



Meeting Agenda

Tuesday, October 4, 2016, 9:30 AM – Noon

- 1. Welcome and Introductions**
- 2. Emphasis Area Focus – INTERSECTION SAFETY**
 - **George Fallat P.E.**, Traffic Engineer, Mercer County Engineering Department: Common sense solutions to intersection safety
 - **Ian Stoddart**, Deputy Chief, Volunteer Medical Service Corps (VMSC) of Lower Merion and Narberth: A first responder's perspective on improving intersection safety
- 3. Developing Action Items**

The RSTF will refine strategies from the 2015 Transportation Safety Action Plan and develop volunteer action items, which will be tracked in the Measurements and Status Table.
- 4. Follow-up from Previous Meetings**
 - Approval of June 2016 meeting highlights
 - Action item updates
- 5. First Responders' Update**
- 6. Legislative Update**
- 7. DVRPC Staff Updates on Safety Efforts**
 - RSTF FY'17 Special Safety Study – Speeding
 - Streamlined Pedestrian and Bicyclist RSA wrap up
 - Safety funding resources and DVRPC's relationship to RSTF
 - Regional Stakeholder's Safety Projects Update
- 8. Member Updates and Open Forum**

LUNCH

RSTF Goal: To reduce roadway crashes, injuries, and fatalities in the Delaware Valley

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Highlights of June 29, 2016 RSTF Meeting

All presentations and related meeting handouts are located on the RSTF Website:

<http://www.dvrpc.org/Committees/RSTF/Presentations/2016-06.pdf>

1. Welcome and Introductions (9:38 AM)

The meeting was called to order by RSTF Co-Chair Bill Beans, Program Manager, MBO Engineering. After welcoming everyone, he invited participants to introduce themselves. Mr. Beans then reviewed the agenda, noting that the emphasis area discussion and developing action items exercise will start at the beginning of the meeting, a change from the usual order.

2. Emphasis Area Focus – Sustain Safe Senior Mobility (9:43 AM)

Three speakers presented on ‘Sustain Safe Senior Mobility.’ Bill Ragozine, Executive Director, Cross County Connection Transportation Management Association (CCCTMA), discussed a recent senior-focused pedestrian safety project on US 130 in Burlington County; Jana Tidwell, Manager, Public and Government Affairs, AAA Mid-Atlantic, addressed senior driving and AAA’s resources to help mature drivers; and Ray Rauanheimo, Volunteer Coordinator, AARP Pennsylvania, discussed AARP trainings for both older drivers and their caretakers.

Mr. Ragozine opened by stating that US 130 in Burlington County is a logical choice for a pedestrian safety project, as it has been repeatedly identified as one of New Jersey’s most dangerous roads for pedestrians. US 130’s pedestrian facilities are limited and those that do exist often are not up to usable standards (namely cracked, uneven sidewalks). To undertake this project, Mr. Ragozine applied for a New Jersey Division of Highway Traffic Safety (NJDHHS) grant and partnered with the Burlington County Sheriff’s Office, focusing on Burlington City’s section along the corridor.

There were two main parts to this project: a senior pedestrian education program focusing on crosswalks, and a study comparing walking speeds of seniors to other pedestrians in crosswalks. Mr. Ragozine stated that guidance from the Manual on Uniform Traffic Control Devices (MUTCD) suggests a crossing interval of 3.5 feet/second for pedestrians. The senior pedestrians studied averaged 2.43 feet/second, considerably slower than average. Based on this finding, it was suggested that the current crossing allowances in this section of US 130 were not adequate for seniors to safely cross the road. To make crosswalks useful to seniors, the study suggests either signal timing changes or accommodations, such as a separate button, be made for those who need more time to cross the street. CCCTMA produced a brief report detailing these findings, and Mr. Ragozine said he would be happy to share the report.

Questions:

- Kevin Murphy, Assistant Manager of Transportation Safety, DVRPC: Did you find a critical mass of seniors walking on the primary road itself?

- Mr. Ragozine: Yes. Many seniors are concerned about walking on cracked sidewalks and uneven surfaces, so they walk on the roadway and/or shoulders.
- Mr. Beans: What changes have happened as a result of the study? What is the DOT doing to effect change?
 - Mr. Ragozine: The DOT is looking into ways to improve the pedestrian situation for seniors.
- Amanda Lozinak, Manager of Community Engagement, TMA of Chester County: Did you observe drivers getting impatient?
 - Mr. Ragozine: No, drivers weren't observed as being overly aggressive.

Ms. Tidwell presented on senior driving issues and AAA's resources to help senior drivers. She pointed out the following facts: senior drivers are the fastest-growing segment of drivers; in general, senior drivers crash less frequently than younger drivers; the biggest issue for senior drivers is fragility; 90% of seniors say that *not* driving would be a problem; over 75% of senior drivers are on medications. Ms. Tidwell mentioned AAA and other agencies hold CarFit events at which a technician helps the driver set up his or her car to maximize safe driving. Roadwise Review is a AAA online driving self-assessment for seniors. Upon successful completion of the assessment, participants are eligible for insurance discounts. Roadwise Rx is an online interactive tool that allows users to enter their medications and receive information about possible drug interactions that can impair driving. More information and resources for older drivers can be found on AAA's website www.seniordriving.aaa.com.

Questions:

- Mr. Beans: How many people visit these websites?
 - Ms. Tidwell: Unsure, but I'll look into it.
- Peggy Schmidt, Executive Director, Partnership TMA: Is there a fee for CarFit? Where are events held?
 - Ms. Tidwell: There is no fee, and event locations are on CarFit's website. Roadwise Review does have a fee (\$20, but there are discounts); Roadwise Rx is free.

Mr. Rauanheimo presented on AARP trainings for older drivers and their caretakers. He also mentioned his extensive experience with the programs that Ms. Tidwell presented, and he was glad to see the recent focus on the effect of medications on older drivers. In terms of AARP's trainings, Mr. Rauanheimo said that the association's Safe Driver Course, which has been operating for 30 years, recently adopted its sixth update (the course is now in its 7th edition). Mr. Rauanheimo noted that AARP offers a seminar for caregivers called 'We Need to Talk' on how to discuss safe driving with seniors (i.e. ways to monitor driving, and how to approach difficult topics like giving up the keys).

Mr. Rauanheimo then invited RSTF member Warren Strumpfer, to share his experience with medical interactions and safe driving. Mr. Strumpfer discussed his experience using Roadwise Rx and lauded the site for its usefulness. He then made a call for the RSTF to develop an action team to encourage the medical community to get involved. His goal would be for the resources mentioned by Ms. Tidwell and Mr. Rauanheimo to be automatically addressed in the medical system (by pharmacists, doctors, etc).

Questions:

- Mr. Beans: Are any of AARP's resources online?
 - Mr. Rauanheimo: Driver Safety Course listings are online. The cost of the course is \$20, but discounted to \$15 for AARP members.

3. Developing Action Items (10:20)

Engineering Group (Bill Beans - lead, Kevin Murphy - assist). Mr. Beans spoke for the group outlining the following action items, all of which will be reported back at the next RSTF meeting by the following volunteers:

- Vince Cerbone, Traffic Control Specialist Supervisor, PennDOT District 6: Analyze data to identify corridors and intersections with high densities of seniors;
- Janet Arcuicci, Senior Multi-modal Transportation Planner, Montgomery County Planning Commission, and Kevin Murphy: Identify nodes (specifically intersections) that are heavily used by seniors from county-wide and region-wide perspectives;
- Bill Beans: Talk to NJDOT, report back with ways that NJDOT can partner on these issues, especially extending crossing times at intersections.

