Model National Standards For Entry-Level Motorcycle Rider Training

Developed By
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I. Purpose of the Standards

Specific, strong, and measurable education standards are tools to ensure students receive the level of information and experience necessary to properly prepare them for real-world riding situations. In addition to providing that foundation, the Model National Standards for Entry-level Motorcycle Rider Training ("Model Standards") permit greater flexibility in course development and delivery. The Model Standards also facilitate growth and improvement in State education systems.

The Model Standards establish baseline content that all entry-level riders should be taught in motorcycle rider training classes held in United States. States are encouraged to work with curriculum developers to not only include lessons that meet the Model Standards but to also go beyond the standards where needed to address specific State crash causes and trends Tailoring curricula to specific State needs, in addition to delivering baseline content, will produce informed students and safer riders.

II. How to Use the Model Standards

The model standards are educational standards, not a curriculum. The sections and tasks set forth in this document are written sequentially from simple to complex. The standards may not be written in the exact sequence a curriculum developer may choose to place them in a curriculum design. However, in order to meet the model standards, all standards and tasks identified in this document must be included in the developer's curriculum design and material.

Curriculum developers are encouraged to address some tasks, such as rider responsibility, the use of protective gear, distractions, and the dangers of using alcohol and other drugs while operating a motorcycle, in multiple places throughout the developer's curriculum design.

A curriculum developer will need to determine what formats, activities, resources, and tests should be employed to support the model standards, including how much time should be spent on a particular issue and where instruction should take place, i.e., in the classroom, on the range, on the street, or online.

Individual standards for each section are identified with **bold** headings. Each standard subsequently includes goal statements and task descriptions. These model standards are meant to fulfill the needs of *entry-level* riders — they may not completely reflect the skill set of *intermediate*, *advanced,* or *expert* riders. The model standards are grouped into the following six sections:

1. Motorcycle Pre-ride Tasks

The rider understands and follows State and local laws, rules, and regulations. The rider understands the procedures for getting ready to ride a motorcycle, the risks associated with operating a motorcycle, and the importance and function of proper personal protective equipment.

2. Vehicle Control Skills

The rider understands motorcycle controls and information displays. The rider demonstrates proper techniques for mounting, starting, stopping, dismounting, and securing a motorcycle. The rider demonstrates proper techniques for clutch and throttle control, riding in a straight line, slowing,

stopping, turning, and shifting a motorcycle. The rider demonstrates proper techniques for normal stopping in a curve, turning from a stop, and making tight turns.

3. Street Strategies

The rider understands the hazards associated with riding, the process of searching the roadway environment to identify hazards and escape routes, strategies for avoiding hazards, and the correct responses for dealing with hazards.

4. Roadway Management Skills

The rider understands proper techniques for slowing quickly, stopping in the shortest distance, cornering, and swerving. The rider understands space and path-of-travel management and proper techniques for making lane changes, passing, and adjusting to surface hazards. The rider understands proper techniques to adjust to rain, wind, and conditions of reduced traction and visibility.

5. Tasks Related to Carrying Passengers, Cargo, Group Riding, and Touring

The rider understands proper techniques and considerations for riding in a group. The rider understands the adjustments necessary for carrying passengers and cargo. The rider understands considerations for long-distance riding and touring. The rider understands that beginners should limit exposure to group riding, carrying passengers, and riding long distances until the rider has gained skill and experience.

6. Factors Adversely Affecting Rider Performance

The rider understands the effects of alcohol and other drugs on rider performance and the legal, social, personal, economic, and safety consequences of operating a motorcycle under the influence of alcohol and other drugs. The rider understands and avoids factors that adversely affect rider performance.

Many common factors contribute to motorcycle crashes. The Model Standards address many of these factors, but tasks are not assigned for every possible contributing factor. As mentioned earlier, it is imperative that curriculum developers work in cooperation with States to identify and address contributing factors most common in State crash data. Cooperation among curriculum developers and States will facilitate the development of curricula that includes additional tasks that will better prepare students for real-world riding situations and hazards they are likely to encounter on the road.

III. Moving Forward

The objective of this project was to develop Model Standards based on input and recommendations of recognized subject-matter experts. The individuals who participated in the development of this document are subject matter experts in curriculum development, operator licensing, rider training, traffic safety, and research.

