Establishing a Methodology to Evaluate Teen Driver-training Programs

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Virginia Tech Transportation Institute

WisDOT ID no. 0092-12-11
November 2013

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Technical Report Documentation Page

1. Report No.	2. Government Accession No	3. Recipient's Catalog No

4. Title and Subtitle	5. Report Date
Establishing a Methodology to Evaluate Teen Driver-training Programs	November 30, 2013 6. Performing Organization Code
7. Authors	8. Performing Organization Report No.
Tammy E. Trimble, Stephanie Baker, William A. Schaudt, Taryn Schrader	
9. Performing Organization Name and Address Virginia Tech Transportation Institute 3500 Transportation Research Plaza 0536 Blacksburg, VA 24061	10. Work Unit No. (TRAIS) 11. Contract or Grant No. 0092-12-11
12. Sponsoring Agency Name and Address Wisconsin Department of Transportation Division of Business Management Research & Library Unit 4802 Sheboygan Ave. Rm 104 Madison, WI 53707	13. Type of Report and Period Covered Final Report 10/10/2012 – 11/30/2013 14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

The goal of this research project was to develop a methodology to assist the Wisconsin Department of Transportation (WisDOT) in the evaluation of effectiveness of teen driver education programs over the short and long terms. The research effort was divided into two phases. Phase I focused on the development of an evaluative methodology that was based upon a review of the relevant literature and Wisconsin-specific policies and available data sources. This review culminated in a program assessment tool focused on four contributing areas of teen driver training and education: 1) Guardian Involvement; 2) Driver Education and Training Curricula Requirements; 3) GDL Coordination; and 4) Instructor Qualifications. The proposed methodology was presented to the Project Oversight Committee and was validated through two rounds of pilot testing using materials provided by programs and schools under the oversight of both WisDOT and the Wisconsin Department of Public Instruction. The resulting methodology informed the Phase II implementation plan recommendations. Work products included within this report are an annotated bibliography; a knowledge base documenting best practices and Wisconsin-specific data sources; a methodology that may be used to analyze and evaluate the effectiveness of driver-training programs as they relate to the demonstrated safety and behavior of teen drivers in Wisconsin; and a three-phase implementation plan.

17. Key Words	18. Distribution Statement
Teenage drivers, driver education, driver training	No restriction. This document is available to the public through the National Technical Information Service 5285 Port Royal Road Springfield VA 22161

18. Security Classif.(of this report)	19. Security Classif. (of this page)	20. No. of Pages	21. Price
Unclassified	Unclassified		

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
		NOTE: volumes greater than 1000 L shall be shown in m^3		
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
		TEMPERATURE (exact degrees)		
^oF	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	^oC
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	$candela/m^2$	cd/m^2
		FORCE and PRESSURE or STRESS		
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
		AREA		
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
		VOLUME		
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.314	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
		MASS		
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
		TEMPERATURE (exact degrees)		
^oC	Celsius	1.8C+32	Fahrenheit	^oF
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/m^2	$candela/m^2$	0.2919	foot-Lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.
(Revised March 2003)

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LIST OF ABBREVIATIONS AND SYMBOLS

AAMVA	American Association of Motor Vehicle Administrators
AASHTO	American Association of State Highways and Transportation Officials
ADTSEA	American Driver and Traffic Safety Education Association
BTS	Bureau of Transportation Statistics
BTW	Behind the Wheel
CCSS	Common Core State Standards for English Language Arts and Mathematics
CDC	The Centers for Disease Control and Prevention
CRM	Customer Relationship Management
DPI	Department of Public Instruction
DETA	Driver Education and Training Administrators
DMV	Division of Motor Vehicles
DSAA	Driving School Association of Americas
EA	Evaluability Assessment
FHWA	Federal Highway Administration
GDL	Graduated Driver Licensing
IIHS	Insurance Institute for Highway Safety
NHTSA	National Highway Traffic Safety Administration
NIDB	National Institute for Driver Behavior
NSTSCE	National Surface Transportation Safety Center for Excellence
POC	Project Oversight Committee
TRIS	Transportation Research Information Services
WisDOT	Wisconsin Department of Transportation

CHAPTER 1. PROJECT OVERVIEW

In the United States, teenage drivers are more at risk of being involved in crashes than any other age group. In 2011, young drivers ages 15 to 20 made up 6% (12.6 million) of the United States' driving population (211.9 million licensed drivers). However, young drivers accounted for 10% (4,347) of all fatal crashes and 13% (1,229,000) of all police-reported crashes.[(1)] These statistics reveal a clear need for improving our teenagers' driving skills, judgment, and behavior.

Driver education programs are a crucial part of training our nation's drivers. These programs are managed on a state-by-state basis, and therefore significant variability can exist between states, and to some degree even within each state. However, novel approaches to driver education (e.g., graduated driving licensing or GDL) are being developed and studied each year.[(2)] Yet, some researchers have found that new programs consistently fail to meet safety objectives.[(3)]

The crash risk in the state of Wisconsin is no different from any other state. In 2010, Wisconsin's teen drivers (16 to 19 years of age) represented 4.8% of the total Wisconsin licensed driver population but accounted for 10.8% of the total crashes.[(4)] Fatalities in crashes involving young drivers (ages 15–20) totaled 83 (which includes young drivers, passengers in young drivers' vehicles, occupants of other vehicles, and non-occupants).[(4)] Based on the higher crash risk of teen drivers, the Wisconsin Department of Transportation (WisDOT) is dedicated to implementing new driver education programs to improve the driving skills and behavior of the teen driver population. To date, these programs have not undergone an objective evaluation of effectiveness. Therefore, a clear need exists for the development of methodologies to objectively analyze and evaluate the effectiveness of such new programs.

WisDOT's Division of Motor Vehicles (DMV) oversees the certification and implementation of new commercial driver-training programs, while public, private, and parochial school efforts, and technical colleges fall under the oversight of Wisconsin's Department of Public Instruction (DPI). Due to declining resources available to public schools, combined with current State policies, Wisconsin has experienced a shift in program instruction from the public education system solely to the private sector to some degree. These changes have resulted in the need for closer monitoring of programs. For the current research project, the Virginia Tech Transportation Institute (VTTI) focused on developing a methodology to evaluate objectively the effectiveness of Wisconsin's teen driver-education and driver-training programs and teen driver performance.

RESEARCH OBJECTIVES

While WisDOT has in place an exhaustive process to license driver-training schools, the department does not have established methods to analyze the entire statewide construct of how young drivers are trained. The goal of this research effort was to develop a means of analyzing the current young-driver training efforts within Wisconsin to determine whether different driver-training programs impact safety (i.e., are effective), and whether some are more effective than others. In doing so, the research team identified the data needed to support the analysis and determined whether such data was already being collected or retained.

RESEARCH APPROACH

This research effort was divided into two phases. Phase I focused on the development of an evaluative methodology that is based upon a review of relevant literature, policies, and data sources (Figure 1). The resulting methodology informed the activities of Phase II: the development of an implementation plan (Figure 2). This effort resulted in the development of a methodology and the identification of potential data sources to analyze and use to evaluate the effectiveness of driver-training programs as they relate to the demonstrated safety and behavior of teen drivers in Wisconsin.

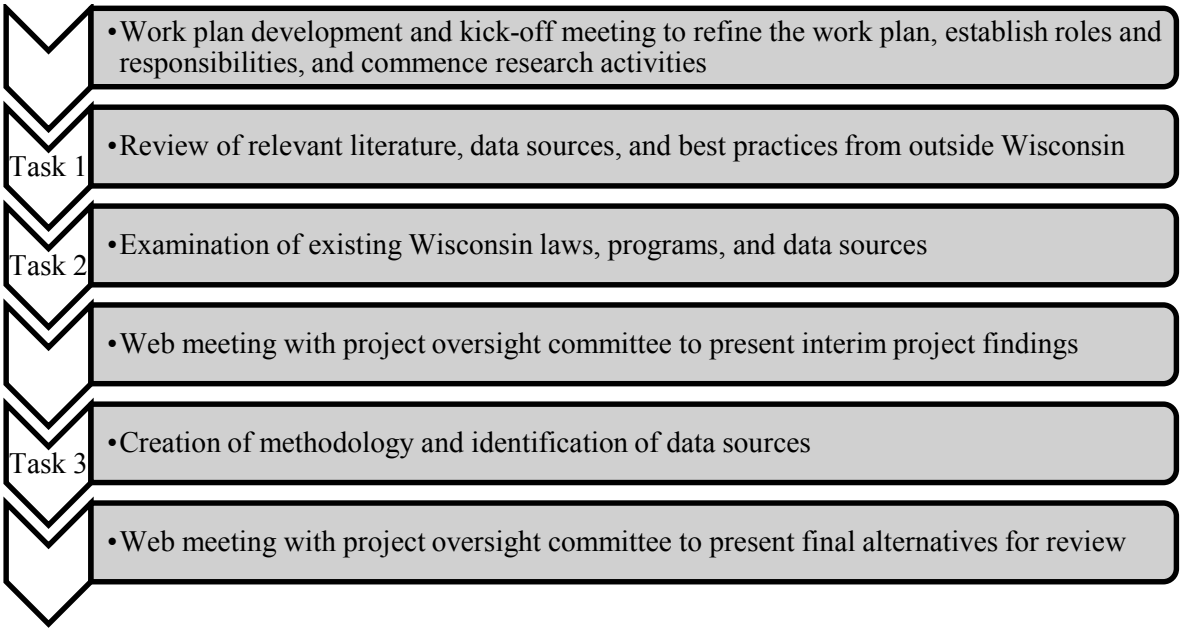


Figure 1. Diagram. Task flow diagram for Phase I.

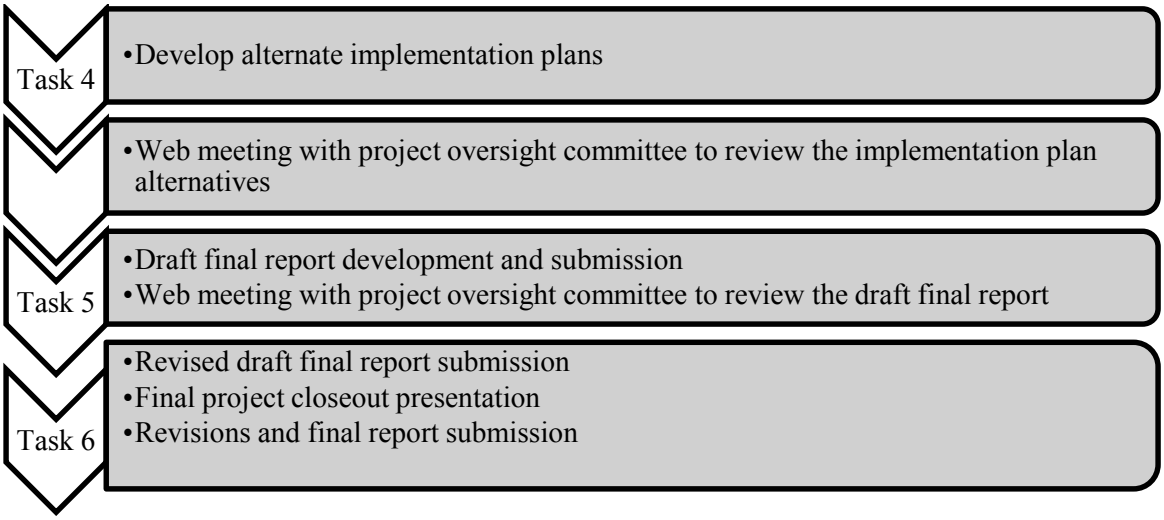


Figure 2. Diagram. Task flow diagram for Phase II.

RESEARCH METHOD

This effort was completed through a modified evaluability assessment (EA). EA can be defined as:

> A set of procedures that have been designed to analyze the decision-making system that is to benefit from performance information and to clarify the goals, objectives, and assumptions against which performance is to be measured.[5]

EA was adopted because it is generally conducted prior to a full-scale program evaluation. In addition, because aspects of teen driver-training programs fall under the oversight of multiple agencies, a method was desired that would encourage discussions between Project Oversight Committee (POC) members and that would facilitate interactions with driver education program providers. EA was deemed appropriate because it requires researchers to collaboratively engage with program staff and stakeholders.

EA also addresses a program's likelihood of achieving its anticipated outcomes, changes required for results-oriented management, and the likelihood of the evaluation contributing to improved program performance.[6] The five-step EA method used and the corresponding project tasks are noted below along with guiding task activities.

Table 1. Overview of research activities.

EA Step	Corresponding Project Tasks	Description
1	Task 1 Task 2 Interim Briefing 1	Identification of program objectives. • Identify State laws, policies, and program objectives constituting the driver-training program in Wisconsin. • Draw upon literature findings to determine additional key components that contribute to an effective teen driver-training program.
2	Task 1 Task 2 Interim Briefing 1	Identification of the data needs. • Determine what information must be collected to determine if individual teen driver-training schools (i.e., commercial driver-training schools, public driver education programs) and the broad statewide model of driver-training programs are meeting program objects set forth by the State. • Identify the data collection and retention practices associated with potential data sources.

EA Step	Corresponding Project Tasks	Description
3	Task 3 Interim Briefing 2 Transition Briefing	Policy-program modeling. • Determine which model(s) will best provide for the identification of incongruences between the program's objectives and its intended activities from the point of view of the intended users of the performance information (e.g., WisDOT officials, driving education providers, drivers seeking education, parents of teen drivers). • Through pilot testing, compare actual field operations to the program's intended activities.
4	Task 5 Interim Briefing 3	Policy-program evaluability assessment. • Provide management and evaluation options. • Ensure that the policy-program model is sufficiently unambiguous to make the evaluation useful. • Determine what types of evaluation studies would be most useful.
5	Task 5 Interim Briefing 3 Interim Briefing 4	Feedback of evaluability assessment to users. • After presenting conclusions about policy-program evaluability to the WisDOT project manager and oversight committee, identify what next steps should (or should not) be taken to evaluate the performance of teen driver education programs in Wisconsin.

CHAPTER 2. DATA COLLECTION

This chapter provides a summary of the process used to identify the relevant literature and the findings from an examination of relevant Wisconsin laws, programs, and data sources. The outcomes of this effort include:

- An annotated bibliography and knowledge database that detail the results of the literature review for such resource items as data sources, state policies, and best practices.
- The identification of applicable Wisconsin data.
- The identification of applicable data and collection and retention methods.
- A presentation to the POC of Task 1 and 2 findings (e.g., Interim Briefing 1).