The engineering group brought a couple observations from their discussion that they deemed significant:

- Pat Ott, Managing Member, MBO Engineering, mentioned NJDOT changes to road signs that had benefitted seniors. Specifically, letter sizes were increased and road directions were added;
- Mr. Cerbone mentioned District 6-0's use of Type 11 reflective sign sheathing which provides increase visibility and is beneficial to all.

Education Group (Peggy Schmidt - lead, Jesse Buerk, Senior Transportation Planner, DVRPC - assist): Mr. Buerk spoke for the group outlining the following action items, all of which will be reported at the next RSTF meeting by the following volunteers:

- Mr. Buerk: Post senior resources on the DVRPC website and through DVRPC social media outlets; compile a list of DVRPC resources and disseminate at next RSTF meeting;
- Ms. Lozinak: Pull together and share information from different transit agencies about free/cheap transit options for seniors;
- Eric Oberle, Senior Engineer, NJDOT: Share senior driver safety countermeasures identified in NJDOT Strategic Highway Safety Plan (SHSP).

Enforcement Group (Richard Simon, Deputy Regional Administrator, NHTSA Region 2 – lead, Paul Carafides, Senior Transportation Planner, DVRPC - assist). Mr. Carafides spoke for the group outlining the following highlights from their discussion. No volunteer actions resulted from this group.

- Pass RSTF data along to law enforcement to help them with enforcement and outreach;

- Connect law enforcement to resources that they could hand out to seniors at a traffic stop;
- Train law enforcement on senior driving issues;
- Advocate for changes in the judicial arm of enforcement. After stops, encourage education and training instead of fines.

EMS/Policy Group (Alex Rodriguez, Operations Manager, Autobase – lead, Zoe Neaderland, Manager of Office of Transportation Safety and Congestion Management, DVRPC assist). Ms. Neaderland spoke for the group outlining the following action items, all of which will be reported back at the next RSTF meeting by the following volunteers:

- Warren Strumpfer, Traffic Safety Advocate/Citizen and Ray Rauanheim: Develop a research-based letter on medicines' effects on driving, share with the RSTF for discussion and endorsement
 - Yocasta Lora, Associate State Director of Community Outreach – Philadelphia, AARP Pennsylvania: Identify a well-known expert to endorse, sign off on the letter described by Mr. Strumpfer.
- Bill Ragozine: Distribute palm cards on senior mobility resources to doctors and pharmacies;
- Alex Rodriguez: Disseminate safety information to safety patrols;
- Zoe Neaderland: Use DVRPC's social media to tweet about saving money on insurance by taking class.
- Lori Aguilera, Project Director, Safe Kids – Chester County offered to prepare a personal letter to her legislator about the value of regularly retesting older drivers or all drivers, with a focus on saving lives. Retesting senior drivers is not an adopted recommendation of the Regional Transportation Safety Action Plan, but this letter will be distributed to RSTF members for those who would personally like to use all or part of it.

4. Follow-Up from Previous Meetings (11:15)

Mr. Beans asked the participants for comments or to approve minutes from previous meeting; it was approved without comment.

Mr. Beans then handed the floor off to Mr. Murphy to discuss action items from previous meetings. He noted that the March 2016 RSTF meeting was a joint gathering with the I-76/I-476 Crossroads Incident Management Task Force (IMTF), at which no new volunteer action items were developed because of the format of that special joint meeting.

Of the six action items developed at the December 2015 meeting, Mr. Murphy had received updates from four volunteers as of 6/29/16:

- Bill Deguffroy, Transportation Planner, Chester County Planning Commission, reported that he'd posted and tweeted about AAA metrics on aggressive driving;
- Gus Scheerbaum, ARLE Grants Program Manager, City of Philadelphia, researched links on sites funded by the FHWA (DVRPC offered to share these with the task force);

- Mr. Beans facilitated training sessions for police supervisors on the proper use of the NJTR-1 crash reporting form. He also reported that a team from Rutgers University had delivered NJTR-1 presentations to over 200 police officers, with 12 future trainings scheduled for at least another 50 officers. The presentations stress the importance of the NJTR-1, discuss the best ways to identify crash types, and go through best practices in filling out forms. Mr. Beans' report is a follow-up to an action item he volunteered for at the December 2015 meeting on aggressive driving.
- Ms. Ott reported she has been encouraging NJDOT's Statewide Traffic Records Coordinating Committee (STRCC) to adopt an aggressive driving definition and she's hoping to take it up again at their next quarterly meeting in September. She's also been working with the STRCC on the NJTR-1 form update.

5. Update from the First Responders (11:20)

Jim Diamond, Officer, Philadelphia Police – Truck Enforcement Unit, reported that Philadelphia Police Department is working hard to get ready for the 4th of July and the Democratic National Convention (DNC). He encouraged participants to speak up about unsafe actions at all times, but especially during large events like these. Officer Diamond also informed the RSTF that he expects to see numerous protests, especially during the DNC.

Mr. Rodriguez added that safety patrols will be out 24 hours/day over the weekend of the 4th and during the week-long DNC. These patrols will focus on major expressways.

Mr. Carafides reported on the region's IMTFs. A peer exchange of incident responders was held on June 7th to discuss part-time shoulder use (hard shoulder running) on I-76. Also, the New Jersey statewide incident management guidelines were revised, and are now awaiting endorsement by the New Jersey Attorney General's Office. Mr. Carafides expected the new guidelines will be approved and finalized soon. The major change is to apply the guidelines to all roads rather than just to interstate highways. Finally, Mr. Carafides informed the RSTF that DVRPC is in the process of updating both its Traffic Operations Master Plan and Regional Integrated Multi-Modal Information Sharing System Project (RIMIS). A progress update on those efforts will be available at the next RSTF meeting.

Mr. Beans discussed changes to the NJTR-1, noting that the new form includes additional information about traffic conditions at the time of a crash. For example, whether or not the crash is primary or secondary, that is, whether it was a unique incident or related to a prior crash.

6. Legislative Update (11:28)

Ms. Tidwell encouraged participants to read "Pennsylvania 2016 – Key Legislative Issues (June 2016)" handout in folder. She focused on one piece of legislation, HB 2189, which is fully supported by AAA. The bill makes state identification cards fee free for seniors who no longer have drivers' licenses.

7. Update from Streamlined RSA (11:30)

Mr. Murphy opened this agenda item with an overview of the RSTF objectives and measures as context for the genesis of the recently completed streamlined Pedestrian and Bicyclist Road Safety Audit (RSA) on CR 534 in Camden County. Specifically, this collaborative effort between DVRPC and members of the RSTF fulfilled objective #6 of the 2015 Transportation Safety Action Plan (TSAP): *Increase the effectiveness of one project or program per cycle through RSTF coordination. RSTF members will assist with a project they would not usually be involved with and measure success, preferably using before-and-after analysis.* Mr. Murphy invited Mr. Strumpfer to present an overview of the audit process and share results.

Mr. Strumpfer explained that after the pedestrian-focused RSTF meeting held in September 2014, he approached DVRPC about his concern for people walking and bicycling along a 1.5-mile section of CR 534 in Camden County. This segment of CR 534 is lined with apartment complexes and shopping centers and has a high amount of foot traffic, yet pedestrian and bicyclist facilities are intermittent. He also expressed his concern with staff from Camden County Highway Traffic Safety Task Force and Camden County Planning Division, who has been supportive of this effort. DVRPC, in collaboration with Camden County, identified the corridor's eligibility for Federal Highway Safety Improvement Program funding. These collaborations resulted in a streamlined Pedestrian and Bicyclist RSA to evaluate the corridor and identify potential safety improvements. The RSA event, held on May 26th, 2016, was a collaboration among the following participants: DVRPC, Boroughs of Lindenwold, Clementon, and Pine Hill, Gloucester Township, Camden County, NJDOT, CCTMA, and concerned citizens.

