Motorcycle Safety Foundation

Development of Motorcycle Licensing Skill and Knowledge Testing Protocol

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BACKGROUND

In 1966, The Highway Safety Act established a Highway Safety Bureau that called for standards for highway safety. In the following year, a set of 13 Highway Safety Standards was established that included a special testing component. A study by the National Highway Safety Bureau (NHSB) in 1968 identified operator testing and licensing as offering the best long-term, cost-effective motorcycle accident (crash) countermeasure. Since 1973, MSF has actively engaged organizations such as National Highway Traffic Safety Administration (NHTSA) and American Association of Motor Vehicle Administrators (AAMVA) in the development and implementation of a *Motorcycle Operator Licensing Plan* as a guide for state licensing agencies to use in rider education and in motorcycle licensing and testing. The *Motorcycle Operator Licensing Plan* proposed a general policy framework for licensing riders and recommended the types of operator testing that should be developed.

For many years, the MSF has played an important and significant role in supporting state licensing agencies with the development and distribution of the Motorcycle Operator Manual (MOM). The MOM, now in its 15th printing, continues to be used by many states to provide riders with the basic knowledge necessary to complete written motorcycle licensing exams. In conjunction, MSF has also developed, validated, and continues to revise, five different versions of a 25-question Motorcycle Operator License Exam (MOLE), with questions drawn from the MOM. Currently, 43 states use the Motorcycle Operator Manual as part of their licensing test regimen.

In addition to support for state written exams, Motorcycle Operators Skill Test (MOST) materials are available for state agencies to use in assisting state license examiners in preparing and administering skill tests for license applicants. The MOST, however, has limited use currently. In a report prepared for NHTSA in 1987, the National Public Services Research Institute found that the MOST is, ". . . distinctly more costly to administer that other tests used by DMVs to assess motorcycle operator license applicants", which may help explain its limited use. Three major cost concerns were identified in this report.

The first is related to the physical test site, and the amount of "real estate" required for the test. Because testing quick braking and quick turning require somewhat higher speeds than are typical of other state license tests, a greater amount of real estate and additional range configuration are required for the MOST. Second, accurately assessing the ability of the rider to stop quickly in Exercise 7 and Exercise 9, and to turn quickly in Exercise 8 requires precise measurement of motorcycle speed at the moment the signal to stop or turn is given. The MOST requires a combination of electronic speed measuring equipment that is expensive to purchase and maintain. Third, positioning and aligning the equipment prior to each day's testing requires significantly more time than needed to prepare the test range for other, standard off-street motorcycle tests. In an assessment of the use of the MOST, the report concluded that the impact of the MOST on motorcycle accidents was, in fact, clouded by inconclusive results, leading to reluctance by state

administrators to bear the costs associated with implementation. As a consequence, a means of assessing basic and advanced riding skills measured by the MOST was developed, and most states have chosen to adopt the Alternate Motorcycle Operator Skill Test (Alt-MOST) for their licensing programs.

The Alt-MOST was designed to be conducted with minimal testing facility and equipment costs, enabling examiners to test basic low-speed riding control skills and advanced, collision-avoidance skills that research has shown to be lacking in crash-involved riders. Skills tested are: executing sharp turns, completing normal stops, making quick stops, and swerving to avoid obstacles. Additional measures of rider competence include assessment of u-turn capability, ability to weave, and engine stalling: measures of operator skill in use of motorcycle controls. The Alt-MOST has been thoroughly validated to insure it measures minimal skills needed by beginning riders on the street, while being administratively feasible. For those states that use the Alt-MOST, the MSF conducts license examiner training, examiner trainer training and upon request, professional development as a means of ongoing support. Currently, 28 states and the District of Columbia use the Alt-MOST as their primary means of skill testing.

The connection between training and licensing is a strong and critical one. Currently, the MSF maintains a system of training courses for the states, military and other providers to support their safety initiatives. Additionally, individual modules such as Riding Straight and Seasoned Rider are available to augment course offerings, focusing on specific needs, or segments of the rider population. Many states allow completion of the BRC as a license waiver for their state skill and/or knowledge test, since the course completion requirements exceed those needed to pass the standard license skill test. In 2008, 45 states and the District of Columbia offer some form of waiver for riders who have completed BRC training.

MSF Licensing and Certification Philosophy

An MSF program directed at licensing motorcycle operators and certifying license examiners is focused on improving rider safety, developing examiner skills and knowledge, and rewarding examiner performance. For riders, licensing should: 1) motivate motorcycle operators to acquire the knowledge and develop the skills to ride safely, 2) encourage riders to gain experience in a low risk environment, and 3) insure that riders demonstrate minimum levels of skill and knowledge for riding in traffic prior to being granted full riding privileges. For license examiners, certification should: 1) establish and specify professional growth and development opportunities for improved performance, and 2) recognize motorcycle license examiners who have demonstrated superior performance and professionalism.

Issue Definition

There exists any number of critical issues related to the promotion of and active contribution to motorcycle safety. This initiative is based on a review of prior activities and an assessment of current trends and future directions, focusing on ways in which

licensing can strengthen the structure of licensing through certification and make significant contributions to rider safety. The following issues have been identified for consideration during this project:

1. Motorcycle crashes resulting in injury and fatality continue to increase. The MSF and NHTSA actively cooperative with AAMVA to support motorcycle crash countermeasures. However, despite continued efforts to improve safety, the number of motorcycle crash related injuries and fatalities continue to increase. NHTSA reported to the SMSA (State Motorcycle Safety Administrators) during a business meeting on 15 August 2008, that motorcycle fatalities have increased for the 10th year in a row, and that they are the highest since 1975. Additionally, motorcycles continue to be overrepresented in crashes. In 2003, per vehicle mile traveled, motorcyclists were about 32 times more likely than passenger car occupants to die in a motor vehicle traffic crash and six times more likely to be injured. In 2007, motorcycle fatalities increased to 12.6% of all motor vehicle crash fatalities, compared to 5.5% in 1998. The primary collision factor in a significant percentage of reported fatalities was determined to be rider judgment: improper turning, unsafe lane change, improper passing, failure to yield right of way.

2. In spite of very active licensing programs in every state, a serious safety issue exists in a low percentage of riders with valid motorcycle licenses. In a statistical brief, "Fatally Injured Motorcycle Operators by License Status", an extract from its Fatality Analysis Reporting System (FARS), NHTSA in January, 2008, reported that an average of 25% of motorcycle operators involved in fatal crashes were operating with invalid licenses. Although the trend in the most recent 5 years of recorded data has remained consistent, varying between 24% and 26%, the real numbers are increasing: from 779 reported fatalities in 2002 to 1172 in 2006. Motorcycle license requirements vary among states. Thus, for purposes of definition, a properly licensed rider may possess a) a valid driver license (non-CDL status) with a motorcycle endorsement, b) a motorcycle-only license, c) a learner's permit and temporary license, or d) no license at all in the case of operators of motorcycle-type vehicles such as mopeds. An improperly licensed rider is one who has no license to operate a motorcycle, or has a license that is suspended, revoked, expired, cancelled or denied.