OVERVIEW OF THE LITERATURE REVIEW PROCESS

The first data collection task was the completion of a critical review of the current national and international literature and data sources pertaining to the training of teen drivers. This review included an examination of best practices identified in other states that have similar programs, laws, and structures as Wisconsin. In conducting this review, a three-step approach was followed. First, the team reviewed relevant findings from VTTI's in-house libraries that were created as part of teen-driving-related projects. Second, to provide a better understanding of best practices in the United States and abroad, the research team reviewed policies relating to teen driving. Examples of organizational policies reviewed included, but were not limited to, the following:

- American Association of Motor Vehicle Administrators (AAMVA).
- American Association of State Highways and Transportation Officials (AASHTO).
- Bureau of Transportation Statistics (BTS).
- Federal Highway Administration (FHWA).
- Insurance Institute for Highway Safety (IIHS).
- National Highway Traffic Safety Administration (NHTSA).
- The Centers for Disease Control and Prevention (CDC).
- American Driver and Traffic Safety Education Association (ADTSEA).
- Driver Education and Training Administrators (DETA).
- National Institute for Driver Behavior (NIDB).

Third, supplementary data, information, and resources for state and international studies were captured using the Transportation Research Information Services (TRIS) and other online literature databases and Internet searches. To reflect current best practices, searches were restricted to materials published between June 1, 2002, and February 1, 2013. References within the first-round results of the literature search were examined to obtain any additional publications of interest falling outside this initial time frame that would ground the researchers' understanding of the issues associated with teen driver education efforts. Over the course of the project, as new information became available, relevant findings were incorporated.

The team reviewed and synthesized the information for each identified state practice/best practice, cataloguing the following elements for each: title, author, producing or publishing organization, year, and city and state (if applicable). The team then summarized available

information from these resources, publications (journals, trade magazines, research organizations, electronic), and the Internet in order to determine the best practices that may be applied in Wisconsin.

The outcome of this task is the annotated bibliography (Appendix A) and the knowledge database that detail the results of the literature review for such resource items as data sources and best practices (Appendix B).

EXAMINATION OF RELEVANT WISCONSIN LAWS, PROGRAMS, AND DATA SOURCES

The second data collection task involved an examination of relevant Wisconsin laws, programs, and data sources. While primary attention was focused on the programs and data sources within WisDOT, the team also consulted with the DPI to obtain an understanding of programs under its oversight (e.g., Cooperative Education Service Agencies (CESAs) and the Wisconsin Technical College System). The team developed a foundational understanding of potential data sources through a review of:

- Program-related online resources and Web sites.
- Existing laws and policies.
- Classroom and behind-the-wheel (BTW) curriculums submitted by Wisconsin's schools.

In the United States, 23 states and the District of Columbia require some form of driver education before licensure for anyone younger than 18. Most commonly, this includes 30 hours of classroom instruction and 6 hours of BTW practice, although requirements vary considerably across states. Most states offer both commercial and high school driver education programs.[7,8] Wisconsin is consistent with the norm, offering both commercial and high school driver education programs that require a minimum of 30 hours of classroom instruction with at least 6 hours of observation in-car instruction and 6 hours of BTW instruction (although some substitutions are allowed that alter the ratio of observation and BTW instruction hours).

Wisconsin Laws and Administrative Rules Governing Teen Driver Education Programs

Legislative and administrative guidance governing the issuance of operators' licenses is provided in the Wisconsin Statutes (Wis. Stats.), Ch. 343.[9] (See also the Wisconsin Administrative Code (Wis. Adm. Code), Trans 102: Operator's Licenses and Identification Cards,[10] and Trans 112: Medical Standards for Driver Licensing and General Standards for School Bus Endorsements.[11])

Administrative requirements for Wisconsin's commercial driver-training schools are found in Chapter Trans 105: Licensing of Driver Schools and Instruction. Within these requirements, Trans 105.07 sets forth special rules for the instruction of students under 18 years of age. These rules include classroom and BTW core requirements. In addition, commercial schools are provided with guidelines regarding their lesson plans, which are to be sufficiently detailed to include:

- Title of lesson, session number, allotted time, and statement of objectives.
- Type of lesson (i.e., method, such as lecture, demonstration, informal discussion, role-playing, laboratory, drill and practice, test).
- Training aides used (e.g., chalkboard, slide projector), statement of objectives, reference materials (e.g., textbooks, pamphlets, movies, film strips, slides, charts).
- A detailed lesson outline (which includes an introduction, development, and summary with the assignment for the next lesson).

Commercial driver education programs are required to be certified by WisDOT, with recertification occurring every two years. Information provided within the following forms, in combination with information that programs are required to maintain, served as data sources. The research team reviewed the types of data gathered via:

- MV3110 – Driver School Application, with special attention given to requirement 21, Program Approval – Students Under 18, which summarizes the classroom and BTW training offered.
- MV3112 – Driving Instructor Application.
- MV3264 – Driver Training Vehicle Record.
- MV3683 – Driver Training School Office Certification.
- MV3684 – Driver Training School Classroom Certification.
- MV3755 – Driver School Bond Alternative (as an additional check of school size).
- MV2756 – Driver Training Schools/Instructors Complaint.
- MV3757 – Driver Training School Checklist.

State approval for public school districts, technical colleges, and private high schools falls under the oversight of the DPI. Wis. Stats. s. 115.28(11)[12] provides the authority for DPI to approve driver education programs and establishes minimum instruction standards. More specific program provisions are found within Wis. Adm. Code Chapter PI 21: Driver Education Programs. Chapter PI 21 establishes uniform marking standards for vehicles used as driver education vehicles pursuant to Wis. Stats. s. 341.267 (1) (b); establishes minimum standards which all high school driver education programs must meet to obtain department approval under Wis. Stats. s. 343.06 (1) (c); establishes standards for issuance of Wisconsin driver education certificates; and establishes minimum standards for driver education programs.[13] Additional rules for conducting driver schools, as well as prohibited practices, are found in Wis. Stats. s. 343.71(5). Instructor licensing requirements are found in Wis. Adm. Code Chapter PI 3.13[14] and PI 34.33.[15] Additional administrative guidance can be found on the DPI's Web site:

- Wisconsin Driver and Traffic Safety Education Teacher Standards.[16]
- Draft of Model Academic Standards for Wisconsin High School Driver Education Programs.[17]
- A Guide to Curriculum Planning in Driver and Traffic Safety Education.[18]

Schools wishing to offer state-approved driver education programs are required to submit an online DPI Driver Education Program Approval Application (PI-1709).[19] In addition to submitting the application online, districts are also required to print a copy of their completed application summary (PI-1709) and return that to the DPI for review and approval. In mid-March, DPI launches the next fiscal year's application. Upon notification, districts use assigned passwords to access their district's online program approval application. Information obtained through the online application is available as Form PI-1709. As of September 2013, DPI had informed the project team that they were considering replacing the PI-1709 with an assurance form containing a statement of assurance from the school that it was in compliance with all the requirements associated with driver education program administration. Depending on the depth of the assurance questions, it may not be known how schools deliver certain topics, nor may there be the additional check that all required topics are being covered. Should this be the case, fact-finding data collection efforts should be conducted on an as-needed basis.

Wisconsin Driving School Curriculum Review

Due to Wisconsin's history as a local control state, a statewide curriculum for driver education programs has not been developed. However, as noted in the previous sections, minimum topic requirements have been established, and instructional materials (e.g., the motorists' handbook) and model standards and curricula are provided (i.e., sample DPI curriculum). To supplement the research team's understanding of the range of information covered in Wisconsin's driver education and training programs, the team requested current curriculum and in-car/BTW training requirements from programs and schools under the oversight of both WisDOT and DPI. These requests were accompanied by letters of introduction from the WisDOT and DPI project managers. The team received 19 examples of classroom course outlines and 17 examples of BTW course outlines (Table 2).

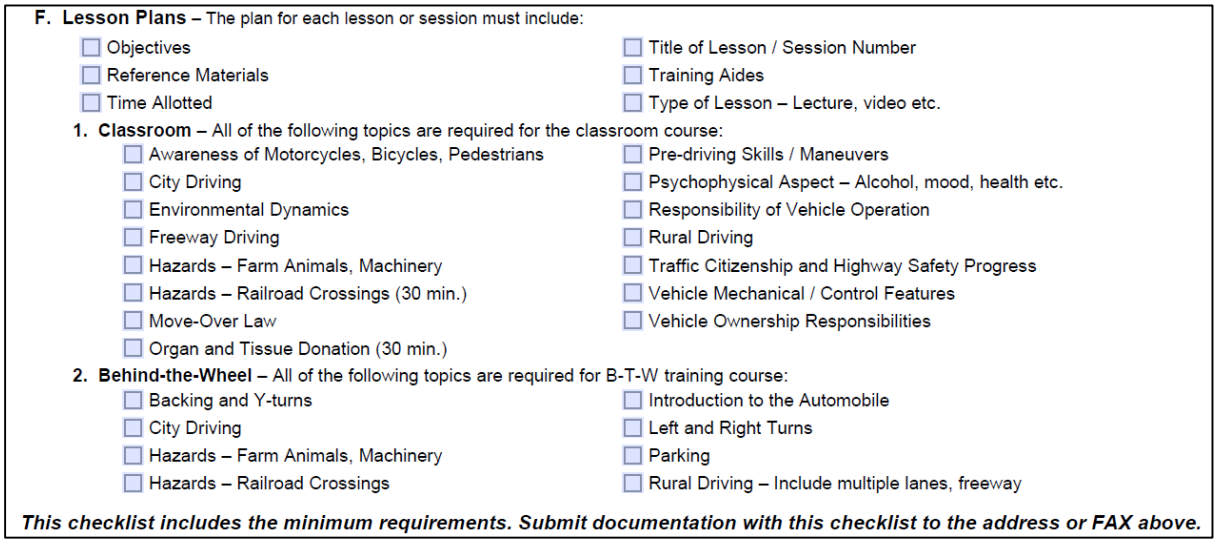
Table 2. Summary of received Wisconsin course outlines.

Training Program Type	Classroom Instruction	BTW Instruction
Commercial driver-training school	12	12
Public driver education program	5	5
Technical college/online	1	-

The information provided varied widely in the amount of detail included. Some provided full curriculums that clearly followed the guidelines suggested by DPI and Wis. Adm. Code Trans 105.07 regarding classroom lesson plans. Others simply provided very broad overviews (best equated with a potential statement of assurance that the required topics were being covered).

As a preliminary attempt to determine whether different training programs were comparable, the team compared each provided curricula with the classroom and BTW requirements noted in Section F of MV3757 (Figure 3).[20] During the requirement analysis, the goal was to track explicitly noted requirements – as opposed to trying to assume whether or not a topic was covered under a more general section/topic heading. For example, if a school specifically noted that they taught traffic citizenship, it was noted. If a requirement was not explicitly noted, it was left blank. This preliminary review found that 11 of the 19 classroom programs and 14 of the 17 BTW programs indicated that they were covering the required content noted in Section F of MV3757. One should not conclude that the other programs were not teaching to the minimum

requirements; rather, this method of using the curriculum only, as presently requested, was not adequate for determining if minimum requirements were being met.



F. Lesson Plans – The plan for each lesson or session must include:

- ☐ Objectives
- ☐ Reference Materials
- ☐ Time Allotted
- ☐ Title of Lesson / Session Number
- ☐ Training Aides
- ☐ Type of Lesson – Lecture, video etc.

1. **Classroom** – All of the following topics are required for the classroom course:
   - ☐ Awareness of Motorcycles, Bicycles, Pedestrians
   - ☐ City Driving
   - ☐ Environmental Dynamics
   - ☐ Freeway Driving
   - ☐ Hazards – Farm Animals, Machinery
   - ☐ Hazards – Railroad Crossings (30 min.)
   - ☐ Move-Over Law
   - ☐ Organ and Tissue Donation (30 min.)
   - ☐ Pre-driving Skills / Maneuvers
   - ☐ Psychophysical Aspect – Alcohol, mood, health etc.
   - ☐ Responsibility of Vehicle Operation
   - ☐ Rural Driving
   - ☐ Traffic Citizenship and Highway Safety Progress
   - ☐ Vehicle Mechanical / Control Features
   - ☐ Vehicle Ownership Responsibilities
2. **Behind-the-Wheel** – All of the following topics are required for B-T-W training course:
   - ☐ Backing and Y-turns
   - ☐ City Driving
   - ☐ Hazards – Farm Animals, Machinery
   - ☐ Hazards – Railroad Crossings
   - ☐ Introduction to the Automobile
   - ☐ Left and Right Turns
   - ☐ Parking
   - ☐ Rural Driving – Include multiple lanes, freeway

This checklist includes the minimum requirements. Submit documentation with this checklist to the address or FAX above.

Figure 3. Image. WisDOT Form MV3757, Section F.

WISCONSIN DATA COLLECTION AND RETENTION

The third data collection task was the documentation of current data collection and retention practices. The team, in consultation with appropriate WisDOT and DPI staff, identified practices associated the collection of the data required by the laws and administrative standards associated with teen-driving policies as well as more general information (e.g., application information, driver data, and crash data).

The data collection and retention findings were summarized and included as part of the knowledge database (Appendix B).

The results from the data collection efforts described within this chapter culminated in the presentation to the POC during Interim Briefing 1.

CHAPTER 3. EVALUATION METHOD DISCUSSION

Program evaluations are used to determine whether or not a program has met its stated goals and objectives. To answer the question, "Are driver education and training programs in Wisconsin effective," the research team identified appropriate metrics and a model for measuring those metrics. The proposed method will allow program managers to analyze the effect of driver education and training programs on Wisconsin teen drivers at various stages of their initial driving careers, i.e., measure the impact during a "high-risk" period versus long-term behavior.

EVALUATION MODEL

The team considered various process and outcome evaluation methods. Process evaluation methods ensure that a program is meeting stated objectives (i.e., how the program was delivered). Outcome evaluation methods look to see whether a program has made a difference in the driving behavior of teen drivers. In addition, potential qualitative and quantitative data collection tools, including questionnaires, individual interviews, discussion groups, observed driving behaviors (e.g., observations of program participants during testing), and program observations (e.g., observations of teaching methods, classroom interactions) were considered. These methods and tools were considered in relation to current program administration, data availability, potential staffing, and costs.

