



ACEC Oregon

AMERICAN COUNCIL OF ENGINEERING COMPANIES OF OREGON

MEETING MINUTES ODOT/ACEC Liaison Committee

Location: HR Training Center
2775 - 19th ST SE,
Salem, Conference A

Meeting Date: May 8, 2009

Time: 9:00 AM -
12:00 AM

Next Meeting Date: July 10, 2009

Minutes by: Aaron Isenhart, Harper Houf Peterson Righellis Inc.

Attendees:

NAME	ORGANIZATION	E-MAIL
Aaron Isenhart	HHPR	aaroni@hhpr.com
Alan Lively	ODOT – LGS	Alan.d.lively@odot.state.or.us
Andy Perry	Anderson-Perry & Assoc.	aperry@andersonperry.com
Bob Carson	Mason, Bruce & Girard	bcarson@masonbruce.com
Brian Copeland	DKS Associates	bkc@dkspdx.com
Donnell Fowler	ODOT	donnell.m.fowler@odot.state.or.us
Emily Lawton	FHWA	emily.lawton@dot.gov
Frank Groznik	PBS Engineering & Enviro.	Frank_groznik@pbsenv.com
Gayle Harley	OBEC	gdh@obec.com
Ingrid Saltvold	ODOT	ingrid.e.saltvold@odot.state.us
JD Deschamps	DEA	jdde@deainc.com
Jim Evans	MLG	Jim.evans@moyanogroup.com
Karen Tatman	Quincy Engineering	karent@quincyeng.com
Kay Van Sickle	OTAK	kay.vansickle@otak.com
Lois Cohen	Lois D. Cohen Assoc.	loisdcohen@comcast.net
Matt Stennes	OBDP	matthew.stennes@obdp.org
Michael Jenkins	OPO	michael.l.jenkins@odot.state.or.us
Michelle Remmy	ODOT LGS	michelle.remmy@odot.state.or.us
Steve Katko	CH2MHILL	skatko@ch2m.com
Tim Shell	KPFF	timshell@kpffcivilpdx.com
Tom Lauer	ODOT	thomas.j.lauer@odot.state.or.us
Tony Roos	Cardno WRG	Tony.roos@cardnowrg.com
Tonya Finley	OTAK	tonya.finley@otak.com
Troy Bowers	MSA	bowerst@msa-ep.com
Yessica Bolanos	URS	Yessica_bolanos@urscorp.com
Zak Toledo	HDR	ztoledo@hdrinc.com

1.0 Welcome/Introductions – Karen Tatman and Tom Lauer

The meeting started off with a welcome from Karen Tatman and Tom Lauer; then round table introductions were done.

2.0 AASHTO Safety Manual – Kevin Haas

Kevin gave a Power Point presentation / preview of the [AASHTO Highway Safety Manual](#), which is likely to be published in 2010.

The **purpose** of this manual is to quantify the effect of design decisions. The **objective** of the manual is to reduce the frequency and severity of crashes. The manual uses quantitative predictive analysis (performance predictors) instead of descriptive analysis (crash history, rates, Safety Priority Index System) The development of the **Interactive Highway Safety Design Model** (IHSDM) is part of this effort.

Eventual adoption of this manual by ODOT may replace the current Safety Priority Index System (SPIS) system.

The foundation of this manual was laid in 1999. The development has had significant Oregon involvement:

- Kevin Haas, ODOT
- Dr. Chris Monsere, PSU
- Dr. Karen Dixon, OSU
- Beth Wemple, Kittesson & Associates

Training will be available at Traffic Day 2009 (October 19th) and at the Oregon Transportation Safety Conference (October 27th).