Data shared during the pre-audit portion of the RSA revealed the following: 254 crashes were reported between 2010 and 2014, with five percent of the crashes involving pedestrian and bicyclists. Pedestrian and bicyclist crashes in the study area exceeded the statewide average for county roads. 24-hour video counts of pedestrians and bicyclists were also taken at seven locations along CR 534 to determine how many people are walking and biking along the corridor, and also to record their travel patterns. The data revealed a volume count of 1,240 pedestrians and 179 bicyclists. The highest volumes were recorded near the apartment complexes. Mr. Strumpfer described to the RSTF what it was like to walk the corridor: people driving by at high speeds, pedestrian infrastructure in poor condition or missing, and the team was witness to an actual crash. The team met after the field visit to identify issues observed and developed a list of potential strategies for improvements. The lack of crosswalks, wide pavement, missing signs (specifically for school bus stops and pedestrians crossing in the area), and high driver speeds were common issues. After describing the RSA to the RSTF, Mr. Strumpfer thanked DVRPC, and all those who participated and supported this effort. He closed by saying that the draft document is expected this summer.

Question:

- Gus Scheerbaum: What are the next steps and how will these issues will be addressed?
 - Mr. Strumpfer: The responsible agencies have been identified; grant funding may be available. In the study itself, potential solutions were suggested and ranked on cost/benefit.

- Kevin Murphy: This is a Camden County route, and the county was involved throughout the process. They will respond to findings and recommendations from the project. DVRPC is working with them to get commitments for road improvements and we look forward to continued county involvement in future road projects.

8. RSTF/DVRPC Special Safety Study (formerly the Project Pipeline Process) (11:50)

Kevin Murphy reported that the special safety study’s steering committee held a conference call in February during which they brainstormed projects that would have regional significance. From that conference call, speeding emerged as the top issue. Mr. Murphy discussed how DVRPC partnered with the Steering Committee on the draft scope. Mr. Murphy ended his presentation by telling participants that he will e-mail them the draft scope for a two-week review and comment period.

Question:

- Janet Arcuicci: What is the definition of vulnerable users?
 - *Mr. Murphy: Vulnerable typically refers to the non-motorized members of the travelling public, e.g. bicyclists and pedestrians, but could include transit riders since walking and/or biking is a standard component of each transit trip.*

9. Open Forum(11:55)

Mr. Rauanheimo suggested a change for the RSTF meeting summary. Instead of just listing a participant’s name and organization, he asked that e-mail addresses be included as well to help facilitate communication between RSTF meetings.

Zoe Neaderland, as a follow-up to Mr. Rauanheimo’s suggestion, talked about the effort that Sarah Oaks had been leading to develop an online resource that would provide participant names, organizations, contact information, and short bios. She will reinvigorate that effort.

10. Adjournment (11:57)

Mr. Beans encouraged everyone to fill out their survey, after which he adjourned the meeting.

JUNE 29TH, 2016 MEETING ATTENDEES LIST

Aguilera, Lori	Safe Kids – Chester County
Akins, Shoshana	DVRPC
An, Laura	DVRPC
Arcuicci, Janet	Montgomery County Planning Commission
Babiarz, Giselle	DVRPC
Beans, Bill	MBO Engineering, LLC
Buerk, Jesse	DVRPC
Carafides, Paul	DVRPC

Cerbone, Vince	PennDOT – District 6
Costello, Emily	DVRPC
Diamond, Off. Jim	Philadelphia Police – Truck Enforcement
Kuffner, Katie	Chester County Highway Safety
Lora, Yocasta	AARP – Pennsylvania
Lozinak, Amanda	TMA Chester County
MacKavanagh, Kelvin	DVRPC Goods Movement Task Force
Malavyia, Sharang	PennDOT – District 6
Merritt, Darrell	PennDOT – District 6
Migdalias, Christina	Street Smarts – Philadelphia
Murphy, Kevin	DVRPC
Neaderland, Zoe	DVRPC
Neff, Justin	DVRPC
Oberle, Eric	NJDOT
O’Malley, Sgt. Patrick	Pennsylvania State Police
Ott, Pat	MBO Engineering, LLC
Ragozine, Bill	Cross County Connection TMA
Rauanheimo, Ray	AARP – Pennsylvania
Rodriguez, Alex	Autobase
Russell, Jennifer	Ralston Center
Scheerbaum, Gus	City of Philadelphia
Schmidt, Peggy	Partnership TMA
Simon, Richard	NHTSA – Region 2
Strumpfer, Warren	Citizen
Tidwell, Jana	AAA Mid-Atlantic
Vilotti, Charlie	Chester County Highway Traffic Safety
Winters, Dennis R.	Clean Air Council
Ziech, Marty	DVRPC

Common Sense Solutions for Intersection Safety Problems October 4, 2016

Where do we Get Crash Data?

- Police officer collection
- Standardized data form
- Drivers, after the fact

Which is a Safer Pet: A Dog or an Alligator?

Dogs

- 4.7 million attacks/year
- 800,000 attacks/ year require medical treatment
- 1979-1996 304 fatalities

Alligators

- 7.8 attacks/year
- 1948-1999, 248 attacks
- 1948-1999, 9 fatalities

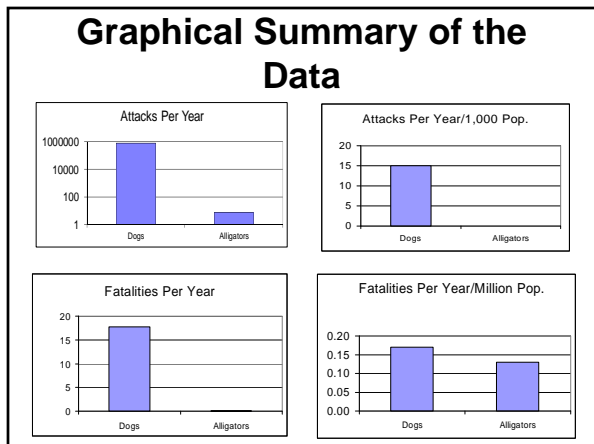
What if we Correct for Their Difference in Population?

Dogs

- 52 million dogs in U.S.
- 15 attacks/year/1000
- 0.33 fatalities/year/million

Alligators

- 1 million alligators in U.S.
- 0.008 attacks/year/1000
- 0.17 fatalities/year/million

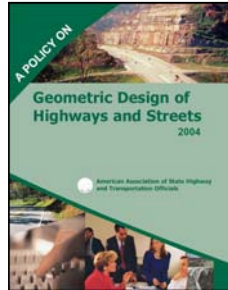


What's the Point?

- The raw data doesn't tell the whole story;
- If you don't understand the data you are likely to arrive at the wrong conclusion;
- Exposure is an important consideration;
- The data trend is a great place to start further evaluation; but it is never the final answer.

Resource

- ❑ AASHTO – *A Policy On Geometric Design Of Highways and Streets*
- ❑ Also referred to as “The Green Book”



Types of Sight Distance

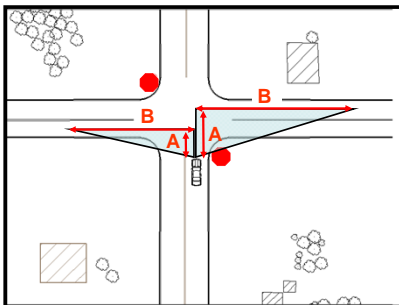
Stopping sight distance: Length of visible roadway necessary to safely stop to avoid an obstruction.

Passing sight distance: Length of visible roadway necessary to safely complete a passing maneuver.

Decision sight distance: Distance in advance of a driving decision point (lane reduction, toll plaza).

Intersection sight distance: Distance in advance of an intersection that enables a driver to determine whether or not the intersection is safe to maneuver.