A program scorecard approach was deemed most appropriate. Program scorecards enable users to link established objectives and develop effective measures and meaningful standards, which can then be used to establish short-term milestones and longer-term targets.[21,22] The scorecard also provides program administrators a means of collecting and analyzing performance data and comparing the results with desired performance standards. Bonus points can be used to guide programs towards desired standards. Using a scorecard will allow program administrators to:

- Conduct a preliminary comparison of diverse programs (e.g., commercial driver-training schools, public education programs) using available data.
- Manage resources and obtain guidance on data collection needs.
    - Focus data collection efforts, potentially reducing the administrative burden on individual driver-training and education programs.
- Facilitate organizational changes that improve program outcomes.
- Link strategic teen-driving related objectives to longer-term targets.
    - Provide education and focus to program oversight.
    - Provide education and focus to driver-training school owners, instructors, and administrators.
- Increase broader understanding of program objectives (i.e., improved program transparency, informed customer information). [22]

The resulting program assessment tool is reflective of State-specific policies, potential data types and sources, as well as curriculum best practices and effective countermeasures. This tool will:

- Promote consistency in future years while still providing the opportunity for customization if needed to address data availability, personnel, policy costs, and emerging issues.
- Be sustainable for future use; it does not rely on highly customized or proprietary information technology solutions.
- Be focused specifically on Wisconsin laws, operations, and practices (although the final method may be applied generally to other states or locations).

EVALUATION METRICS

To define the components of an effective driving education and training program, the team was informed by the resources included in the knowledge database. These resources represent demonstrated teen driving education and training standards developed by practitioners and researchers in the field. Standards reviewed included:

- Novice Teen Driver Education and Training Administrative Standards, including state assessments from Kansas, Maryland, Oregon, and Vermont. (See references 23, 24, 25, 26, and 27.)
- NIDB Standards for a Driver Risk Management Program.[28]
- ADTSEA National Curriculum Standards Restricted Licensure Qualification Classroom and In-Car Segment I.[29]
- NHTSA Highway Safety Program Guideline No. 4 Driver Education.[30]

Additional resources provide quantitative and qualitative support for the concepts represented by the suggested metrics. For example, Nichols,[31] Mayhew,[3] Williams, Preusser and Ledingham,[32] Helman, Grayson, and Parkes,[33] Lonero and Mayhew,[34] Hamilton,[35] and Thomas et al.[7,8] provide reviews of the history of driver education in the United States.

Drawing upon the guidance provided in the Novice Teen Driver Education and Training Administrative Standards,[23] the team identified five data areas of information which could be used to evaluate components of effective driver-training programs: guardian involvement, education and training, coordination with GDL, instructor qualification, and program administration. Upon further review, it was determined that the program administration component was not appropriate at this point. When used in the context of the Novice Teen Driver Education and Training Administrative Standards, program administration components evaluated the administrative structure's ability to evaluate. As the goal of this effort is to evaluate driver-training programs, at the individual driver-training program provider-level, this data category was not included in the final model.

These metrics were presented to the POC during Interim Briefing 2, the transition briefing, and Interim Briefing 3. In addition, the team consulted with POC members to further define the objectives and measures. During these discussions, the team reviewed the proposed assessment tool metrics to ensure that data were drawn from the most appropriate sources, important data sources were not missing, and no other, more appropriate sources for addressing the metrics were

available. The knowledge database (Appendix B) contains an overview of each metric and justifications for its inclusion in the evaluation model.

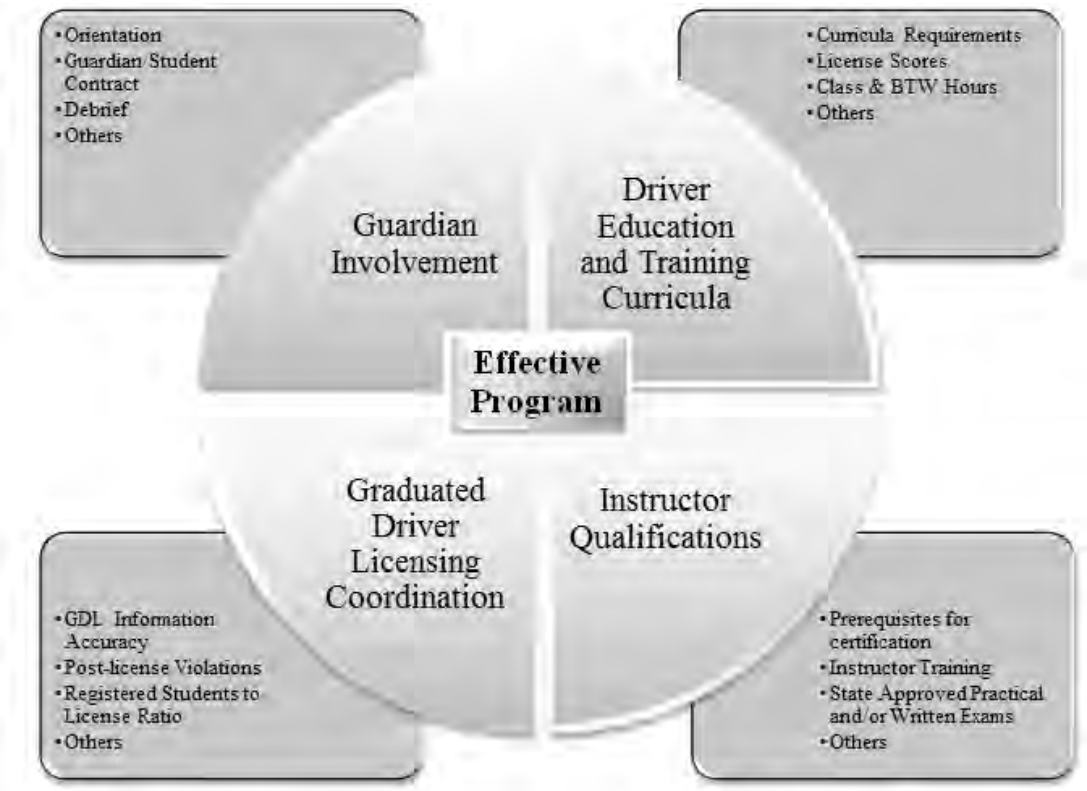


Figure 4. Graphic. Components of an effective teen driver-training program.

PROGRAM ASSESSMENT TOOL DESIGN

While numerous proprietary enterprise performance management and software solutions exist, the current program assessment tool was developed using Microsoft Excel, an easily customizable and available technology solution. A detailed user guide is provided as a stand-alone document. The user guide contains an overview of the metrics associated with each quadrant, including how the metric is measured, driver education program data sources, and commercial driver-training school data sources. Additionally, the user guide serves as a step-by-step guide for using the program assessment tool. The program assessment tool is provided as stand-alone Microsoft Excel workbooks.

Program Assessment Tool Design

When working with the assessment tool, evaluators will use one or more of the following tabs within the Microsoft Excel Spreadsheet:

1. Purpose & Approvals Tab: use this tab when filling out the name of the school being assessed, the name of the person preparing the program assessment, and the name of person approving the program assessment.
2. Assessment Matrix Tab: use this tab when assessing a school.

3. Assessment Results Tab: use this tab to view quadrant results.
4. Assessment Worksheet Tabs: use these tabs when assessing individual metrics. Not all metrics have a corresponding tab. Assessment worksheet tabs include:
    - Driver Education Program Curricula Requirements.
    - Driving School Curricula Requirements.
    - Learning Environment.
    - Simulation & Range.
    - Class Hours.
    - BTW Hours.
    - Distributive Learning.
    - Prerequisites.
    - Training.
    - Tests.
    - Continuing Education.

Program Assessment Matrix Tab

The tab used the most when assessing a school is the Program Assessment Matrix tab. The tab includes six columns:

1. Assessment Quadrant: this column lists the four key areas being evaluated (e.g., Guardian Involvement, Driver Education and Training Curricula Requirements, etc.).
2. Metric: this column lists the standards of measurement under each assessment quadrant (e.g., Guardian/Student Orientation is a standard of measuring performance on Guardian Involvement).
3. Measure: this column describes how a metric will be measured (e.g., the Guardian/Student Orientation metric will be measured by determining if the driver-training program reported including an orientation).
4. Driver Ed Program Data Source & Worksheet Tab: this column lists the data source(s) that will be reviewed to find out if a school is meeting requirements (e.g., one will review PI-1709 to see if a program includes a Guardian/Student Orientation). It also lists the worksheet tabs that will be used to assess metrics.
5. Driving School Data Source & Worksheet Tab: this column lists the data source(s) that will be reviewed to find out if a commercial driving school is meeting requirements (e.g., one will review the Course Summary and MV3757 to see if a school includes a Guardian/Student Orientation). It also lists the worksheet tabs that will be used to assess metrics.
6. Assessment: A school should be given a "1/Yes" if it meets the requirement and a "0/No" if it does not meet the requirement. In some cases, a "1/Yes" is already listed on the assessment tool in a RED box. This means that this metric in the assessment is not yet being assessed but may become active later. In these cases, the assessment is left as "1."

Driver Training Program Forms

The assessment includes forms that must be checked to determine if a school is meeting the requirements. The forms are listed here for reference.

- **MV3001**: Wisconsin Driver License (DL) Application.
- **MV3110**: Driver School Application.
- **MV3112**: Driver Instructor Application.
- **MV3264**: Driver Training Vehicle Record.
- **MV3684**: Driver Training School Classroom Certification.
- **MV3757**: Driver Training School Checklist.
- **PI-1709**: Driver Education Program Application.

Specific Data Considerations

Several specific data considerations deserve noting. First, asterisks are used within the program assessment tool to indicate that the noted form currently does not include some information. For example, the assessment tool provides opportunities for bonus points. Bonus points reflect best practices that teen driver-training programs should strive towards achieving. However, the data needed to award the bonus points is not currently available. Prior to implementing the basic assessment tool, these forms/data collection tools should be amended to facilitate the completion of the assessment tool and associated worksheets. Second, as previously mentioned, DPI program administrators have indicated that the PI-1709 may soon be replaced with an Assurance Form. Should this happen, DPI will need to determine alternate methods for collecting the PI-1709-related metrics data. Potential alternatives include the addition of verification questions to the assurance form or fact finding utilizing survey and/or interview methods. Third, WisDOT is currently rolling out an online student course certification system. It is assumed that this system will be fully implemented in 2014. This system, when fully implemented will reduce the number of manual checks necessary to complete the assessment tool, which in turn will make the assessment process more efficient.

Program Assessment

Currently, the program assessment is designed so that each metric and each quadrant are equally weighted. The Driver Education and Training Curricula Requirements and Instructor Qualifications quadrants include metrics reflecting stated program requirements. The remaining quadrants, Guardian Involvement and GDL Coordination, reflect best practices, which are not currently required by the State. The purpose of the program assessment, as presented, is to indicate compliance with the standards and best practices in these four quadrants. As opposed to combining the results of each quadrant to yield a single program assessment, the assessment tool is designed to be reviewed on a quadrant-by-quadrant basis. Over time, as additional metric-related data become available and program goals are conveyed to providers, assessments should improve.

An assessment approach similar to that presented by the NIDB is recommended. The NIDB notes that their *Standards for a Driver Risk Management Program* were developed not only to measure performance, but also to serve as a goal for the industry to strive toward:

> The accreditation process acknowledges that, initially, most schools will not fully satisfy all the standards; therefore, a point value system has been created. Each indicator carries a point value, some weighted more heavily than others, with a total value of approximately 8000 points. During this initial implementation stage, we will accept a score of 3000 for the accreditation.[28]

Similarly, the metrics presented in the program assessment should be viewed as a goal for Wisconsin programs to work toward. Assessment results can be used by state program administrators to ensure programs are achieving minimum requirements and to determine areas for potential state-level education programs.

Information regarding the program assessment should be shared with individual driving-training programs. For example, within the context of the biennial audits and licensing of driver-training programs under WisDOT's oversight, programs are encouraged to complete a program self-assessment (Appendix D). The goal of this type of tool is to improve administrative transparency by detailing those program components which the DMV (or DPI) actively reviews when making the (re)certification assessments. The results of the self-assessment could be compared with the results of WisDOT's auditing and licensing review. Discrepancies between the two reviews could be discussed and improvement plans could be developed. Should the POC determine that assessment results should be made public, the research team advises that the results not be released until after the joint review of the assessment by the individual driver-training program and the oversight body. Furthermore, should results be made public, the research team suggests including information regarding the assessment metrics in relation to mandatory program requirements. To address non-mandatory items, program administrators may wish to consider a guide for parents that discusses the characteristics of effective training programs. An example description of an assessment results scale is presented in Table 3.

Table 3. Example description of program assessment results.

Program Requirement Status	Interpretation
Significantly Exceeds Program Requirements	Achievement outstanding relative to the level necessary to meet basic program requirements (i.e., meets all requirements in the Driver Education and Training Curricula Requirements and Instructor Qualifications quadrants, meets most objectives in the Guardian Involvement and GDL Coordination quadrants)
Exceeds Program Requirements	Achievement significantly above the level necessary to meet basic program requirements (i.e., meets all requirements in the Driver Education and Training Curricula Requirements and Instructor Qualifications quadrants, meets some objectives in the Guardian Involvement and GDL Coordination quadrants)
Meets Program Requirements	Achievement meeting the basic program requirements in every respect (i.e., meets all requirements in the Driver Education and Training Curricula Requirements and Instructor Qualifications quadrants, may meet a few objectives in the Guardian Involvement and GDL Coordination quadrants)

Program Assessment Tool Validation

At the conclusion of the EA, the research team identified variations of the program assessment that could be used to evaluate commercial driver-training programs, public driver education schools, BTW-only training programs, and hybrid programs (i.e., public driver education school classroom instruction partnered with commercial driver-training program BTW instruction). Using the curriculum information obtained during Task 2, the team applied the program assessment to four schools (Table 4) to validate the program assessment tool. These results were limited by the quality of the data that was available to the project team (Table 5).

Table 4. Results of the program assessment tool initial validation pilot test.

School Type	Initial Pilot Test Assessment
Lower assessed public school program	17%
Higher assessed public school program	35%
Lower assessed commercial school program	18%
Higher assessed commercial school program	26%

Table 5. Data used to complete the program assessment tool validation pilot tests.