Kevin's presentation is attached. More information can be found at: www.highwaysafetymanual.org

3.0 Full Service On-Call Price Agreements – Tom Lauer

Highway Funding

Tom Lauer began by giving an update on the status of the Jobs in Transportation Bill (HB2001) currently under debate in the Oregon Legislature. The bill is being developed in increments, and is evolving on a daily basis. The big question of course is 'how much?'. The answer at this point remains unresolved. The Governor's original proposal asked for \$500M annually. Current talk in the legislature is in the \$300M - \$400M range. The State/Local Government split is also under debate. A bonding scenario is also under development.

The public process of the next STIP has been suspended until July, pending the outcome(s) of the legislation.

With the current revenue stream, the 'out years' of the next STIP are drastically over programmed. Inflation has drastically reduced ODOT's buying power. Without

additional revenue, ODOT will go into a maintenance-only mode. Revenue generated by the current legislative effort will dictate ODOT's need to employ consultants. ODOT would use the Full Service and Discipline Specific contracts to delivery beyond internal ODOT's capacity.

Use of Consultants

The current Full Service On-Call Agreements expire in August of 2010. To date \$4.8M of an available \$95M has been assigned to consultants. The existing contracts have clauses that would allow ODOT to extend these contracts for **an additional three years**. Tom reported that ODOT's direction will depend on results of the current legislative efforts to increase revenue, and indicated that ODOT would like to hear from ACEC on the issue. Aaron Isenhardt reminded the ACEC leadership team to engage and seek input from member firms who do not currently have full service agreements prior to advising ODOT of any ACEC position on the issue.

The current Discipline Specific On-Call Agreements expire in May of 2010. To date, \$24M of an available \$208M has been assigned consultants. These contracts do not have a two-year extension clause. ODOT will likely re-solicit for these agreements prior to re-soliciting for the Full Service agreements. ODOT will look at ways to better group the discipline groups to maximize efficiency. An example would be grouping all of the activities on the 'construction side' of services into one category.

4.0 OBDP UPDATE - Matt Stennes

Matt Stennes discussed the status of the OTIA III Program. Matt also informed the group of upcoming staff changes at OBDP:

Steve Drahota has taken over for Don Owings as Deputy Program Manager - Design
 Bob Fitsner (sp?) will be taking over for Mo Dichari as Program Manager - Construction
 John Craig (from Nebraska DOT) will take over for Matt Stennes as Program Director.

5.0 ACEC STEERING COMMITTEE UPDATE- Troy Bowers

Troy reported the following:

- Consultant Performance Evaluations have been rolled out
- The committee may look at a similar evaluation process for construction management
- Much of the meeting agendas of 2008 were dedicated to hosting all 5 Region Managers and Local Government Managers
- The agendas in 2009 are returning to focus on a previously developed matrix of issues, as well as reviewing the results of a recent survey, to help focus the upcoming efforts of the steering committee
- The May 8 Steering Committee will include a debrief on the recent ODOT/ACEC conference
- Troy reminded ACEC members of the consultants-only breakfast held in the mornings just prior to the ACEC/ODOT liaison meetings, and suggested that this forum is a good opportunity for member companies to express ideas on issues they'd like to see the standing committee bring forth.

6.0 Procurement & Contracts Standing Committee – Michelle Remmy/Donnell Fowler

The committee will take another look at the standard contract terms and conditions again this year. This effort will likely start in August.

The new profit fee worksheet has been rolled out. The committee will now take on development of an escalation process that could be employed if an impasse is reached between ODOT and the consultant.

7.0 Project Delivery/Management Systems Standing Committee Update – Jim Evans

This group developed the Consultant Performance Evaluation process that has been rolled out recently on a one-year pilot program. Jim encouraged feedback from ODOT and consultants as we gain experience with this new process.

8.0 TRAINING STANDING COMMITTEE – Bob Carson/Ingrid Saltvold

Ingrid thanked ACEC for the wonderful attendance at the ODOT/ACEC conference, as well as Doug Tindall for speaking on behalf of OTC Chair Gail Achterman on short notice. She also encouraged us to take the survey and provide feedback regarding the conference. Ingrid went on to say that video of the presentations is now available on ODOT's website. Ingrid also thanked Bob Carson and Tim Shell for their efforts on the committee.