Departure Sight Triangle Stop Controlled Intersections



Stop Control on Minor Street Case 1: Crossing and Right Turn Maneuver

For approach grades between +3% and -3%,
passenger car as design vehicle

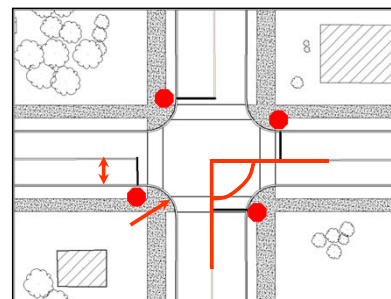
Distance along the major approach leg	
Design Speed (mph)	Length (ft)
20	195
25	240
30	290
35	335
40	385
45	430
50	480
55	530
60	575
65	625

From 2001 AASHTO Policy on Geometric Design, Exhibit 9-58 p. 668

Common Sight Obstructions

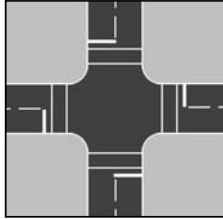
- ❑ Trees and shrubs
- ❑ Farm crops
- ❑ Buildings and fences
- ❑ Earth slopes
- ❑ Cars parked on street and in right of way

What is Geometry?

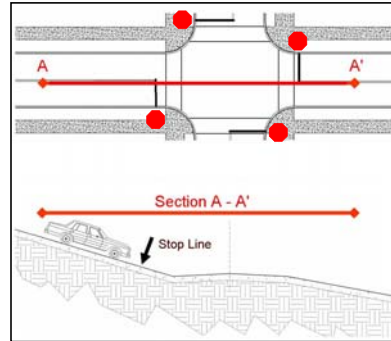


Ideal Geometry

- ❑ Streets intersect at 90 degree angles;
- ❑ Flat approach grade;
- ❑ Legs aligned;
- ❑ Appropriate radius on curbs;
- ❑ Clear sight triangle.



Stopping Grade



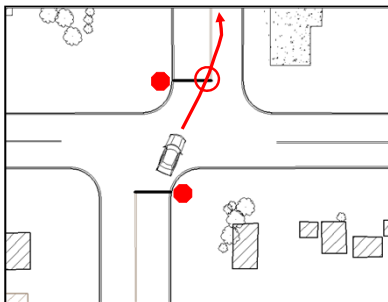
Stopping Grade



Stopping Grade



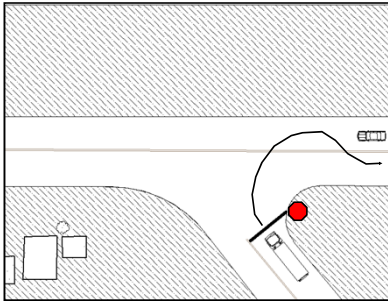
Legs Not Aligned (Offset)



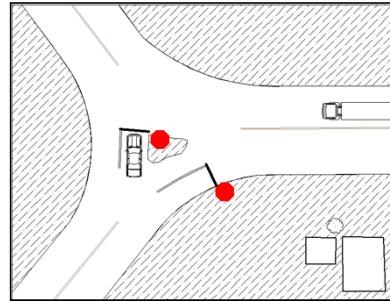
Legs Not Aligned (Offset)



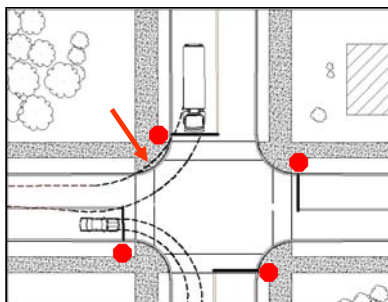
Low Degree Intersection (Skew)



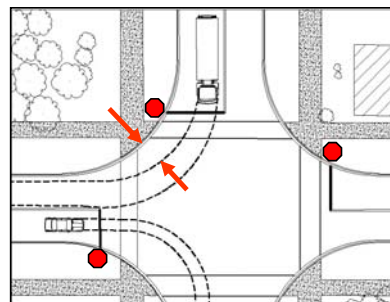
Legs Not Perpendicular



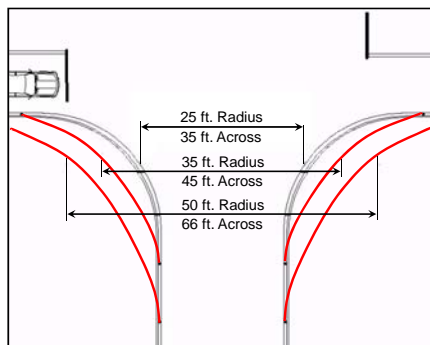
Curb Radius Too Small



Curb Radius Too Large



Walking Distance



Fixing Geometric Problems

- Generally high cost fixes;
- Identify areas geometrically is lacking;
- Capturing safety funding if hazards exist;
- Combine with other projects.



Crash Types and Problems

Intersection Crash Type	Potential Causal Factor	Possible Countermeasure
Head-on Left Turn Crashes	<ul style="list-style-type: none"> Offset Left Turns Lack of Pavement Area to Bypass Left Turn Lane 	<ul style="list-style-type: none"> Restripe to Align Left Turns Provide Dedicated Left Turn Lane or Shoulder
Right Angle Crashes	<ul style="list-style-type: none"> Restricted Sight Distance Excessive Delay/Volume 	<ul style="list-style-type: none"> Remove Sight Obstruction Consider Traffic Signal
Rear End Crashes at Signalized Intersections	<ul style="list-style-type: none"> Poor Visibility of Signal Heads Inadequate Clearance Interval Congestion 	<ul style="list-style-type: none"> Increase Size and Number of Signal Indications; Increase Yellow or Add All Red Phase Adjust Signal Timing
Pedestrian Crashes	<ul style="list-style-type: none"> Pedestrians Struck by Turning Vehicles Pedestrians Struck by Through Vehicles 	<ul style="list-style-type: none"> Add Signage Alerting Turning Motorists to Stop for Pedestrians Add Full Pedestrian Phase Add Pedestrian Refuge Island or Median

Why Design for Pedestrians?

- 1/3 of population are too old or too young to drive.
- 1/10 of households in the U.S. do not own a car.
- Everyone is a pedestrian at some point of a trip.
- Walking has health and environmental benefits.
- Pedestrians cover an extremely wide range of physical abilities.

Intersection-Pedestrian Issues

- Roads and intersections are historically designed around the needs of vehicles.
- Pedestrians are not visible or expected by drivers.
- Access issues.
- Signal timing.



Example Warrants: Multi-Way Stop Sign

MUTCD Section 2B.07

- A. Where traffic control signals are justified, as an interim measure.
- B. A crash problem, as indicated by **5 or more reported crashes** in a 12-month period that are susceptible to correction by a multi-way stop installation.
- C. **Minimum volumes:**
 1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least **300 vehicles per hour** for any 8 hours of an average day, **and**
 2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least **200 units per hour** for the same 8 hours, **with** an average delay to minor-street vehicular traffic of at least **30 seconds** per vehicle during the highest hour.
 3. If the 85th-percentile approach speed of the major-street traffic exceeds 65 km/h or exceeds **40 mph**, the minimum vehicular volume warrants (C1 and C2) are **70 percent** of the above values.

(CONTINUED ON NEXT SLIDE)

Example Warrants: Multi-Way Stop Sign

MUTCD Section 2B.07 (Continued)

4. If the criteria B, C1, and C2, are satisfied to 80 percent.

In other words...