The intent of the Model Standards is to improve rider education, not to make it easier, cheaper, or faster for an entry-level rider to obtain the proper license or endorsement. Some programs that adopt the

model standards may choose to make their entry-level rider training more ambitious and comprehensive.

Furthermore, the implementation of these standards alone is insufficient to achieve the goal of a high-quality rider training program. A true performance-based education system also needs a complementary set of administrative standards for the program delivery. Critical factors such as administrative control, authority, instructor qualifications, and instructional settings need equal attention. The National Highway Traffic Safety Administration plans to facilitate the development of rider education administrative standards as a next step to ensuring quality and consistency in rider training systems.

IV. History and Background

In 1968, NHTSA identified operator licensing as the primary countermeasure to reduce motorcycle fatalities. Keys to the licensing process were training and testing to ensure motorcyclists had the basic skills and knowledge needed to safely operate motorcycles.

In 1973, the Motorcycle Safety Foundation (MSF) released its Beginning Rider Course. The course curriculum was based on "...what is presently known about motorcycle operation." The Beginning Rider Course material also stated, "These materials are not intended to be the final answer concerning motorcycle curriculum development. However, they will serve until a full research effort is completed."

From 1974 through 1979 research projects led to the creation of the MSF Motorcycle RiderCourse, introduced in 1975 and finalized in 1979. The research included:

- *Motorcycle Task Analysis* (1974) — National Public Services Research Institute (NPSRI) for MSF;
- *Instructional Objectives* (1975) — NPSRI for MSF;
- *Photographic Analysis* (1976) — NPSRI for NHTSA;
- *Motorcycle Curriculum Specifications* (1976) — NPSRI for NHTSA; and
- *Motorcycle Curriculum Feasibility Test* (1977) — Applied Science Technology for NHTSA.

By incorporating findings from this research into the curriculum, the Motorcycle RiderCourse earned the title "research-based."

The 1981 *Motorcycle Accident Cause Factors and Identification of Countermeasures* (Hurt Study) added significantly to the understanding of motorcycle crashes, including the value of street strategies and rider conspicuity. That research, combined with refinements in methodology by MSF to further enhance the Motorcycle RiderCourse, led to the Motorcycle RiderCourse: Riding and Street Skills (MRC:RSS) curriculum in 1985. For many years, the MRC:RSS was used almost exclusively throughout the United States.

The MSF refined its curriculum and released the Basic RiderCourse (BRC) in 2001. The BRC content was modified from the MRC:RSS and an adult learning delivery methodology for classroom and riding activities was implemented. In 2003, the Oregon State motorcycle safety program, Team Oregon, introduced its curriculum, the Basic Rider Training (BRT) course.

V. Process and Subject Matter Expertise

In 2008, NHTSA contracted with the Windwalker Corporation, which subcontracted with Highway Safety Services, LLC, to develop the Model Standards. This document outlines those standards, which serve as a model for all novice motorcycle rider training programs conducted in the United States.

To provide input into the development of the Model Standards, Windwalker and Highway Safety Services organized and convened an expert working group (EWG). The EWG participants possessed knowledge specific to curriculum development, operator licensing, rider training, traffic safety, and research.

EWG participants included:

- Terry Butler, Missouri Safety Center;
- Michael Calvin, American Association of Motor Vehicle Administrators;
- Steve B. Garets, Team Oregon;
- Raymond Gaulin, Connecticut Rider Education Program and Governors Highway Safety Association;
- Terry Kline, Ed.D, Eastern Kentucky University;
- Andrew Krajewski, independent technical representative and National Association of State Motorcycle Safety Administrators;
- Lorrie J. Laing, independent technical representative;
- Dan Mayhew, Traffic Injury Research Foundation;
- Ray Ochs, Ed.D, Motorcycle Safety Foundation;
- John Brock, Windwalker Corporation;
- Allen Robinson, Ph.D, Highway Safety Services; and
- Brett Robinson, Highway Safety Services.

Model National Standards for Entry-Level Motorcycle Rider Training

1. Motorcycle Pre-Ride Tasks

The rider understands and follows State and local laws, rules and regulations. The rider understands the procedures for getting ready to ride a motorcycle, the risks associated with operating a motorcycle, and the importance and function of proper personal protective equipment.

1.1. The rider can identify and follows State laws, rules, and regulations pertaining to the operation of a motorcycle and equipment requirements.

1.1.1. Identifies State laws, rules, and regulations for the operation of a motorcycle and equipment requirements.
1.1.2. Demonstrates compliance with State laws, rules, regulations, and equipment requirements.