9.0 ODOT UDPATES –Tom Lauer

Tom reported that ODOT management is busy responding to inquiries from legislators, and that this is a good thing.

Staffing – No major changes to report.

OBDP – ODOT and OBDP have just signed a new two year contract for program management. They have also developed a document that outlines the strategy to close-out the program through 2013. The close-out will be done in increments, with reductions tied to milestones.

10.0 Local Agency – Alan Lively

ARRA – The stimulus package is keeping the Local Agency staff very busy. There are 160 ARRA projects statewide being handled through the local agency program.

December 31st is the deadline that has been given to local agencies to deliver PS&E to ODOT for these projects. A comprehensive list of all the ARRA projects will be posted on ODOT's Local Government Section website sometime during the week of May 11th -15th. ARRA has taken focus away from normal programs. Alan reported that staff will be returning their attention to these programs in the fall.

Local Agency Full Service On Call – Alan reported that a new solicitation should be advertised in the fall of 2009. It had been planned to come out sooner, but has been delayed by ARRA. Alan reminded the group that the use of this contracting mechanism has peaked during the current cycle. More and more local agencies are becoming certified to deliver federally funded projects, which means that they will not be required to use ODOT's full service list to hire a consultant. Alan's goal is to have all of the major metropolitan agencies certified within two years. Smaller agencies may choose not to become certified and would therefore still use ODOT's list to hire consultants.

Staffing – The local agency group will be adding three positions. Two will help coordinate the certification process with the major metropolitan areas. They will also be adding one engineering position.

11.0 NOA's

Donnell Fowler – Willamette River Bridge Project Update. Public Involvement has been removed from the services being provided by the current contractor. ODOT will hire a consultant directly for this effort. There will be an open RFP very soon for this. The goal is to have a new contractor in place by August 1. Interviews will be conducted as a part of the selection process.

Tom Lauer – Bundle 401 Awards. Tom reported on the many awards being received by the Bundle 401 projects. The accolades include prestigious awards from ACEC, DJC, and APWA. Bundle 401 is **OR38: Elk Cr. - Hardscrabble Cr.** This hugely successful project employed Rapid Reconstruction methodology was employed for these bridge replacements.

12.0 Meeting Adjourned



Overview of the AASHTO Highway Safety Manual

Kevin J. Haas, P.E.—Traffic Investigations Engineer
Oregon Department of Transportation
Traffic—Roadway Section (Salem, OR)

Presented at the ACEC/ODOT Liaison Committee Meeting
May 8, 2009

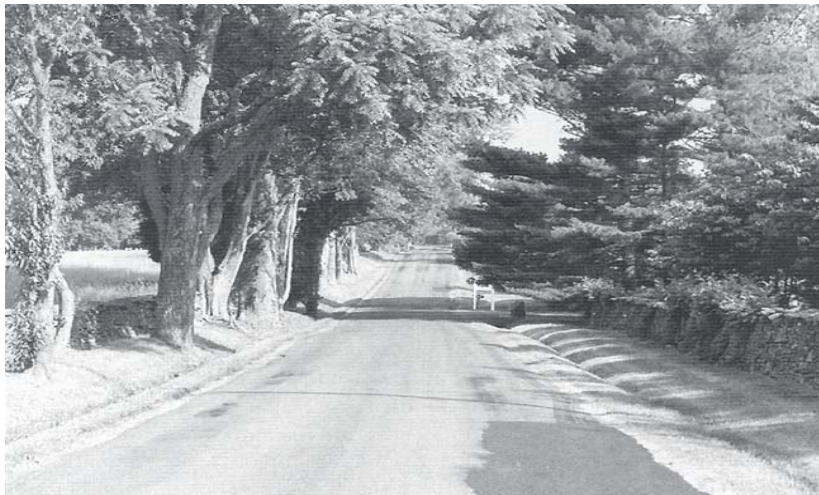


Overview of Presentation

- What is the “Highway Safety Manual”?
- HSM purpose
- Transportation Research Board (TRB) & American Association of Transportation and State Highway Officials (AASHTO) involvement in development of the HSM
- HSM content & methodologies
- HSM 1st Edition release schedule & training opportunities



Is this road “safe” or “unsafe”?