- 4 crashes in a 12 month period that are correctable with stop control
- 240 V.P.H. average for 8 hours – Major street
- 160 V.P.H. average for 8 hours – Minor street

(CONTINUED ON NEXT SLIDE)

Example Warrants: Multi-Way Stop Sign

MUTCD Section 2B.07 (Continued)

Other Options For An Engineering Study:

- A. The need to control left-turn conflicts;
- B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
- C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to safely negotiate the intersection unless conflicting cross traffic is also required to stop; and
- D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

Benefits of Signals

Properly Warranted and Installed Signals:

- Increase traffic-handling capacity over 4-way stops;
- Enhance the orderly movement of traffic;
- Reduce the frequency of *left turn straight and right angle* crashes;
- Regulate speed along a route;
- Permit other traffic and pedestrians to cross.

Problems Caused by Signals

Unwarranted or Improperly Installed Signals:

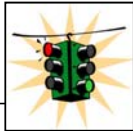
- Create excessive delays;
- Encourage a disregard for traffic signals;
- Encourage the use of alternate routes;
- Increase the likelihood of *rear end* collisions.

Roundabout vs. Traffic Signal



Roundabout

Cost: \$300 K to \$500K
 Speed: 20 mph
 Safety:
 29% to 50% fewer crashes
 30 to 73% fewer injury crashes
 Delay: Shorter
 Space Required: More
 Initial opposition: Can be fierce



Traffic Signal

Cost: \$125K to 250K + O&M
 Speed: 35 mph +
 Safety: Less
 Delay: Longer
 Space Required: Less
 Initial opposition: Acceptable

Roundabout: When To Use Them?

Good Application:

- Intersections with high crash severity or frequency.
- Heavy left turn lane volume.
- Intersections that would qualify for a signal.

Concerns:

- High volume of large truck traffic (Industrial park entrance).
- Limited right of way space.
- Routinely congested area (network wide).
- High traffic volume with a coordinated signal network.
- High volume of pedestrians and traffic.

Why Do They Work?

- Drivers don't need to stop unnecessarily;
- Average speed is very low (15 - 20 mph);
- Left turn volume does not greatly impact operation;
- All traffic movement given equal priority;
- Traffic queues move continuously.

Who is Responsible for Intersection Safety?

- Traffic Engineer?
- Police?
- Schools?
- City Manager?
- NJDOT?
- County?
- Road Users?
- Department of Public Works?
- Road Maintenance Crews?
- Citizens Groups?
- Outreach and Education Groups?



**All
Of
YOU!**

Intersection Safety

Ian Stoddart

Deputy Chief, Narberth Ambulance



Intersections kill us

- ▶ One could fully understand that intersections would be the stand out of all factors involving ambulance wrecks. Assigning no blame, analysis reveals that about 43% of the crashes occur in intersections (ems world).
- ▶ Ambulances also are not immune to colliding with one another, or with other emergency response vehicles, including fire trucks and police cruisers. At least 10 emergency vehicle collisions involving ambulances made the news in 2010.ashes occurred where two or more roads cross (ems world).





The sardine can



What the book says

If all visible traffic in all lanes cannot be accounted for, the driver should bring the vehicle to a complete stop

Establish eye contact with other vehicle drivers; have your partner communicate all is clear

Scan the intersection for all possible passing options

Almost all of our near misses are at intersections

Emergency Operators responsibility

- ▶ Know the law.... Ambulance does not have free right of way
- ▶ Complete stop....not a rolling stop
- ▶ Eye contact with driver, make sure they see you.
- ▶ Sirens 200 feet prior to intersection
- ▶ Assertive but not aggressive

So what is the industry doing

- ▶ Squads have introduced internal training.... Have to control adrenaline
- ▶ The State has mandated yearly training requirements: EMSVO
- ▶ Ensuring employees know the law
- ▶ Sterile cockpit rule

Civilians responsibility

Public education.....not enough people know “ move to right and stop”

Don't assume green light means you don't have to check intersection

Radio and distractions: need to be limited

Phone.....

When in the car.... Drive the car

Example... what's wrong in scenario

- ▶ PROVIDENCE, R.I. (AP) – Police in Providence are investigating after a multivehicle crash involving an ambulance sent four adults and two children to the hospital.
- ▶ Officers responded to the scene just after 5:30 p.m. Monday. Police say an ambulance responding to a call was going through a red light when another car failed to yield and hit the vehicle.

Adding to the problem

- ▶ Automobiles that have sound protection, keep car as quite as possible
- ▶ Enhanced auto stereos
- ▶ Life is a hurry..... Everyone is in a rush
- ▶ Distracted driving..... how often we see cell phones

Solutions to problem

- ▶ Opticon
- ▶ Eliminate intersections.....
- ▶ Visibility at intersections
- ▶ Warning devices in cars that turns radio off when car hears siren
- ▶ Rumble sirens
- ▶ Drive cams: driver accountability



CR 534 Streamlined Pedestrian and Bicyclist Road Safety Audit Update

RSTF Meeting

October 4, 2016



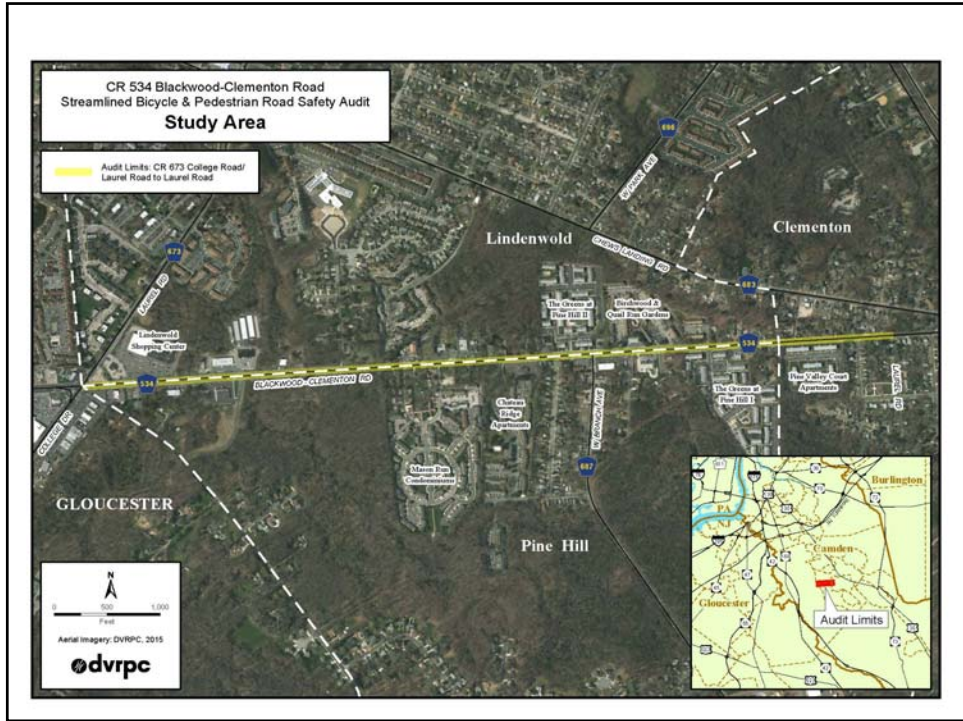
CR 534 (Blackwood-Clementon Road)

∞ Why this route?

