

*West Virginia*

*Strategic Highway  
Safety Plan*

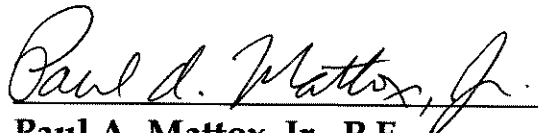
*September 2007*

***West Virginia Strategic Highway Safety Plan  
Support & Certification***

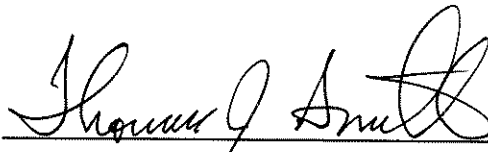
The West Virginia Strategic Highway Safety Plan (SHSP) has been developed in accordance with requirements of 23 USC Section 148, under the oversight of the Highway Safety Management Taskforce which has numerous stakeholders from various agencies throughout local, state and federal governments.

The is a far-reaching plan incorporating numerous emphasis areas with the overall goal to reduce the number of lives lost on West Virginia highways as a result of motor vehicle crashes.

By signing the SHSP document, the signatories agree to support the mission, vision, goals and implementation of West Virginia's Strategic Highway Safety Plan.



**Paul A. Mattox, Jr., P.E.**  
**Secretary of Transportation/  
Commissioner of Highways**  
*September 17, 2007*



**Thomas J. Smith, P.E.**  
**Division Administrator**  
**Federal Highway Administration**  
*September 17, 2007*

## *Overview*

A child born today can expect to live an average of 78 years. That's the good news. The bad news is that one out of every 100 children born today will die violently in a motor vehicle crash. Additionally, 77 of every 100 will be injured in a highway crash at some point during their lives, many more than once.

Beginning a life with such high potential for death and injury simply from engaging in transportation on the highway system we all own, should not be acceptable to our Governmental officials or to the public.

A well planned and coordinated approach to improving the State's roadways involving all areas and disciplines of highway safety is not only good practice but paramount to change the highway fatality and injury trends.

## *Introduction and Background*

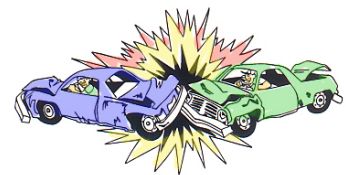
Collectively, highway related deaths and injuries are a significant public health concern. Highway crashes continue to be the leading cause of death in children and young adults. Using Federal Highway Administration approximations, it is estimated that highway crashes cost West Virginians over \$3.5 billion dollars annually. This cost is roughly equal to the State's annual general revenue budget and costs each citizen about \$2,000 per year. This substantial impact encompasses medical costs, lost wages, insurance, taxes, emergency services, legal and court costs as well property damage.



On a more personal level, the emotional toll on our citizens is devastating. Annually, over 24,000 people are killed or injured on West Virginia highways. Using 2004 statistics, one person is killed every day and someone is injured about every 20 minutes.

## *Overview of Crash Problem*

Nationally, in 2005, people died in highway crashes at the appalling rate of 116 per day. This translates to over 43,000 people annually. Contributing to this national crisis, from a perspective more close to home, 374 people died on West Virginia highways in 2005.



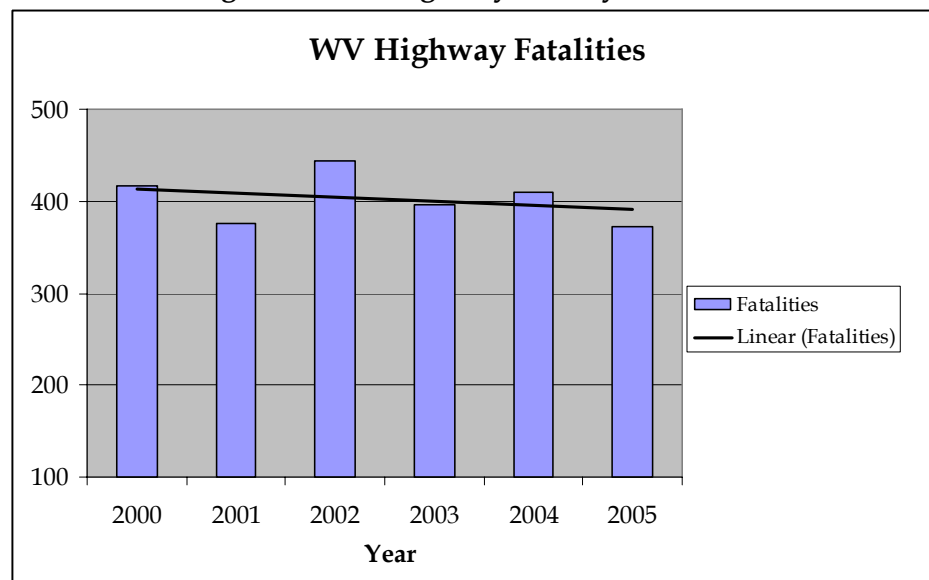
Crash trends were reviewed over a six year period from 2000 to 2005. This review revealed that highway fatalities, serious injuries, and crashes in the State have remained relatively stable. Crash trends over the last 30 years indicate significant reductions in highway fatalities and the corresponding fatality rates; however, more recently, West Virginia as well as the rest of the nation is not realizing these continued reductions. The trend lines for fatalities and fatality rates have flattened indicating that the progress made in fatality reduction has slowed and without a significant investment targeting high risk crash types, little will be accomplished to overcome the highway fatality epidemic. Table 1 shows the six year crash trend in West Virginia. Figure A shows the relatively flat fatality trend line between 2000 and 2005.