What about these alternatives? Is one “safer” than the others?





What is the Highway Safety Manual?

- Purpose
 - Provide analytical tools and techniques for **quantifying the safety effects of decisions** made in planning, design, operations, and maintenance
- Objective
 - **Reduce the number and severity of crashes** within the limits of available resources, science, technology, and legislatively mandated priorities



Who is the intended audience of the HSM?



- Employees or consultants working for transportation agencies at the state, county, metropolitan planning organization (MPO), or local level



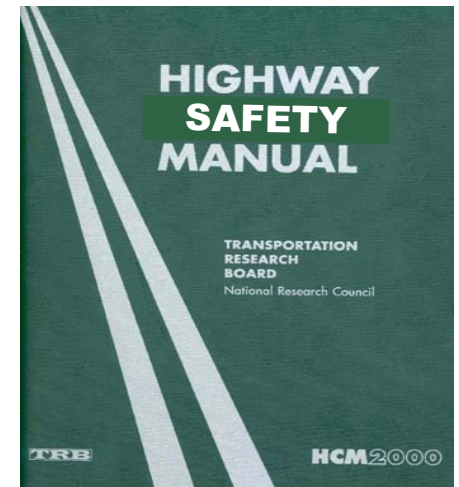
What are the qualifications needed to use the HSM?

- Users should have an understanding of the transportation safety field through experience, education or both
 - Familiar with the general principles and practice of **transportation safety**;
 - Familiar with **basic statistical procedures** and interpretation of results; and
 - Suitable competence to exercise sound **engineering judgment** and reasoning.



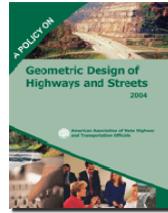
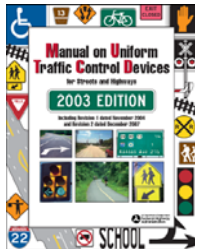
The HSM “vision”—a document as widely accepted as the HCM

- Definitive
 - Represents quantitative “state-of-the-art” information
- Widely accepted
 - By engineers & other transportation professionals
- Science-based
 - Regularly updated to reflect latest research





The HSM is not a replacement for...



- Manual on Uniform Traffic Control Devices (MUTCD)
- AASHTO "Green Book" (A Policy on Geometric Design of Highways and Streets)



HSM History

- First discussed 10 years ago within the Transportation Research Board (TRB) concerning lack of highway safety information in the Highway Capacity Manual (HCM)



HSM foundation laid in 1999

- Breakout session at TRB Annual Meeting in January concluded:
 - The absence of, and the need for a single authoritative document to use for estimating safety impacts
- TRB workshop in December confirmed:
 - The crucial need for a stand-alone document to be named the Highway Safety Manual



What has been happening since 1999?

- TRB Joint Subcommittee for the Development of a Highway Safety Manual created in May 2000 with support from:
 - American Association of State Highway and Transportation Officials (AASHTO)
 - Federal Highway Administration (FHWA)
 - Institute of Transportation Engineers (ITE)



TRB HSM Task Force (ANB25T)

- The HSM Task Force evolved from the TRB Joint Subcommittee and was formed in June 2003
- Over 100 Task Force members have been working on the HSM since 2003
- Key objective
 - Provide direction and oversight of research leading to development of the HSM



Key research & development efforts

- National Cooperative Highway Research Program (NCHRP)
 - Crash Reduction Factors (CRF) for Traffic Engineering & ITS Improvements
 - Safety Systems & Evaluation
 - Production of the HSM 1st Edition
- Other related initiatives
 - Interactive Highway Safety Design Model (IHSDM)
 - SafetyAnalyst



A new way of thinking...