School Type	Data Received During Task 2	Additional Data Needed	Additional Data Requested and Received
Lower assessed public school program	Classroom objectives, simulation lessons, BTW information	PI-1709, MV3001, instructor qualification data	PI-1709
Higher assessed public school program	Classroom lesson plan summary, BTW lesson plan summary (from a contracted commercial driving school)	PI-1709, MV3001, instructor qualification data	PI-1709
Lower assessed commercial school program	Session content/course summary, in-car lesson requirements	MV3110, MV3264, MV3112, MV3757, MV3001	MV3110, MV3264, MV3112
Higher assessed commercial school program	Syllabus, BTW record keeping form, observer score sheet, drive note sheet, drive note score sheet, training route maps	MV3110, MV3264, MV3112, MV3757, MV3001	MV3110, MV3264, MV3112

The results of the initial program assessment tool validation pilot were presented to the POC during Interim Briefing 3. Based upon project discussions, the assessment methods were

modified. Results of the re-piloted efforts were presented during the transition briefing (Table 6). There were slight gains for the public schools. Information provided on the PI-1709 (Driver Education Program Application) indicated that the schools were meeting or exceeding distributive learning requirements, but the lack of information on instructor qualifications kept these assessments close to the levels from the initial pilot. There were more dramatic compliance increases for the commercial schools due to the inclusion of Form MV3112, the Driver Instructor Application.

Table 6. Results of the program assessment tool validation pilot re-tests.

School Type	Re-Piloted Test Assessment
Lower assessed public school program	22%
Higher assessed public school program	38%
Lower assessed commercial school program	44%
Higher assessed commercial school program	52%

Program Assessment Tool User Guide Validation

The initial and subsequent program assessment validation pilots were completed by one member of the research team and reviewed by the others. After making revisions to the program assessment tool, the research team prepared a Program Assessment Tool User Guide. The user guide serves as a step-by-step set of instructions for a WisDOT or DPI staff member to use in completing the program assessment tool.

A member of the research team who had previously worked with VTTI's Data Reduction Group then reviewed the User Guide and Assessment Tool. The Data Reduction Group serves many different research groups, both internal and external to VTTI, whose research requires video and/or audio analysis in the areas of driver performance and behavior metrics, situational analyses, and environmental characteristics. After this initial reductionist review, the guide was revised and given to another VTTI data reductionist who was unfamiliar with the program assessment tool. In addition to the user guide, she was provided with the assessment tool and accompanying worksheets. The reductionist reported that the guide was easy to understand and that she would have been able to complete the program assessment tool with the information provided.

CHAPTER 4. IMPLEMENTATION PLANS

This chapter presents the suggested implementation plans. These plans take into account administrative costs associated with legislation or policy changes, staffing requirements, technical performance capabilities (to include the anticipated timeline), and fit with organizational strategies, including the potential impact on program partners (e.g., public school driver education programs, commercial driver-training programs) and customers (e.g., teen drivers, parents). Researchers note:

> Most new drivers' motivation and responsibility can be enhanced by a sufficiently intense program of education. Peer influences, community education programs, and incentives can all affect novice drivers' behavior.[38]

The implementation plans represent a comprehensive series of recommendations that are intended to address not only classroom and BTW education and skill training but also behavioral components through increased parental involvement, driving exposure, and enforcement. These plans include countermeasures that overlap with classroom and BTW driver education and training efforts (e.g., increased GDL coordination with law enforcement, a teen driving Web portal, increased outreach efforts targeting guardians). These recommendations were included because research suggests that they may lead to improved teen driving safety. The research team believes that WisDOT is uniquely positioned to take advantage of such suggestions as it can facilitate coordination across its divisions and bureaus.

The recommendations will be impacted by the special data considerations noted in Chapter 2 regarding the need for additional data collection and potential changes to current data collection efforts resulting from current DPI and DMV administrative efforts. With these considerations in mind, a three-phase implementation plan is recommended. The multiphase implementation plan will allow program administrators to obtain an understanding of what is taught, how it is taught, and the qualifications of those teaching.[36] Phase I represents the lowest cost alternatives. The short-term objective is to make minor administrative changes that will facilitate the implementation of the basic program assessment tool. Facilitation of the basic assessment tool will reveal what activities programs are currently performing and will ensure that programs are meeting the basic program requirements in every respect (i.e., meets all requirements in the Driver Education and Training Curricula Requirements and Instructor Qualifications quadrants, meets a few objectives in the Guardian Involvement and GDL Coordination quadrants). This phase requires limited staff and minimal changes to existing forms to gather data, such as new checkboxes or lines to gather missing data as noted in the Specific Data Considerations section.

The purpose of Phase II is to get a more complete understanding of how programs are teaching driver education. Recommendations in this phase address the way data is recorded and collected, and the resources available to assist with the teaching and learning process. Examples of efforts within this phase include more in-depth qualitative data collection efforts, such as a post-training evaluation survey for students and guardians.

It is also important to obtain feedback from consumers of teen driver education and training programs.[23,28] To do so, an online evaluation portal could be developed for teen drivers and

their parents. This evaluation portal could be located within the teen driving Web portal. Using online survey software, this evaluation tool would provide an inexpensive review of perceived program performance. The survey results could be used to inform decisions regarding fact-finding efforts.

Phase III incorporates larger-scale programmatic changes. Phase III efforts will have the highest costs both administratively and politically, as well as the greatest program partner and customer impact. As a result, it is assumed that these efforts will take place over the longest time frame.

The implementation plan activities are arranged by assessment tool quadrant with overarching program needs following. For each, program activities are noted in addition to estimated costs to develop and implement (Table 7) along with a timeline for implementation (Table 8).[37]

Table 7. Key to anticipated cost to develop and implement recommendations.

Cost to Develop and Implement	Cost Description
High	Requires extensive new facilities, staff, equipment, or publicity, or makes heavy demands on current resources
Medium	Requires some additional staff time, equipment, facilities, and/or publicity
Low	Can be accomplished with current resources and staff, perhaps with training; limited costs for new equipment or facilities

Table 8. Key to time to develop and implement recommendations.

Time to Develop and Implement	Timeline Description (from Assessment Tool Adoption Point)
Long	More than one year
Medium	More than three months, but less than one year
Short	Three months or less

GUARDIAN INVOLVEMENT QUADRANT IMPLEMENTATION

While guardian involvement to the extent suggested is not currently required, activities related to increased guardian involvement have the potential to make the most difference in the education and GDL process. (See references 7, 34, 40, 41, 42, 43, and 44.) Implementation efforts in this quadrant should enable program administrators to better understand current guardian involvement opportunities, establish materials to encourage guardian involvement, and ensure guardian involvement (Table 9). Such efforts are important. Only 32% of parents in five states who responded to telephone interviews knew the correct number of supervised driving hours their teen was required to complete; improvements in communication with parents and novice drivers about supervised driving requirements, guidance to parents about the best techniques to provide supervision, and tracking actual hours and conditions of supervised driving would be beneficial.[44]

Phase I activities should determine the current state of guardian involvement efforts with driver-training programs. This information may be gathered through the DPI assurance or the MV3757 forms. General information could be obtained by adding a checkbox to the list presented in Figure 3 (e.g., "Guardian Involvement Components"). Alternatively, more specific questions could be added (e.g., "Do you provide a guardian/student orientation?").

In addition, increased emphasis could be placed on verifying the hours of supervised driving. It is recommended that driver education and training instructors verify the supervised driving log to ensure the appropriate number of supervised hours in varying conditions have been completed. The log could be maintained with the student's file. An electronic copy of the log could also be submitted to WisDOT as part of the student certification process.

Phase II should be used to supplement existing outreach and education materials that promote guardian involvement in teen driver training. For example, WisDOT has noted that a new Parent Supervised Driving Guide is scheduled to be published in January 2014. In addition, the existing teen driving Web portal could be improved to reflect this new information and also to provide a more interactive learning environment. The Web-based resources could provide simulated activities for teens and highlight resources available to both educators and guardians for use in addressing teen driving safety. Program administrators may also wish to consider working with the driver education industry, school authorities, insurers, governments, families, and communities to coordinate their efforts.

Several existing resources could provide guidance in developing such efforts. For example, Goodwin et al.[37] draw attention to five nationally available programs that have been developed to encourage parental engagement: Checkpoints, Driving Skills for Life, Road Ready Teens, Teen Driver: A Family Guide to Teen Driver Safety, and The Novice Driver's Road Map. Additionally, the Centers for Disease Control and Prevention's educational campaign *Parents Are the Key to Safe Teen Drivers* provides parents with tools and proven steps for reducing teen driving injuries and deaths.[38]

Table 9. Guardian involvement quadrant implementation recommendations.

Recommended Action	Cost to Develop and Implement	Time to Develop and Implement
Phase I: Begin to record the extent of each program's guardian involvement efforts. • Add question to DPI assurance form: "Do you provide guardian/student orientations?" • Add checkbox on MV3757; require relevant information to be included in course summary.	Low	Short

Recommended Action	Cost to Develop and Implement	Time to Develop and Implement
Phase II: Develop additional outreach and education materials. • Coordinate with stakeholders to develop additional educational resources for both educators and consumers (i.e., guardians, teen drivers) related to the assessment tool metrics. o Roles of actors in the learning-to-drive process, best practices for learning to drive, teen driver contract, examples of progress reports, sample student report card, sample instructor and program evaluation forms • Modify the current teen driving Web portal to make the site less asymmetrical by including more interactive features. • Provide an online evaluation portal for parents and teens.	Medium	Medium
Phase III: Require guardian involvement components as part of teen driver education programs in Wisconsin. • Modify curricula requirements to reflect guardian involvement components. • Eliminate tradeoffs that reduce overall supervised driving time; Modify HS-303 to prevent novice drivers from using BTW time with a certified instructor as a replacement for BTW time spent with a guardian.	High	Long

To this point, guardian involvement to the extent recommended by the assessment tool has been voluntary. During Phase III, guardian involvement components should be incorporated into State curricula requirements. Programs that have not yet integrated guardian involvement components during Phase II should begin to do so. Schools should be provided with a guardian/student engagement checklist that enables them to track the requirements met by the school, the guardian, and the student. Guardians should also be provided resources that will facilitate their involvement throughout the licensure process. This includes being involved with a training orientation and end-of-training briefing; receiving regular progress updates; and receiving, at minimum, a midpoint progress report that should be signed by the school administrator, guardian, and student (both schools and guardians should maintain copies of the report). Progress updates and reports should include areas for student improvement.

Additionally, tradeoffs that reduce overall guardian supervised driving time should be eliminated. This requires the modification of HS-303 to prevent novice drivers from using BTW time with a certified instructor as a replacement for BTW time spent with a guardian.

Not all guardians will want to or be able to be actively involved in the process to the extent recommended; schools should not be punished because of a guardian's nonconformance to requirements. Therefore, guardian involvement programs should have a safeguard so that schools

can show due diligence in their efforts to engage and involve guardians throughout the instruction process.

DRIVER EDUCATION AND TRAINING CURRICULA REQUIREMENTS QUADRANT IMPLEMENTATION

At the minimum, the evaluation process can be seen as a tool for improving program transparency. The evaluation process can serve to ensure that schools are meeting the basic program requirements in every respect (i.e., meets all requirements in the Driver Education and Training Standards and Instructor Qualifications quadrants, meets a few objectives in the Guardian Involvement and GDL Coordination quadrants). By ensuring that all requirements in the Driver Education and Training Curricula Requirements and Instructor Qualification quadrants are met, the evaluation serves also as a verification of the (re)certification process (Table 10). To ensure that all requirements are being met, the DPI assurance form should incorporate a question similar to that included on MV3757 Section F.

Although driver education programs alone have not been shown to significantly decrease crash risk, gathering this information may prove useful. For example, over time, if this data is regularly gathered and reviewed, clusters may develop within the population of poorly performing teen drivers. This data may indicate that additional education and outreach activities are necessary during Phase II to address other contributing factors, such as texting while driving, seat belt use, or driving while under the influence.

In Phase II, individual schools or clusters of schools with high ratios of failing students or students receiving violations or involved in crashes should be flagged. Program administrators, working with state highway safety officials, should determine internally what ratio should be assigned to trigger a flag. Flagged schools or clusters of schools should be placed on a watch list for immediate follow-up. Fact-finding efforts should then be conducted with the public school education program directors, private driver-training program directors, and parents and students, to determine potential reasons for the spikes in activity. Appropriate outreach efforts should be implemented. Ratios used for flagging schools or clusters of schools should be reviewed annually to ensure continued agreement with departmental policies.

Table 10. Driver education and training curricula requirements quadrant implementation recommendations.

Recommended Action	Cost to Develop and Implement	Time to Develop and Implement
Phase I: Ensure all programs within the State cover at least the minimum topics required; flag schools that are not meeting minimum requirements. • DPI: Add question to DPI assurance form similar to MV3757 Section F. Determine to what extent schools are providing access to simulated driving experiences. • DPI only: Add question to DPI assurance form: "Do you use simulators or driving ranges?" Determine student test pass/fail rates. • Through database queries, link DMV test results with students' online certification system records. Determine violation and crash rates. • Through database queries, link violation and crash data with students' online certification system records.	Low	Short
Phase II: Conduct fact-finding activities. • Follow-up with schools with high ratios of failing students or students receiving violations or involved in crashes. • Request information from schools with complete/incomplete assessments to find out additional program information.	Medium	Medium
Phase III: Conduct in-depth fact-finding activities with poorly and highly assessed programs. • Coordinate with curriculum and/or pedagogy experts to conduct in-depth fact-finding efforts. • Provide coordinated training opportunities for instructors. o Develop opportunities for instructors to come together to share resources and to learn from one another.	High	Long

During Phase II additional fact-finding efforts could take place to provide supplemental information about how programs are instructing their students. For example, research has found that some teachers want updated materials such as DVDs and hands-on experiences with heavy vehicles to help novice teen drivers better understand sharing-the-road concepts, which in turn may be helpful in reducing future light vehicle/heavy vehicle interactions.[45] Additional researchers identified benefits associated with teen driving coach programs[42] and the use of simulated activities.[8,46,47] Of note, Wisconsin's CESA2 and Southwest Tech programs were highlighted as a case study of online programs with high engagement.[8] Surveys could be used to

see what techniques programs are using to train their drivers. The number of programs to be surveyed could be determined a number of ways, including, but not limited to, complete/incomplete assessment tool results or representative samples based on geographic location, program size, or parent/teen evaluation results. Summaries of best practices could be shared among driving instructors.