MSF supports valid licensing of all riders. In deciding how best to proceed, an important area of study will be consideration of the concern that extremely high license standards and stringent enforcement requirements may produce a disincentive for riders to become licensed. Implementation of a licensing system that increases the difficulty of obtaining a license, for example, may well serve to exacerbate the problem of a high percentage of non-licensed riders, leading to a detrimental effect on motorcycle safety.

3. There have been significant advances in motorcycle technology. Larger displacement engines, changes in motorcycle wheelbase, and the popularity of large displacement scooters and three-wheel vehicles require a contemporary assessment of motorcycle rider license test requirements. To assure accurate, reliable assessments

of applicants for licensure, the MSF remains committed to supporting all licensing agencies with the most current, validated materials and training available.

4. Since examiners must fairly, objectively, reliably, and consistently evaluate rider performance, valid and reliable test materials and procedures must be available. A system of examiner certification must be designed and developed to maintain the highest standards of performance in this critical area of safety. According to state data, collected in 2007 and reported in MSF's Cycle Safety Information (CSI) sheet, nationally there are 7550 state license examiners testing motorcycle riders in 3098 state motorcycle license test sites. Twenty-five states reported an additional 813 qualified 3rd party motorcycle operator testers. A program for licensing certification must be capable of supporting all examiners, both state employees and 3rd party testers, assuring high performance standards, and continuing to develop and evolve as future changes in demand dictate.

5. There is a distinct need to continue to aggressively promote rider safety and use the influence of national organizations to partner with MSF, as appropriate, in multi-levels of approach, all aimed at reducing crash injuries and fatalities. In one significant effort, AAMVA, in 2006 created a Motorcycle Technical Working Group (MTWG) consisting of representatives from federal agencies, state driver license agencies, state rider education programs, state highway safety offices, state law enforcement agencies, as well as motorcycle safety advocates. MSF was represented at a series of MTWG meetings that assessed and revised the MOLS (Motorcycle Operator Licensing System) and IMREL (Integrating Motorcycle Rider Education and Licensing) manuals. The goal of the MTWG was the creation of a final, published report, *Strategies for Motorcycle Operating Licensing Systems*, that could be provided to states as a guideline document for motor vehicle administrators, with specific, operational recommendations for reducing motorcycle crashes and fatalities. This example of inter-agency cooperation among multi-level stakeholders offers a possible framework and direction for future efforts aimed at improving rider safety.

Project Scope

Licensing and testing processes must evaluate the level of rider preparation regarding minimum knowledge and skill levels. New riders must have the minimum competencies to effectively and safely enter the roadways and operate in traffic. Operator licensing is a critical activity for MSF. The seminal statement regarding the MSF commitment to licensing and safety for riders is found in the MSF Guidelines for Motor Vehicle Administrators, 1997, which states that the ability of a licensing program to reliably discriminate between adequate and inadequate levels of skill and knowledge determines its effectiveness in screening out unsafe riders and offering opportunities for training and adequate preparation. Since then, the MSF has continued to work with AAMVA to update and improve the operator licensing system in the development of a national standard.

For a skill test to contribute to a reduction in crashes, it must be valid and reliable. A skill test can alter riding behavior if it prevents those who lack the necessary skills either never to get a license, or to develop the required skills so as to be granted a license. Assuring that the skills tested in the license exam are valid is the first step. However, if a skill test does not reliably measure those skills, it does nothing to assure that riders who test successfully and become licensed possess them. Certification training of license examiners, including an evaluation element, is the best means of insuring examiners can demonstrate consistent, objective and accurate assessment of rider performance during every test administration. This is the only assurance that the results of testing will reliably discriminate between adequately and inadequately prepared riders.

This project will review the current practices and procedures related to licensure/testing, confirm that knowledge and skill sets/domains are valid and reliable, and recommend future directions. This project will consider the variety of needs, interests and capabilities of the various stakeholders in motorcycle safety, including federal and state safety agencies, as well as rider education professionals and safety advocates.

Purpose

Because of its commitment to improving rider safety, MSF plays a pivotal role in leading and coordinating efforts to improve rider training and examiner education. Active and ongoing leadership will be essential for measurable achievement of these aims. The purpose of this project will be to conduct a thorough review of the current status of licensing and testing, and to build a future that enhances and improves motorcycle rider safety through assessment of current testing methods, revisions of skill and knowledge tests as appropriate, and development of certification standards and procedures for examiners.

Procedures

This project will be conducted in five phases, as described below. An initial assessment of the current state of rider licensing and testing will establish a validated baseline for recommendations on future direction. The central theme of the project will be a review of existing licensing/testing requirements and standards, including a review of the current status of motorcycle license knowledge and skill tests. This will be accomplished through the use of a technical project team: a small, selected group of knowledgeable individuals/stakeholders/practitioners, who will bring their expertise to bear on the issue. The project team will review existing processes, procedures and materials, make recommendations, and guide new ideas and initiatives.

Phase 1 – Current State Assessment

The technical project team will review current processes, procedures and materials with the aim of determining how well the needs of motorcyclists are being met with current licensing testing practices. The MSF will convene a series of meetings and conference calls with team members and stakeholders to identify needs, clarify the purpose and

objectives, and to develop plans to proceed with a proposal, including a timeline, milestones, and budget requirements.

Proposed Technical Project Team Members:

Carl Bennett – RiderCoach Trainer, Florida
Paul Graves – Program Coordinator, Vermont DMV Rider Education Program
Jim Kelly – Georgia Motorcycle Safety Program
Andy Krajewski – Program Director, Maryland Motor Vehicle Administration
Ray Ochs – MSF
Glenn Pickleshimer – RiderCoach, Florida
Brett Robinson – Vice President, Highway Safety Services, LLC
David Smith – Program Manager, New Mexico Motorcycle Safety Program
Joe Tyree – Coordinator, West Virginia Motorcycle Safety and Ed. Program

Phase 2 – Project Design

The MSF project lead will complete a design document that identifies and specifies all major activities that will be undertaken during the project to meet the objectives identified by the technical project team. All project timelines and budget requirements for each activity will be specified. An important consideration will be the identification of the key stakeholders in the development and maintenance of MSF licensing efforts. An MSF steering committee will be proposed, comprised of individuals who are either members of national organizations and agencies, or who have interest, expertise, or special knowledge regarding motorcycle licensing, training and safety. The steering committee will provide critical, ongoing input and validation for the direction of the project and sustainability of ongoing activities.

Phase 3 – Concept/Material Development

Conceptualizing the scope of the project will lead to specific actions and deliverables that will be described in the detailed project proposal. The proposal will be presented to the MSF Board of Trustees for review, appraisal, comments, and suggestions prior to broader distribution to other licensing, certification and safety organizations. Initial development of materials during this project phase will enable stakeholders to gain knowledge of the practical aspects of the project and see samples of the deliverables in preparation for pilot testing and full implementation of the proposal.

Phase 4 – Implementation

The development of a detailed plan for the implementation of the major aspects of the project proposal will be completed. Details and timelines for all development phases and project rollout, including budget and manpower requirements, will provide stakeholders opportunities to assess the impact of licensing and certification on the states and on rider safety.

Phase 5 – Evaluate/Monitor/Track Progress/Improve

Evaluating the results of initial rollout is a key element of this project phase. The success of the monitoring and tracking of examiner certification, and the maintenance of record keeping functions will give decision makers an initial sense of how licensing and certification can serve the needs of state examiners and riders. This assessment will include guidelines and requirements for recertification, and a view of how technical updates for maintaining certification currency might be conducted. A final report of project implementation will be completed, including recommendations for further activities, based on "lessons learned" during the phased implementation.

