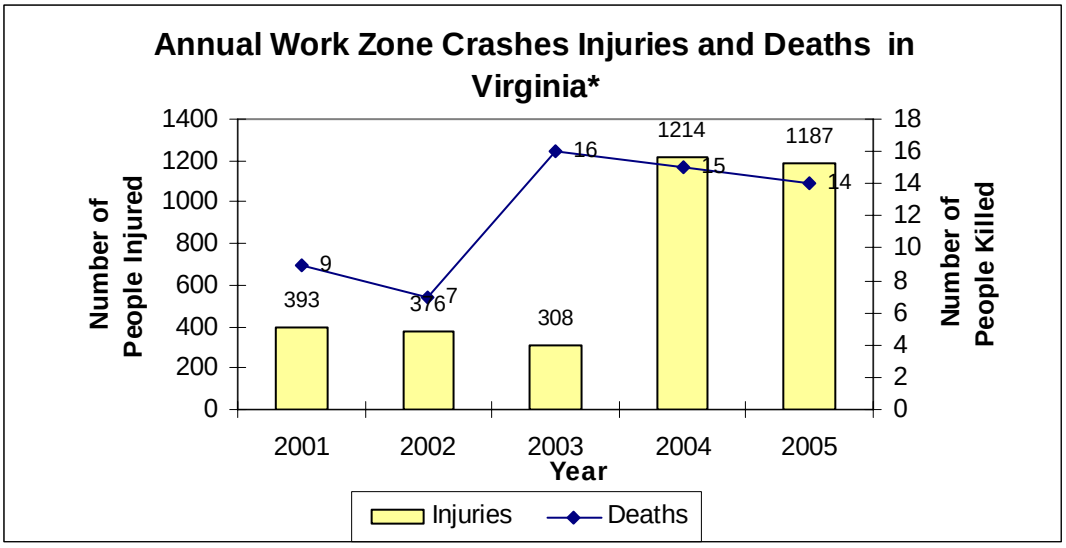

Figure 22 Annual Work Zone Crashes Injuries and Deaths in Virginia

Note: * In 2004, the definition of work zone crashes changed by adding a new work zone **code** in the FR300 Crash Report, which results he big jump of figures after 2004

Fundamental Emphasis Area:
Traffic Records

As each of the emphasis areas seeks to improve highway safety, complete and accurate safety data will be required. Traditionally, this has been crash information; however other types of data are essential, such as emergency response times, hospital patient data, and citation adjudication, in order to fully measure the success or failure of the plan.

Traffic records are the foundation for all decisions to effectively target roadway, driver and vehicle safety improvements. While the standardization of crash data has undergone significant improvements over the past decade, problems related to data accuracy, completeness, accessibility, and timeliness still exist.

Problem Identification

Transportation safety information within the Commonwealth is currently warehoused by separate agencies in a variety of formats ranging from paper to databases. These data are difficult to query quickly and are not always consistent or integrated across agencies.

Understanding and making optimal use of information technology is a critical challenge facing Virginia's transportation professionals. The foundation of a comprehensive traffic safety analysis system is the identification of the root causes of traffic crashes. Crash, traffic, roadway inventory, citations, medical, judiciary, and driver records must be integrated and available so proper decisions about safety policies and projects can be made.

A complete traffic records program is necessary for problem identification planning, operational management, and evaluation of a state's safety activities. An integrated traffic records system is essential to the implementation of all highway safety countermeasures and is the key ingredient to measuring their effectiveness.

When a traffic crash occurs, law enforcement (state or local) complete an FR300 Crash Report for any crash involving injury, death, or property damage of $1000 or more. The report is reviewed by a supervisor for completeness and forwarded to DMV in a hard copy format. The report is processed by multiple agencies (DMV, VDOT, and enforcement agencies) resulting in data quality and timely access issues.