Beginning with Phase II and continuing to Phase III, the research team recommends that WisDOT and DPI coordinate follow-up fact-finding efforts. As these efforts require an understanding of teaching pedagogies, it is recommended that DPI or consultants with expertise in teaching pedagogies lead this effort. During Phase III, in-depth fact-finding efforts with poorly assessed programs (e.g., programs in the lowest quartile of assessment tool results, programs flagged through database queries for follow-up) and highly assessed programs (e.g., programs in the highest quartile of assessment tool results) are suggested. Working with curriculum and/or pedagogy DPI staff or consultants, program administrators may conduct in-person site visits to determine what information is being taught and how that information is being taught. If site visits are cost prohibitive, additional information could be obtained through telephone interviews. Drawing upon the expertise of the consultants, program administrators may work with poorly assessed programs to identify an action plan for improvement, such as supplemental instructor training, and identify best practices from all highly assessed programs that may be shared with other programs.

GDL COORDINATION QUADRANT IMPLEMENTATION

As noted, GDL programs have been proven effective in reducing the crash risk for teen drivers, especially when GDL requirements are combined with parental or guardian involvement efforts. For example, in Oregon, researchers identified that the clearest safety improvements, those improvements in 16-year-old drivers in their first 6 months of licensure, occurred not only when the restrictions were the greatest but also when parents reported the greatest vigilance in supporting the GDL restrictions.[48] Because GDL-related instruction is not currently a curriculum requirement, the first step is to find out what is currently being taught, then, moving into Phases II and III, find out how GDL concepts are being incorporated and work to provide best practices and additional resources (Table 11).

Phase I activities should determine the current state of GDL coordination efforts within driver-training programs. This information may be gathered through the DPI assurance or the MV3757 forms. General information could be obtained by adding a checkbox to the list presented in Figure 3 (e.g., “GDL Coordination Components”). Alternatively, more specific questions could be added (e.g., “Do you provide GDL information?”). Additionally, a query should be created linking GDL violations with student records and the school attended.

In concert with Driver Education and Training Curricula Requirement Phase II activities, Phase II GDL Coordination activities should supplement existing knowledge regarding GDL instructional practices. Additional fact-finding efforts could take place to determine what GDL-related information is being presented and how that information is being presented. Schools or clusters of schools with high ratios of GDL-related violations should be flagged. Program administrators, working with state highway safety officials, should determine internally what

ratio should be assigned to trigger a flag. Flagged schools or clusters of schools should be placed on a watch list for immediate follow-up. Fact-finding efforts should then be conducted with the public school education program directors, private driver-training program directors, and parents and students, to determine potential reasons for the spikes in activity. Appropriate outreach efforts should be implemented. Ratios used for flagging schools or clusters of schools should be reviewed annually to ensure continued agreement with departmental policies.

Table 11. GDL coordination quadrant implementation recommendations.

Recommended Action	Cost to Develop and Implement	Time to Develop and Implement
Phase I: Begin to record the extent of each program's GDL coordination involvement efforts. • Add question to DPI assurance form: "Do you provide GDL information?" • Add checkbox on MV3757; require relevant information to be included in course summary.	Low	Short
Phase II: Conduct fact-finding activities. • Follow-up with schools with high ratios of students receiving GDL-related violations. • Request information from schools with complete/incomplete assessments to find out additional program information.	Medium	Medium
Phase III: Require GDL coordination components as part of teen driver education programs in Wisconsin. • Modify curricula requirements to reflect GDL coordination components. Increase outreach efforts related to GDL enforcement. • Provide training opportunities and materials. • Pilot a license plate decal system.	High	Long

To this point, GDL coordination efforts to the extent recommended by the assessment tool has been voluntary. During Phase III, GDL coordination components should be incorporated into State curricula requirements. Programs that have not yet integrated GDL coordination components during Phase II should begin to do so. In Phase III, outreach efforts related to GDL enforcement also should be increased. This will require DMV and DPI coordination with State Patrol officials and members of local law enforcement. Similar recommendations have been made in Kansas,[24] Maryland,[25] Oregon,[26] and Vermont.[27] Additional GDL-related outreach and educational materials for use by judges, courts, and law enforcement agencies should be developed so that GDL requirements are uniformly enforced. These materials could include the development of a law enforcement pocket guide describing how to interpret the license issue date and driver's age, GDL driving requirements, and restriction information to assist with consistent enforcement. As part of this coordinated outreach effort, a pilot vehicle decal system that reflects GDL licensure stage is recommended.

New Jersey has implemented a coordinated GDL enforcement program that can be seen as a model. Parents are provided with an easy-to-understand guide for teaching their teens.[49] The guide includes a checklist of GDL requirements. Additionally, in May 2010, New Jersey enacted Kyleigh's Law, which implemented a first-in-the-nation GDL decal provision. The New Jersey Motor Vehicle Commission distributes the decal, which must be displayed on a vehicle's front and rear license plates when a permit or probationary license holder under 21 years of age is driving. The decal is displayed only when the GDL holder is driving, is reflectorized for night visibility, is nondescript (as it is intended for law enforcement purposes), and is low-cost. Failure to display the decals during operation of a vehicle by a learner's permit, an examination permit, or probationary license holder who is subject to the GDL requirements is a violation subject to a $100 fine.[50] A study by the Public Health Law Research organization identified substantial programmatic benefits after only 1 year of implementation.[51] Researchers found that Kyleigh's Law resulted in a 9% reduction in the police-reported crash rate, prevented more than 1,600 crashes, and helped police officers enforce regulations unique to new drivers (14% increase in GDL citation rate).[51]

INSTRUCTOR QUALIFICATION QUADRANT IMPLEMENTATION

Efforts within the quadrant seek to ensure not only that instructors are qualified to teach but also to ensure that instructors have adequate training and resources to keep them up-to-date about driver education and training best practices (Table 12). Phase I focuses on ensuring that all instructors are qualified to teach students. While changes to instructor's driving records are immediately flagged, it is equally important to identify those individuals who have changes in their criminal records in a timely manner. As opposed to waiting until the recertification process, it is recommended that a query linking instructor records with criminal records be created so that those changes to instructor criminal records are immediately flagged.

Throughout the implementation plans, coordinated efforts are encouraged. During Phase II, it is recommended that these coordinated efforts be extended. WisDOT and DPI should work together to offer training opportunities. Training provides an opportunity for sharing information about teaching best practices, new technologies to aid in the instruction process (e.g., updated simulators), and topics of concern to the agencies and instructors (e.g., new automobile technologies such as automated cruise control, lane assist, advanced driving techniques). It also serves as an opportunity to address concerns and share best practices regarding guardian involvement efforts and GDL coordination efforts. Because DPI has expertise in the area of instructor training, it is recommended that DPI lead this effort.

During Phase III, it is recommended that policy changes be made that encourage parity between public school program and commercial driver-training program instructor certification and training requirements. Three changes are needed to achieve greater instructor parity:

1. Require all instructors to take and pass a State-approved practical and/or written tests.
2. Require all instructors to be recertified every two years.
3. Require continuing education only in driver-training-related topics.

Table 12. Instructor qualification quadrant implementation recommendations.

Recommended Action	Cost to Develop and Implement	Time to Develop and Implement
Phase I: Modify certification process to immediately flag instructors who have changes in their criminal records. • Create a query linking instructor records with criminal records.	Low	Short
Phase II: Provide coordinated training opportunities for instructors. • Develop opportunities for instructors to come together to share resources and to learn from one another.	Medium	Medium
Phase III: Create parity in training requirements for public school and commercial driver-training instructors. • Require all instructors to take and pass State-approved practical and/or written tests. • Require all instructors to be recertified every two years. • Require continuing education in driver education-related topics only.	High	Long

Requiring testing ensures that all instructors have achieved the minimum acceptable competencies. Biannual recertification, when combined with continuing education in driver-training-related topics, ensures that these competencies are maintained. These recommendations were made with the potential administrative and stakeholder burden in mind. The NIDB standard suggests annual certification of driving instructors. However, a biannual recertification consistent with current WisDOT policies is recommended, as it would ensure that all instructors are recertified on a comparable time frame.[28] Additionally, continuing education is important. Currently, some instructors are able to achieve the continuing education requirement using non-driving-instruction-related topics. By requiring continuing education in driving-instruction-related topics, it is hoped that all instructors would take advantage of the opportunities to learn about new teaching methods that may benefit their students and emerging technologies that their students may encounter in vehicles and on the roadways. Instructors are encouraged to attend statewide training seminars sponsored by the WisDOT and DPI. Again, because of DPI's experience in training instructors, it is recommended that they lead this effort with assistance provided by WisDOT and other stakeholder groups (e.g., insurance companies, automobile manufacturers, driving safety associations).

PROGRAM ADMINISTRATION EFFORTS

This section provides a summary of the program administration efforts necessary to implement the proposed evaluation efforts (Table 13). The program assessment tool may be implemented as is, using only existing or soon-to-be existing data sources. Alternatively, the program assessment tool may be modified to reflect priority metrics or quadrants. This may be accomplished by using only portions of the recommended program assessment tool or by weighting quadrants unequally. The following discussion assumes the future goal of full implementation of the program assessment tool.

Phase I focuses on implementation efforts. In consultation with the information technology team, program administrators should determine the best technological solution for collecting and consolidating the data to be assessed. The suggested database queries should be developed, and any other data collection tools should be finalized. The included assessment tool and user guide have been designed and piloted in their current format and can be implemented as is, but are also highly customizable. For example, as opposed to having a separate database containing the query results, the program could be integrated into an existing enterprise solution such as an Access database or Web-based application.

Table 13. Program administration implementation recommendations.

Recommended Action	Cost to Develop and Implement	Time to Develop and Implement
Phase I: Implement the basic assessment tool. • Finalize data collection tools; ensure data collection for metrics noted with an asterisk in Appendix C. • Determine appropriate assessment tool format. • Train staff to enter assessment tool information and complete worksheet checks.	Low	Short
Phase II: Modify the assessment tool to reflect organizational priorities. • As needed, update the user guide, worksheets, and forms. • Use assessment results in conjunction with annual or biannual program objectives.	Medium	Medium

Recommended Action	Cost to Develop and Implement	Time to Develop and Implement
Phase III: Work toward increased parity across teen driver education and training programs. • Implement comparable curricula standards and program certification processes. Extend the period of supervised driving exposure. • Revise the required hours of training to reflect the national standards (45 hours of classroom training; 10 hours of BTW). • Revise required hours of guardian-supervised driving to reflect national standards (30 hours to 50 hours).	High	Long

During Phase I, supervisory staff should oversee the implementation efforts, and train and supervise the staff responsible for entering the assessment tool data and for completing the worksheet checks to obtain that data.

Although Phase Two activities are noted as midterm activities, these activities are meant to be ongoing activities that will help both the DMV and the DPI use the assessment tool results to reflect and inform organizational priorities. First, as data acquisition processes are updated or revised, corresponding changes will need to be made to the user guide and worksheets. Second, assessment procedures should be reviewed to ensure that the assessments reflect minimum acceptable standards (e.g., overall and quadrant assessment results, metric ratios). These assessment results can be used in conjunction with annual or biannual program objectives. For example, when awareness campaigns are implemented to target a specific behavior that leads to risky driving (e.g., texting while driving), [52] qualitative fact-finding efforts may focus on determining attitudes towards the corresponding behavior (e.g., texting while driving) or instructional best practices.

In Phase II, supervisory and information technology staff will need to update the user guide and worksheets to reflect changes to policies and/or forms. They will also need to review and revise assessment tool standards. Specialized staff will be needed to lead data-collection efforts, review flagged programs, and coordinate outreach and instructor-training efforts. Again, it is recommended that DMV and DPI collaborate in a manner that will take advantage of each agency's strengths and resources.

Phase III program administrative efforts represent the most ambitious recommendations. As such, these recommendations will require the most buy-in from stakeholders. First, the research team recommends working towards increased parity across driving schools. In addition to establishing the aforementioned parity in the certification and training of driving education and training instructors, program standard parity is recommended. To achieve program parity, it is recommended that statewide curricula standards are comparable and that (re)certification processes are adopted.

While the research team understands that Wisconsin is a local control state, for purposes of driver education and training, statewide standards would provide assurance to parents that regardless of the type of school their teen attends, he or she will receive instruction on a comparable range of topics from individuals who are up-to-date in their own knowledge and skills. Further, the development of common standards appears consistent with DPI's Common Core State Standards (CCSS) program.[53] In June 2010, Common Core State Standards for Mathematics and Language Arts, including the Literacy in History/Social Studies, Science, and the Technical Subjects, were adopted. Just as the CCSS ensures students should be made ready for the demands of college and careers, so too should they be prepared to meet the demands of the road. This can be achieved through a set of common core state standards for driver education and training. Consistent with the CCSS, statewide driver training and education standards should establish *what* students need to learn, but will not dictate *how* teachers should teach. The DPI-developed guidance document, *Draft of Model Academic Standards for Wisconsin High School Driver Education Programs*, should be used as a starting point for the development of statewide standards.[17] An example of a state with a similar administrative structure is Virginia. Within the commonwealth of Virginia, public and private school programs are approved by the Department of Education, while driver-training schools follow the same course content and are licensed by the Department of Motor Vehicles.[54]

Second, it is recommended that the period of supervised driving exposure be extended to reflect recommended standards. There is a strong correlation between crash rates and cumulative miles driven. McCartt et al. noted that there is a steep decline in crash rates for both male and female newly licensed drivers as they accumulate miles of practice. Crash rates are highest during the first 250 miles of driving (3.2 crashes per 10,000 miles) and the second 250 miles (2.0 per 10,000 miles), after which, the crash rates decline sharply.[55] Ensuring that drivers obtain supervised instruction during the learning period is critical. This can be better achieved by revising the required hours of training to reflect NHTSA's recommended standards (i.e., 45 hours of classroom training, 10 hours BTW training)[23] and by revising the required number of guardian-supervised driving to reflect national standards (30 hours to 50 hours).[29] Program assessment tool bonuses should continue to be awarded to those schools exceeding minimum requirements.