A second outcome of this final phase will be determination of efforts directed at sustaining the results of the project over time and enhancing the credibility of the MSF licensing and certification processes. MSF will continue to maintain active engagement with organizations and agencies such as AAMVA, SMSA, the National Transportation Safety Board (NTSB) and NHTSA as appropriate to obtain feedback on program effectiveness, entertain suggestions for additional activities, receive guidance, and incorporate recommendations for improvements in rider safety and program operation.

Following a review of all input and various proposals for skills testing, pilot testing of proposed changes was conducted during two, one-week trial tests in Jacksonville, Florida: 13-19 September 2007 and 04-10 October 2007. The necessity for changes to the motorcycle test was predicated upon observations of rider testing using the current Alt-MOST range configuration. Because of unique handling characteristics and differences in design specifications on some motorcycles, the existing Alt-MOST course configuration appeared to present difficulties in fairly, accurately and reliably scoring riders of motorcycles, specifically those with longer wheelbase configurations, and "sport" motorcycles with limited steering angle.

A second objective was aimed at addressing two specific areas of rider skill not found in the current Alt-MOST: turning right from a stop and making a left hand u-turn. Inclusion of these two exercises was premised on the need to assess riders performing more common street riding skills. First, riders turning right from a stop must not swing wide during the turn, and demonstrate the ability to stay within proper lane of traffic in order to avoid collisions with oncoming vehicles. Second, the current skill test evaluates the ability of a rider to stay within specified boundaries while making a right hand u-turn. In traffic, a left hand u-turn is a more common maneuver, so this design consideration was included as an objective in proposing changes to the current Alt-MOST.

Finally, the increased popularity of three-wheel vehicles, either two-track or three-track, has resulted in requests by some states for a skill test to evaluate the abilities of riders of these vehicles. A new test configuration with working designation “3-Wheel Alt-MOST” was, therefore, included for consideration in this project. Both course configurations: the Alt-MOST and 3-Wheel Alt-MOST were included in the evaluations.

Purpose of the Skill Test

The current Alt-MOST assesses both basic and advanced skills. According to a study of skill test exercises conducted for NHTSA in 1987 by the National Public Services Research Institute, basic motorcycle control skills are not intended to assess rider performance critical to crash prevention, nor, by themselves, do they produce a range of performance sufficient to reliably measure adequate skills for riding in traffic. Rather, the purpose of the basic control skills is to determine whether license applicants are able to handle a motorcycle well enough to avoid creating crash situations. The study concluded, however, that the crash preventive value of testing basic skills had never been studied previously, so there is no way of knowing how important those skills might be.

The advanced exercises of the skill test determine how well license applicants are equipped to respond safely to crash situations. The two exercises that can reliably be measured and are most critical to crash prevention are the quick stop and the obstacle swerve. However, confining the motorcycle license skill test to only these advanced exercises would likely increase the risk for the license applicant. Hence, the obvious value of including basic control skills: they afford an opportunity for the examiner to

screen out riders who are not sufficiently competent to handle a motorcycle safely in the advanced exercises.

Test Design

The primary aim of changes to the Alt-MOST was to maintain the validity and reliability of the testing procedures: pass only those riders who possess and can demonstrate adequate skills to ride in traffic, and fail those who do not demonstrate this level of skill. Two separate course layouts were designed for this evaluation. Design specifications required that there be one examination course for three-wheel vehicles and a second for two-wheel, single-track vehicles, regardless of engine displacement. Additionally, the design aimed to create exercises that required as few changes as possible to existing boundary lines and cone placements while insuring that the changeover from the motorcycle test layout to the three-wheel test layout could be conducted without confusion, and completed in a minimum of time.

Pilot Test Participants

The Alt-MOST pilot test project team consisted of 6 persons with experience, who acted as consultants during testing. They were:

Carl Bennett
Paul Graves
Andy Krajewski
Ray Ochs
Glenn Picklesimer
David Smith

To adequately evaluate the appropriateness of the proposed revisions, a group of experienced riders was assembled to complete the exercises and provide input into the final design. Participants were:

Carl Bennett
John Hunt
Ray Jeter
Scott Keffer
Alan Manges
John Moody
Glenn Picklesimer

At the same time as the Alt-MOST and 3-Wheel Alt-MOST pilot tests were being undertaken, development of a training course for riders of three-wheel vehicles was being conducted by the MSF. This new course, with preliminary designation as 3BRC, provided an opportunity for additional riders to participate in the pilot test for the 3-Wheel Alt-MOST. In all, an additional seven riders, all participants of the 3BRC pilot

test, agreed to participate at the conclusion of that pilot test. Data from those riders are included in the summary below.

Alpha Phase - 3-Wheel Alt-MOST Testing

To complete the pilot test, four riding exercises were developed, and the appropriate course layout was completed. The review below includes results and details of each exercise in the pilot test.

Exercise #1 -- Sharp Left Turn and Normal Stop

Objective

Be able to demonstrate skill in manipulating motorcycle controls by accelerating, making a left turn within indicated boundaries and coming to a stop in a designated area without looking at the front tire.

Test Procedures

Riders complete a left hand turn between boundaries that allow a 9' wide path of travel through a corner turn marked with two lines, extending 10' from the corner of the range.

A total of seven vehicles were used in this pilot test:

- 3 - BRP Spyders
- 3 - Harley-Davidson trikes
- 1 - BMW with sidecar

There were 21 rides completed in the first phase. During the rides, there were two line violations. Riders changed onto different vehicles and made 14 additional attempts, with no observed boundary violations.

During the next phase, the boundary cone for the corner was moved so that the path of travel was narrowed 1' for both the corner approach and exit. Seven runs were made with path of travel reduced to 8' X 8', and one corner cone violation was observed. Data from riders participating in the 3BRC pilot test were also gathered using the 8' X 8' path of travel. No line or cone violations were observed.

Discussion

There were few violations with the original layout (Phase I testing), and even after reducing the width of the path of travel in Phase II, riders experienced little difficulty in successfully completing the exercise. Riders showed no difficulty stopping with the front tire of the vehicle (left front tire in the case of the Spyders) in the 3' X 5' box.

Recommendations

This exercise appears to be an adequate assessment of rider control skills, width awareness and vehicle control. The 8' X 8' wide path of travel through the turn is recommended. Riders reported that even though the corner lines that marked the right hand turn boundary had been extended to form a 10' X 10' "L" to control the approach and exit of the turn, this increase would not present undue difficulty for applicants likely to be tested.

It is also proposed that during the exam, and for all exercises, applicants be allowed to have any tire of the vehicle touch, but not cross, the painted boundary line without penalty.

Exercise #2 – Cone Weave and Turn from a Stop

Objective

First, demonstrate control skills by completing a straight cone weave to approximate obstacle avoidance at low speed. Second, approximate a real-world situation in which the rider demonstrates the ability to turn right following a boulevard stop, maintaining correct lane position and avoiding oncoming traffic.