Like many other states, Virginia is experiencing difficulty capturing crash data for a variety of reasons:

- The existing FR300 does not capture all downstream information (such as citation disposition)
- The process of collecting information is time-consuming and technically cumbersome
- The report is handled by multiple agencies with keying done by several departments
- Substantial manual effort is expended to complete and correct the report
- There is a significant backlog of reports (four to five months) to be processed
- The data is not directly accessible by all groups and persons needing it
- It is difficult or impossible to locate crashes to the roadway system; Currently only about 60% of crashes are located to the most accurate level
- Updates to system inventories are not always completed promptly
- There is no current availability of a full GIS and mapping package to locate events
- Some data is not collected on the FR-300 Report

Major Strategies

Traffic Records will provide safety data through a number of programs and planned efforts to assist in the reduction of deaths and serious injuries across the Commonwealth. This effort will require the input and support of all stakeholders.

Current and proposed initiatives will enable Virginia to have a state-of-the-art crash records system that will support the Strategic Highway Safety Plan and its emphasis areas as well as enable all to access data for any safety program. The following strategies will be implemented to improve traffic records:

1. Realign the Traffic Records Coordinating Committee (TRCC) (Lead Coordinators: VDOT, DMV, VSP) to have a more multidisciplinary membership that includes managers, collectors, and users of traffic records including public health and injury control data systems.
2. Adopt a State Traffic Safety Information Systems Strategic Plan through the TRCC with implementation of the Traffic Records Electronic Data System (TREDS) (Lead Coordinator: TRCC) project as a cornerstone. TREDS will serve as a state-of-the-art integrated system that will have the capability to provide current and future safety data needs to support multiple agencies. The following will be a part of the TREDS solution:
    - Streamline data collection for law enforcement
    - Increase efficiency and data quality by use of automated edit checks
    - Provide the ability to process crash reports electronically
    - Provide a GIS mapping interface to more accurately locate crashes with GPS
    - Provide electronic submission of reports to DMV
    - Eliminate manual data entry and backlogs by many agencies of the same report
    - Design flexible architecture to address different analysis needs
    - Provide more robust and accessible reporting capabilities
3. Adopt the National Agenda for the Improvement of Highway Safety Information Systems. (Lead Coordinator: TRCC) The following goals will be adopted:
    - To instill an appreciation of the value of highway safety information systems among all leaders who develop and manage highway safety policy.
    - To coordinate highway safety information among all organizations at all jurisdictional levels for developing better highway transportation policy.
    - To integrate the planning of highway safety programs and information systems.
    - To provide highway safety information managers and users with the resources needed to select appropriate technology to support their needs.
    - To establish a cadre of highway safety professionals trained in analytic methods appropriate for evaluation of highway safety information.
    - To establish and promote technical standards for highway safety information systems that are critical to highway transportation safety programs and policies.
4. Capture data elements related to large truck deaths (Lead Coordinator: FMCSA). The goal of the Federal Motor Carrier Safety Administration (FMCSA) is to reduce the large truck death rate by 41% from 1996 to 2008. Certain data elements will need to be included on future crash reports. These data elements will benefit FMCSA and other state program needs. Currently only the Virginia State Police furnish information into the Commercial Vehicle Accident Reporting System (CVARS). With the TREDS Project, commercial vehicles crashes statewide will be uploaded to FMCSA.
5. Capture crash injury outcomes using Crash Outcome Data Evaluation System (CODES) (Lead Coordinator: TRCC). The purpose is to link statewide traffic records with injury outcome data and support highway safety decision-making at the all levels. This will reduce deaths, non-fatal injuries and health care costs resulting from motor vehicle crashes. Currently, CODES only incorporates information where an individual is admitted to the hospital, not those who are treated in an emergency room and released. A wealth of untapped information relating to crash injury outcomes must be captured.

6. Automate the Fatality Analysis Reporting System (FARS) (Lead Coordinators: DMV, NHTSA) FARS data, available on-line and from DMV, is used to project yearly outcomes and forecast trends for safety decisions. This is a manpower intensive effort and should be automated.