Cost Benefits Associated with Teen Driver Education and Training

Recommendations encouraging additional guardian involvement and supervised driving were made after the trade-offs between additional costs to guardians and students were weighed against the potential benefits. Potential benefits included those benefits associated with the greater understanding of safe driving habits, vehicle operation, driver etiquette, and hazard recognition that takes place through driver education programs. In addressing driver education and training cost concerns, it is useful to take a lesson from Oregon's Department of Transportation.[57] Five cost-related benefits associated with driver education are noted in terms of the money saved by completing a driver education and training course. First, time savings are noted. In Oregon, teens are required to complete 100 hours of driving supervised by an adult; however, the requirement is 50 hours if an approved driver education course is taken. Second, Oregon teens who complete an approved driver education course have a 57% lower rate of traffic convictions than those who do not complete an approved driver education course. The average cost of speeding tickets in Oregon is $260. Third, it is noted that teens are more likely to pass

their driving test on the first try, which will allow the student to drive without their guardian sooner. Fourth, teens who complete an approved driver education course save about 15% on their annual car insurance. Fifth, one in five teen drivers has a fender bender in their first year of driving; however, teens who have taken driver education are three times less likely to get in a crash than those who do not (i.e., teens completing driver education have a 21% lower crash rate than those who do not). As a result, those who complete driver education and training programs are less likely to have crash-related repair expenses.[57]

While these benefits are noteworthy, the research team understands that the costs associated with commercial driver education programs may be prohibitive for some families. However, new technologies and resources, such as online courses, offer alternatives that the State may want to consider. Specifically, Wisconsin's CESA2 and Southwest Tech programs have been highlighted as case studies of online programs with high engagement.[8]

CHAPTER 5. CONCLUSION

The research team believes that there is sincere interest in mitigating the safety concerns associated with the licensing of teen drivers within Wisconsin and throughout the country. Curriculum standards, when combined with guardian involvement, GDL coordination, and qualified instruction, form the building blocks of effective driver education. In preparing our youth for the roads, a systematic program of evaluation is required to guide commercial driving schools and public driver education programs in their efforts.

This report documents a yearlong research effort designed to develop a methodology to assist WisDOT in the evaluation of teen driver education programs over the short and long terms. Work products included within this report are an annotated bibliography, a knowledge base documenting best practices and Wisconsin-specific data sources, a methodology that may be used to analyze and evaluate the effectiveness of driver-training programs as they relate to the demonstrated safety and behavior of teen drivers in Wisconsin, and a three-phase implementation plan.

We believe that "getting the word out" about the resources developed as part of this effort will help the stakeholders work toward the increased safety of teen drivers on Wisconsin's roadways. Education and outreach efforts might include:

- Disseminating information about the suggested methodological tools/techniques through WisDOT and DPI;
- Providing information regarding evaluative findings on the WisDOT teen driving page;
- Sharing best practices through instructor-targeted outreach efforts;
- Providing a copy of the finished research to the stakeholders that cooperated with the research team in the data collection phases; and
- Participating in industry conferences, panel discussions, and journal publications.

Statistics show that teen drivers are the population most at-risk when driving, but studies also show that education and experience mitigate that risk. The results presented in this report represent the first steps in implementing improved driver-training programs that will better serve Wisconsin's youth. Through research, thoughtful monitoring, and open communication, WisDOT and DPI can make Wisconsin's roads safer for all citizens.

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APPENDIX A. ANNOTATED BIBLIOGRAPHY

Citation	Overview	Takeaway
American Driver and Traffic Safety Education Association Curriculum and Standards Committee. (2012). American Driver and Traffic Safety Education Association National Curriculum Standards: Restricted licensure qualification classroom and in-car: Segment I. Indiana, PA: American Driver and Traffic Safety Education Association. Retrieved from http://www.adtsea.org/adtsea/ADTSEA%20PDF's/DE%20Standards%202012%20-%20Revised%207-24-12.pdf	The American Driver Traffic Safety Education Association (ADTSEA) is the professional association that represents traffic safety educators throughout the United States and abroad. The ADTSEA has a long-standing relationship with the National Highway Traffic Safety Administration (NHTSA). The ADTSEA curriculum standards are referenced as attachments to the 2009 Novice Teen Driver Education and Training Administrative Standards. Developed by driver education professionals working with NHTSA, these standards represent an effort to define the future of driver education and to assist in improving the delivery of driver education programs.	These standards represent industry-identified best practices for teaching driver education in the United States. The standards informed the metrics and the implementation plans.
American Driver and Traffic Safety Education Association. (2008). *National overview of driver education.* Indiana, PA: Author. Retrieved from http://www.adtsea.org/adtsea/ADTSEA%20PDF's/NationalOverviewofDriverEdSect1.pdf (executive summary)	This document presents a comprehensive survey of findings regarding state-based efforts in the area of driver education. Information presented includes summaries of agencies assigned oversight of education/public and commercial programs and licensing authority. Findings also address instruction-specific requirements (e.g., hours of instruction, type of instruction, curriculum guide), teacher preparation requirements, and licensing requirements. Of note, Wisconsin is one of 20 states that requires a 30-hour classroom program and 6-hour BTW program (in which observation, simulation, or range time can substitute actual BTW to some degree, usually specified in a ratio format). Wisconsin is also one of many states with more than one agency responsible for the oversight and licensing of driver education and training programs. Additionally, Wisconsin requires several common GDL requirements that other states (including DC) also incorporate: driver education (31 states), minimum age (51), holding period (47), supervised driving (39), night restrictions (45), and passenger restrictions (39).	These findings illustrate how Wisconsin's policies and practices compare to those of other states. This understanding informed the researchers' contextual understanding of driver education programs nationally.

Citation	Overview	Takeaway
The Auto Club Group and Minnesota Safety Council. (2010). *Get There-You're Guide to Traffic Safety.* St. Paul, MN: Minnesota Safety Council. Retrieved from http://www.minnesotasafetycouncil.org/traffic/GetThere.pdf	This is a comprehensive resource providing engaging and practical tips for drivers along the full spectrum of experience levels.	The authors stress that parents act as role models for their teen drivers. They note that teens follow the examples set by their parents' negative actions (e.g., speeding, rolling stops, forgetting to buckle up, using a cell phone while driving). These findings suggest that guardian involvement efforts (e.g., the parent orientation session, handbook for parents with tips for teaching teens to drive) should also include refresher tips for parents regarding good driving practices.
Baker, S. P., Chen, L., & Li, G. (2007). Nationwide review of graduated driver licensing. Washington (DC): AAA Foundation for Traffic Safety; Retrieved from http://www.aaafoundation.org/pdf/NationwideReviewOfGDL.pdf	Prior to this study, reported national estimates of the benefit of Graduated Driver Licensing (GDL) were limited to fatal crashes and neglected to focus on the value of improving weaker programs. The researchers found that fatal crash involvement rates of 16-year-old drivers were 11% lower and injury crash involvement rates were 19% lower in states with three-stage GDL programs. Seven GDL components were identified: 1. A minimum age of at least 16 years for gaining a learner's permit. 2. *A requirement to hold the learner's permit for at least 6 months before gaining a license that allows any unsupervised driving.* 3. *A requirement for certification of at least 30 hours of supervised driving practice during the learner stage.* 4. A nighttime driving restriction for intermediate license holders, beginning no later than 10 p.m. 5. *A passenger restriction for intermediate license holders, allowing no more than one teenaged passenger (except family members).* 6. An intermediate stage of licensing with a minimum entry age of at least 16 years and 6 months, 7. *A minimum age of 17 years for full licensure.* For states incorporating five of seven GDL components, fatal crash rates of 16-year-olds were 38% lower and injury crash involvement rates were 40% lower. Further, the absence of comparable changes in older drivers suggested that the changes for 16-year-old drivers were related to GDL.	These findings indicate the safety benefits that might be achieved by strengthening GDL regulations in states without three-stage GDL programs or with less comprehensive programs. At the time of Baker et al.'s report, Wisconsin met four of the seven GDL component provisions (italicized at left). This report also provides a comprehensive review of key published studies that have evaluated GDL programs in the United States and other countries.

Citation	Overview	Takeaway
Baker, S., Schaudt, W. A., Freed, J. C., & Toole, L. (2012). A survey of light-vehicle driver education programs on sharing the road with heavy vehicles. *Journal of Safety Research, 43*(3), 187–194. doi: http://dx.doi.org/10.1016/j.jsr.2012.07.001	Light vehicle driver education programs that contain content about sharing the road with heavy vehicles may be helpful in reducing future light-vehicle/heavy vehicle interactions. Virginia Tech Transportation Institute (VTTI) researchers developed an online survey targeted at instructors/administrators of state driver education programs to identify curricula addressing heavy vehicles and to determine perceived effectiveness. The research found that although a large proportion of these programs included a component on how to safely share the road with heavy vehicles, participants indicated that there may be room for improvement. Some study participants recommended that future improvements to driver education programs include updated materials and student hands-on experience with heavy vehicles.	While topics may be covered in a driver education course, providing instructors with updated materials and hands-on experiences to share with students may help them more effectively teach driver education content.
Carestensen, G. (2002). The effect on accident risk of a change in driver education in Denmark. *Accident Analysis & Prevention*, *34*(1), 111–121. doi: http://dx.doi.org/10.1016/S0001-4575(01)00005-7	In 1986, Denmark implemented a comprehensive driver education plan describing the skills and maneuvers that were to be taught, which included defensive driving and/or hazard prevention. The classroom and behind-the-wheel training were designed to be closely connected to ensure that students learned about a topic in theory before trying it in practice, beginning on a closed training ground before moving to more complicated roadways. Additionally, tasks increased in difficulty over the course of instruction. To grasp the effectiveness of the revised driver education curriculum, an evaluation study was completed to determine the number of accidents involving 18–19-year-olds. Official statistics recorded a larger decrease in the number of accidents of this age group compared to mature drivers. The present study assigned two groups of new drivers either to the old or new system. The researchers concluded that, to some extent, the decrease in accidents for young drivers could be attributed to the new, systematic and structured driver education program. Further effects were seen in multiple-vehicle and maneuvering accidents, but not in single-vehicle accidents. The researchers found a reduction in multiple-vehicle accidents and maneuvering accidents for those students who completed the new education program, but found no such difference when looking at single-vehicle accidents. These findings led the researchers to conclude that single-vehicle accidents, more so than other accidents, are connected with attitudinal or lifestyle factors (e.g., greater risk-taking behaviors) that are not easily influenced through educational efforts.	Education may be used to more effectively address risk factors more closely associated with inexperience (such as defensive driving skills and increased knowledge about the behavior and risks connected with other road users); however, factors related to attitudes and/or lifestyle are harder to address from an educational point of view.

Citation	Overview	Takeaway
Carney, C., McGehee, D. V., Lee, J. D., Reyes, M. L., & Raby, M. (2010). Using an event-triggered video intervention system to expand the supervised learning of newly licensed adolescent drivers. *Am J. Public Health, 100*(6), 1101–1106. doi: http://dx.doi.org/10.2105/AJPH.2009.165829 **See also** McGehee, D. V., Raby, M., Carney, C., Lee, J. D., & Reyes, M. L. (2007). Extending parental mentoring using an event-triggered video intervention in rural teen drivers. *J Safety Res 2007, 38*(2): 215–227. **See also:** McGehee, D. V., Carney, C., Raby, M., Lee, J. D., & Reyes, M. L. (2007). The impact of an event-triggered video intervention on rural teenage driving. *Proceedings of the Fourth International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design.* Iowa City, IA: Public Policy Center, University of Iowa; 2007:565–571.	Researchers examined whether feedback from an event-triggered video intervention system reduced the number of safety-relevant driving errors made by newly licensed adolescents. A group of 18 newly licensed 16-year-old adolescents were provided with immediate visual feedback when driving, and weekly event reports and videos were provided to the drivers and their parents. During the intervention, the number of coachable events was reduced by 61% overall. Coachable events did not significantly increase during the second baseline, which was assessed after the intervention ended. Researchers saw the greatest reduction in the category of improper turns or curves and for drivers identified at the first baseline as "high-event" drivers.	These research results showed that immediate visual feedback for adolescents and cumulative video feedback for parents and adolescents during the early period of independent driving can have a dramatic influence on the rate of safety-relevant driving events. To the extent that such events are a proxy for crash risk, the researchers concluded that feedback could enhance adolescent driving safety.
Centers for Disease Control and Prevention. (2013). Teen drivers: Fact sheet. Retrieved from http://www.cdc.gov/MotorVehicleSafety/Teen_Drivers/teendrivers_factsheet.html	This teen driver fact sheet provides updates regarding the nature of teen driving and teen driving crash risk. Included in the discussion are overviews of at-risk populations, factors placing teens at risk, and countermeasures to prevent the deaths and injuries that result from crashes involving teen drivers.	The included information is important for understanding the scope of the public health and safety problem associated with teen driving. Furthermore, the importance of GDL programs in combination with parental involvement is stressed.

Citation	Overview	Takeaway
Centers for Disease Control and Prevention. (2013). Parents are the key to safe teen drivers. Retrieved from http://www.cdc.gov/parentsarethekey	The educational campaign "Parents Are the Key to Safe Teen Drivers" provides parents with tools and proven steps for reducing teen driving injuries and deaths.	Parents can make a difference by being involved with their teens as they learn to drive. Information is also provided for businesses and other groups that can be used to help keep drivers safe by spreading campaign messages through posters, fact sheets, social media tools, and more.
Chaudhary, N., Bayer, L., Ledingham, K., & Casanova, T. (2011). Driver education practices in selected states (Report No. DOT HS 811 420). Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from http://www.nhtsa.gov/staticfiles/nti/pdf/811420.pdf	Researchers examined how driver education courses were implemented. Select states participated and their curricula were compared to the latest recommendations of the American Driver and Traffic Safety Education Association (ADTSEA). A panel of 57 pre-license teens that were newly enrolled in driver education courses, representing 18 states (note: Wisconsin students were not included on the panel), were occasionally surveyed about their driver education progress. Teens reported that both the in-class and on-the-road supervised driving covered all or nearly all the ADTSEA topics. Additionally, in-class instruction lasted the required 30 hours; however, on average, students reported receiving 4.6 hours of on-road instruction, as opposed to the required 6 hours. Only about 1 in 10 received the updated recommended 8 hours of on-road instruction.	While many programs succeeded in conveying the required topic areas, most programs fell short in their efforts to provide adequate on-road instruction. Supervised driving enforces concepts learned during classroom instruction. Program administrators need to ensure that programs are completely fulfilling the behind-the-wheel driving recommendations.
Checkpoints. (n.d.). Retrieved from http://www.saferdrivingforteens.org	The stated goals of the Checkpoints Program are to help parents by providing facts about teen driving safety, tools for making their teen's driving safer, and an interactive parent-teen driving agreement so they can set clear guidelines for their teen's early driving and make changes as their teen progresses. The Checkpoints Program was developed by Dr. Bruce Simons-Morton of the National Institute of Child Health & Human Development, an agency of the U.S. Department of Health & Human Services. It has been tested by parents and teens in several U.S. states, including Michigan. The checkpoints Web site was developed with support from the National Center for Injury Prevention and Control of the Centers for Disease Control and Prevention.	The Checkpoints Program and Web site present interactive practical information for parents and teens. Information presented in this manner can encourage increased parental engagement during the learning-to-drive process and the period after licensure when teens are at the most risk.

