Traffic Safety Engineering Work Group Year-one
Action Plan
(2005-2006)

Prepared for:
Wisconsin Traffic Safety Engineering Work Group

Prepared by:

Trafﬁc Operations & Safety Laboratory
at University of Wisconsin-Madison

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1 ACTION PLAN COMPONENTS

The year-one action plan has been developed based on the Wisconsin Strategic Highway Safety Plan (05-08) safety focus areas with the emphasis on the traffic engineering components. A total of six safety focus areas have been formulated with the following components provided for each:

- **Initiative Description** – basic description of what the initiative objectives and activities.
- **High Level Tasks** – A short listing that will serve as a starting point to start work on the specific initiative.
- **Initiative Leader(s)** – Identifies who is tasked with moving the initiative forward. There may be cases where there are multiple champions (e.g., one champion internal to WisDOT and another outside)
- **Stakeholders** – Listing of organizations with an interest in moving forward with the initiative.
- **Near-term issues** – High level schedule of when specific task activities need to occur over the next year.
2 2005-2006 ACTION PLAN

Six total focus areas have been developed based on the Wisconsin Strategic Highway Safety Plan (05-08) safety focus areas with the emphasis on the traffic engineering components.

2.1 Intersection Safety Countermeasures

Initiative Description

This initiative will facilitate the effort of producing a state highway database of crash report information related to intersection locations that have met a suite of minimum crash threshold filters. In addition, a regional intersection safety countermeasures plan will be developed based on the outcome of the safety filters.

High Level Tasks

- **Update intersection safety study with the most recent crash data available**
  The draft report of the intersection safety is completed. The purpose of the study is to provide safety engineers guidance on how to identify the “sites of promise” using multiple filters. An extension of the study allows the original study which used crash from 2000-2002 to be updated with the most recent data from 2001-2003 following the similar methodologies.

  To date, the most recent intersection crash data have been collected from most of the regions. More geometric categories have been added and quality control is being conducted of current database and input. Queries and report tables are being prepared. TSEWG is encouraged to review the report and provide comments and feedback.

- **Develop statewide “sites of promise” listing based on filters and trends**
  The development of filters to identify the “sites of promise” is one of the goals of the Intersection Safety Countermeasures Plan and Pilot Deployment. The types of filters, the thresholds have been decided based on the crash data collected from 2001-2003. TSEWG members have been actively involving the development of the safety filters. Once the tool is available, TSEWG members are encouraged to use the filters to generate the lists of “sites of promise” within their jurisdictions.

- **Develop Regional Intersection Safety Countermeasures Plan**
  This task includes the identification of early winner countermeasures strategies using data completed intersection safety study and the development of the regional intersection safety countermeasures plan. The plan and the aforementioned tool will guide and assist traffic safety engineer in publishing an annual regional intersection safety report.

- **Support AAA Road Improvement Demonstration (RIDP) Safety Audits**
  After the successful conduct of the road safety review of the existing intersections with high number of crashes in Milwaukee area, AAA Wisconsin is coming to Madison this fall to continue the Road Improvement Demonstration Program. This will be a collaborative effort made by AAA, WisDOT, Dane county, City of Madison and TOPS lab. AAA will sponsor the event by hiring Hamilton Associates joined by TOPS researchers to conduct the safety review. WisDOT District 1, Dane County and Madison traffic engineers will assist in selecting the locations and coordinate the project.

Initiative Leader(s)
- Dr. Keith Knapp (UNIVERSITY OF WISCONSIN, TOPS LAB)
- Dr. Xiao Qin (UNIVERSITY OF WISCONSIN, TOPS LAB)
- Graham Heitz (WisDOT BHO)

Stakeholders

TSEWG Intersection/ROR Safety Sub Group
- Jill Fehrman   WisDOT-D1
- Chris Quesnell WisDOT-D2
- Scott Nelson   WisDOT-D3
- Andy Winga     WisDOT-D5
- Dick Lange     WisDOT-BHO
- Graham Heitz   WisDOT-BHO
- Pat Fleming    WisDOT-BHD
- Bill Bremer    FHWA Wisconsin Division

Near-term issues:

1) Complete the intersection data collection from all the districts (Completed)
2) Complete the 2001-2003 crash data updates (Completed)
3) Complete the filters in the format of queries and report tables (Under development)
4) Develop the Regional Intersection Safety Countermeasures Plan (To be developed)
5) AAA RIDP Media kickoff (September, 2005)
6) AAA RIDP Project Kickoff (September, 2005)

2.2 Run-Off-The-Road (ROR) Crash Countermeasures

Initiative Description

The TOPS lab is seeking the possibility of continuing the Run-off-the-Road and Cross-over Crashes Countermeasures Plan and Pilot Deployment associated with other researchers who conducted the ROR crash location analysis.