**Table 1**  
**Highway Fatalities, Injuries, and Crashes**  
**Six Year Trend**

	2000	2001	2002	2003	2004	2005
<b>Fatalities</b>	416	376	444	396	410	374
<b>Fatality Rate (per HMVMT)</b>	2.31	1.99	2.32	2.07	2.13	1.98
<b>Serious Injuries</b>	8,174	7,950	7,597	7,284	7,080	6,854
<b>Serious Injury Rate</b>	45	42	40	38	38	36
<b>Injuries</b>	26,144	25,534	25,788	25,334	24,702	23,258
<b>Injury Rate</b>	145	136	135	132	131	123
<b>Reportable Crashes</b>	51,305	48,881	49,913	51,376	49,951	47,117
<b>Crash Rate (per HMVMT)</b>	285	260	261	268	265	250

Source: WVDOT Crash Database

**Figure A: WV Highway Fatality Trend**



## ***Strategic Highway Safety Plan Approach***

For change to be realized, a problem of this magnitude must be addressed in a methodical, systematic way. West Virginia is employing a multidisciplinary approach to address this problem and developing a strategic plan to guide its efforts. The Strategic Highway Safety Process should define a system, organization, and process for managing the attributes of the road, the driver, and the vehicle to achieve the highest level of highway safety by integrating the work of the disciplines and the agencies involved. These disciplines include the planning, design, construction, operation, and maintenance of the roadway infrastructure (engineering); injury prevention and control (emergency response/medical services); those disciplines involved in modifying road user behaviors (education and enforcement), and the design and maintenance of vehicles. A formal management process will direct the activities of these highway safety partners, both public and private, in a manner that will efficiently achieve the mission and vision.

## ***Mission***

Through the coordinated disciplines of engineering, enforcement, education, and emergency medical services, the State of West Virginia strives to improve roadway safety to minimize human and economic loss as well as to improve the quality of life.

## ***Vision***

All individuals using the roadway system arrive safely at their destinations.

## ***Goal***

The goal for West Virginia is to reduce highway related fatalities to zero. West Virginia has a goal of “Zero Fatalities...Saving One Life at a Time” with an interim goal of no more than 300 highway fatalities annually by 2010. This represents one hundred lives saved from the current average of 400 fatalities per year and translates to a 25% reduction.



## ***SHSP Developmental Process Guidance and Coordination***



The West Virginia Highway Safety Management Taskforce (HSMT) has taken on the overall responsibility of developing and coordinating the implementation of this Strategic Highway Safety Plan. The Division of Highways (DOH) which reports to the Secretary of Transportation is the focal point agency for the plan.

The HSMT is a group of representatives from many facets of state and federal agencies which all have some area of highway safety responsibilities within their purview. Since the early to mid 1990's this group has existed either formally or informally and has strived to coordinate and effectively manage highway safety programs and initiatives.

## ***Highway Safety Management Taskforce Partnership***

Division of Highways - Chair  
Governor's Highway Safety Program - Co-Chair  
State Police  
Division of Motor Vehicles (Driver Services)  
DHHR-Office of Emergency Medical Services  
Public Service Commission  
Insurance Commission  
Department of Education  
Parkways Economic Development & Turnpike Authority  
Federal Highway Administration  
National Highway Traffic Safety Administration  
Federal Motor Carrier Safety Administration

## ***Public Involvement***

While the HSMT was the main force behind developing this Strategic Plan, several other interest groups were involved through participation on emphasis area development teams and through a variety of forums. The culmination of this effort was a safety summit in November 2006.

After the nine emphasis areas were selected by the HSMT based on crash data, the Taskforce selected a leader for each. Those leaders reached out to other experts and advocates and as a team further researched the data and related issues. These teams developed preliminary initiatives.

A special effort was made to obtain input from the seven West Virginia Metropolitan Planning Organizations during two Safety Conscious Planning forums held during the development of this plan. Taskforce members have provided briefings and requested input on the plan from others such as the Local Technical Assistance Program (LTAP) and various other engineering, enforcement, education and emergency response interests.

On November 13-14, 2006 a Safety Summit was held in Charleston with representation from all groups that had been involved in development of the Plan. The forum was supported by top management from several State and Federal agencies. Additional input was provided through the participation of national highway safety leaders who have been involved in Strategic Plan development in other States. During the forum, participants finalized the mission, vision, goals, and initiatives.

### ***Emphasis Areas***

To achieve the established goal, emphasis areas were established by the HSMT based upon highway safety data and nationally recognized assessments that have been conducted over the past few years. These areas will provide the most opportunity for large reductions in highway fatalities and injuries. For each of the emphasis areas, strategic and coordinated initiatives in the areas of education, enforcement, emergency services and engineering will be developed.

1. Lane Departure & Minimizing its Effects
2. Impaired Driving
3. Speeding/ Aggressive Driving
4. Occupant Protection
5. Crash Survivability & Emergency Medical Services
6. At Risk Driver and User Groups
7. Highway Safety Data Improvements
8. Commercial Motor Vehicles
9. Continuing Successful Safety Programs & Initiatives

## Focus Area 1-Lane Departure & Minimizing its Effects

### Overview and Scope of Problem



Lane departure crashes, in which a vehicle unintentionally departs from its lane and crashes with another vehicle, rolls over, or hits a fixed object, are a substantial portion of the statewide crash problem. Table 2 shows crash data including the resulting injuries and fatalities from 2002, compiled by the Division of Highways. This data indicates that lane departure crashes accounted for approximately 42 percent of all injuries, 78 percent of all deaths and 33 percent of all crashes. Analysis for 2004 and 2005 data shows similar trends.

**Table 2**  
**Distribution of Lane Departure and All Crashes, Injuries, and Fatalities by Facility Type 2002**

Facility	Lane Departure Crashes	All Crashes	% All	Lane Departure Injuries	All Injuries	% All	Lane Departure Fatalities	All Fatalities	% All
<b>Interstate</b>	1,620	4,418	37	1,122	2,131	53	47	54	87
<b>Expressways (US &amp; WV)</b>	545	2,367	23	397	1,446	27	16	34	47
<b>US &amp; WV Routes (2 lane)</b>	6,482	24,260	27	4,858	13,803	35	177	231	77
<b>County Routes</b>	5,590	11,906	47	3,699	6,596	56	99	116	85
<b>Overall Totals</b>	<b>14,237</b>	<b>42,951</b>	<b>33</b>	<b>10,076</b>	<b>23,976</b>	<b>42</b>	<b>339</b>	<b>435</b>	<b>78</b>

### Goal

Reduce lane departure fatalities by 20% by 2010.