Citation	Overview	Takeaway
Clinton, K. & Lonero, L. (2006a). *Evaluation of Driver Education: Comprehensive Guidelines.* Washington, DC: AAA Foundation for Traffic Safety.	The researchers provided an overview of the conclusions, limitations, and implications of the evaluation literature for driver education program practice and development, as well as a discussion of the potential effectiveness of trends in driver education. An in-depth summary of selected evaluation studies was completed. This summary included an overview of the study's design, results, and methodological strengths and limitations.	This discussion informed the researchers' understanding of the state of driver education efforts.
Clinton, K. & Lonero, L. (2006b). *Evaluation of Driver Education: How-to Guide.* Washington, DC: AAA Foundation for Traffic Safety. Retrieved from https://www.aaafoundation.org/sites/default/files/EvaluatingDriverEducationProgramsHowToGuide.pdf	This effort provides a guide for evaluating driver education programs. The guidelines allow for better understanding of why evaluation is imperative and gives the steps needed to conduct and interpret different types of evaluations. Beginner driver education evaluation is different from general driver safety research; thus, these guidelines are specific for beginners and designed to aid the understanding of evaluation for those who are not specialist evaluators.	This guidance document helps organizations seeking to revise their driver education program by explaining why evaluation is essential and further helps by adding a stepladder to the evaluation process.
Curry, A. E., Pfeiffer, M. R., Localio, R., & Durbin, D. R. (2012). Graduated driver licensing decal law: Effect on young probationary drivers. *American Journal of Preventive Medicine, 44*(1), 1–7. doi: http://dx.doi.org/10.1016/j.amepre.2012.09.041 **See also:** http://www.ghsa.org/html/stateinfo/laws/license_laws.html	On May 1, 2010, New Jersey implemented the first decal law in the United States. This program was implemented to facilitate police enforcement of GDL restrictions. This study evaluated the effect of the law on the rate of citations issued for violation of GDL restrictions and police-reported crashes among probationary drivers 21 years old or younger and estimated the number of probationary drivers whose crashes were prevented by the law. To review the effectiveness of this program, licensing and crash databases were linked for the period January 1, 2008, to May 31, 2011. Each month, researchers discerned driver's license status, age, and outcome status. Curry et al. calculated monthly rates as the proportion of probationary drivers who experienced the outcome in that month. The researchers found that in the first year post-law, there was a 14% increase in the GDL citation rate (adjusted rate ratio 1.14 [95% CI1.05, 1.24]); a 9% reduction in the police-reported crash rate (adjusted rate ratio 0.91 [95% CI0.86, 0.97]), and an estimated 1,624 young probationary drivers for whom a crash was prevented. The researchers concluded that the findings suggest that the law is positively affecting probationary drivers' safety.	The researchers concluded that these results contribute to building the evidence base for the effectiveness of decal laws and provide valuable information to U.S. and international policymakers who are considering adding decal laws to enhance existing GDL laws. These findings informed the implementation plan recommendations regarding GDL enforcement.

Citation	Overview	Takeaway
Department of Transport and Main Roads (2009, November). *A guide to evaluating road safety education programs for young adults.* Queensland, Australia: Department of Transport and Main Roads. Retrieved from http://www.tmr.qld.gov.au/~/media/Safety/School%20road%20safety/Student%20driver%20education/Evaluation_guide.pdf	This guide was developed to assist community organizations and other providers of road safety education programs for young novice drivers with resources needed to evaluate their programs.	The guide includes overview information, tools, and templates for use in planning, undertaking, and reporting on a program evaluation.
Dreyer, D. R., & Janke, M. (1977, May). *The effects of range vs. non-range driver training on accident and conviction frequencies of young drivers* (Report No. 58). Sacramento, CA: California Department of Motor Vehicles. **See also:** Dreyer, D., & Janke, M. (1979). The effects of range versus nonrange driver training on the accident and conviction frequencies of young drivers. *Accident Analysis & Prevention, 11*(3), 179–198. doi: http://dx.doi.org/10.1016/0001-4575(79)90003-4	A sample of 2,057 students from five California high schools were randomly assigned to the traditional driver-training program or an experimental program employing a driving range. Researchers measured driver performance aspects during training, test performance during the licensing process, the number of days between training and licensing, and the subjects' accident and conviction records within the year following the beginning of training. While non-range students performed significantly better on the knowledge post-test, simulator score, and driver course grade, there were no significant differences between range and non-range students on driver licensing test scores or in the amount of time spent in becoming licensed. However, researchers found that range students had fewer total accidents than non-range students in the year following the beginning of training. Further, time spent on the range was not related to the occurrence of accidents or convictions for the range students.	Range training may be a beneficial alternative for training students. Although range training is operationally less costly than traditional training, the construction of driving ranges varies in cost.

Citation	Overview	Takeaway
Fisher, D. L. (2008). *Evaluation of pc-based novice driver risk awareness.* Washington, DC: National Highway Traffic Safety Administration. Retrieved from http://www.nhtsa.gov/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/810926.pdf	Fisher noted that research has shown that the primary causes of crashes in novice drivers during the first six months of solo driving are failures of hazard anticipation, attention maintenance, and speed management. He conducted a series of five experiments designed to identify major differences in the hazard anticipation and attention maintenance skills of newly licensed drivers. Findings suggested that newly licensed drivers were up to six times less likely to anticipate hazards than much more experienced drivers were. Additionally, they were up to three times more likely than experienced drivers to glance away from the forward roadway for more than two seconds. Based on these findings, Fisher developed a hazard anticipation-training program. The program demonstrated that the training program could increase the likelihood that newly licensed drivers would anticipate hazards, both on the driving simulator and the open road.	Fisher found promising effects of using a PC-based simulator to teach an approximately one hour hazard awareness session. Effects lasted up to one week after the session and were reflective of simulator findings. These findings suggest the potential benefit of lower-cost PC-based simulation activities for use as feedback mechanisms.
Forsyth, E., Maycock, G., & Sexton, B. (1995). *Cohort study of learner and novice driver: Part 3, accidents, offences and driving experience in the first three years of driving* (TRL Project Report No. 111). Berkshire, United Kingdom: Transport Research Laboratory. Retrieved from http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_cohort_study_of_learner_and_novice_drivers_part_3_accidents_offences_and_driving_experience_in_the_first_three_years_of_driving.htm	This report is part three of a four-part study and deals with 9,000 new drivers in their first three years driving since passing the license test. Four objectives of this research effort were to determine the exposure to risk of the new drivers, obtain data on the number and reasons of the accidents in which the new drivers were involved, obtain information on the offences the new drivers committed, and establish a relationship between accident liability and the variables which influenced it. A multivariate analysis of accidents stressed the importance of the first few years of driving in determining the accident liability of new drivers.	Researchers found that increased driving experience leads to safer drivers.

Citation	Overview	Takeaway
Foss, R. D., Masten, S. V., Goodwin, A. H., & O'Brien, N. P. (2012). The Role of Supervised Driving Requirements in Graduated Driver Licensing Programs (Report No. DOT HS 811 550). Washington, DC: National Highway Traffic Safety Administration. Retrieved from www.nhtsa.gov/staticfiles/nti/pdf/811550.pdf	This report documents an effort to determine the effectiveness of supervised driving requirements. A statistical analysis of crash rates was supplemented with telephone surveys of parents of newly licensed teenage drivers in five states (Maryland, Minnesota, Ohio, South Carolina, and Washington) with varying supervised driving requirements. Researchers also conducted telephone surveys with employees of licensing bureaus in these states to determine how they conveyed the requirements to parents and teenagers. No differences in crash rates across the five states were found. However, researchers did identify a lack of parental knowledge regarding GDL requirements. Only 32% of parents overall (range 15% to 55%) could correctly identify the number of hours required by their state. Researchers noted that with low parental awareness and little or no licensing agency verification, it was difficult to determine whether teenagers drove the minimum number of supervised hours required by their states.	Researchers noted that improvements in communications with parents and novice drivers about supervised driving requirements, guidance to parents about the best techniques to provide supervision, and tracking actual hours and conditions of supervised driving would be beneficial. These findings informed the development of the Guardian Involvement and GDL Coordination metrics and recommendations.
Goodwin, A. H., Wells, J. K., Foss, R. D., & Williams, A. F. (2006). Encouraging compliance with graduated driver licensing restrictions. *Journal of Safety Research, 37*, 343–351. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16989864	Researchers explored the impact of a GDL compliance program. The program encouraged compliance with GDL restrictions and seat belt requirements. Increased enforcement was combined with a multi-faceted publicity campaign. The researchers compared findings to a comparison community to assess whether changes over time could be reasonably attributed to the program. Researchers found that greater enforcement occurred in the intervention community and that teenagers perceived the increase. However, self-reported data and direct observations of young drivers in the intervention and comparison communities showed the program resulted in only modest changes in compliance with GDL restrictions. The researchers concluded that the program implemented mechanisms that would produce changes in driver behavior; however, the mechanisms may be insufficient to alter the behavior of those not already complying with restrictions.	Researchers concluded that changes in young driver behavior combined with clear changes in actual and perceived enforcement suggested that high visibility enforcement programs merit further use and evaluation. This conclusion informed the development of the Guardian Involvement and GDL Coordination metrics and recommendations.

Citation	Overview	Takeaway
Goodwin, A., Kirley, B., Sandt, L., Hall, W., Thomas, L., O'Brien, N., & Summerlin, D. (2013, April). *Countermeasures that work: A highway safety countermeasures guide for State Highway Safety Offices. 7th edition.* (Report No. DOT HS 811 727). Washington, DC: National Highway Traffic Safety Administration. Retrieved from http://www.nhtsa.gov/staticfiles/nti/pdf/811727.pdf	This guide provides evidence-based countermeasures for use by State Highway Safety Offices to address traffic safety problem areas, including young drivers. In addition to providing relevant strategies, the report provides summaries of the countermeasure's use, effectiveness, costs, implementation time, and references to the most important research summaries and individual studies. Information regarding parental involvement programs and associated research is also presented.	The current research report has adopted aspects of this format for use in the development of the implementation plans. In addition, the countermeasure discussion informed a number of the implementation plan recommendations, including: • Section 1.2 GDL Learner's Permit Length, Supervised Hours. • Section 1.7 GDL Intermediate License Violation Penalties. • Section 2.1 Pre-Licensure Driver Education. • 2.2 Post-Licensure or Second-Tier Driver Education. • 3.1 Parental Role in Teaching and Managing Young Drivers. • 4.1 Enforcement of GDL and Zero-Tolerance Laws.

Citation	Overview	Takeaway
Goodwin, A. H., Margolis, L. H., Foss, R. D., Harrell, S., O'Brien, N. P., & Kirley, B. B. (2013, August). *Improving parental supervision of novice drivers using an evidence-based approach.* Washington, DC: AAA Foundation for Traffic Safety. Retrieved from https://www.aaafoundation.org/improving-parental-supervision-novice-drivers-using-evidence-based-approach	This report is part of an ongoing, multi-part, naturalistic study of teen drivers in North Carolina, conducted at the University of North Carolina Highway Safety Research Center. Phase I examined how parents supervise and coach teen drivers during the learner permit stage of North Carolina's GDL system. They found that teens did not receive enough practice. In Phase II, the researchers studied how driving patterns changed as teens began to drive unsupervised, while Phase III investigated distracted driving among newly licensed teens. This report details how the findings of the previous phases were used to create a session, grounded in principles of adult learning, that helps parents serve more effectively as teen driving coaches. The researchers noted that similar parent coaching classes are required in Connecticut, Massachusetts, and Northern Virginia. The approach was developed with guidance from research about the strengths and weaknesses of parental supervision of teens' early driving and findings from naturalistic driving studies. Parents were shown video clips, which were then discussed in order to help parents understand the situations and challenges that were likely to occur during practice driving and how to best handle the situations. Participants were viewed as active, rather than passive, learners, with sessions focused on discussions and problem-solving activities.	The researchers presented a "Parent Coaching" session which incorporated teaching methods similar to those proposed by Masten and Chapman (2003). These teaching approaches encourage individuals to become active participants in the learning process. Such methods provide alternatives to traditional didactic approaches that are often seen in classroom learning settings.
Governors Highway Safety Association. (2013, September). *Graduated driver licensing (GDL) laws.* Retrieved from http://www.ghsa.org/html/stateinfo/laws/license_laws.html	The Governors Highway Safety Association provides an overview of the nation's GDL laws. This overview includes details regarding the minimum age, duration, supervised driving hours, and restrictions on a state-by-state basis for each stage of the licensing process (i.e., learner stage, intermediate stage, full privilege).	This review informed the researchers' understanding of current GDL requirements and informed the development of the program assessment tool and implementation plan recommendations.

Citation	Overview	Takeaway
Gregersen, N. P., & Berg, H. Y. (1994). Lifestyle and accidents among young drivers. *Accident Analysis & Prevention*, *26*(3), 297–303. doi: http://dx.doi.org/10.1016/0001-4575(94)90003-5	Researchers explored the relationship between a driver's lifestyle and his or her accident liability. Lifestyle attributes were obtained through a self-reported questionnaire completed by 20-year-olds, which asked the respondents to describe themselves, how often they deal with a range of activities (e.g., sports, music, movies, reading, cars and driving, political engagement), and involvement in traffic accidents. Through cluster analyses, researchers identified 15 clusters which included four high-risk groups with an average over-risk of 150% and two low-risk groups with an average under-risk of 75%. The researchers provided insight as to how lifestyle factors contribute to young drivers' high accident risk. For example, women have less risk than men, and alcohol consumption, weekend and nighttime driving are associated with accident risk. Additionally, driving with extra motives (e.g., showing off and impressing, sensation seeking, competition, pleasure) is associated with accident risk (citing Gregersen, 1993).	Consistent with Carestensen (2002), Gregersen and Berg draw attention to the need for specialized teaching methods designed to influence individual behavioral choices. These methods encourage a shift from strategies that tell drivers how to behave to ones that encourage drivers to draw their own conclusions about what is dangerous, what others must change, and what they could change themselves (citing Nilsson, 1992).
Hartos, J. L., Simons-Morton, B. G., Beck, K. H., & Leaf, W. A. (2005). Parent-imposed limits on high-risk adolescent driving: Are they stricter with graduated driver licensing? *Accident Analysis & Prevention, 37*(3), 557–562. doi: http://dx.doi.org/10.1016/j.aap.2005.01.008	Researchers compared parent-imposed limits on 16-year-old high-risk driving in a state with stricter GDL (Maryland) to a non-GDL state (Connecticut). Through telephone surveys with parents, researchers found that, after controlling for demographic characteristics, Maryland parents and adolescents reported stricter parent-imposed limits for adolescent passengers, high-speed roads, weekend night driving, and overall limits. Additionally, parents in GDL states appeared to be better able to establish and enforce adolescent driving restrictions when the licensing state stipulates, favors, and supports regulated adolescent driving.	Hartos and colleagues concluded that GDL programs can be seen as a parental ally when they identify specific high-risk factors and establish, for permit and provisional license driving, limits that are clear and specific and come with formal sanctions. These findings informed the development of the Guardian Involvement and GDL Coordination metrics and recommendations.