High Level Tasks

- **Update ROR study data with current information**
  The TSEWG is overseeing the extension of the ROR application after the success of the pilot ROR study on the undivided rural State Trunk Highways. The most recent crash information will be fed into the ROR crash analysis tool.

- **Guide PIs on how data / tools should be presented**
  The TSEWG will help project PI and researchers to identify the ideal approaches how the data and tools should be presented.

- **Communicate results of ROR and Cross-Over Projects**
  TSEWG is the group who is responsible for promoting, utilizing and advancing the safety analysis tools. Therefore, the existence of the group will enhance the communication between researchers, tool developers.
and end users. In addition, the group will also advocate the institutionalization of the safety analysis in the conventional planning, design and operations process.

Initiative Leader(s)

- Dr. Xiao Qin (UNIVERSITY OF WISCONSIN, TOPS LAB)
- Dr. David Noyce (UNIVERSITY OF WISCONSIN, TOPS LAB)

Stakeholders

TSEWG Intersection/ROR Safety Sub Group
- Jill Fehrman  WisDOT-D1
- Chris Quesnell  WisDOT-D2
- Scott Nelson  WisDOT-D3
- Andy Winga  WisDOT-D5
- Dick Lange  WisDOT-BHO
- Graham Heitz  WisDOT-BHO
- Pat Fleming  WisDOT-BHD
- Bill Bremer  FHWA Wisconsin Division

Near-term issues:

- The completion of the Scope of Work of the ROR Crash Countermeasure task order (Under Development)
- The issue of the task order (TBD)

2.3 Traffic Safety Engineering Data Management

Initiative Description

Effective data collection and analysis procedures are critical components of a sound traffic safety system and for the development of countermeasures. Complete information from the WisDOT MV4000 crash report should be readily available for analysis. State-of-the-art technologies should be applied to gather, integrate, and utilize information on a wide variety of important traffic safety issues.

High Level Tasks

- **Work with TOPS Laboratory and FHWA to pilot use of GIS crash mapping by integrating currently separate local road and STH mapping**
  The TOPS Laboratory proposes a new algorithm for automating the crash location data mapping process with respect to existing base maps and crash forms. This algorithm will translate the location information from a crash report to a geospatial map and create a pinpoint map for all the crash data. Now, the lab is ready to test the concept of automatic mapping the crash on local roads.

- **Investigate leveraging DTD Viewer for Crash Mapping and Analysis**
  A presentation has been made to April Traffic Safety Council seeking for support of the application of DTD Viewer for traffic safety. The group will approach the district GIS staff involved in the development to discuss the possibility of adding more safety functions to the existing DTD Viewer software. On the other hand, since
DTD Viewer is an on-going project, the higher executive or management level dialogue is needed in order to more safety to the priority list of the development.

- **If pilot is successful, integrate preferred crash mapping/analysis into TransPortal**
  If the local crash data mapping is successful, the tool will be integrated to the TransPortal to provide an on-line crash location query function. The function will be an important supplement to the suite on-line crash analysis tools to be developed through the completion of the TransPortal.

- **Integrate Safety Data (i.e., intersection/ROR) into Metamanager**
  The group is looking for the possibility of turning research efforts obtained through the Intersection and ROR crash analysis into practices. Metamanager is the most important transportation asset management database which provides critical information to the decision-makers with regards to funding the highway improvement projects. Getting safety data into the Metamanager will be a huge step to promote the importance of the highway safety issue within DOT and to incorporate safety into the project development.

- **Digitize Historical Crash Reports – 5-10 years**
  The cost for digitizing historical crash reports has been quoted. TOPS lab is hiring a LTE who will be coordinating this effort.

**Initiative Leader(s)**

- Dr. Xiao Qin (UNIVERSITY OF WISCONSIN, TOPS LAB)
- Dr. David Noyce (UNIVERSITY OF WISCONSIN, TOPS LAB)

**Stakeholders**

- WisDOT Traffic Safety Engineering Workgroup
- WisDOT Bureau of Highway Operations
- Wisconsin Traffic Records Coordinating Committee
- Bill Bremer  FHWA Wisconsin Division
- David Noyce  University of Wisconsin, TOPS lab
- Xiao Qin  University of Wisconsin, TOPS lab
- Steven Parker  University of Wisconsin, TOPS lab

**Near-term issues:**

1) Local crash location mapping pilot project (On-going)
2) Discussion with DTD Viewer developer to find out more information (TBD)
3) A LTE will be hired by the end of June.
2.4 Work Zone Management and Safety

Initiative Description

Data indicate that work zone fatalities occur in every functional highway classification. The leading causes of the work zone crashes are speeding, inattentiveness and congestion. Work zones require increased attention because motorists are often faced with unique situations requiring special care. Therefore, public awareness and comprehensive planning of the work zones are the most needed and effective solutions to the work zone safety crisis in Wisconsin.