1.2. The rider can identify the mental and physical requirements for safe motorcycle operation and the procedures for getting ready to ride a motorcycle.

1.2.1. The mental and physical requirements of riding a motorcycle.
- 1.2.1.1. Identifies the mental demands of riding a motorcycle as well as the increased crash risk when attention is not focused on the riding task.
- 1.2.1.2. Identifies the physical demands of operating a motorcycle and whether or not they are physically capable of operating a motorcycle.
- 1.2.1.3. Identifies the importance of riding free of all impairments and distractions, including alcohol and drugs.
- 1.2.1.4. Identifies the importance of choosing a motorcycle that fits their physical capabilities.
- 1.2.1.5. Identifies special weather, roadway, and traffic conditions that may require additional mental or physical preparation.

1.2.2. Demonstrates acceptance of and commitment to managing the risks associated with operating a motorcycle in a complex traffic and roadway environment.
1.2.3. Performs a basic safety check that includes tires, chain, fluid levels, leaks, controls, horn, and lights.

1.3. The rider can identify the characteristics of proper personal protective equipment and the importance of using it for protection, comfort, and conspicuity to manage the risks associated with riding a motorcycle.

1.3.1. Uses a DOT compliant helmet and identifies helmet components and functions, proper fit and care, and potential defects.
1.3.2. Uses eye and/or face protection and identifies available styles, function, and potential defects.

1.3.3. Identifies the benefits of using hearing protection to minimize hearing loss.
1.3.4. Uses over-the-ankle protective footwear and identifies the features that provide protection, support, and grip on footrests and road surfaces.
1.3.5. Uses full-fingered gloves and identifies the features that provide proper fit, grip, and protection.
1.3.6. Uses long pants and identifies the features that provide protection and comfort.
1.3.7. Uses long sleeves and identifies the features of a riding jacket that provides protection, comfort, and conspicuity.
1.3.8. Identifies the features of rain and cold-weather gear that provides protection, comfort, and conspicuity in inclement weather.

2. Vehicle Control Skills

The rider understands the motorcycle controls and information displays. The rider demonstrates proper techniques for mounting, starting, stopping, dismounting, and securing a motorcycle. The rider demonstrates proper techniques for clutch and throttle control, riding in a straight line, slowing, stopping, turning, and shifting a motorcycle. The rider demonstrates proper techniques for normal stopping in a curve, turning from a stop, and making tight turns.

2.1. The rider understands the primary controls and their proper use while maintaining functional control of the motorcycle.

2.1.1. Identifies the location and function of the primary motorcycle controls and information displays.
2.1.2. Demonstrates proper use of the primary motorcycle controls.

2.2. The rider understands the proper techniques for mounting and starting a motorcycle.

2.2.1. Demonstrates proper technique for mounting the motorcycle.
2.2.2. Demonstrates proper engine starting procedures.
2.2.3. Demonstrates proper use of the sidestand.

2.3. The rider understands the proper techniques for stopping the engine, dismounting, and securing a motorcycle.

2.3.1. Demonstrates engine stopping procedures.
2.3.2. Demonstrates proper technique for dismounting a motorcycle.
2.3.3. Identifies ways to properly secure a motorcycle.

2.4. The rider understands the proper techniques for clutch and throttle control.

2.4.1. Keeps head and eyes up.
2.4.2. Keeps four fingers on the clutch lever.
2.4.3. Keeps right wrist flat or down and fingers on the throttle grip.
2.4.4. Identifies the friction point of the clutch.
2.4.5. Uses the friction point without fully releasing the clutch.
2.4.6. Coordinates clutch and throttle to get smoothly underway.

2.5. The rider understands the proper techniques for riding in a straight line.

2.5.1. Demonstrates proper riding posture for head, eyes, back, knees, feet, elbows, hands, and arms.
2.5.2. Balances the motorcycle.
2.5.3. Keeps head and eyes up.
2.5.4. Keeps fingers on the throttle grip.
2.5.5. Demonstrates proper throttle control.

2.6. The rider understands the proper techniques for slowing and stopping a motorcycle.

2.6.1. Keeps head and eyes up.
2.6.2. Applies both brakes smoothly.
2.6.3. Downshifts to appropriate gear.
2.6.4. Disengages the clutch prior to stopping.
2.6.5. Slows and stops the motorcycle without stalling.
2.6.6. Stops at a designated point.