Old

Descriptive analyses

Historical summary of crash occurrence, type and/or severity at a site

New

Quantitative predictive analyses

Future expected number of crashes based on the geometric and operational characteristics at a site



Descriptive analyses

- Based on historical data
 - Crash frequency
 - Crash rate
 - Equivalent property damage only (EPDO)
- Example of descriptive analysis tool:
 - Safety Priority Indexing System (SPIS)

Figure 1: Fatalities and Fatality Rate per 100M VMT by Year

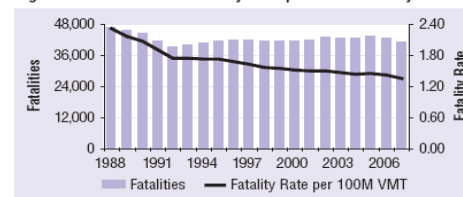


Figure 2: People Injured and Injury Rate per 100M VMT by Year





Quantitative predictive analyses

- Predicted (expected) number of crashes
 - Geometric & operational characteristics
 - Existing conditions
 - Future conditions/design alternatives
- Example of quantitative predictive tool:
 - Safety Performance Functions (SPF)

$$N_{\text{predicted}} = N_{\text{SPFx}} * (AMF_{1x} * AMF_{2x} * \dots * AMF_{yx}) * C_x$$

Where:

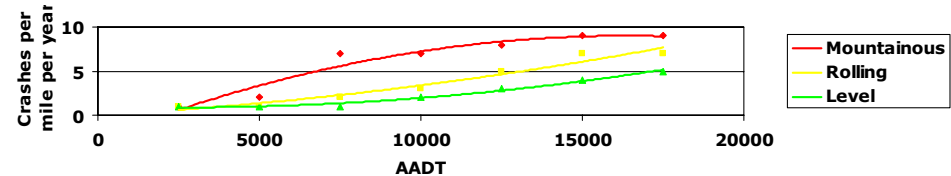
- $N_{\text{predicted}}$ = predictive model estimate of crash frequency for a specific year on site type x (crashes/year);
- N_{SPFx} = predicted average crash frequency determined for base conditions with the Safety Performance Function representing site type x (crashes/year);
- AMF_{yx} = Accident Modification Factors specific to site type x ;
- C_x = Calibration Factor to adjust for local conditions for site type



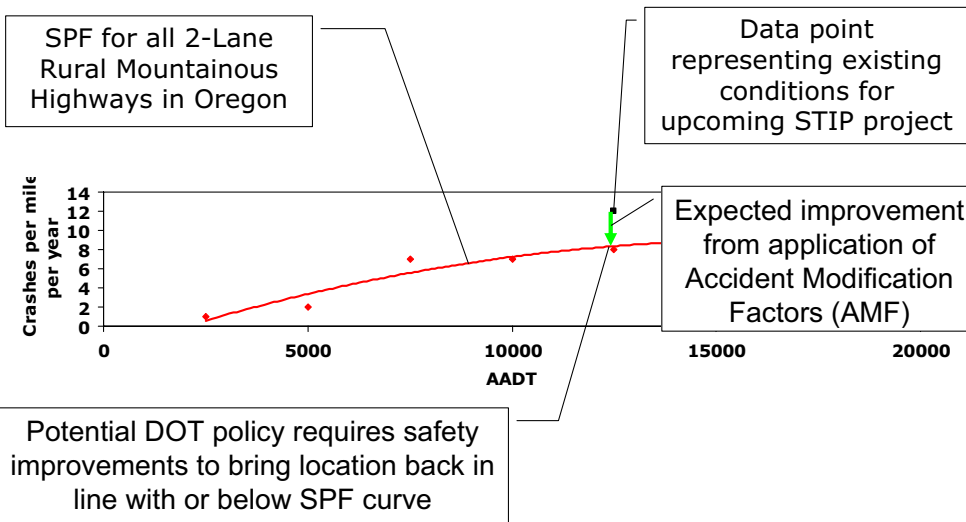
Safety Performance Functions (SPF)

- Regression equations
- Predict the average number of crashes per year for an intersection or highway segment as a function of traffic volume
- Typically **not** a linear relationship!