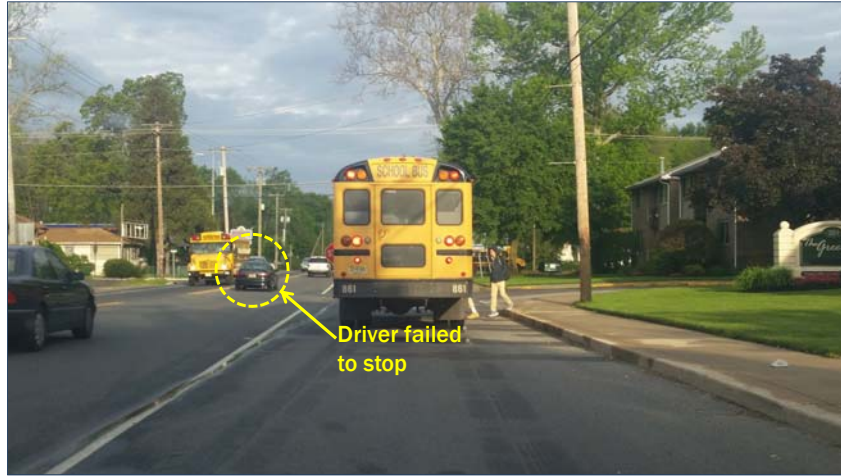
- Citizen concern of pedestrian and bicyclist safety on high traffic roadway
- Opportunity for Regional Safety Task Force (RSTF) members to participate in safety project
- Highway Safety Improvement Program (HSIP) Eligible
 - Pedestrian and Intersection List

∞ Collaboration among:

- DVRPC RSTF
- NJ Division of Highway Traffic Safety
- Camden County Highway Traffic Safety Task Force
- Camden County Planning Division



Issue: Conflict with drivers



Issue: Poor amenities for peds



Issue: Bicyclists



Other Issues

- ∞ Lack of signage
 - Indicating pedestrians and school bus stops
- ∞ Pavement markings
- ∞ Wide shoulders
- ∞ ADA ramps
- ∞ Signalized intersections

Follow-up on Recommendations

∞ Reached out to the RSA participants to get feedback on strategies and potential recommendations

- 11 Corridor-wide strategies
- 37 Site-specific strategies

∞ Strategies included:

- Add signage
- Repair damaged sidewalks
- Restripe roadway to accommodate bike lanes
- Relocate transit bus stops
- Upgrade signal
- Add crosswalks and stop bars at unsignalized intersections

Follow-up on Recommendations

Issue	Potential Strategy	Level of Difficulty	Estimated Study Benefit	Responsible Agency
Bicyclist accommodations are missing throughout the corridor (no marked bike lanes, no share the road signage). There were 3 bicyclist crashes during the study period (double the statewide average for bicyclist crashes on a county-road)	Investigate minimum lane widths required for accommodating bicyclists, consider new change to roadway striping as part of a future repaving project along CR 534.	Low	Medium	Camden County

Follow-up on Recommendations

∞ Camden County (roadway owner) Response

- Shared the table of 11 corridor-wide recommendations
- County agreed 9 out of the 11 recommendations were fair and can be accomplished when they next perform maintenance on the road.

∞ Potential funding organizations

- NJ DHTS
- Cross County Connections TMA

∞ Next Steps

- Finalizing report/DVRPC review process
- Distribute report at next RSTF Meeting



REGIONAL SAFETY TASK FORCE

RSTF FY'17 Special Safety Study (SSS) - Speeding

RSTF Meeting
October 4th, 2016

SSS – Speeding

- Description – Speeding is a key factor in many crashes; it increases the risk of a crash occurrence and the resulting crash severity.
- Objectives
 - Understand safety implications of vehicular travel speeds on the frequency and severity of crashes;
 - ID where in the region, and in what context speeding is a factor contributing to increased crashes, injuries, and fatalities;
 - Research and evaluate countermeasures, promote best practices

SSS – Synthesis

- Goal
 - To create a synthesis of published research on speed and its relationship to crashes, include a special focus on vulnerable users, culminate in fact sheet for public consumption.
- How we started
 - Performed 31 individual Google searches (anything related to vehicular speed) such as “speeding and crashes”, “driving behavior and speeding”, “speed safety”, “speed and safety”, “speeding”, “seniors driving fast”, “speed death”, etc.
 - Within the word searches, reviewed 70+ resources



SSS – Synthesis

- Eight types of resources found
 - Research report; Policy paper; News articles; Web information; Fact sheets; Guides; Desktop reference; Videos
 - Resources authored by international, national, and state government agencies
 - Many did not contain enough useful content (news articles; web information, videos)
 - Multiple searches identified many of the same resources



SSS – Synthesis

- Determination of shorter list of resources
 - Deleted resources which provided no useful information
 - Deleted outdated resources; focused on material from 2000 to present
 - Deleted resources that largely referenced other national data
- Shorter list of 24 resources = Synthesis
 - 13 research reports
 - 5 guides
 - 4 fact sheets
 - 1 desktop reference
 - 1 policy paper



SSS – Synthesis Findings

- World Health Organization (WHO) Road Safety Fact sheet (2004)
 - In high-income countries, speed contributes to roughly 30% of deaths on the road, while in some low-income and middle-income countries, speed is estimated to be the main contributory factor in about half of all road crashes
- FHWA Desktop reference (2009)
 - 52 engineering countermeasures for reducing speeds
- NHTSA Traffic Safety Facts (2016)
 - There were 32,675 traffic fatalities in 2014, among them 9,262 (28%) in speeding-related crashes





Implementing Safety Projects

RSTF Meeting
October 4th, 2016



Data-Driven Analysis – the beginning

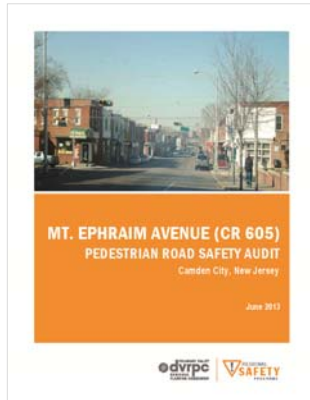
- **Olney Avenue:** PennDOT's Top 5% Report: road locations exhibiting the most severe safety needs, condition for using Highway Safety Improvement Program (HSIP) funds.
- **Mt Ephraim Avenue:** Network screening of New Jersey county-route corridors that had higher than average pedestrian crash history, conducted by DVRPC for our NJ counties.

These two analyses are data-driven and provide an appropriate starting point in the pursuit of safety improvements using federal HSIP funds.



Road Safety Audit – building the case, gathering details

Mt. Ephraim Avenue (CR 605) Pedestrian Road Safety Audit Camden, NJ



RSA conducted June, 2012

Erie Avenue (SR 1004) and Olney Avenue (SR 4004) Road Safety Audit Philadelphia, PA



RSA conducted April, 2008

Funding and Implementation – the next phase

- NJ's Local Concept Development (LDC), 2016
- \$300,000 12 month study, identify preferred safety alternative, HSM analysis
- Implementation of safety improvements after LCD by county



- Entered PA TIP in 2010 as part of PA's HSIP safety line item
- \$3.6m for engineering and construction
- Slated for construction in 2016
- Implemented by PennDOT