Test Procedures

Seven vehicles were used in this pilot test:

- 3 - BRP Spyders
- 3 - Harley-Davidson trikes
- 1 - BMW with sidecar

Riders begin by riding to the left of the first of three cones at 18’ spacing and with no offset. After passing the final cone, riders turn right 90 degrees and stop at a cue cone positioned 16’ from the outside, right hand boundary line. On signal, riders proceeded through a right hand turn and were instructed to stop upon reaching the end line of the course. The width of the path of travel through the right hand turn was 8’ X 8’.

A total of 22 rides were completed in Phase I, with seven separate rides in each series; each rider completed three rides, and one rider a fourth. There were five cone violations: one on the first cone of the weave, two on the second cone of the weave and two on the inside boundary cone of the right hand turn. There were three line violations on the boundary line at the exit of the right hand turn. Violations were random, with no pattern of violations observed by either riders or vehicles.

During Phase II testing, data from two riders participating in the 3BRC pilot test were also gathered. One line violation was observed.

Discussion

Riders reported that the cone weave appeared to be an adequate and fair measure of skill, and that the corner turn was both realistic and an appropriate measure for riders being evaluated by the 3-Wheel Alt-MOST.

Recommendations

This test further confirmed that the 8' X 8' wide path of travel through a turn, in this case a right hand turn, is appropriate. At the conclusion of the turn, riders will be instructed to stop with the front wheel of the vehicle inside of a second painted 3' X 5' box on the right side of the course, rather than proceed to the end of the course. The stop box is not part of the evaluation of this exercise. Stopping at this point facilitates provision of instruction for exercise #3 of the exam.

Exercise #3 – Quick Stop

Objective

Demonstrate the ability to stop quickly and safely, maintaining control of the vehicle.

Test Procedures

A total of seven vehicles were used in this pilot test:

- 3 - BRP Spyders
- 3 - Harley-Davidson trikes
- 1 - BMW with sidecar

This exercise used a 20' timing zone marked by two sets of cones spaced 7' apart. Timing began as the front tire of the vehicle crossed the line between the first set of cones and ended when the front tire crossed the line between the second set of cones. Once the front tire crossed the line between the second set of cones, riders were instructed to stop as quickly as possible. Braking distance was measured using 1' increments painted on the pavement. The leading edge of the tire was noted, and stopping distance measured to the next highest one-foot increment.

A total of 16 rides were completed in the initial test session, with results indicated in Table 1, below.

Ride #	Time in Seconds	Recorded Stopping Distance	Allowable Stopping Distance
1	.68	16	23
2	.72	15	20
3	.70	16	20
4*	.76	20	18
5	.80	14	16
6*	1.03	12	10

7	.92	8	13
8	.94	11	13
9	.70	15	20
10*	.75	25	18
11	.80	15	16
12	.80	14	16
13	1.06	5	10
14*	1.03	13	10
15*	.79	17	16
16*	.92	15	13

Table 1. Stopping distances achieved by study riders.

As indicated with the *, six of the rides had stopping distances that were beyond the maximum allowable standard.

The next session measured the stopping distances for 7 riders participating in the 3BRC pilot test. These data are shown below in Table 2.

Ride #	Time in seconds	Recorded Stopping distance	Allowable Stopping Distance
1	.92	10	13
2	.76	15	18
3**	.87	15	14
4**	1.07	13	10
5**	1.05	11	10
6**	.99	13	11
7**	1.14	10	9

Table 2. Stopping distances achieved by 3BRC riders.

As indicated with the **, five of the seven rides produced stopping distances that were beyond the maximum allowable standard.

Discussion

Results from the study of riders in the first phase indicated that 62.5% of participants were able to complete this exercise successfully. It should be noted that riders were asked to change vehicles after each run, so a contributor to longer than allowable stopping distances could have been rider unfamiliarity with the vehicle during the test.

While 3BRC riders might well be more typical of Alt-MOST examinees, testing during the second session showed high percentage of riders unable to stop within the allowable distance. It should be noted that the testing occurred at the end of the range exercises and skill test, so fatigue should not be ruled out as a factor in these results.

Recommendations

These data indicate that stopping distances within the maximum allowable, as taken from the existing Alt-MOST, are attainable, and therefore are a fair, accurate, and appropriate measure of rider skill. Acceptable average speed measurements were attainable within a 20' timing zone. Consequently, the use of the 44' timing zone employed in the earlier Alt-MOST will not be continued.

Exercise #4 – Obstacle Swerve

Objective

Demonstrate the ability of a rider to maneuver quickly to avoid a hazard while maintaining control of the vehicle.

Test Procedures

A total of seven vehicles were used in this pilot test:

- 3 - BRP Spyders
- 3 - Harley-Davidson trikes
- 1 - BMW with sidecar

This exercise used a 20' timing zone marked by two sets of cones spaced 7' apart. Timing began as the front tire of the vehicle crossed the line between the first set of cones and ended when the front tire crossed the line between the second set of cones. Once the front tire crossed the line between the second set of cones, riders were instructed to turn to the right to avoid an "obstacle" (a painted line marked with a cone at each end) that was 7" wide and directly in front of them at a distance of 17'. A 6.5' lane was formed on each side of the range between the outer edge of the obstacle (cone) and painted side lines. Riders were instructed to stop after straightening the vehicle.

A total of 16 rides were completed in the first test session. Timing required that riders attempt the swerve at between approximately 12 and 18 mph. Times and equivalent speeds for all runs were measured. Results indicated that all runs were completed within specified times/speeds. There were two cone (obstacle line) violations and four side line violations. During one ride, the vehicle touched, but did not cross the side boundary line.

In the second session, data from seven riders participating in the 3BRC pilot test were also gathered. One side line violation was observed, and on one run, the recorded time (1.70 seconds) was beyond the allowable time (0.72 to 1.15 seconds) for the exercise. No re-run was attempted.

Discussion

Results from study riders in the first session indicated that riders had moderate difficulty completing the swerve. As with results from exercise #3, riders were asked to change

vehicles between rides, so unfamiliarity with a vehicle may have been a contributing factor. Second, this was the fourth exercise these riders completed, each rider having completed a number of rides. Thus, fatigue should not be discounted as a factor.

In the second session, the 3BRC riders performed well. There was a single side line violation and only one time/speed outside allowable limits.

Consequently the obstacle swerve appeared to be an adequate measure of skill and appropriate for riders being evaluated by the 3-Wheel Alt-MOST.

Recommendations

This test confirmed that the 17' distance between cue cones (beginning of the swerve and obstacle) was fair, adequate, and appropriate for measuring the skill of a rider to swerve and safely stop. Additionally, the 6.5' width between the cone demarcation for the end of the obstacle line and side line allowed adequate space for riders to complete their swerves before stopping.

Alpha Phase - 2-Wheel Alt-MOST Testing

To complete the pilot test, four riding exercises were developed. The range was painted and cones placed appropriately for the skill test. The review below includes results and details of each exercise in the pilot test.

Exercise #1 – Cone Weave and Normal Stop

Objective

Demonstrate control and balance skills by completing a straight cone weave to approximate obstacle avoidance at low speed. Complete a right turn and come to a stop in a designated area without looking at the front tire.