### Initiatives

#### Planning, Analysis & Engineering

1. Identify corridors with disproportionate numbers and high rates of lane departure crashes and conduct road safety assessments
2. Develop projects for installation of centerline rumble strip(e)s and cable barrier
3. Develop projects for installation of edgeline rumble stripes
4. Include the review and installation of signing, guardrail, and other safety features on resurfacing projects
5. Identify locations for removal, relocation or delineation of troublesome fixed objects



6. Incorporate proven strategies into policies, directives, standards and procedures
7. Develop projects for enhanced curve treatments and/or geometry improvements where cost effective
8. Increase paved shoulder widths and improve stone shoulder traversability
9. Consider center-left-turn-lane section on high volume, high turning movement routes with high lane departure rates
10. Utilize wider (6" or 8") markings where appropriate
11. Explore use of innovative friction treatments and increased skid testing

**Enforcement**

1. Develop high run-off rate route list for enforcement agencies to use in developing patrol routes
2. Correlate high impaired driving and high lane departure routes for even more effective enforcement

**Education**

1. Develop a multifaceted, targeted media campaign which combines impaired driving, seatbelts and lane departure (all rural road issues)
2. Develop maintenance safety training



**Table 3**  
**Alcohol Related Crashes**  
**2002-2005**

Year	Alcohol Related Crashes	% All Crashes	Alcohol Related Injuries	% All Injuries	Alcohol Related Fatalities	% All Fatalities	Alcohol Related Fatality Rate
2002	3,826	7.7	2,880	11.2	173	39.1	0.89
2003	3553	7.0	2,606	10.3	158	39.9	0.74
2004	3,726	7.5	2,712	11	120	29.4	0.70
2005	3,287	7.1	2,447	10.6	128	34.2	0.61
<b>Totals</b>	<b>11,105</b>	<b>7.4</b>	<b>10,645</b>	<b>14.1</b>	<b>579</b>	<b>36%</b>	

### *Goal*

Reduce the alcohol related fatality rate to under 0.50 per hundred million vehicle miles by 2010.

### *Initiatives*

#### **Planning, Analysis & Engineering**

1. Identify corridors with disproportionate numbers and high rates of alcohol related crashes
2. Develop DUI tracking system to provide timely information
3. Enhance BAC tracking system
4. Evaluate the alcohol and motorcycle relationship
5. Backtrack to point of sale to identify those that sell to underage or excessively drunk individuals

#### **Enforcement & Adjudication**

1. Continue sustained DUI enforcement
2. Expand the use of saturation patrols
3. Expand the use of low manpower checkpoints
4. Develop DUI revoked driver hot sheets to assist with the identification of repeat offenders at the time of traffic stop
5. Evaluate and potentially expand the "Make the Call" program currently being piloted in Mercer County
6. Increase compliance checks at point of sale emphasizing Class A establishments (liquor by the drink)
7. Prosecute repeat offenders aggressively

**Education & Awareness**

1. Brand DUI media campaign
  - Over the Limit, Under Arrest
2. Educate prosecutors and judges on the importance of impaired driving laws and their proper adjudication
3. Identify and promote enforcement efforts during expanded (less traditional) problem holidays/events
  - Halloween
  - St. Patrick's Day
  - Superbowl
4. Create stigma for DUI through improving public awareness of convictions
5. Expand SADD & MADD to improve education at the family and school levels
6. Develop a Designated Driver program
  - Explore public/private partnership for taxi service to home or safe location
7. Conduct comprehensive law enforcement training
  - Standardized Field Sobriety Testing
  - Checkpoints
  - Drug Recognition Experts (DRE)
8. Conduct comprehensive Alcoholic Beverage Server training
9. Recognize officers that aggressively enforce DUI laws

**Policy**

1. Encourage management support of DUI enforcement
2. Improve cooperation between law enforcement and ABCA
3. Expand Interlock program to make it mandatory for first offenders
4. Require mandatory enrollment in alcohol and drug treatment programs

**Legislation**

1. Enact statewide Open Container Law
2. Increase penalty for high BACs
3. Rewrite ABCA administrative rules
4. Rewrite DMV Administrative Revocation
5. Rewrite Criminal DUI law
6. Develop provisional licensing for first time offenders
7. Create DUI court system

### *Focus Area 3-Speeding/Aggressive Driving*

#### *Overview and Scope of Problem*

Speeding in combination with other aggressive driving behaviors appears to be a growing problem nationally and in the State. Some studies show that more than 60 percent of drivers see unsafe driving by others as a major personal threat to themselves and others.

A larger part of the problem with aggressive driving is defining it in a quantitative way, which would allow enforcement and adjudications. Volume 1 of the National Cooperative Highway Research Program (NCHRP) 500 Guide, defines aggressive driving as operating a motor vehicle in a selfish, pushy or impatient manner that directly affects other drivers. Most drivers understand what aggressive driving is when they see it but fully defining the scope is entirely another matter. Perception among law enforcement and the motoring public is that aggressive driving is becoming more prevalent.



Aggressive driving often manifests itself as a combination of speeding and recklessness, particularly dangerous highway behavior. Speeding (well above the speed limit), changing lanes frequently without signaling, following too closely, flashing headlights, driving on shoulders to pass, driving across marked barriers, shouting or gesturing at other drivers, uncontrolled anger, and stress created by traffic congestion are among the causes and manifestations of aggressive driving. Aggressive drivers also tend to be high-risk drivers who are more likely to ride unrestrained and also to drink and drive.

For the purposes of quantifying the impact of aggressive driving on crashes, a definition was proposed for “suspected aggressive driving crashes”. These crashes were identified as those with the contributing circumstances of Exceeding Speed Limit, Exceeding Safe Speed, Changing Lanes Improperly, Following Too Closely, Disregarded Traffic Control, and Passing Improperly. From Table 4, it is apparent that when using this definition, aggressive driving may be involved in over 14 percent of all crashes, 17 percent of injury crashes and 23 percent of fatal crashes.

**Table 4**  
**Suspected Aggressive Driving Crashes – 3 Years**

	Total Crashes	Suspected Aggressive Driving Crashes	
		Number	Percent of Total
<b>Crashes</b>	157,609	22,728	14.42
<b>Fatal Crashes</b>	1,139	264	23.18
<b>Injury Crashes</b>	50,193	8,523	16.98
<b>PDO Crashes</b>	106,227	13,941	13.12
<b>Injuries</b>	75,651	13,669	18.07
<b>Type A</b>	21,931	4,092	18.66
<b>Type B</b>	15,226	2,526	16.59
<b>Type C</b>	38,496	7,051	18.32
<b>Fatal</b>	1,233	290	23.52

Source: WVDOT Crash Database (July 1, 2002-June 30, 2005)

### *Goal*

Support Legislative efforts to define aggressive driving in West Virginia and to impose increasing penalties and fines on repeat offenders of aggressive driving laws.