Challenges

The success of Virginia's integrated traffic records system will require the support of multiple agencies and the development of working relationships through the Traffic Records Coordinating Committee. As with any major statewide initiative, there can be potential obstacles that must be overcome. A primary challenge will be to link the various data elements available from different sources. To accomplish this, the following need to be taken in consideration:

1. Multiple state agencies and local jurisdictions need to understand the importance of the TREDS project and sharing data for the common good of highway safety. The various enforcement agencies must buy in to the proposed electronic crash reporting concept.
2. For the TREDS system to grow and remain technologically current, it will require a steady funding stream. These funds will be necessary to maintain data, maintenance of systems, and future upgrades that may be necessary as technology changes. In addition, attracting and retaining personnel will be a key to retention of human resources with unique skill sets.
3. A complete and up-to-date GIS mapping package is necessary to provide the necessary technology to enable enforcement personnel and internal DMV/VDOT staff to accurately locate all crashes occurring on public roadways. As technology grows and changes there will be a requirement needed to ensure that everyone involved gets the latest in software upgrades and mapping needs as quick as possible. The roadway inventory for all public roadways needs to be kept current for locating purposes to satisfy the 100% location requirement of all crashes.
4. With two major projects occurring simultaneously (Roadway Network System and TREDS) there must be consistent communication to ensure similar requirements.
5. With the linkage of systems and data, the confidentiality of certain information needs to be considered in the TREDS project.

Injuries and Deaths Targeted

Traffic Records improvements do not directly reduce injuries and deaths, but accurate and timely data is a primary support for the other emphasis areas. Therefore, good information can target all crashes.

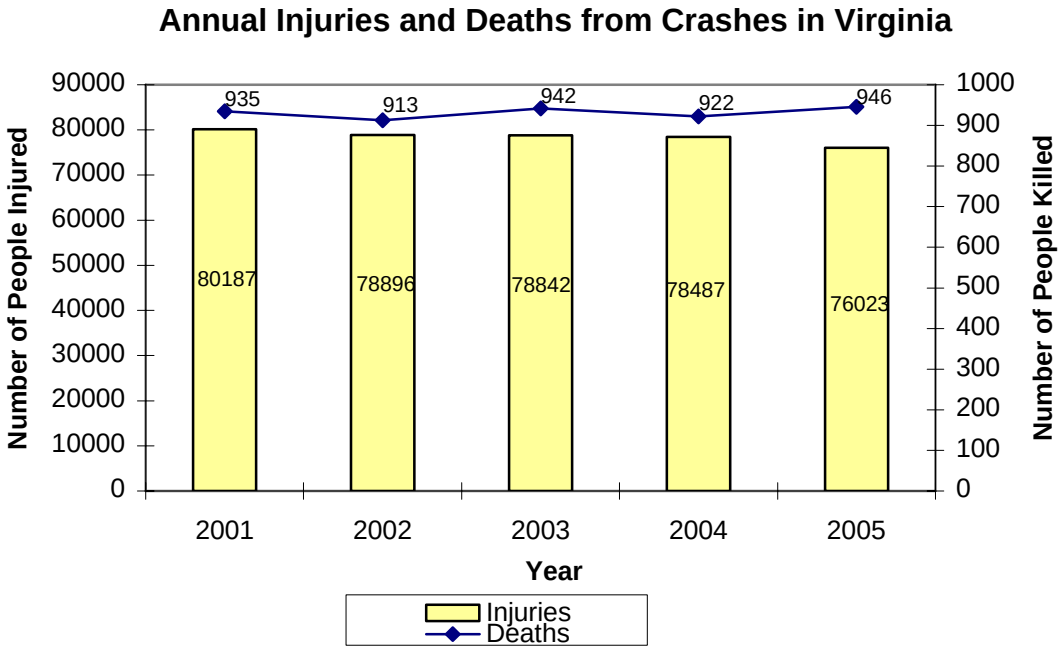

Figure 23 Annual Injuries and Deaths from Crashes in Virginia

Fundamental Emphasis Area:

Transportation Safety Planning

Problem Identification

Good Transportation Safety Planning (TSP) relies on accurate and timely traffic records. TSP provides the foundation for addressing all human factors issues and environmental hazards. To be successful, Virginia needs to integrate safety as a critical component of all statewide, regional, and local transportation planning. A multi-perspective, system-wide, multi-modal approach is needed to facilitate the review of all potentially hazardous transportation conditions and provide targeted recommendations.