DVRPC FY2016-2019 TIP for NJ		Final Version																																													
New Jersey Highway Program																																															
Various																																															
Local Safety High Risk Rural Roads Program																																															
<p>The Local Safety Program provides funds to counties and municipalities for the improvement of dangerous intersections and other road improvements. Funding on pedestrian and vehicular safety improvements of roads need that can be identified in a roadway safety audit report. Generally, this fund has been used for problem identification to completion of construction. This program also includes design education offered to counties and municipalities for the LSP program. Depending upon the previous year crash history, this program may sometimes receive set aside funding per year for High Risk Rural Roads for safety improvements for rural roads or rural roads, or on rural roads. HSIP (Highway Safety Improvement) of projects funded from this program: DVRPC - CR 501 (Kutztown Rd) and CR 502 (High Hill Rd) Roundabout \$3,000,000 HSIP FY16 CON; Gloucester County, CR 545, US 206 (Pinebarre Ave) and CR 646 (Stoneman Drive) \$7,000,000 Roundabout \$1,900,000 HSIP FY16 PRE; \$130,000 HSIP FY17; \$6,800,000 HSIP FY18 CON; Mercer County, \$2,000,000.</p>																																															
CMP:	Hot SOV Capacity Adding	DVRPC Planning Area	Local System Support																																												
Municipalities:	Various	Local Aid	Reduction of Potential Deadweight																																												
CR Program Subcategory:	Local Aid	Local Project:	Y																																												
Project Manager:	John/Anna, Shuck																																														
Mapbook:	Various																																														
Improvement Type:	Intersection/Interchange Improvements																																														
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DVRPC FY 2015-2018 TIP for PA		Final Version																																																					
Philadelphia - Highway Program (Status: TIP)																																																							
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MPMS# 05415 Olney Ave Safety Improvements																																																							
LIMITS:	Olney Ave from Broad St to Rising Sun Ave	No Let Date																																																					
IMPROVEMENT:	Intersection/Interchange Improvements																																																						
MUNICIPALITIES:	Philadelphia City	AG Code 06																																																					
PLANNING AREA:	Core City	OOD: 6																																																					
PROJECT MANAGER:	Gawell, Mia	CMP: Hot SOV Capacity Adding	Adding Subproject: 50, 14A																																																				
<p>The purpose of this project is to reduce the number of crashes and related injuries and severity of the crashes which occur along the approximately 1.2 mile section of Olney Avenue between Broad Street and Rising Sun Avenue, in the City of Philadelphia.</p> <p>CON: \$5,000,000 (miles) will be drawn from MPMS# 467927 at the appropriate time.</p>																																																							
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REGIONAL SAFETY
TASK FORCE

Thank you!

Kevin Murphy, Assistant Manager, Safety Programs
Office of Transportation Safety and Congestion Management
Delaware Valley Regional Planning Commission
(215) 238-2864
kmurphy@dvrpc.org
www.dvrpc.org/Transportation/Safety

UPDATES ON VOLUNTEER ACTION ITEMS

Sustain Safe Senior Mobility – 6/29/16 RSTF Meeting			
<i>Volunteer Action Items</i>	<i>Lead Person/Agency</i>	<i>Timeframe to Report</i>	<i>Update</i>
1. Analyze data to identify corridors and intersections with high densities of seniors. (Engineering)	Vince Cerbone – PennDOT District 6	October 2016 meeting	PennDOT identified the location of senior crashes from 2011-2015. Data will be analyzed. Another update is expected at the December meeting.
2. Identify nodes (specifically intersections) that are heavily used by seniors. (Engineering)	Janet Arcuicci – Montgomery Co. Planning Commission; DVRPC staff	October 2016 meeting	Janet provided DVRPC with a list of intersections near senior developments; DVRPC will plan to map the locations.
3. Talk to NJDOT and report back with ways that NJDOT can partner on senior driver safety issues, especially extending crossing times at intersections. (Engineering)	Bill Beans – MBO Engineering	October 2016 meeting	Bill spoke with NJDOT staff and reported that they go well beyond MUTCD minimum design standards to improve safety for seniors and all users, including the installment of enhanced crosswalk striping to increase pedestrian and intersection visibility.
4. Post senior resources on the DVRPC website other social media outlets and compile a list of resources and disseminate information to RSTF. (Education)	DVRPC staff	October 2016 meeting	DVRPC typically only add links to federal or state resources, and are still exploring whether or not we can add private/non-private agency links to our resources page.
5. Share senior driver safety countermeasures identified in NJDOT's Strategic Highway Safety Plan. (Education)	Eric Oberle – NJDOT	October 2016 meeting	Eric shared a link to NJDOT's SHSP with DVRPC; information was distributed.
6. Find a contact at an appropriate organization in the medical profession, draft a research-based letter to the contact on the effects of medicines on safe driving, and provide letter for RSTF review and endorsement. (Policy)	Warren Strumpfer – Citizen; Ray Rauanheimo – AARP PA	October 2016 meeting	Some medical organizations were identified. Another update is expected at the December meeting.

Reducing Aggressive Driving – 12/15/15 RSTF Meeting

<i>Volunteer Action Items</i>	<i>Lead Person/Agency</i>	<i>Timeframe to Report</i>	<i>Update</i>
<p>7. Gather data on the effectiveness of using three Variable Message Boards (VMBs) near each other to provide parts a single aggressive driving safety message in Cherry Hill Township. Also, ask to use the Camden County VMB that measures speed and traffic counts. (Engineering)</p>	<p>Officer Jim Philbin, Cherry Hill Police</p>	<p>June 2016 Meeting</p>	<ul style="list-style-type: none"> • Cherry Hill Police met with NJDHTS (Ray Reeve) and Camden County Division of Highway Traffic Safety to kick-off the pilot program • All three variable message boards needed for the program have been obtained through partners (CCHTS, Camden County Prosecutor's Office, CHT Police) • The three message boards will be deployed on Chapel Ave between Cooper Landing Road and Kings Highway (for one month), and prior to the deployment they will conduct a speed study on Chapel Ave for one week. (Planned for the week of August 15th) • During this month long period, speed counts will continue to be obtained and evaluated on a weekly basis. • They will then review all of the data obtained during the program.



Preliminary Timeline of Future RSTF Meetings

RSTF Meeting – October 4, 2016

- EA #8 – Intersection Safety (last emphasis area of current cycle)
- Ask for volunteers interested in becoming the next co-chair

RSTF Meeting – December 8, 2016

- Crash Data Fest
 - PennDOT and NJDOT – Highlights on crash trends, accomplishments, barriers
 - DVRPC – Analysis results from 2016 Crash Data Memo
- RSTF Year-end Review
 - Update on Special Safety Study (SSS) – Speed
 - Accomplishments, Review of performance measures
- Bill Bean's last meeting as co-chair
 - Vote and introduce next RSTF co-chair

RSTF Meeting – March 2017

- Special work session for 2017 SAP
 - Brainstorm and discuss safety strategies
- Present draft of 2016 Crash Data Memo
- Focus on non-EA safety topic (safe car technology, what are other countries doing in terms of safety, etc.)
- Provide update on SSS
 - Brief introduction of next cycle's SSS; start thinking about study ideas

RSTF Meeting – June 2017

- EA #1
- Provide update on 2017 SAP
- FY 17 RSTF/DVRPC Special Safety Study Final Update (product distribution)
- Recap of SSS and preview FY'18 kick-off

RSTF Meeting – September 2017

- EA #2
- Introduce FY'18 SSS to full RSTF
- Ask for volunteers interested in becoming the next co-chair

RSTF Meeting – December 2017

- EA #3
- Provide update on SSS
- Peggy Schmidt's last meeting as co-chair
 - Vote and introduce new co-chair

Incident Management Task Force Update

PA

The IMTF's of PA (I-76/I-476, Delaware Co, Chester Co, Bucks Co) continue to meet on a quarterly basis and updating of Incident Management Guidelines continues in each of the groups.

A Pennsylvania Traffic Incident Management (TIM) Summit is being organized for November. It aims to bring all parties responsible for TIM across the state together to discuss the state of TIM in PA. The summit also hopes to plant the seed for a Statewide Incident Management Program. More information will follow as it becomes available.

NJ

The New Jersey Statewide Incident Management Guidelines have been revised and updated and now have a letter signed by the NJ Attorney General. The letter states that the guidelines are the best practices for incident management as recommended by first responders.

The NJ Southern Area First Responders (SAFR) IMTF has updated their Incident Management guidelines. The NJ SAFR Incident Management Task Force has extended their group to now cover down NJ 55 through Gloucester County. The extension now covers the same territory as the New Jersey State Police's Bellmawr Barracks.

The Burlington Co and Mercer Co IMTF's will also begin working on an addendum for their respective guidelines.