Test Procedures

A total of four motorcycles were used in this pilot test:

Honda Goldwing 1500
Honda Goldwing 1800
Harley-Davidson Ultra Classic
Yamaha FJR

On signal, riders began by riding to the left of the first of four cones, spaced at 12' intervals with no offset. After passing the final cone, riders turned right, completed a 180 degree turn and stopped on the opposite side of the range with the front tire in a 3' X 5' box positioned 40' from the end of the range.

A total of 21 rides were completed, with riders switching motorcycles randomly after each series of rides. There were six cone violations: three riders hit one cone during the weave, one skipped one cone and one rider hit two cones during the weave. There were two line violations on the stop box, with riders stopping on the line. Violations were random, with no observed pattern of violations among riders or motorcycles.

Discussion

There were few cone violations with this range layout, seeming to indicate that riders had little difficulty in successfully completing the weave. The spacing of the cones at 12', the distance used in the earlier Alt-MOST was retained. Riders had no difficulty in stopping with the front tire of the motorcycle in the 3' X 5' box. Smaller displacement motorcycles (500cc or less) were not tested during the initial pilot test. Subsequent testing, 9-12 June 2008, was conducted during orientation training for Vermont License Examiners. During a series of error runs, a single rider on a 250cc motorcycle was able to successfully complete the cone weave.

Recommendations

This exercise appears to be a fair and adequate assessment of rider control and balance skills. The 12' spacing of the cones and the weave without cone offset is recommended. A further recommendation is that this test layout also be used for all motorcycles, regardless of engine displacement.

It is also proposed that during the exam, and for all exercises, examinees be allowed to have any tire of the vehicle touch, but not cross, the painted boundary line without penalty.

<u>Exercise #2 – Right Turn from a Stop and Left-Hand U-Turn</u>

Objective

Riders approximate a real-world situation by demonstrating ability to turn right following a boulevard stop, maintaining correct lane position and avoiding oncoming traffic. Riders demonstrate low speed control skills by completing a left-hand u-turn and stopping in a 3' X 5' box (not scored). Additionally, the u-turn section of the exercise included two separate dimensions, based on motorcycle engine displacement: 600 cc and under and over 600 cc.

Test Procedures

A total of four motorcycles were used in this pilot test:

Honda Goldwing 1500
Honda Goldwing 1800
Harley-Davidson Ultra Classic

Yamaha FJR

Riders began at a start T positioned 16’ from the boundary line and proceeded through a right hand turn. Outside boundary lines were 10’ in length and the path of travel was 6’ wide at the entry and 6’ wide at the exit of the turn. After completing the turn, riders crossed the range diagonally and completed a left-hand u-turn, coming to a stop in the stop box. The side boundary lines for the u-turn were extended 5’ from the previous range layout to a total length of 15’.

Large displacement motorcycles (more than 600cc) are allowed 24’ to complete the u-turn. Although not part of this test, motorcycles of 600cc or less are allowed 20’ to complete the u-turn.

A total of 24 rides were completed, with riders switching motorcycles randomly after each series of rides. During the first 16 rides, riders were asked to complete the u-turn within the 24’ boundary lines. In the final 8 rides, riders were asked to attempt the u-turn using the 20’ boundary lines.

During the 24 rides, there were three foot-down violations. While attempting the 24’ u-turn, there were four violations in which riders crossed a line, and two violations which riders touched a line. When attempting the 20’ u-turn, there were two “crossed-the-line” violations, and two “on-the-line” violations. Violations were random, with no observed pattern of among riders or motorcycles.

Discussion

Riders reported that the right-hand turn from a stop appeared to be a realistic maneuver that was often performed in traffic, and thus, a fair and appropriate measure for riders being evaluated by the 2-Wheel Alt-MOST. Riders also noted that a left-hand u-turn was a more typical maneuver, and thus completed more frequently on the street than a right-hand u-turn. Extending the boundary lines to 15’ for the u-turn did not present any specific difficulties for riders during this test.

Recommendations

This test further confirmed that the 6' X 6' wide path of travel through the right hand turn is appropriate, and thus, a recommended change. Extending the lines for the u-turn from 10’ to 15’ in length helps insure riders proceed deeply to the end line of the range to complete the u-turn completely before proceeding to the painted 3’ X 5’ stop box on the right side of the course.

<u>Exercise #3 – Quick Stop</u>

Objective

Demonstrate the ability to stop quickly and safely, maintaining control of the vehicle.

Test Procedures

During the Florida pilot, no testing was conducted for this exercise since no changes to the existing test procedure, range layout and timing specifications were proposed. Subsequent testing, 9-12 June 2008, was conducted during orientation training for Vermont License Examiners. During a series of practice runs, a single rider on a 250cc motorcycle was able to safely and successfully attain the necessary speed (12-18 mph) through the timing zone from the 20' start T.

Discussion

The results of the subsequent test in Vermont indicate that acceptable average speed measurements and stopping distances were attainable when employing a 20' timing zone. In making this recommendation, concern was expressed that riders might not be able to safely attain enough speed for measured accuracy. This concern, however, proved unfounded.

Recommendations

Of greater import, use of the 44' timing zone extends the space required for the range well beyond the 30' X 75' layout recommended in the Alt-MOST Examiner Study Guide. In some locales, this additional space requirement could be difficult to accommodate. Finally, use of a single timing zone reduces potential confusion an examiner may experience by having two separate charts to refer to during scoring. Consequently, the use of the 44' timing zone employed in the earlier Alt-MOST should be discontinued.

Exercise #4 – Obstacle Swerve

Objective

Demonstrate the ability of a rider to maneuver quickly to avoid a hazard while maintaining control of the motorcycle.

Test Procedures

No testing was conducted for this exercise since no changes to the existing test procedure, range layout and timing specifications were proposed.

Recommendations

Maintain existing range layout, test procedure and timing specifications.

Summary

Reviews of existing materials led to the consideration of different options for improving the usefulness of the Alt-MOST while maintaining the ability to discriminate between riders who possess the minimum skill level for motorcycle operation in traffic from those who do not. Results of this pilot test indicated that the changes represented appropriate measures of rider skill. While additional testing will add to the body of knowledge regarding acceptability and applicability of this standard, such testing will be reserved for activities in Phase 4 – Implementation of this project.

Supporting the implementation of license examiner certification using the new guidelines and standards for the Alt-MOST, and initial launch of the 3-Wheel Alt-MOST, requires three key strategic elements to be in place. The first of these is the design and development of both print and audio-visual materials to support examiner certification training along with a phased strategy for state rollout and pilot testing. This step forms the basis for successful preparation of examiners to fairly, reliably, accurately and objectively conduct rider testing. Second, certification will create the need for methods of tracking examiner training and performance. This positions MSF to coordinate with organizations and agencies such as NHTSA, NTSB, SMSA, and AAMVA to build upon current certification practices employed by AAMVA to attain a consistent, nationally recognized licensing strategy. Third, an internal communications strategy will be necessary for MSF to successfully liaise with licensing stakeholders, advocates and professionals at local, state and national levels to assure consistent application and enforcement of performance standards.

In discussion with team members, strategic positioning for each of these three elements is examined below.