2.7. The rider understands proper techniques for turning a motorcycle.

2.7.1. Identifies roadway information important for safe turning.
2.7.2. Adjusts speed as needed.
2.7.3. Completes all braking and downshifting prior to turning.
2.7.4. Establishes lane position prior to turning.
2.7.5. Rolls on the throttle, as appropriate.
2.7.6. Countersteers to lean the motorcycle in the direction of the turn.
2.7.7. Maintains a steady speed while in the turn.
2.7.8. Keeps head and eyes up.
2.7.9. Looks through the turn.

2.8. The rider understands the proper techniques for shifting gears.

2.8.1. Upshifts smoothly without looking down.
2.8.2. Downshifts smoothly without looking down.
2.8.3. Matches the gears to speed.

2.9. The rider understands the proper technique for normal slowing and stopping in a curve.

2.9.1. Can identify roadway information important for slowing and stopping in a curve.
2.9.2. Keeps head and eyes up.
2.9.3. Gradually applies both brakes.
2.9.4. Straightens the motorcycle and squares the handlebars before stopping.
2.9.5. Downshifts to appropriate gear.
2.9.6. Disengages clutch prior to stopping.
2.9.7. Slows and stops without stalling.
2.9.8. Stops at a designated point.

2.10. The rider understands the proper techniques for turning from a stop.

2.10.1. Turns the handlebars and leans the motorcycle in the direction of the turn.
2.10.2. Coordinates clutch, throttle, and balance to get smoothly underway.
2.10.3. Keeps head and eyes up.
2.10.4. Looks through the turn.
2.10.5. Controls path of travel.

2.11. The rider understands the proper techniques for making tight turns.

2.11.1. Uses counterweighting technique as necessary.
2.11.2. Turns head and eyes and looks through the turn.
2.11.3. Turns the handlebars.
2.11.4. Coordinates clutch, throttle, and balance.
2.11.5. Controls path of travel.

3. Street Strategies

The rider understands the hazards associated with riding, the process of searching the roadway environment to identify hazards and escape routes, strategies for avoiding hazards, and the correct responses for dealing with hazards.

3.1. The rider understands hazards associated with riding.

3.1.1. Identifies hazardous roadway surface conditions.
3.1.2. Identifies hazardous environmental conditions.
3.1.3. Identifies hazards posed by other roadway users, e.g. other vehicles, bicyclists, pedestrians, and animals.
3.1.4. Identifies "target fixation" and its effects on rider performance.
3.1.5. Identifies areas and/or conditions in which other road users are most likely to pose hazards.
3.1.6. Identifies reasons why other drivers don't see motorcyclists.
3.1.7. Identifies reasons why motorcyclists are more vulnerable to death and injury than other drivers.

3.2. The rider searches the roadway environment to anticipate and identify hazards.

3.2.1. Identifies a visual search process to identify hazards and escape routes.
- 3.2.1.1. Searches as far ahead as possible.
- 3.2.1.2. Searches projected path of travel.
- 3.2.1.3. Searches immediate path of travel.
- 3.2.1.4. Searches to the sides.
- 3.2.1.5. Checks mirrors and blind spots.
- 3.2.1.6. Checks motorcycle displays periodically.

3.2.2. Searches the roadway for debris and surface hazards that may affect motorcycle handling and traction.
3.2.3. Searches the roadway for traffic controls (signs, signals, and roadway markings) to determine speed, positioning, and identify potential hazards.
3.2.4. Searches the roadway for other vehicles, bicyclists, pedestrians, and animals to identify hazards.

3.3. The rider understands strategies to avoid hazards.

3.3.1. Uses search information to manage speed and roadway position.
3.3.2. Identifies strategies to be visible to other roadway users.
3.3.3. Adjusts speed and position to changing roadway conditions, environmental characteristics, traffic controls, and other roadway users.
3.3.4. Maintains an adequate space cushion and following distance.
3.3.5. Identifies proper techniques and lane positioning for turning, passing, merging, and changing lanes.
3.3.6. Uses search information to identify potential escape routes.

3.4. The rider understands how to respond correctly to hazards.

3.4.1. Identifies the benefits of communicating presence and/or intentions.
3.4.2. Identifies the benefits of adjusting speed as necessary to decrease risk.
3.4.3. Identifies the benefits of adjusting position and/or direction as necessary to decrease risk.