DVRPC Transportation Operations Management

The Transportation Operations Master plan is currently in the process of being updated with the goal to create a TSM&O (Transportation Systems Management & Operations) plan. The TSM&O plan will be a more comprehensive plan including performance measures and a regional view of actively managing multimodal transportation.

The RIMIS (Regional Integrated Multimodal Information Sharing) program has been updated. The update created a more robust and user friendly program, that is now completely web based.

Crash Trends: DVRPC Region: PA Counties

HIGHWAY FATALITIES: January - June 2016														TOTAL	Same time last year	% change
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
Bucks	4	4	2	7	2	5								24	24	0
Chester	2	1	3	1	3	3								13	13	0
Delaware	0	4	3	1	4	3								15	12	25
Montgomery	1	4	3	6	4	2								20	13	53.85
Philadelphia	3	4	7	7	10	8								39	34	14.71
Total	10	17	18	22	23	21	0	0	0	0	0	0	0	111	96	15.63

5-YEAR RUNNING AVERAGE FATALS: 2011-2015													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Bucks	23	14	20	22	19	18	27	26	20	31	34	15	269
Chester	14	11	10	11	15	14	19	8	12	17	27	15	173
Delaware	8	10	9	13	11	5	12	8	7	14	11	14	122
Montgomery	12	9	14	13	20	10	16	24	22	23	24	15	202
Philadelphia	35	29	32	43	47	26	48	38	45	45	40	46	474
Total	92	73	85	102	112	73	122	104	106	130	136	105	1240
Monthly Average	18	15	17	20	22	15	24	21	21	26	27	21	248

HIGHWAY INJURIES: January - June 2016														TOTAL	Same time last year	% change
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
Bucks	281	271	319	310	343	299								1823	1791	1.79
Chester	186	191	164	185	211	203								1140	1228	-7.17
Delaware	270	246	251	250	275	292								1584	1553	2
Montgomery	397	415	388	441	471	482								2594	2650	-2.11
Philadelphia	862	1007	1086	1057	1187	1141								6340	5440	16.54
Total	1996	2130	2208	2243	2487	2417	0	0	0	0	0	0	0	13481	12662	6.47

5-YEAR RUNNING AVERAGE INJURIES: 2011 - 2015													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Bucks	1570	1302	1472	1476	1666	1727	1615	1736	1676	1842	1712	1668	19462
Chester	977	928	935	905	1176	1146	1031	1074	1103	1193	1009	1118	12595
Delaware	1257	1098	1239	1288	1550	1512	1292	1420	1284	1696	1394	1394	16424
Montgomery	2346	1864	2108	2202	2438	2320	2298	2400	2343	2704	2536	2419	27978
Philadelphia	3886	3774	4744	5272	5752	5537	5169	5156	5228	5335	4905	4723	59481
Total	10036	8966	10498	11143	12582	12242	11405	11786	11634	12770	11556	11322	135940
Monthly Average	2007	1793	2100	2229	2516	2448	2281	2357	2327	2554	2311	2264	27188

HIGHWAY CRASHES: January - June 2016															
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL	Same time last year	% change
Bucks	508	475	489	473	503	461							2909	2900	0.31
Chester	394	434	329	378	400	408							2343	2457	-4.64
Delaware	387	395	401	379	438	409							2409	2408	0.04
Montgomery	738	702	642	674	769	668							4193	4219	-0.62
Philadelphia	906	918	1006	1034	1109	1036							6009	5380	11.69
Total	2933	2924	2867	2938	3219	2982	0	0	0	0	0	0	17863	17364	2.87

5-YEAR RUNNING AVERAGE CRASHES: 2011-2015													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Bucks	2791	2203	2327	2175	2435	2418	2245	2299	2350	2887	2686	2899	29715
Chester	2277	1802	1741	1612	1913	1831	1636	1778	1798	2305	2057	2303	23053
Delaware	2003	1703	1856	1792	2054	1988	1662	1850	1816	2294	2030	2216	23264
Montgomery	3858	3155	3297	3164	3426	3294	3143	3151	3350	4063	3931	4024	41856
Philadelphia	3986	3722	4490	4789	5070	4985	4612	4742	4786	5043	4684	4772	55681
Total	14915	12585	13711	13532	14898	14516	13298	13820	14100	16592	15388	16214	173569
Monthly Average	2983	2517	2742	2706	2980	2903	2660	2764	2820	3318	3078	3243	34714

Crash Trends: DVRPC Region - NJ Counties

Total Crashes (2016)

January	February	March	April	May	June	July	August	September	October	November	December
2568	2663	2610	2617	2672	1669	915	237				

Incapacitating Injuries (2016)

January	February	March	April	May	June	July	August	September	October	November	December
9	11	17	19	17	8	4					

Total Fatalities (2016)

January	February	March	April	May	June	July	August	September	October	November	December
13	6	10	4	5							

5 year Crash Average (2011 - 2015)

January	February	March	April	May	June	July	August	September	October	November	December
4118.4	3537.4	3673.4	3597.4	4008.4	3940.2	3688.4	3611.8	3626.6	4129	4119.6	4254.8

5 year Incapacitating Injury Average (2011 - 2015)

January	February	March	April	May	June	July	August	September	October	November	December
17.8	19.4	20	20.8	23.2	22.6	21.8	24.8	21.2	22.8	18.2	17.8

5 year Fatal Average (2011- 2015)

January	February	March	April	May	June	July	August	September	October	November	December
10.6	6.4	12.6	9.4	10.2	12.4	11.2	11	8.6	8.6	8.8	15

Table 13: Recommended Strategies and How to Accomplish Them (continued)

IMPROVE THE DESIGN AND OPERATION OF INTERSECTIONS	
Recommended Strategies	Actions and Lead Agencies (to be refined at RSTF meetings)
<p>1. Spread the word to make roadway signage and signalized intersections as clear and simple as possible. [Engineering/Education]</p> <p>2. Promote and incentivize the use of FHWA’s proven intersection safety countermeasures to local and county roadway owners, (e.g., roundabouts, pedestrian crossing refuge islands, signal back plates with retro-reflective borders), and provide information on funding these improvements. [Education/Engineering]</p> <p>3. Educate the public and first responders on crash scene safe practices to maintain operations of intersections and improve speed of medical treatment. [Emergency Response/Education]</p> <p>4. Review intersection definitions used by NJDOT and PennDOT and promote regional consistency in identifying problem intersections for network screenings and eventual improvements. [Education/Engineering]</p> <p>5. Research and promote educational programs that assist roadway owners in accessing HSIP funds for safety improvements at intersections. [Education]</p>	<p>1. Actions to promote include (NJDOT and PennDOT, counties):</p> <ul style="list-style-type: none"> a. Improve signage and place it properly in advance of the intersection as per MUTCD recommendations. b. One overhead signal head per lane with a back plate. c. Re-time signals with every project. d. Perform regular, routine maintenance on traffic signals and signage. <p>2. Research and assemble regional examples of installations of these improvements with information on the funding process, especially the HSIP, and from it create a short handout for distribution to local and county roadway owners (e.g., good examples are Burlington County’s two recent roundabout projects). (counties, DVRPC)</p> <p>3. Actions include:</p> <ul style="list-style-type: none"> a. Based on RSTF discussion, add appropriate links or information to websites. (first responders, RSTF and partners) b. Educate the motoring public about the laws with an emphasis on driver’s responsibilities in Move It and Move Over laws. (RSTF and partners) <p>4. Research NJDOT and PennDOT engineering practices regarding intersection safety diagnosis and improvement strategies (ISIP, NJ’s intersection list), prepare a summary, and share with RSTF at subsequent meeting. (NJDOT and PennDOT)</p> <p>5. Partner with state and federal agencies for information on best practices from throughout the nation; compile model program examples and share with local roadway owners. (NHTSA, RSTF partners)</p>