Sample SPF for 2-Lane Rural Highways



Potential SPF relationship to DOT policy



Accident Modification Factors (AMF)

- Quantify the expected change in crashes at a site caused by implementing a particular treatment
 - Also known by other terms such as countermeasures or Crash Reduction Factors (CRF)
- Some examples of AMFs include:
 - Installing a roundabout or traffic signal at a stop-controlled intersection
 - Deciding to use a 240-foot radius for a horizontal curve instead of a 180-foot radius
 - Installing centerline rumble strips on 2-lane rural highway



Reliability of AMFs

- AMFs must be applied according to the conditions associated with each AMF (i.e. road type, traffic volume, crash severity, etc.)
- Some AMFs include a standard error which indicate variability in achieving expected results

Treatment	Setting (Intersection Type)	Traffic Volume	Accident type (Severity)	AMF	Std. Error
Convert signalized intersection to modern roundabout	Urban (One or two Lanes)	Unspecified	All types (All severities)	0.99*	0.1
			All types (Injury)	0.40	0.1
	Suburban (Two lanes)		0.33	0.05	
	All settings (One or two lanes)		All types (All severities)	0.52	0.06
			All types (Injury)	0.22	0.07

Base Condition: Signalized intersection NOTE: **Bold text** is used for the most reliable AMFs. These AMFs have a standard error of 0.1 or less.
 *Observed variability suggests that this treatment could result in an increase, decrease or no change in crashes.



Outline of HSM—1st Edition

- Part A—Introduction, Human Factors, and Fundamentals
- Part B—Roadway Safety Management Process
- Part C—Predictive Methods
- Part D—Accident Modification Factors
- Glossary



Part A—Introduction, Human Factors, and Fundamentals

- Chapter 1—Introduction and Overview
- Chapter 2—Human Factors
- Chapter 3—Fundamentals



Part B—Roadway Safety Management Process

- Chapter 4—Network Screening
- Chapter 5—Diagnosis
- Chapter 6—Select Countermeasures
- Chapter 7—Economic Appraisal
- Chapter 8—Prioritize Projects
- Chapter 9—Safety Effectiveness Evaluation



Part C—Predictive Methods

- Chapter 10—Rural, Two-Lane Roads
- Chapter 11—Rural, Multilane Highways
- Chapter 12—Urban and Suburban Arterial Highways
- Appendix—Calibrating Safety Performance Functions



Part D—Accident Modification Factors

- Chapter 13—Roadway Segments
- Chapter 14—Intersections
- Chapter 15—Interchanges
- Chapter 16—Special Facilities and Geometric Situations
- Chapter 17—Road Networks



The HSM—a new era in highway safety!

- The 1st Edition of the HSM is currently going through the AASHTO balloting process
- Scheduled to be published in late 2009/early 2010
- Modeling (SPFs) in 1st Edition will be rudimentary
- Gaps in knowledge (AMFs will not be available for every treatment in every conceivable road environment)
- The HSM will encourage:
 - Evidence-based decision making
 - More resources focused on safety research
 - Innovative approaches to improving safety



Upcoming HSM training opportunities

Traffic Day 2009

Monday, October 19
 Valley River Inn (Eugene)
 HSM workshop for ODOT & consultant engineering staff



Oregon Transportation Safety Conference

Tuesday, October 27
 Hood River
 3-hour HSM workshop as part of opening day of conference



Countdown to the 1st Edition of the HSM



For the latest information on the Highway Safety Manual go to:

www.highwaysafetymanual.org