4. Roadway Management Skills

The rider understands proper techniques for slowing quickly, stopping in the shortest distance, cornering, and swerving. The rider understands space and path-of-travel management and proper techniques for making lane changes, passing, and adjusting to surface hazards. The rider understands proper techniques to adjust to rain, wind, and conditions of reduced traction and visibility.

4.1. The rider understands proper technique for slowing quickly and stopping in the shortest distance in a straight line.

4.1.1. Applies maximum brake pressure to front and rear brakes simultaneously without locking either wheel.
4.1.2. Maintains control and looks well ahead.
4.1.3. Maintains control of inadvertent wheel skidding of the front and/or rear wheels.
4.1.4. Downshifts to appropriate gear.
4.1.5. Identifies awareness of advanced braking systems.

4.2. The rider understands proper entry speed and path of travel when cornering a motorcycle.

4.2.1. Identifies the proper apex for various types of curves and knows the importance of a delayed apex.
4.2.2. Identifies the proper path of travel for various types of curves.
4.2.3. Searches for information about the curve, slows and downshifts as needed to an appropriate entry speed prior to entering various types of curves.
4.2.4. Countersteers to lean the motorcycle into the curve.
4.2.5. Turns head and looks through the curve.
4.2.6. Controls lane position and maintains a steady speed in the curve.

4.3. The rider understands the proper techniques for slowing or stopping quickly in a curve.

4.3.1. Identifies the relationship between traction needed for cornering and traction needed for braking.
4.3.2. Demonstrates straightening the motorcycle and squaring the handlebars before braking in a curve.
4.3.3. Demonstrates applying and gradually increasing brake pressure as the motorcycle straightens in a curve.
4.3.4. Identifies circumstances in which each technique would be appropriate.

4.4. The rider understands the proper techniques for swerving to avoid a collision.

4.4.1. Identifies the relationship between traction needed for braking and swerving.
4.4.2. Maintains control and looks well ahead.
4.4.3. Countersteers to swerve the motorcycle.
4.4.4. Leans the motorcycle independent of the body lean.
4.4.5. Maintains a steady speed while swerving.
4.4.6. Countersteers to straighten the motorcycle.
4.4.7. Separates braking from swerving.

4.5. The rider understands the proper techniques for making lane changes and/or passing other vehicles.

4.5.1. Checks mirror and blind spot.
4.5.2. Signals well in advance.
4.5.3. Changes lanes and/or passes only when safe to do so.
4.5.4. Maintains adequate space cushion and appropriate speed.
4.5.5. Cancels turn signal after completing lane change and/or pass.

4.6. The rider understands how to adjust to surface hazards and roadway conditions with reduced traction.

4.6.1. Identifies hazards that may destabilize a motorcycle or cause a loss of traction e.g. railroad crossings, potholes, speed bumps, construction grooves.
4.6.2. Identifies conditions of reduced traction, e.g., gravel, sand, leaves, ice.
4.6.3. Identifies ways to manage the effects of surface hazards and/or reduced traction.
4.6.4. Adjusts speed, path of travel, space cushion, and lean angle as necessary.

4.7. The rider understands how to ride in conditions of limited visibility.

4.7.1. Identifies characteristics of proper clothing for conditions of limited visibility.
4.7.2. Identifies the importance of clean and untinted eye protection.
4.7.3. Identifies the benefit of using high beam headlights as appropriate.
4.7.4. Reduces speed and increases following distance as necessary.
4.7.5. Identifies the benefit of using headlights and taillights of other vehicles to aid in scanning.

4.8. The rider understands proper techniques for riding at night.

4.8.1. Identifies the importance of wearing bright reflective clothing.
4.8.2. Identifies the importance of clean eye protection.
4.8.3. Uses high beam headlights, unless oncoming traffic is approaching.
4.8.4. Reduces speed and increases following distance as necessary.
4.8.5. Identifies the relationship between speed and the distance illuminated by the headlights (overriding the headlight).

4.9. The rider understands proper techniques for riding in the rain.

4.9.1. Identifies the benefits of rain gear and reflective materials.
4.9.2. Reduces speed and increases space cushion as necessary.
4.9.3. Identifies the conditions in which stopping safely away from the roadway and waiting is preferable.

4.10. The rider understands how to adjust to windy conditions.

4.10.1. Identifies areas where wind gusts may affect path of travel or stability.
4.10.2. Identifies proper technique to counter wind gusts and/or steady wind from the side.