### *Initiatives*

#### **Planning, Analysis & Engineering**

1. Identify aggressive driving through driver/crash/citation/adjudication databases for drivers meeting certain criteria
2. Add aggressive driving as a causative crash factor on the UTCR
3. Minimize work zone and other traffic delays which can lead to aggressive driving
4. Expand the appropriate use of speed monitoring trailers
5. Initiate changeable message signs in key locations to convey information to motorists regarding significant events which affect their travel.

**Enforcement**

1. Create or expand Targeted Enforcement Programs
2. Utilize aggressive driver hot sheets which identify drivers involved in multiple aggressive driving crashes.

**Education & Awareness**

1. Develop public information/tolerance campaigns for the dangers of aggressive driving
2. Conduct training for all law enforcement in West Virginia on how to detect aggressive drivers.
3. Promote use of advanced technologies for data collection and ultimately for automated enforcement and consistent adjudication.

**Legislation**

1. Support automated enforcement law – public support is critical
2. Develop a clear definition of aggressive driving through legislation to permit targeted/enhanced enforcement and consistent adjudication.

## Focus Area 4-Occupant Protection

### *Overview and Scope of Problem*

The combination of lap and shoulder belts, child passenger safety devices and airbags offer the most effective injury prevention intervention available for passenger vehicle occupants. In 2005, seatbelt use nationwide was 82% according to the National Highway Traffic Safety Administration (NHTSA).



In West Virginia, the 2006 Scientific Survey of seat belt usage revealed an 88.5% usage rate. This was a dramatic increase from the pre - 2001 rates which were in the high 40 to low 50 percentile range. Although West Virginia passed a secondary enforcement Seat Belt law in 1993, no significant increases in belt use occurred until WV adopted the "Click it or Ticket" model. After the law passed, there was a substantial reduction in fatalities and serious injuries, which has been sustained. In 2002, seatbelts were unused by more than 42% of those who died in highway crashes. Based on the 2005 Safety Belt Survey, NHTSA estimates that if WV were to pass a primary law, usage would rise by an estimated 6 percentage points. This would potentially prevent 18 fatalities, 188 serious injuries, and save \$36.9 million dollars in economic loss annually.

Table 5 shows the unbelted fatalities between 2002 and 2004 and Table 6 compares fatal and non-fatal injuries in 2003 fatal crashes. Looking only at belt use, those that were belted were twice as likely to survive the crashes.

**Table 5  
Unbelted Fatalities 2002-2004**

Year	Unbelted Fatalities	Percent of all Fatalities
2002	190	42.8%
2003	150	37.9%
2004	169	41.2%
<b>Average</b>	170	40.8%



**Table 6**  
**Comparison of Occupant Injuries by Occupant Protection Type**  
**In 2003 Fatal Crashes**

Occupant Protection	Fatal Injuries		Non-Fatal Injuries	
	Number	% of Injury Type	Number	% of Injury Type
None Installed	23	5.54%	15	3.01%
None Used	191	46.02%	120	24.10%
Lap Belt Only	2	0.48%	15	3.01%
Shoulder Belt Only	2	0.48%	6	1.20%
Lap and Shoulder Belts	102	24.58%	255	51.20%
Child Safety Seat	4	0.96%	13	2.61%
Helmet, Glasses / Shield	20	4.82%	4	0.80%
Unknown	71	17.11%	70	14.06%
<b>TOTAL</b>	<b>415</b>	<b>100.00%</b>	<b>498</b>	<b>100.00%</b>

*Note: Only includes occupants of vehicle in which the fatality(ies) occurred. Does not include pedestrian fatalities.*

### **Goal**

Increase seatbelt usage to 94% by 2010.

### **Initiatives**

#### **Planning, Analysis, Engineering-**

1. Evaluate the feasibility of a "ride the school bus program" for students who now use personal vehicles
2. Develop public and private (corporate) partnerships to increase seatbelt usage both on and off the job

#### **Enforcement**

1. Continue Click It or Ticket Statewide Mobilization
2. Utilize enforcement to increase seatbelt usage through:
  - Occupant Protection Information Checkpoints
  - Directed Patrols
  - Overtime Patrols
  - Selective enforcement in areas with low usage rates
  - Sustained enforcement of seatbelt law
3. Conduct Incentive Programs such as the LifeSavers Project for rewarding officers who aggressively enforce occupant protection laws

**Education**

1. Continue using the Click it or Ticket branding/model of high visibility and paid media messaging
2. Inform decision makers to gain support for enhanced seatbelt legislation and policies
3. Dedicate \$300,000 for Paid Media per year between 2007 and 2010
4. Produce and track \$200,000 in earned media per year between 2007 and 2010
5. Educate public on child safety restraint systems and occupant protection through Safe Communities Coordinators
6. Increase occupant protection programs geared toward teenagers

**Legislation**

1. Enact primary seatbelt law before July 2008
2. Upgrade existing seatbelt law to include all seating positions and to call for a minimum fine of \$25
3. Enact legislation that prohibits riding in the back of pick-up trucks
4. Enact legislation which requires the use of a helmet for all ATV Riders
5. Oppose any attempt to repeal the Motorcycle Helmet Law

## Focus Area 5- Crash Survivability/Emergency Response

### *Overview and Scope of Problem*

Trauma remains a major problem for West Virginia's rural population. The most common mechanism of injury in the rural area is blunt force. Nationally, twenty-five percent of all motor vehicle crashes occur in rural areas and two-thirds of all motor vehicle deaths occur in these rural areas. In a rural state such as West Virginia this situation is exacerbated. For any given injury severity, the chances of dying in the rural environment are greater than in the urban setting (American College of Surgeons, Resources for Optimal Care of the Injured Patient, 1999). More deaths occur at the scene in rural areas. Additionally, a greater chance exists for a disabling injury to occur.

The problems encountered in the rural setting that causes the increase in death and disabilities include: delay in discovery and delay in rapid response, long transport times, and limited resources. This delay decreases the ability of the trauma patient to receive the benefits of the "Golden Hour" (the optimum limit of one hour between the time of injury and surgery at the hospital). It is believed that survival rates increase in traumatic injuries when surgery occurs within this Golden Hour. The goal for on-scene time is not more than ten minutes unless extrication must occur. This important ten minutes is referred to as the "platinum ten minutes".