Currently, TSP is not a documented process or a standard practice in Virginia; however, many safety concerns are reviewed and resolved by various agencies and qualify as TSP activities. Individual jurisdictions, as well as state and regional agencies have widely varied TSP practices. For instance, roadway safety assessments of existing and proposed facilities are not consistently implemented statewide. To make informed decisions about highway crash trends, state, regional, and local agencies need current data and analysis for accurate problem identification. With good crash records, strategies can be implemented to address the causes of crashes. Additionally, safety between modes of transportation needs to be more fully addressed.

A regularly updated Strategic Highway Safety Plan is necessary to allow key stakeholders to identify strategies and actions that can be implemented to reduce injuries and deaths from motor vehicle crashes statewide.

Major Strategies

1. Incorporate TSP and best safety practices into all human factors-related and environment-related projects and programs through the 4-Es (Engineering, Enforcement, Education and Emergency Response) at the state, regional, and local levels through consistent communication, policies, procedures, research, marketing, training, and evaluation. (Lead Coordinators: VDOT, DMV, VSP, VDH)
2. Identify and target the highest crash corridors and regions in the Commonwealth for high-priority improvements through the 4-Es and seek resources from all sources to mitigate these crash trends. (Lead Coordinators: VDOT, DMV, VSP, VDH)
3. Develop and implement a safety certification process to identify crash trends and incorporate appropriate countermeasures on all surface transportation projects in the Commonwealth, including design, maintenance, construction, and operations. (Lead Coordinators: VDOT)
4. Continue to enhance communication and cooperation by federal and state partners through VA's Surface Transportation Safety Executive Committee by monitoring and annually evaluating the Commonwealth's Strategic Highway Safety Plan with an update completed every five years. (Lead Coordinators: VDOT, DMV)
5. Coordinate with local, regional, and state partners to utilize advanced access management and land use strategies. Strengthen and improve relationships between land development and the transportation system by limiting or separating conflict points and reducing exposure on the surface transportation network and improving the safety of all transportation modes. (Lead Coordinator: VDOT)
6. Create an Annual Transportation Safety Legislative Report, presenting the most advanced laws, tools, and techniques to enhance surface transportation safety in Virginia to the Secretaries of Education, Health and Human Resources, Public Safety, Transportation, and the VASAP Commission chairperson. (Lead Coordinator: Surface Transportation Safety Committee)

Challenges

A variety of Institutional issues listed below make integration of safety into Transportation Planning difficult. It is important to take proactive steps to overcome them. Those issues are:

- Lack of current data;
- Lack of TSP training;
- Assignments and delegation of responsibilities;
- New public / private partnerships not traditionally involved in the planning process;
- Proper State and local legislative tools to support TSP initiatives;
- Maintaining momentum of organizational focus shifting to TSP initiatives;
- Resources to implement TSP initiatives.

Injuries and Deaths Targeted

Transportation Safety Planning is a fundamental element to reduce all crashes.