5. Tasks Related to Carrying Passengers, Cargo, Group Riding, and Touring

The rider understands proper techniques and considerations for riding in a group. The rider understands the adjustments necessary for carrying passengers and cargo. The rider understands considerations for long-distance riding and touring. The rider understands that beginners should limit exposure to group riding, carrying passengers, and long-distance riding until they have gained skill and experience.

5.1. The rider understands the proper techniques for riding in a group.

5.1.1. Identifies the benefits and limitations of various riding formations, e.g. single file, staggered, side-by-side.
5.1.2. Identifies the importance of avoiding target fixation, active visual scanning, and maintaining a proper space cushion.
5.1.3. Identifies the value of knowing group riding signals.
5.1.4. Identifies the effects of peer pressure and group mentality on riding behavior and attention.
5.1.5. Identifies the reasons for limiting group riding until the rider has gained experience.

5.2. The rider understands the adjustments necessary for riding with passengers and carrying cargo.

5.2.1. Identifies the maximum weight capacity of a motorcycle.
5.2.2. Identifies the benefits of adjusting tire pressure and suspension for added weight.
5.2.3. Identifies proper passenger mounting, riding, and dismounting procedures.
5.2.4. Identifies the effects of additional weight on balance, braking, and steering.
5.2.5. Identifies how to position, secure, and protect cargo.
5.2.6. Identifies the reasons for limiting carrying passengers until the rider has gained experience.

5.3. The rider understands the considerations necessary for touring and riding long distances.

5.3.1. Identifies the risks associated with severe weather, fatigue, and travel in remote areas (e.g. lack of cell phone coverage and emergency medical services.)
5.3.2. Identifies items necessary for long distance travel (additional clothing, rain gear, tools, etc.)
5.3.3. Identifies the benefits of frequent breaks for rest, exercise, fluids, and food.
5.3.4. Identifies the reasons for limiting long-distance riding until the rider has gained experience.

6. Factors Adversely Affecting Rider Performance

The rider understands the elevated risks of alcohol and other drugs on rider performance and the legal, social, personal, economic, and safety consequences of operating a motorcycle under the influence of alcohol and other drugs. The rider understands and avoids factors which adversely affect rider performance.

6.1. The rider understands the elevated risks of alcohol and other impairing drugs on motorcycle rider performance and separates riding from the use of alcohol and other drugs.

6.1.1. Identifies the increased crash risk associated with riding under the influence of alcohol and other drugs.
6.1.2. Identifies the effects of alcohol and drugs on attention, visual search, recognition of hazards, and physical coordination.
6.1.3. Identifies the effects of alcohol and drugs on judgment, vision, perception and reaction time.
6.1.4. Identifies the types of over-the-counter drugs, prescription drugs, and illegal drugs that affect rider performance.
6.1.5. Identifies the compounding effects of combining alcohol and other drugs.

6.2. The rider understands the legal, social, personal, and economic consequences of riding impaired and demonstrates a commitment to separating riding from alcohol and/or other drugs.

6.2.1. Identifies legal, social, personal, and economic consequences of an impaired riding arrest.
6.2.2. Demonstrates commitment to separating the use of alcohol and other drugs from operating a motorcycle.
6.2.3. Identifies time as the primary factor for removing alcohol from the rider's system.
6.2.4. Identifies that time will vary for the removal of other drugs from the rider's system.
6.2.5. Identifies methods of intervention when a rider is at risk to become under the influence of alcohol or other drugs.
6.2.6. Identifies the risks of riding with others who are impaired.
6.2.7. Demonstrates commitment to avoiding riding with others who are impaired.

6.3. The rider understands and avoids factors that adversely affect rider performance.

6.3.1. Identifies factors that contribute to distraction and/or inattention (e.g., communication devices, passengers, etc.).
6.3.2. Identifies factors that contribute to fatigue and drowsiness.
6.3.3. Identifies the negative effects of aggression and emotions.
6.3.4. Identifies the negative effects of overconfidence or lack of confidence.
6.3.5. Identifies factors of aging and types of health problems that affect rider performance.

6.3.6. Identifies the negative effects of temperature extremes and exposure (e.g., wind chill, hypothermia, dehydration, etc.).
6.3.7. Demonstrates commitment to minimizing factors that adversely affect rider performance.