The following tables (Tables 7-10) describe emergency medical services information for 2005 fatalities:

**Table 7  
2005 Fatality Location**

232	62.0%	Died at the Crash Scene
5	1.3%	Died in Route to a Hospital
136	36.4%	Died After Reaching a Hospital
1	0.3%	Place of Death Was Not Reported
374		

**Table 8**  
**2005 Summary of Fatalities at Crash Scene**

67	28.9%	Were Killed During the Crash
150	64.7%	Were Alive Following the Crash
15	6.4%	Time of Death Was Not Reported
232		

**Table 9**  
**2005 EMS Information for the**  
**150 Fatal Victims Initially Surviving Crashes**

	<b>Average</b>	<b>Maximum</b>	<b>Minimum</b>
<b>Time for EMS to be notified</b>	14 min.	7 hrs., 26 min.	0 min.
<b>Time from notification to EMS arrival</b>	16 min.	1 hr., 8 min.	1 min.
<b>Time from crash to arrival of EMS</b>	19 min.	7 hrs., 35 min.	6 min.
<b>Time of crash to time of death</b>	35 min.	11 hrs., 50 min.	1 min.

**Table 10**  
**2005 EMS Information for the**  
**5 Fatal Victims Dying in Route to a Hospital**

	<b>Average</b>	<b>Maximum</b>	<b>Minimum</b>
<b>Time for EMS to be notified</b>	3 min.	5 min.	0 min.
<b>Time from notification to EMS arrival</b>	6 min.	12 min.	1 min.
<b>Time from crash to arrival of EMS</b>	9 min.	12 min.	6 min.
<b>Time of crash to time of death</b>	1 hr., 3 min.	1 hrs., 38 min.	44 min.

**Goal**

Reduction of response times greater than 20 minutes.

**Initiatives****Planning, Analysis & Engineering**

1. Continue the development of the Electronic Patient Care Record to access data on response time to crashes
2. Implement electronic EMS run form
3. Continue development of the Rural Inclusive Trauma System/Trauma Registry
4. Install reference markers (mile-markers) at appropriate intervals on rural expressways throughout the State

**Education & Awareness**

1. Promote prevention education in the arena of safety belt use, child safety restraints, and other forms of occupant protection
2. Work with cell providers to educate subscribers on benefits of "always on GPS location" functions on cell phones
3. Develop recruitment and retention plan for EMS providers

**Emergency Services**

1. Provide all citizens statewide with appropriate trauma care within the "Golden Hour" by dedicating resources to assure trauma centers' viability
2. Establish a comprehensive data collection system composed of injury surveillance and EMS run data which can be linked to the crash data system through a collaborative effort of all appropriate State agencies
3. Ensure ample EMS access & coverage statewide
  - Identify areas with greater than 20 minute response (notification to arrival)
  - Place personnel, equipment, stations in deficient areas
4. Improve and increase communication statewide
  - Cellular coverage
  - Interoperable coverage for service providers
  - Statewide transfer and transport protocols (right patient, right place, right time)
5. Expand the appropriate use of Critical Care Transport (CCT) Ambulances

## *Focus Area 6- At Risk Drivers & Users*

### *Overview and Scope of Problem*

Data analysis identified high-risk drivers and vehicle users that pose significant highway safety problems. Many fatal crashes have a strong root in driver error. The following drivers and vehicle users are of particular concern.

- Suspended or Revoked Drivers
- Unlicensed Drivers
- Multiple Crash/Citation Drivers
- Uninsured Drivers
- Younger Drivers
- Older Drivers
- Motorcyclists
- ATV Drivers

Suspended or Revoked and Unlicensed drivers pose a great risk to all highway users as they are either not trained or have exhibited behaviors resulting in the loss of driving privileges. West Virginia Division of Motor Vehicles administers a program that is charged with ensuring that those issued licenses are competent to operate on public highways. Of those drivers that have lost the privilege to drive, it is estimated (source: VDOT) that three-fourths continue to drive. National studies indicate that those motorists that are unlicensed, suspended or revoked are over-represented in violations and crashes by a ratio greater than 3 to 1. West Virginia is working to fully define this problem in West Virginia through numerous data enhancements within the crash form and driver record. Table 11 shows the percent of fatal crashes involving drivers that are not licensed or are driving under a suspended or revoked status.

**Table 11**  
**Percent of Fatal Crashes Involving**  
**Non-Licensed, Suspended, or Revoked Drivers**

<b>DL Status</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Not Licensed	4.7%	5.6%	3.2%	9.8%	14.5%
Suspended	6.9%	8.5%	5.0%	5.5%	8.3%
Revoked	6.9%	2.9%	4.7%	4.9%	4.6%
<b>Total</b>	<b>18.6%</b>	<b>17.0%</b>	<b>12.9%</b>	<b>20.2%</b>	<b>27.4%</b>



Drivers involved in multiple crashes also having multiple citations and convictions are obviously of concern. Initial crash data combined with conviction data, indicate that drivers with multiple offenses are also surfacing as a significant problem in West Virginia.

Uninsured vehicles are involved in roughly 8% of all crashes in West Virginia. While this is not an overwhelming issue by itself, there appears to be a relationship between uninsured vehicles and motorists exhibiting risky behaviors on the highway. On an annually basis, roughly 10,000 driver licenses are suspended as a result of the vehicle owner not carrying insurance.

Nationally, young drivers are substantially over-represented in traffic crashes. Drivers between the age of 15 and 25 account for about 10% of licensed drivers but are involved in 31% of all crashes. Inexperience and risky behaviors come together for drivers of this age group and have detrimental consequences. In West Virginia, over 18% of all fatalities are drivers between the ages of 15-20. Drivers in this age range represent only 6% of licensed drivers. Table 12 shows younger driver fatality information between 2002 and 2004.

**Table 12**  
**Younger Driver Fatalities (2002-2004)**

Year	Younger Driver Fatalities (Age 15-20)	Percent of all Fatalities
2002	87	19.6%
2003	74	18.7%
2004	66	16.1%
<b>Average</b>	<b>76</b>	<b>18.2%</b>

Older drivers, also commonly referred in highway safety literature as senior or mature drivers have significant experience with the driving task; however, during this time in the motorist's life driving challenges develop such as eyesight degeneration, hearing loss, slowing reflexes and cognitive abilities and in some cases dementia. Older drivers also tend to sustain more severe injuries in crashes. In West Virginia, on an annual basis, 16 percent of all fatalities are older drivers. As drivers age, they tend to drive fewer miles but as overall exposure lowers, crash involvement does not seem to drop at the same rate. Drivers 65 and older represent about 19 percent of the licensed drivers, so the percent of fatalities in that age range are not overrepresented; however, depending on the year reviewed, somewhere between the age of 65 and 70 this trend changes and

older drivers become over-represented. West Virginia has the 3<sup>rd</sup> highest the median age in the United States. As such, older driver safety must be a priority for the State. Table 13 shows the number of older driver fatalities between 2002 and 2004.