Training Support Materials

To avoid confusion with existing Alt-MOST testing and examiner support materials, MSF selected a new name for all testing and materials in this project. Rider Skill Test (RST) will be used as an encompassing title for the testing procedures and support materials. Rider Skill Test, 2-Wheel Version (RST-2W) will describe testing and materials for motorcycles, and Rider Skill Test, 3-Wheel Version (RST-3W) will designate the testing and materials for three-wheel vehicles.

Examiner Study Guide, RST-2W

The examiner study guide consists of appropriate background information to inform examiners about skill test development and scoring criteria, range layout guidelines for new test courses and conversion of existing test courses, and RST-2W skill test rationale, procedures, instructions and scoring.

Examiner Study Guide, RST-3W

The examiner study guide consists of appropriate background information to inform examiners about skill test development and scoring criteria, range layout guidelines for new test courses, and RST-3W skill test rationale, procedures, instructions and scoring.

Examiner Trainer Guide, RST-2W

The guide for examiner training for the RST-2W provides detailed procedures for trainers to follow in preparing examiners to conduct RST-2W testing fairly, reliably, accurately

and objectively. All details for conducting examiner training are covered in the presentation, supplemented with a training aid DVD and instructions for conducting training runs on the RST range.

Examiner Trainer Guide, RST-3W

The guide for examiner training for the RST-3W provides procedures for trainers who will conduct the RST-3W examiner training in addition to the training for the RST-2W. Procedures enable trainers to prepare examiners to complete testing fairly, reliably, accurately and objectively. Details of examiner training procedures are covered in the presentation and are supplemented with a training aid DVD. Procedures for conducting training runs using the RST-3W range layout are included.

Test Instruction Sheets, RST-2W and RST-3W

Instruction sheets are provided for examiners to enable them to deliver consistent test direction to applicants prior to the start of the RST and each exercise. Because there are slight differences between the exercises and course layouts for the RST-2W and RST-3W, separate instruction sheets are required.

Scoring Sheets, RST-2W and RST-3W

Scoring sheets are provided for examiners to assist them in tracking performance as the rider proceeds through the skill measurement exercises in the RST-2W and RST-3W. Because there are slight differences in both course layouts and skills evaluated in the RST-2W and RST-3W exercises, a separate score sheet is required for each test.

DVD Training Aid, RST-2W and RST-3W

To support examiner training and provide supplementary scoring practice, a DVD was developed. There are separate sections for RST-2W testing and RST-3W testing that explain the layout of the skill test exercises, demonstrate examiner positioning during each of the test exercises, and model current scoring procedures. Additionally, a series of error runs is presented. In each error run, examiners are given time to view riders as they make common errors during the testing. Examiners observe the runs and score the riders using the point guidelines in the examiner study guide. There are nine error runs for motorcycles and nine for 3-wheel vehicles.

To support the classroom presentation during the examiner training, a series of slides was prepared, and is included on DVD.

MOM

Review of the current version of the MOM was undertaken to consider whether a separate document would be required, or if changes to the existing MOM could be made to include appropriate language for riders of three-wheel vehicles.

License Examiner Standards of Performance

LMS

Tracking and managing examiner training and performance requires a database function to be included in certification. Examiners must demonstrate mastery of the examiner training objectives for performance to be considered for certification. Additionally, maintaining certification through participation in self-development activities, technical updates, and recertification requirements will have to be tracked and managed. An on-line Learning Management System (LMS) seems ideally suited for linking personnel recognition, status and achievement with content delivery. This is a key element in the design of an examiner certification system and will be discussed separately below in Phase 4 - Implementation.

AAMVA

Focused coordination with AAMVA to insure open and frequent communication will be a major factor in creating a cooperative environment for the continued success of MSF's efforts in licensing and certification of examiners. Through their committee structure, AAMVA offers opportunities for test validation, material review and coordination on projects that will insure consistency at national and state levels. MSF should initiate contact with AAMVA leadership to express interest in participating in AAMVA's quarterly regional meetings, and in seeking membership in appropriate AAMVA standing committees.

MSF Licensing Communication Strategy

There are many opportunities and outlets for delivery the safety related messages, as well as general program announcements concerning licensing and examiner certification. Using internal and external communication resources will generate enthusiasm for the project and keep key stakeholders in state and national organizations and agencies informed of project status and direction. There are many possible avenues of approach. Two primary opportunities are listed below, with others to be identified as an outgrowth of this initial exploration.

Communications Support

Internal coordination with MSF Communications Department will help uncover opportunities to deliver consistent messages to all state and federal agencies, organizations, and key stakeholders with interests in licensing and service to the states to improve motorcycle safety.

SMSA

Direct communication with SMSA will be an important facet of a comprehensive communication strategy, both in the early phases of development of license examiner certification and throughout the future of the project. SMSA, through the forum offered by their annual convention, could provide useful contact for communicating both at a national level and with state safety administrators who will likely be involved in promoting state licensing. Presentations at the annual meetings can bring current understanding of licensing and certification to the forefront for discussions aimed at improving the value of training and support for states' safety initiatives.

Summary

Project design focuses on the clarification of key activities and deliverables identified in the high-level design document that will guide the project through to completion. Considerations for the deliverables are premised on ability and time of project team members to support the project. Discussions regarding LMS requirements and time, budget and possible conflicting time schedules will need to be held. Communication is a broad topic that covers any number of activities and initiatives that can originate from within or outside of MSF. Finally, included in the design is the development of the project budget and development and implementation timelines. Proposed budget and a detailed project timeline can be found in Appendix A.

PHASE 3 – CONCEPT/MATERIAL DEVELOPMENT

Development of support materials, communication strategy and an examiner certification system extends the project design concept to development of all support materials used in examiner training, specification of the processes by which training of examiner trainers will be conducted, and a proposal for development and management of the examiner performance tracking element.

Training Support Materials

Examiner Study Guide, RST-2W / RST-3W

Development of the first draft of the examiner study guide, including both Alt-MOST and 3-Wheel Alt-MOST sections began on 13 November, 2007. Following edits and review, subsequent versions were developed and circulated for consideration and approval by members of the project team. Following conversations with Denise Hanchulak, Program Director for AAMVA Certification & Standards, on 19 December 2007, a draft was submitted to AAMVA for board review. Summarized comments were received from AAMVA on 24 April 2008 and subsequent discussions with the project team members and clarifications from AAMVA resulted in content changes. A sample draft of the examiner study guide with most recent recommendations and suggestions from AAMVA, project team members, and proposed name change to Rider Skill Test (RST) can be found in Appendix B.

Project team members expressed interest in making materials available in a format that is cost effective to produce, can be distributed in a timely fashion, and can be updated quickly and efficiently. For the purposes of completing pilot testing of the materials, a 3-ring binder approach will be used with tabbed section dividers. Covers and spines will be printed and inserted for the initial shipment of materials to the states. Additional copies can be produced locally as required by the state, reducing waste in the event that revisions become necessary.

Each page of the RST Examiner Study Guide will be identified by version and print date. As content requirements dictate changes, pages can be printed individually and substituted for outdated materials, eliminating the cost of reproducing entire booklets. Additionally, pages can be created in PDF format and electronically sent to examiners for local printing, reducing costs for shipping and time delays in getting the most current version of materials to examiners. With each revision, a listing of the most current pages will be included so that users can be sure they have the most current version.