Appendix A – Historical Research Documents and Curricula

The following documents and curricula were used during the research phase in the development of the Model Standards.

- 1972 – Original draft of the Beginning Rider Course Guide, Motorcycle Industry Council for Safety and Education Foundation
- 1974 – Motorcycle Task Analysis, MSF
- 1974 – Curriculum: The Beginning RiderCourse, MSF
- 1975 – Instructional Objectives for Motorcycle Safety Education, MSF
- 1976 – Curriculum: Motorcycle RiderCourse, MSF
- 1976 – Photographic Analysis of Motorcycle Operator Control Responses, NHTSA
- 1976 – Motorcycle Curriculum Specifications, NHTSA
- 1977 – Motorcycle Curriculum Feasibility Test, NHTSA
- 1979 – Motorcycle Standards, NHTSA (used for State reviews)
- 1981 – Motorcycle Accident Cause Factors and Identification of Countermeasures (Hurt Study)
- 1985 – Curriculum: Motorcycle RiderCourse: *Riding and Street Skills*, MSF
- 2000 – National Agenda for Motorcycle Safety, NHTSA & MSF
- 2001 – Curriculum: Basic RiderCourse, MSF
- 2003 – Curriculum: Basic Rider Training, Team Oregon
- 2006 – Highway Safety Program Guideline Number 3, Motorcycle Safety, NHTSA
- 2006 – Novice Driver Education and Training Standards, ADTSEA
- 2009 – Guidelines for Motorcycle Operator Licensing, NHTSA and AAMVA
- 2009 – Review of State Motorcycle Safety Program Technical Assessments, NHTSA
- 2009 – Novice Teen Driver Education and Training Administrative Standards, NHTSA
- Motorcycle Operator Manual (updated regularly)

Appendix B – List of Acronyms

AAMVA – American Association of Motor Vehicle Administrators

ADTSEA – American Driver and Traffic Safety Education Association

BRC – Basic RiderCourse

BRT – Basic Rider Training

DOT – Department of Transportation

EWG – Expert Working Group

GHSA – Governors Highway Safety Association

HSPG – Highway Safety Program Guideline

HSS – Highway Safety Services, LLC

MIC – Motorcycle Industry Council

MRC:RSS – Motorcycle RiderCourse: *Riding and Street Skills*

MSF – Motorcycle Safety Foundation

NAMS – National Agenda for Motorcycle Safety

NHTSA – National Highway Traffic Safety Administration

NPSRI – National Public Services Research Institute

SMSA – National Association of State Motorcycle Safety Administrators

TIRF – Traffic Injury Research Foundation

Appendix C – Definition of Selected Terms

Advanced braking systems – variations on the basic motorcycle braking systems. These include:

- **Antilock braking system** – type of braking system that automatically releases brake pressure prior to wheel lockup, prevents skids during straight-line braking.
- **Integrated braking systems** – type of braking system that applies partial front braking when the rear brake is applied.
- **Linked braking system** – type of braking system that applies brake pressure to both brakes when either brake is applied.

Apex – point in a rider's path of travel closest to the inside edge of a curve. It is not necessarily in the center of the curve.

Conspicuity – the quality of being conspicuous; highly visible, easily seen or noticed by others.

Countersteer – to initiate lean by applying forward pressure to the handgrip in the direction of the turn; press right, go right; press left, go left.

Counterweight – shifting weight to the outside of the turn. Used to provide better balance in low speed turns.

Friction point – the area of clutch lever movement that begins where the clutch starts to transmit power to the rear wheel and ends just prior to full clutch engagement. Used in getting underway, downshifting and in slow speed maneuvers.

Motorcycle Accident Cause Factors and Identification of Countermeasures (Hurt Study) – a motorcycle safety study conducted in the United States, initiated in 1976 and published in 1981. The report is named after its primary author, Professor Harry Hurt. The findings significantly advanced the state of knowledge of the causes of motorcycle crashes. The study also provided data clearly showing that helmets significantly reduce fatalities and brain injuries without any increased risk of crash involvement or neck injury.

Overriding the headlight – riding at a speed that does not allow you to avoid hazards or stop within the path illuminated by the headlight.

Squares the handlebars – refers to centering the steering with the motorcycle upright and moving in a straight line. Helps to preserve balance at stops.

Target fixation – staring at the object you are trying to avoid. Associated with riders striking obstacles they were attempting to avoid. Caused by failure to look to the escape route.

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