**Table 13**  
**Older Driver Fatalities (2002-2004)**

Year	Older Driver Fatalities (65+)	Percent of all Fatalities
2002	67	15.1%
2003	72	18.2%
2004	65	15.9%
<b>Average</b>	<b>68</b>	<b>16.3%</b>



Motorcycle registrations are increasing in West Virginia. While nationally motorcyclists account for about 0.4 percent of miles traveled, their fatalities are over-represented. Annually, about 29 motorcyclists die on West Virginia highways. This correlates to about 7% of the overall highway fatalities. Motorcyclists are 7 times more likely to be severely injured and 14 times more likely to be fatally injured than other motorists overall in West Virginia. Table 14 shows motorcycle fatality information between 2002 and 2004.

**Table 14**  
**Motorcycle Fatalities (2002-2004)**

Year	Motorcycle Fatalities	Percent of all Fatalities
2002	28	6.3%
2003	31	7.8%
2004	28	6.8%
<b>Average</b>	<b>29</b>	<b>7%</b>

All Terrain Vehicles (ATV) are legally permitted to travel on nearly 60 percent of the state highway system with little restriction and are able to utilize some portion of the other routes to provide connectivity. This legislation became effective in 2004. ATV crashes on the highway continue to increase every year. Table 15 shows the number of ATV fatalities on the state highway system between 2002 and 2004.





**Table 15**  
**ATV Fatalities (2002-2004)**

<b>Year</b>	<b>ATV Fatalities</b>	<b>Percent of all Fatalities</b>
<b>2002</b>	15	3.4
<b>2003</b>	22	5.6
<b>2004</b>	17	4.1
<b>Average</b>	18	4.3

### **Goal**

20% reduction of fatalities in each of the driver categories/user groups

### **Initiatives**

#### **Overall**

1. Make crash history part of the driver record for full identification by enforcement and insurance of problem drivers (currently requires data linkage)
2. Improve prosecutor/judge training on importance of traffic safety issues
3. Enhance driver evaluations at license renewal
4. Enhance identification of problem drivers for medical review and retesting process
5. Enact cell phone restriction legislation

#### **Suspended/Revoked**

1. Identify locations with overrepresentation of suspended/revoked drivers and target enforcement
2. Develop suspended/revoked driver hot sheets for law enforcement
3. Develop enforceable criminal laws on driving while suspended

#### **Uninsured Drivers**

1. Require insurance companies to provide DMV with electronic notification of insurance cancellations

**Older Drivers**

1. Evaluate recommendations from the Older Driver Handbook for implementation to improve the roadway environment to accommodate Older Driver needs
2. Provide the public with information on the availability of identification cards versus drivers license

**Younger Drivers**

1. Enhance law enforcement training on Graduated Driver Licensing
2. Improve Crash form to include Graduated Driver License gradients

**Motorcyclists**

1. Enforce the use of "approved" helmets
2. Restrict sale of "DOT approved" helmet stickers
3. Increase motorcycle safety course training sites and attendance
4. Identify motorcyclists without license endorsements
5. Limit number of motorcycle learners permits in a specific time frame to eliminate the "habitual" learner
6. Enhance legislative rules on bike vs. trike endorsement

**ATV**

1. Improve overall understanding of ATV legislation and its relationship to vehicle code and traffic violations
2. Support legislation to make ATVs off-road only
3. Require ATV safety course
4. Expand the helmet law
5. Require liability insurance
6. Develop ATV crash tracking system through the existing crash form for on and off road crashes

## ***Focus Area 7- Highway Safety Data Improvements***

### ***Overview and Scope of Problem***

Good information, properly used, is the cornerstone of sound highway safety decisions. Knowing the “how, who, when, where, and why” of crashes is the foundation of a comprehensive traffic safety analysis system. While crash data may be the most utilized element of this system, traffic, roadway environment, citation, emergency medical services and injury surveillance, courts, and driver records are also key elements needed to determine where limited funding, staffing and other resources should be dedicated. Traffic safety data should be made readily available for analysis and use in the formation of safety policy as well as the evaluation of safety decision and programs.



The technology exists to gather, integrate, and utilize information on a wide variety of important traffic safety issues. Understanding and using information technology to the greatest advantage is a critical challenge in this state and nationally.

In September 2006, West Virginia participated in a Traffic Records Assessment. The recommendations made by the assessment team are being prioritized through the Strategic Traffic Records Committee and many are included within the initiatives of this Emphasis Area. Additionally, the WVDOH participated with FHWA on a Continuous Process Improvement Study with the focus of Crash Records. The findings of that report have also been incorporated as appropriate.

### ***Goal***

Timely, reliable crash data that can be analyzed in relation to other highway and traffic safety data to provide a clear picture of highway safety issues

### ***Initiatives***

#### **Overall**

1. Develop long term traffic records strategic plan through the Strategic Traffic Records Coordinating Committee
2. Characterize repeat offenders and identify remedial measures
3. Develop a standard data set, layout and data dictionary for all highway safety (traffic safety) data files
4. Develop a research safety data set

**Crash & Roadway Files**

1. Revise Uniform Traffic Crash Report
2. Institute electronic crash data collection
3. Establish a crash form/electronic crash data collection help desk
4. Develop plan to ensure data continuity while implementing the new crash form and electronic crash software
5. Revise highway databases as necessary to enable ease of linking with crash data to enhance correlation of crash data with roadway inventory elements
6. Establish GIS as roadway data platform and latitude/longitude coordinates as primary location reference method
7. Develop statistical reports and data query capabilities that allow easy access to appropriate information for the public and other data users potentially through web based applications
8. Provide an appropriate level of data user training for effective utilization of the new crash data and system capabilities
9. Expand and facilitate the procurement of GPS locator equipment for enforcement