Examiner Trainer Guide, RST-2W / RST-3W

The RST-2W / RST-3W examiner trainer guide is built around the Examiner Study Guide, DVD video and DVD slides. With the final script approval for the DVD video,

development of the examiner trainer guide can proceed. Development of the examiner trainer guide began 18 July 2008 and a first draft was completed on 15 August 2008. Because of differences in state licensing regulations, not all states will require the use of both RST-2W and RST-3W materials. Therefore, a modular approach for the examiner trainer guide has been employed, providing flexibility in implementation. A review schedule for the examiner trainer guide can be found in the project timeline in Appendix A. The first draft of the examiner trainer guide can be found in Appendix B.

As with the RST-2W / RST-3W Examiner Study Guide, each page of the examiner trainer guide will be identified by version and print date, so the same update concept can be applied as necessary to keep all examiner trainers supplied with the most current information.

Instruction Sheets, RST-2W and RST-3W

Instruction sheets for administration of the RST-2W and RST-3W were completed as part of the Examiner Study Guide as per the schedule indicated above. Because test exercises differ, separate instructions are required for riders of motorcycles and riders of three-wheel vehicles. During training, each examiner will be required to read instructions during practice runs on the range, requiring a copy of each instruction sheet. Master copies of the instruction sheets are included for examiner trainers to photocopy locally as required for use in their training.

Score Sheets, RST-2W and RST-3W

The first drafts of the score sheets for the RST-2W and RST-3W were completed on 04 December 2007, and included as part of the Examiner Study Guide as per the schedule indicated above. Several phases of review by team members followed. Current versions were prepared for pilot test following review by the project team and AAMVA in April, 2008.

Separate scoring criteria dictate the use of different score sheets to track rider performance during motorcycle and three-wheel vehicle testing. During training, each practice run requires examiners to use a copy of the score sheet for each test run. Thus, multiple copies of each separate score sheet are required to be included in the examiner study guide materials for use in scoring practice runs on the range, and for scoring practice runs that are included in the supplemental section of the DVD. Master copies of the score sheets are included for examiner trainers to photocopy locally in sufficient quantity for use in their training.

DVD Training Aid, RST-2W and RST-3W

Scripting for RST-2W and RST-3W video begin on 02 January 2008. Numerous revisions and changes were necessary to produce two separate scripts, which were reviewed prior to video production. Pre-production meetings were held in June and July 2008, and the video shoot occurred 10 July through 15 July 2008 at Verizon in Irvine,

California. The project team was represented by Paul Graves, David Smith, and Brett Robinson, all of whom participated as technical advisors and role-players during the video production. Additional participation by MSF staff supported the project.

Final script edits were made during the shoot to insure accuracy and improve flow. Final scripts were completed and submitted for review by MSF staff in preparation for voiceover recording, which was conducted on 08 October 2008.

A rough cut of the three-wheel video was delivered to MSF for review on 12 August 2008. A revised cut for communication purposes was made available on 15 August 2008. A second review of both motorcycle and three-wheel versions was conducted during the week of 02 September, 2008 and third review was completed and comments provided during the week of 29 September 2008. Revised versions of the motorcycle and three-wheel vehicle videos were distributed to project teams for review and comment.

An initial draft of the slides to support the examiner trainer guide was developed. Content will be finalized as the examiner trainer guide progresses. A timeline for development of the examiner trainer guide can be found in Appendix A.

Motorcycle Operator Manual (MOM) and Motorcycle Operator License Exam (MOLE)

In its *Guidelines for Knowledge and Skills Testing*, published in January, 1999, AAMVA made significant recommendations that have been considered regarding the structure of the MOLE multiple choice exams used in conjunction with the MOM. Two recommendations were particularly worthy of discussion.

First, the AAMVA guidelines recommend that written test questions not include "all of the above" or "none of the above" as possible answers. Referring to the use of an "All of the above" response option, the AAMVA guidelines point out that ". . . in this type of question, all of the alternatives are actually correct. Applicants may read no further than the first alternative". Regarding "None of the above" as an optional response, the guidelines further note that ". . . in those cases where this is the correct response, there is no way to determine whether the applicant knows what the correct answer truly is." Both are valid points, and a review of the current MOLE tests will be conducted to insure neither of these types of responses is currently used. Changes will be made as necessary. This recommendation will also apply to the development of items for future MOLE tests.

Second, the AAMVA guidelines include the following wording regarding number of alternative answers for multiple-choice questions: "Generally speaking, the greater the number of alternative responses, the smaller the chance of guessing the correct answer. However, the situation applies only where all alternatives are plausible. In driver's license exams, it may be difficult to develop more than three alternatives that are plausible. Adding a fourth alternative that nobody chooses makes the test longer without making it better." This recommendation appears based on the assumption that there can exist only three plausible alternative choices to any question. MSF does not accept this

assumption, suggesting instead that it is an indication of lack of intellectual rigor on the part of the test writer.

In a paper further exploring the issue of number of choices, Brown (2001) described the use of binomial distribution for computing the probability of test-takers passing, by chance, a multiple-choice examination merely by guessing. Brown worked with two variables that affect pass rates: 1) number of choices (distractors), and 2) number of test questions. Brown's computations showed that for multiple-choice tests with 20 items, the chance of passing a test with three distractors by guessing was 9.2%, over six times greater than for a 20 question test employing four distractors. Though the percentages were very low, for a test of 30 items, "guessers" were 16 times more likely to pass a three distractor test than a four disctractor test. Brown concluded that in order to reduce the pass rate by guessing to near 1% for a three distractor test, the test would have to contain 50 items.

Another concern with regards to any recommendation for changing the number of alternative responses used in the tests has to do with the widespread use of MSF-developed MOLE tests by states. Many states have chosen to organize MOLE questions into electronic question banks that employ randomization formulas to generate tests for license applicants. Making a change at this time to the number of alternative responses would involve significant costs for MSF, and create logistical problems for states. MSF believes that these considerations preclude the change to a three-alternative strategy at this time. While MSF will continue to employ a four alternative answer strategy in the short term, it is open to reconsideration of this position in future MOLE development.

Finally, the current version of the MOM was developed for motorcycle riders only. A review of the MOM will be undertaken to consider what form a separate document should take to include appropriate language for riders of three-wheel vehicles. Additionally, a valid testing strategy for the written certification test (MOLE) will be developed for licensing of riders of three-wheel vehicles.

License Examiner Standards of Performance

Learning Management System (LMS)

According to the information provided to the MSF in 2007, there are 7550 state license examiners (not including 3rd party testers) who conduct motorcycle testing. The notion of certification implies the ability to track training, ongoing performance, and personal development activities for all examiners. Bearing in mind the objectives of certification and the scope of this issue, the MSF should investigate the application of a strategic solution that can adequately satisfy the breadth of data tracking required. One such alternative is the use of a Learning Management System (LMS). Discussions with the MSF IT department will begin to establish specifications and requirements for management and tracking of examiners as part of certification. Discussions with AAMVA will also be important in gaining understanding of the manner in which

AAMVA tracks and manages its examiner certification efforts. Based on the resource requirements, the most cost-effective option should be selected.

AAMVA

Contact with AAMVA will be initiated to arrange a strategy session between upper management of both organizations in which the MSF proposal for license examiner certification can be reviewed and decisions made regarding the degree and intensity of coordination between the two organizations. From that, a strategy proposal that leads to a formal agreement should be completed. Timing for initial strategy discussions can be found in Appendix A.