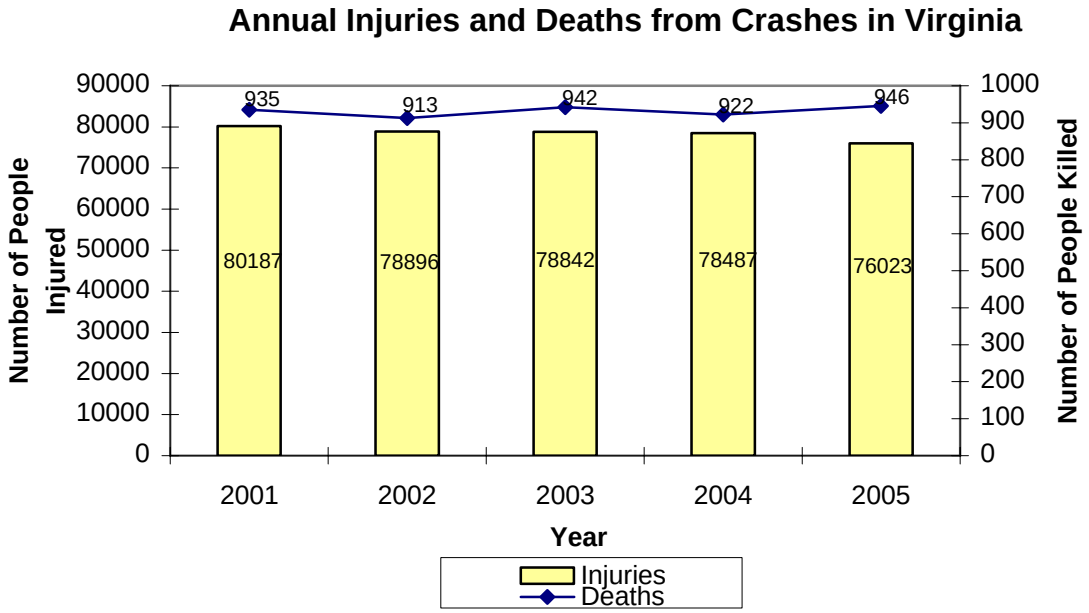

Figure 24 Annual Injuries and Deaths from Crashes in Virginia

Conclusion

The Commonwealth of Virginia's Strategic Highway Safety Plan establishes a transportation safety charter and sets up an ambitious, but realistic goal for reducing deaths by 275 lives and injuries by 16,000 from motor vehicle crashes statewide within the next 5 years. The plan, a joint effort by Virginia safety partners, presents the following messages on transportation safety in Virginia:

Transportation Safety is A Top Public Health Concern.

The Plan recognized that transportation safety is a top public heath concern in the Commonwealth of Virginia. It costs almost 1,000 lives in Virginia every year and is the leading cause of death for young people aged between 5 and 25.

Transportation Safety Should Be Addressed Systematically.

This Plan identifies current transportation safety issues and proposes multi-perspective strategies to address the problem. It views the surface transportation system as a whole and understands the interaction between the roadway, driver, and vehicle. It also raises that correcting poor driver behavior and providing the driver with timely information about the roadway ahead are two critical factors to reduce traffic crashes. To enhance road safety in Virginia, the Plan identifies the following three emphasis areas:

- **Human Factors** which includes Driver Behavior, Special Drivers and Pedestrian & Bicyclist Safety,
- **Environmental** which includes Roadway Departure, Intersection Safety, Work Zone Safety and Pedestrian & Bicyclist Safety
- **Fundamental** which includes Traffic Records and Transportation Safety Planning.

Motor vehicle crashes are to some extent predictable and thus preventable. In this plan, many state-of-art countermeasures are put forward to address problems in the above emphasis areas based on current research, intense discussions with safety partners, and best practices worldwide.

Transportation Safety is A Shared Responsibility.

The Plan recognizes that transportation safety is a shared responsibility. Reducing injuries and deaths on Virginia roads requires the commitment of informed decision-making by multiple government agencies, industry, non-governmental organizations and citizens from different disciplines.

The Strategic Highway Safety Plan Will Be Supported with Safety Action Plans.

Each involved state agency will be developing Safety Action Plans to be updated annually. The purpose of these plans will be to implement the strategies listed in this plan. Some of the strategies may face constraints such as funding, manpower, or legislative requirements. It will be the purpose of the action plan to track the progress and status of each strategy through the following categories:

- Strategy Description
- Tactic Description
- Responsible Agency
- Partner Agencies
- Development Stage
- Priority
- Safety Benefit
- Time Frame
- Budget
- Annual Benchmark
- Constraints

The Plan is a Living Document.

This plan is a living document so that others may live. As new strategies or technological advancements are developed, the Virginia Surface Transportation Safety Executive Committee will modify this document. The Executive Committee will continue to monitor and report Virginia's safety performance through quarterly and annual reports. For more information, please contact: vasafetyplan@VDOT.virginia.gov

This plan will increase the awareness of the full spectrum of Virginia's transportation safety-related programs. It is hoped that the plan will inspire and facilitate increased cooperation, innovation and commitment to reducing injuries and deaths on Virginia's streets and highways.

Now, it is time for action.

"Together we will reduce injuries and deaths from crashes in Virginia."

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Appendix 1: Safety Funding Matrix