**Driver & Vehicle Files**

1. Establish specific plans for integrating and upgrading the separate vehicle and driver files
2. Revise personal identification requirements for registration and title files to correlate with vehicle and driver files and link files
3. Record driver histories from previous states of record for non-commercial drivers
4. Add crash involvements to driver record
5. Link citation data to driver history data

**Enforcement & Adjudication Files**

1. Institute electronic citation
2. Develop centralized case management system for the Magistrate and Circuit Courts to enable electronic reporting and enhance analysis
3. Develop electronic transfer of citation and disposition information between law enforcement, court, and DMV
4. Develop DUI tracking system

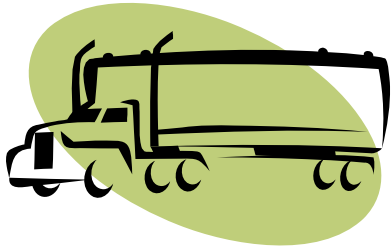
**Emergency Services**

1. Implement electronic EMS data collection
2. Initiate links between trauma center data and crash records to ensure accuracy
3. Establish rules that mandate the reporting of EMS and trauma data to the State data repository (legislation if necessary)
4. Establish a statewide Emergency Department Data Collection and Analysis system
5. Promote use and accessibility of EMS and trauma data for safety partners

## Focus Area 8 – Reduction of Commercial Vehicle Crashes

### *Overview and Scope of Problem*

Heavy-truck crashes, especially those involving other vehicles, are likely to result in serious injury. Between 2002 and 2005, 245 individuals were killed on West Virginia highways as a result of heavy-truck crashes. This translates to 15 percent of all fatalities in the State with the fatality usually occurring outside the truck environment.



The commercial motor vehicle safety issue is multifaceted and solutions must include several areas including adherence of the driver and motor carrier to the Federal Motor Carrier Safety Regulations (FMCSR) and educating the general public on safe driving behavior around CMV's. The CMV related fatalities account for 13-15% of the overall fatality rate in WV. Table 16 shows large truck crash information between 2002 and 2005.

**Table 16**  
**Large Truck Crashes**

Year	Large Truck Related Crashes	Percent of All Crashes	Large Truck Related Injuries	Percent of All Injuries	Large Truck Related Fatalities	Percent of All Fatalities
2002	3,772	7.6	1,447	5.6	69	15.6
2003	3176	6.2	1,210	4.8	56	14.1
2004	3,071	6.2	1,154	4.7	66	16.2
2005	3,077	6.6	1,220	5.3	54	14.4
<b>Totals</b>	<b>10,019</b>	<b>6.7</b>	<b>5,031</b>	<b>6.7</b>	<b>245</b>	<b>15%</b>

### *Goal*

To reduce the CMV fatality rate by 50% from 1996 to 2010. This should result in a rate of 1.0 fatality per 100 million vehicle miles traveled by 2008. Using the baseline of 60 fatalities in 1996 this translates to 30 fatalities by 2010.

## *Initiatives*

### **Planning, Analysis, & Engineering**

1. Identify curve locations on expressways with concentrations of truck roadway departure and implement enhanced chevrons and truck tipping signing
2. Create additional rest areas or parking areas along routes with high commercial motor vehicle travel
3. Continue to work with all appropriate agencies to ensure the implementation of the electronic crash form and citation
4. Ensure that all required commercial motor vehicle data elements are collected on the uniform crash report and citation
5. Implement the electronic licensing and testing programs for commercial driver licenses to eliminate the fraud of these licenses and to insure that driver testing is legitimate

### **Enforcement**

1. Increase vehicle inspections in higher crash areas.
2. Continue to fund and staff CMV Inspectors to the increased level of 78
3. Increase inspections to 19,000 annually
4. Increase the number of compliance reviews aimed at the unsafe motor carriers by 10%
5. Targeted radar based speed enforcement in high crash areas
6. Conduct commercial vehicle seatbelt enforcement by participating in both the Click It or Ticket and the Be Ready Be Buckled campaigns
7. Increase complaint based weight enforcement
8. Continue PRISM grant participation to more efficiently conduct inspections through the use of new technologies such as barcode scanners
9. Expand cooperative efforts between Public Service Commission officers and other enforcement agencies
10. Encourage enforcement officers to issue more moving violations during traffic stops, as they are the driver's responsibility rather than the vehicle owner's responsibility

### **Education**

1. Increase *No Zone* and *Share the Road* presentations in schools and other appropriate venues
2. Train inspectors on use of new inspection technologies

3. Encourage commercial carriers to hire “professional” drivers through the Safety Audit Process
4. Increase public education on how to appropriately and safely operate vehicles around a commercial motor vehicle
5. Educate enforcement officers on the importance of insuring the information provided to them during a traffic stop is for the correct driver and vehicle
6. Train enforcement officers on the proper determination of whether a driver is qualified to be operating a commercial motor vehicle. Include the identification of fatigued and impaired drivers.
7. Educate enforcement officers on the type of violations, such as moving violations, which are a commercial motor vehicle driver’s responsibility versus those which are the commercial carrier or vehicle owner’s responsibility, such as equipment deficiencies
8. Improve training available to enforcement on commercial motor vehicle issues that they may encounter when reporting a crash or issuing a citation

### **Legislation**

1. Increase Public Service Commission’s enforcement authority beyond commercial motor vehicles.



### Focus Area 9 – Continuing Successful Safety Programs & Initiatives

#### Overview and Scope of Problem

West Virginia has many successful on-going safety initiatives that are contributing to the overall safety goal. With increased cooperation and coordination among the safety partners these efforts will continue to reduce the number and severity of crashes. These initiatives include:

- Intersections
- Pedestrian and Bicycle Safety
- Railroad Highway Grade Crossings
- Safe Routes to School
- Wildlife Crashes
- Work Zone Safety (Temporary Traffic Control)

**Table 17**  
**Intersection Crashes**

Year	Number Fatal Crashes	Number Fatal Crashes Located at Intersection	Percent of Fatal Crashes at Intersections	Number Intersection Related Fatal Crashes	Total Percent Intersection & Intersection Related Fatal Crashes of all Fatal Crashes
2002	400	32	8	3	8.8
2003	362	33	9.1	3	9.9
2004	381	37	9.7	6	11.3
2005	347	39	11.2	5	12.7