MSF Licensing Communication Strategy

Communications Support

Contact with MSF communications department to explore opportunities for MSF to complete a communications plan for introducing the licensing and certification strategy for examiners will be initiated. The project team can provide valuable assistance in identifying opportunities for generating enthusiasm for the project and for delivering safety related messages about licensing.

SMSA

MSF will initiate communication with SMSA to assess the degree to which the two organizations can coordinate safety messages and communicate current status of RST-2W and RST-3W material and test procedure development. Possible discussions will include using SMSA as a forum to deliver details of the examiner certification concept to state and federal safety organizations and agencies.

Beta Phase of RST-2W and RST-3W Material Testing

Vermont

Pilot testing for RST-2W and RST-3W began in June. On 9 June, 2008 through 12 June, 2008, Paul Graves, Vermont Rider Education Coordinator, painted the ranges in Vermont and completed examiner training for all Vermont State motorcycle examiners on the RST-2W and RST-3W. Beginning 1 July, 2008, riders of three-wheel vehicles in Vermont will be required to complete the RST-3W skill test in order to obtain a license endorsement. Paul Graves will continue to monitor progress and report results on a regular basis.

Additional states will be contacted to expand the pilot test to include greater numbers of participants. Data regarding pass/fail rates will provide indications of difficulty level and the reliability of the tests in discriminating between riders with adequate skills for riding in traffic and riders without those skills. Discussions with state DMV officials in Oregon, Georgia and West Virginia have taken place regarding possible additional sites for pilot testing.

Rollout Strategy for RST-2W and RST-3W Materials

Regional meetings

A review of state licensing skill test use indicted that 28 states (29 states if Nebraska, which uses the Alt-MOST as a secondary skill test, is included), and the District of Columbia, currently use the Alt-MOST. The project team has proposed that four introductory training workshops be conducted, based on geographic dispersion of states, to prepare state safety administrators and examiner trainer trainers to implement the RST-2W and RST-3W in their states and explain the examiner certification program. The proposed workshops can be conducted in a centralized location, or based on discussions with AAMVA, could be timed to occur at the same location and time, or as part of, the quarterly regional meetings conducted by AAMVA. One possible geographical framework for organizing these workshops is as follows:

Northwest Location
Alaska
Hawaii
Oregon
Washington Sate
Idaho
Montana
Wyoming

Southwest Location
Colorado
Utah
Arizona
New Mexico
Kansas
Nebraska

Midwest Location
Minnesota
Iowa
Michigan
Illinois
Indiana
Ohio
North Dakota

Northeast Location
Vermont
New Hampshire
Connecticut
Maryland
New Jersey
Virginia
Washington, D.C.
West Virginia
Delaware

Upon request, all RST materials will be made available electronically to states with personnel trained in the workshops. Only trained and certified examiner trainers will be allowed to conduct examiner training.

Certification Tracking / Management

Once an examiner has successfully completed RST training, his/her name will be entered into the database and a certification certificate will be issued. Based on discussions with AAMVA, the MSF will determine whether additional certification requirements should be imposed. Issues such as length of time that certification remains valid, performance assessment requirements, and recertification criteria remain to be established.

Following the initial rollout of the RST, a means for the ongoing monitoring and tracking of examiner certification training and examiner performance will have to be undertaken to insure acceptable levels of performance are maintained. Maintenance and record keeping functions will also have to be monitored to assist states in complying with the responsibilities for managing examiners employed in the state. This will require close cooperation between MSF and AAMVA. Finally, recertification requirements and technical updates for certification currency will have to be established. This remains a valid concern and will have to be established once discussions with AAMVA have concluded.

A second role in this final phase will be sustainability and growth. To be sure, rider safety does not look the same today as it did five years ago. What will be the effect of increased fuel costs on the number of riders? How will new technologies be accommodated by test facilities? Questions such as these have already been raised and will continue to be considered in determining the future direction of licensing and certification. Suffice to say, in such a vibrant and dynamic environment, we can only assume that five years hence, we will face issues that today we are not aware of. A key growth strategy will be the formal research element that is flexible, and capable of monitoring efforts to improve safety and establish direction change to maintain the efficacy of licensing and certification.

Research

The MSF must take broad responsibility for leading research efforts to continually improve the certification function and serve the state license administrators, examiners and rider safety. Additionally, as a national leader in licensing, MSF must provide stability and direction for organizations and agencies such as AAMVA, SMSA, NHTSA and NTSB in motorcycle safety. This will be accomplished by establishing a research capability that continues to look at improvements in rider performance and safety and can bring practicality to analysis of data. Possible opportunities include:

Graduated/Tiered Licensing

Currently, 12 states have some type of tiered license requirement in place, all related to engine displacement. While MSF has developed a white paper on tiered licensing, additional research, perhaps including reviews of international programs and results would help further understanding, and may lead to substantive discussions aimed at improving rider safety in the U.S.

Motorcycle Operator License Exam

License exams must be valid for intended purpose and reliable as measures of performance. Currently, no analysis of MOLE testing is being conducted. Research that delivers quantified results of test reliability and item analysis, including computation of

distractor effectiveness, discrimination index and difficulty index for every MOLE test item, serves to demonstrate rigorous concern for the usefulness and validity of written tests.

ISSUES

Currently a number of questions remain, at least partially, unanswered. The proposal as presented here has attempted to respond to some of the more obvious questions that MSF and states have recently raised regarding motorcycle licensing and certification of examiners. The final section of this proposal is a look toward the future and can act as an action-planning outline for topics that will need to be addressed to support the accomplishment of project objectives and enhance the viability of licensing and certification in the future.

1. How appropriate is a Learning Management System (LMS) strategy for recordkeeping and support of state license examiners? What are the steps involved in researching and budgeting for managing and tracking license examiners?

2. How viable is the formation of an MSF steering committee as a means of keeping licensing and certification in the forefront as a key part of a strategy to improve rider safety? If so, who should comprise the steering committee membership?

3. To maintain visibility, should MSF seek membership on the AAMVA Test Maintenance Subcommittee (TMS) and International Driver Examiner Certification (IDEC) Executive Board? Key questions: How will membership on these committees benefit MSF and rider safety? How should membership be positioned strategically? What is the best approach for expressing interest in membership?

4. How closely and in what ways should MSF coordinate and cooperate with AAMVA in licensing-related projects, and use AAMVA's existing relationships and structure to help communicate MSF's plans, activities and commitment to licensing?

5. What communication with NHTSA and other federal agencies is necessary and desirable to promote safety and increase awareness of the role MSF is playing in safety through its efforts in licensing and certification?

6. Will there be value in MSF initiating an ongoing research and survey strategy, both nationally and internationally? Nationally, one area of particular need is developing a clear understanding of the current status of state licensing programs, to provide in-depth understanding of examiner training and preparation, and to assist in formulating strategies for supporting improvements in areas such as testing facility maintenance, test procedures and results of state licensing efforts. Internationally, there has been significant research that can benefit rider safety in the U.S. Specific areas for investigation for improving motorcycle rider safety include: enforcement of license requirements, effects of probationary and restricted licensing, addressing changing rider demographics, and rising number of older, returning riders.