High Level Tasks

- **Initiate WZMS Speed Monitoring and Evaluation Project**
  The purposes of the project are to collect the speed data in work zones, to develop a suite of evaluation test plans to determine the safety and operational effects of technologies or operations improvements and to explore safety ITS Public/Private Partnership in Wisconsin.

- **Hold Spring 2005 WZMS Promotional Event in conjunction with Work Zone Safety Week**
  The goal is to help shape the future of work zones in Wisconsin by promoting use of new practices and technologies that have the potential to reduce congestion and crashes in and around work zones. The workshop has been formatted to accommodate three distinct components: 1) education; 2) media awareness; and 3) strategic planning.

- **Institutionalize Cross-Cutting Project Pre-Planning**
  The initiative includes integrating pre-planning of work zones with a broad range of work zone community members. Activities related to the initiative include:
  - Ensure processed are developed that consider perspectives from law enforcement, traffic operations, safety professionals, contractors;
  - Design enforcement friendly work zones; and
  - Institutionalize traffic incident planning for partial and full blockage of work zones.

Initiative Leader(s)

- Dr. Xiao Qin (UNIVERSITY OF WISCONSIN, TOPS LAB)
- Todd Szymkowski (UNIVERSITY OF WISCONSIN, TOPS LAB)

Stakeholders

- Traffic Safety Engineering Workgroup (TSEW)

Near-term issues:

1) Hold Spring 2005 WZMS Promotional Event in conjunction with Work Zone Safety Week (completed)
2) Site selection (completed)
3) The completion of the draft Wisconsin Work Zone Safety Strategic Plan (completed)
4) WZMS Speed Monitoring and Evaluation Project (On-going)
5) Develop processes for consistently engaging work zone community (TBD)
2.5 Road Weather Safety

Initiative Description

The objective of this initiative is to facilitate the development of a formal road safety audit procedure for Wisconsin that will have a long lasting effect on improving safety to the traveling public. The TSEWG will also support the application of the road safety audit that is consistent and applicable with the Facilities Development Manual (FDM) and the Strategic Highway Safety Plan in Wisconsin.

High Level Tasks

- **Reconvene Road Weather Safety Task Force to share initial findings from literature search and agency surveys**
  
  Reporting the progress of the project to the TSEWG is the initial effort to reconvene the RWSTF. The literature search and agency survey have been completed and the reports have been delivered to the BHO for internal review.

- **Present draft RWS Audit framework**
  
  Draft safety audit checklists for feasibility study, preliminary design, detailed design, pre-construction and existing facilities are being developed. The draft whitepaper of the incorporation of RSA into the existing DOT facility Development Manual (FDM) is available. The RWS Audit framework will be developed upon the completion of all the checklists.

- **Develop array of countermeasures that could be tested on a pilot basis**
  
  The countermeasures report has been completed and delivered to BHO along with the literature review and agency survey results. The matrix of available countermeasures to various weather conditions is included in the report as well as the detailed description for each. The “sites of promise” for weather safety improvements as well as some low-cost countermeasures will be identified in the process of the project. Need assistance of RWSTF to coordinate the implementation on a pilot basis.

Initiative Leader(s)

- Dr. Xiao Qin (UNIVERSITY OF WISCONSIN, TOPS LAB)
- Todd Szymkowski (UNIVERSITY OF WISCONSIN, TOPS LAB)

Stakeholders

- Road Weather Safety Task Force (RWSTF)

Near-term issues:

1) Report research results to the group (On-going)
2) Share the study with either TSEWG or RWSTF (On-going)
3) Develop array of countermeasures that could be tested on a pilot basis (On-going)
2.6 Organizational and Institutional Decision Support

Initiative Description

The mission of the TSEWG is to provide strong support to the decision making of WisDOT Bureau of Highway Operations (BHO), peer exchange internal information and share external best practices, identify the safety deficiency in the current system and possible projects, and update Strategic Highway Safety Plan (SHSP). Therefore, the role of the group is indispensable in providing departmental organizational and institutional decision support.

High Level Tasks
- Track Safety Engineering Issues through Reorganization
- Regional Safety Engineer Role
- DTSD Central Bureau Roles
- Develop Safety Related Performance Measures
- Ensure SHSP Champions Identified
- Partner with appropriate professional organizations to share local safety information (e.g., ITE Wisconsin UTEC, WCHA, LTAP)
- Develop Guidance and Training for TSE
- Safety 101 Training
- Educate practitioners on use of Intersection/ROR tools

Champion
- John Corbin (WisDOT, BHO)

Stakeholders
- Traffic Safety Engineering Workgroup (TSEW)
- Liaisons to Traffic Safety Council

Near-term issues
- TBD