**Table 18**  
**Pedestrian Crashes**

Year	Pedestrian Crashes	Percent of All Crashes	Pedestrian Injuries	Percent of All Injuries	Pedestrian Fatalities	Percent of All Fatalities
2003	318	0.6	273	1.1	23	5.8
2004	297	0.6	241	1	25	6.1
2005	295	0.6	239	1	23	6.2
<b>Totals</b>	<b>910</b>	<b>0.6</b>	<b>753</b>	<b>1</b>	<b>71</b>	<b>6.0</b>

**Table 19**  
**Railroad Highway Grade Crossing Crashes**

Year	Railroad Crossing Crashes	Percent of All Crashes	Railroad Crossing Injuries	Percent of All Injuries	Railroad Crossing Fatalities	Percent of All Fatalities
2003	30	0.06	14	0.06	3	0.8
2004	19	0.04	4	0.02	0	0
2005	24	0.05	3	0.01	1	0.3
<b>Totals</b>	<b>73</b>	<b>0.05</b>	<b>21</b>	<b>0.03</b>	<b>4</b>	<b>0.04</b>

**Table 20**  
**Work Zone Crashes**

Year	Work Zone Crashes	Percent of All Crashes	Work Zone Injuries	Percent of All Injuries	Work Zone Fatalities	Percent of All Fatalities
2003	329	0.6	158	0.6	4	1
2004	284	0.6	108	0.4	4	1
2005	247	0.5	130	0.6	5	1.3
<b>Totals</b>	<b>860</b>	<b>0.6</b>	<b>396</b>	<b>0.5</b>	<b>13</b>	<b>1.1</b>

### *Goal*

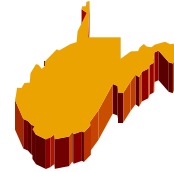
The goal in these programs/initiatives is to retain the low number of crashes WV has been experiencing in recent years by continuing these programs. To increase the effectiveness of all of these programs, the initiatives will focus where these programs can assist in improvements in the other SHSP emphasis areas.

In addition, a goal has been established for a 20% reduction (by 2010) in the number of severe (fatal and type A) crashes in those areas experiencing over 100 severe crashes annually.

## *Initiatives (Planning/Engineering, Enforcement, Education, & Emergency Services)*

### Statewide

1. Review intersections, railroad crossings, elementary schools, pedestrian and biking activities, etc. along corridors with high crash rates. Refer problem locations and activities to program coordinators to address through eligible improvements
2. Improve Incident Management practices
3. Develop Statewide Smart Traffic Management Center



### Intersection

1. Revise crash report form to better identify intersection crashes and related issues
2. Work with municipalities to ensure optimized signal operation
3. Consider the addition of acceleration or merge lanes at intersections for left turning vehicles when assessing improvements that can be made to the operation of an intersection
4. Review the possibility of adding electronic "No Turn On Red" signs which are activated when pedestrian signals are in the walk phase at intersections with significant pedestrian volumes
5. Review intersections for possible sight distance improvements.
6. Explore access management policies and procedures



### Highway Railroad Grade Crossings

1. Maintain candidate railroad crossing list
2. Continue program of installations and improvements to active traffic control devices and program of surface improvements at railroad crossings
3. Maintain and upgrade signs and markings at railroad crossings
4. Continue participation in Operation Lifesaver activities as well as regional and national activities supporting railroad safety



### School Related Highway Safety

1. Upgrade all school zone signs
2. Assess the transportation modes at qualified SRTS schools and evaluate potential improvements to initiate projects and activities with available funding



### Work Zones



1. Continue Fatal Work Zone Crash Reviews
2. Update Work Zone policies and procedures to meet the final Work Zone Safety and Mobility rule requirements
3. Continue use of Traffic Director in Work Zones
4. Initiate program and promote training of all personnel involved in work zones (including DOH, contractors, and emergency personnel). Include the importance of signing consistency and credibility during this training
5. Promote use of public information and outreach strategies for significant projects

### Pedestrian & Bicycle Accommodations

1. Work with municipalities to maintain and increase mileage of marked bicycle routes
2. Review and consider updating the Design Directive for Bicycle and Pedestrian accommodation
3. Implement recommendations from Safety Circuit Rider pedestrian reviews and continue reviews in next tier locations
4. Implement pedestrian crossing enforcement campaigns in high pedestrian areas such as universities and central business districts
5. Consider the use of the *Highways or Dieways* campaign to educate the public to pedestrian safety



## ***Implementation & Accountability***

This plan contains recommendations and strategies covering a multitude of disciplines. Implementation will require coordination and accountability among the various partners to achieve a comprehensive approach to reduce highway fatalities and severe injuries.

The Division of Highways, as lead agency on the Strategic Plan, has the ultimate responsibility for ensuring its implementation through the Highway Safety Management Taskforce; however, it will take the efforts of many through various organizations to successfully deliver these improvements. Each of the emphasis area teams will be shifting their focus to implementation and evaluation. It has been suggested that each emphasis area team develop an implementation plan that fully details each strategy and the evaluation components. During development of implementation plans, agencies and key individuals within those agencies will be identified as having primary responsibility for specific emphasis areas.

## ***Evaluation***

Evaluation is a critical component of the Strategic Highway Safety Plan. It provides a tool to measure success and begins to map the future direction of the plan. Ultimately, the key measurement will be the reduction of fatalities and severe injuries.



The ability to appropriately evaluate implemented strategies is critical. Many strategies within this plan are proven effective, while others are considered experimental. Monitoring and evaluation will allow West Virginia to identify effective countermeasures which should be continued and enhanced, to

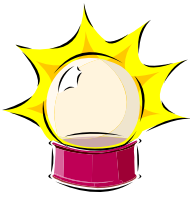
refine strategies that may not be performing as well as predicted and to eliminate those that looked promising but are not performing well.

With this in mind, the Highway Safety Management Taskforce will develop a tracking system to monitor the status of this plan and the effect it has on highway safety in the State.

### *Next Steps*

The Division of Highways will lead the development of implementation plans to execute the initiatives in this plan. While extensive work is currently underway to implement many initiatives that are outlined in this plan, a coordinated effort will begin through upcoming Highway Safety Management Taskforce meetings in Summer and Fall 2007 to devise both emphasis area implementation plans and an overall detailed management plan for the Strategic Highway Safety Plan.

### *Conclusions*



To be effective, a plan cannot rest upon a shelf. It must be refined over time to address changing conditions. With that in mind the Strategic Highway Safety Plan is viewed as a dynamic document and ultimately will evolve as West Virginia implements this plan and evaluates its outcomes.