Citation	Overview	Takeaway
Hamilton, B. C. (2011). *Online basic driver education programs*. Washington, DC: AAA Foundation for Traffic Safety. Retrieved from https://www.aaafoundation.org/sites/default/files/2011OnlineBasicDriverEducation.pdf	This report summarizes the results of a National Highway Traffic Safety Administration (NHTSA)-sponsored evaluation of supplemental driver training and online basic driver education (see Thomas et al., 2012). The summary highlights major findings which are useful for those looking to improve the quality of online programs. Researchers identified 45 online courses offered by 40 providers. They found that when the curricula for online courses were state mandated, there was consistency across course curricula within a state. However, there was variation in terms of how information was presented. For example, some courses presented the material as more than just an electronic textbook, allowing for interactive instruction in a virtual classroom setting. In examining the different ways of presenting the curricula, the report identifies seven key variables, with each representing a range of weak and strong qualities and characteristics.	The presentation of effective online program characteristics provides helpful guidelines for both developing and evaluating online driver education programs. The review provides a summary of Wisconsin's state driver education requirement and resources in comparison to 13 of the 14 other states included in the review. Also included is a figure summarizing weak and strong characteristics of seven key components of online driver education course delivery. The development of similar resources for traditional classroom and BTW courses may be beneficial. This information could be used by guardians who are comparing two or more potential programs.
Haworth, N., Tingvall, C., & Kowadlo, N. (2000). *Review of best practice road safety initiatives in the corporate and/or business environment* (Report No. 166). Retrieved from http://www.monash.edu.au/miri/research/reports/muarc166.html	A large survey of company car drivers in Great Britain found that 11% of the drivers had taken a course of car driver training since initially passing their driving test. As a result, those drivers had an accident rate that was 8% lower than those drivers who had not taken another course. However, results were not significant. It was noted that the selection of drivers may not have been random. Some drivers may have been selected due to poor accident records or some drivers may be more safety conscious and have volunteered. Therefore, interpretation of the results is unclear.	Organizations could consider adding additional BTW driver training to their driver education programs.
Healthy States Initiative. (n.d.). *Graduated Drivers Licensing Toolkit*. Washington, DC: The Council of State Governments. Retrieved from http://www.healthystates.csg.org/NR/rdonlyres/72C6F412-47D3-4433-BA2A-3F72C0B4C885/0/gdltoolkit.pdf	This toolkit, prepared by Healthy States, the Council of State Governments' partnership to promote public health, provides information about GDL systems, why GDL laws are needed, and what state legislators can do to improve state GDL laws.	The toolkit includes an overview of state-specific GDL requirements.

Citation	Overview	Takeaway
Helman, S., Grayson, G. B., & Parkes, A. M. (2010). *How can we produce safer new drivers? A review of the effects of experience, training and limiting exposure on the collision risk of new drivers* (TRL Insight Report No. INS005). Berkshire, United Kingdom. Available at http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_paper_insight_reports/report_how_can_we_produce_safer_new_drivers.htm	Researchers reviewed the value of post-license driving experience, driver education and training, and limited exposure of new drivers to risk through graduated driver licensing in decreasing new driver collisions. They found that the aspect of education and training having the most benefit in terms of decreasing new driver collisions was training focused on "reading the road," or cognitive skills involving hazard perceptions. The researchers recommended placing a higher emphasis on hazard-perception skills in driver education programs. On a broader level, driver education programs should also include instruction on basic vehicle-control skills and encourage safer attitudes for driving.	When revising driver education programs, organizations may want to consider including education and training focused on "reading the road" or cognitive skills that involve hazard perceptions.
Levy, D. T. (1990). Youth and traffic safety: The effects of driving age, experience, and education. *Accident Analysis & Prevention*, *22*(4), 327–334. http://dx.doi.org/10.1016/0001-4575(90)90048-P	Levy examined the effect of age and experience on the traffic fatalities of 15- through 17-year-olds. He found that drivers at younger ages, especially 15-year-olds, have higher proclivities for fatalities. Additionally, consistent with previous studies, driving experience appeared to have a very minor influence on reducing fatalities in the given age group.	Significant to this research, Levy found that mandatory drivers' education had a smaller impact than raising the driving age. Additionally, imposing curfew laws showed a significant impact in reducing fatality rates.

Citation	Overview	Takeaway
Lonero, L., Clinton, K., Brock, J., Wilde, G., Laurie, I., & Black, D. (1995). *Novice driver education model curriculum outline*. AAA Foundation for Traffic Safety. Retrieved from https://www.aaafoundation.org/sites/default/files/lonaro.pdf	Current driver education literature was reviewed in order to identify the needs of new drivers. Although driver education may help new drivers gain a certain level of skill to pass the licensing test, the authors posited that an additional need exists to improve the safety performance of new drivers. Lonero and colleagues identified alternatives for restructuring driver education in order to better achieve its potential for improving safety. Ten recommendations were made: 1. Develop software for teaching and testing knowledge and skills in an individual, self-paced, automated way. 2. Develop interactive multi-media units for training and testing driver attention and visual detection as well as risk perception and evaluation. 3. Develop software based on game-theory models to diagnose, clarify, and reinforce modification of new drivers' risk-taking styles and to demonstrate consequences. 4. Develop improved in-car instruction and instrumentation to teach driving and perception skills and provide feedback on driver performance. 5. Develop participatory classroom units for peer-focused seminars, individual study projects, and group work. Develop instructor training to support the use of new interactive media, participatory classroom units, and in-car perception units. 6. Develop tools, models, and instruction units that support parent involvement in young driver education. 7. Develop models and incentives that mobilize community, industry, and government support for coordinating positive influences on novice drivers. 8. Coordinate development of graduated licensing systems with driver education. 9. Move to multistage education in the graduated licensing jurisdictions. 10. Expand the integration of driver education topics into other school subjects, particularly health, community service, and other values-related activities.	These recommendations are useful concepts for organizations wishing to revise their curricula and the methods used to teach driver education concepts, and/or develop evaluation criteria. The recommendations also support the use of simulation in teaching driving skills in a manner that will allow for driver performance feedback. Additionally, these recommendations informed the development of the current effort's assessment tool and implementation plan recommendations.

Citation	Overview	Takeaway
Lonero, L. P. (2007, November 22). *Trends in driver education, evaluation and development*. Cobourg, Ontario, Canada: Northport Associates. Retrieved from http://www.drivers.com/article/941/	Lonero provided an overview of the conclusions, limitations, and implications of the evaluation literature for driver education program practice and development, as well as a discussion of the potential effectiveness of trends in driver education.	Lonero provided a useful summary of selected evaluation studies. (See also Clinton & Lonero, 2006a.) This summary includes an overview of the study's design, results, and methodological strengths and limitations.
Lonero, L., & Mayhew, D. (2010). *Teen driver safety: Large-scale evaluation of driver education, 2010 update*. Washington, DC: AAA Foundation for Traffic Safety. Retrieved from https://www.aaafoundation.org/sites/default/files/LSEDElitReview.pdf	This research effort aimed to provide a richer understanding of driver education evaluation and perspectives for improving driver education evaluations in the context of driver education policy, program planning, and program management. In doing so, the researchers provided an extensive overview of the background and context of driver education evaluation, an examination of the methods and findings associated with previous evaluation efforts, and discussions of the limitations and implications of the evaluation literature for driver education program practice and development. The researchers noted the importance of developing education programs that are firmly based on research and theory concerning driver skills, behavior, motivation, and risk, and the best ways of influencing them. Additionally, they recommended that organizations use the results of evaluation efforts to engage in ongoing program development and improvement.	The researchers noted that the Large Scale Evaluation of Driver Education research program includes a wide range of intermediate measures of driver knowledge, skills, attitudes, and behaviors. Additionally, a reduction in novice drivers' serious crashes will likely require evaluations and management of the context of driver education to include assessing the linkage of driver education with parental and community influences, graduated licensing, and other behavioral influences, such as incentives and disincentives (a recommendation that is consistent with the NHTSA-sponsored National Driver Education Administrative Standards).

Citation	Overview	Takeaway
Masten, S. V. (2004). *Teenage driver risks and interventions* (Report No. CAL-DMV-RSS-04 207). Sacramento, CA: California Department of Motor Vehicles. Retrieved from http://apps.dmv.ca.gov/about/profile/rd/r_d_report/Section_6/S6-207.pdf	California teenage drivers aged 16–19-years-old have an extremely high crash and traffic violation rate when per capita income and mileage is adjusted. Researchers believed some of these crashes and violations could be attributed to poor basic vehicle handling skills; however, a majority of crashes and violations resulted from new drivers' immaturity, inexperience, and consequential risk-taking behaviors. Certain driving conditions, for example nighttime driving and transporting young passengers, also increased young drivers' crash risk. The researchers included countermeasures that could be adopted to reduce the crash risk. Countermeasures included driver improvement programs, driver education and training, special licensing programs for teens, BAC limits, and curfew laws.	These countermeasures may be incorporated into teen driving education and training programs in an effort to reduce teens' crash risk. Additionally, the countermeasures, such as curfew laws, correspond with components of a strong GDL program.
Masten, S. V., & Chapman, E. A. (2003). *The effectiveness of home-study driver education compared to classroom instruction: The impact on student knowledge, skills, and attitudes* (Report No. CAL DMV-RSS-03-303). Sacramento, CA: California Department of Motor Vehicles. Retrieved from http://www.dmv.ca.gov/about/profile/rd/r_d_report/Section%201/203-HomeStudyRpt.pdf	Researchers compared home-study driver education programs with classroom instruction. About 1,500 students were randomly assigned to receive classroom instruction, a CD home-study course, a workbook home-study course, or an internet/workbook home-study course. Few differences were found on exit exam knowledge, but results tended to favor the CD and internet/workbook home study over the workbook or classroom courses. Masten and Chapman (2003) noted that traditional teaching methods, like group-specific campaigns, teaching, and training, are based on strategies that tell drivers how to behave. Conversely, individuals could be presented with preconditions by which they can discover opportunities for behavioral changes themselves. The researchers noted that this strategy is used in both traffic and non-traffic education and begins with the education of young children. The method is based on a change from learning rules and behavior through memorization to one whereupon children are helped to understand traffic and risks, and are encouraged to draw their own conclusions about what is dangerous, what behaviors others should change, and what they could change themselves (citing Nilsson, 1992). Similar teaching methods were recommended by Goodwin et al. (2013, August).	This study showed no convincing evidence that home study was less effective than classroom study. As a result, more widespread use of home-study courses could arise. The use of low-cost home-study courses as the first stage of a two-phase driver education program could make such programs more likely. Furthermore, the findings highlighted the potential benefits associated with different learning approaches and updated materials (e.g., adding an interactive CD instead of just using a textbook).

Citation	Overview	Takeaway
Maycock, G. (1995). Accidents in the first three years of driving. *TRL Annual Review*. Berkshire, United Kingdom: Transport Research Laboratory.	This paper highlighted key results from a study of the accidents experienced by a group of new drivers during their first three years of driving. Using self-reported information, the researcher explored the links between accident reports, the way new drivers learned to drive, their performance in the Department of Transportation (DOT) driving test, and some self-reported aspects of their driving skill and behavior. Mistakes in the driving test that dealt with a lack of awareness were positively associated with accident liability. Mistakes in the maneuvers made on the test were associated with higher accident liabilities for females. In terms of predicting accidents, Maycock found that the willingness of drivers to violate informal codes of good behavior was strongly predictive of accidents for both sexes, while self-reported errors of awareness were positively associated with accident liability for women drivers.	These findings provide insight into opportunities for improvements in driver training and testing.
Maycock, G., & Forsyth, E. (1997). *Cohort study of learner and novice driver. Part 4: Novice driver accidents in relation to methods of learning to drive, performance in the driving test and self-assessed driving ability and behavior* (TRL Project Report No. 275). Berkshire, United Kingdom: Transport Research Laboratory.	This report is part four of a four-part study. The analyses were designed to determine whether statistical associations existed between the accident liability of drivers in their first three years of driving and ways they learned to drive, errors recorded by the driving examiners during the driving test, and the drivers' assessments of their own driving abilities. Significant associations were found for some drivers and the duration of the learning process, the number of test attempts, and the amount of practice with family and friends. The errors new drivers made on tests, especially errors of awareness and anticipation, seemed to be associated with accident liability in the first three years of driving.	These results may help organizations note what areas affect new drivers the most in regards to accident liability. (See also Maycock, 1995.)

Citation	Overview	Takeaway
Mayhew, D. R., & Simpson, H. M. (1996). *Effectiveness and role of driver education and training in a graduated licensing system.* Ottawa: Traffic Injury Research Foundation. Retrieved from http://www.drivers.com/article/305	Researchers reviewed the historical and contemporary empirical evidence on the effectiveness of driver education/training. They found little support for the claim that driver instruction is an important countermeasure, noting that there is little evidence that those who receive training have a lower crash frequency. Nor did these programs reduce crash risk. However, the researchers noted the potential benefits of a strengthened relationship between driver education/training programs and GDL systems, including increased motivation to apply the driving skills obtained during driver education and training. The researchers' recommendations included strengthening the motivational properties of the system through the use of additional hurdles (e.g., more frequent and demanding tests), adopting a multi-phased driver education program (i.e., a basic driver education course in the learner stage of graduated licensing and a more advanced safety oriented course in the intermediate state), reviewing the content and delivery of driver training/education to ensure that key areas are addressed, and removing time discounts for driver/education training (i.e., those trade-offs between the length of time the new driver is governed by restrictions and the completion of driver education/training).	These recommendations informed the development of the current effort's assessment tool and implementation plan recommendations.
Mayhew, D. R., & Simpson, H. M. (2002). The safety value of driver education an training. *Injury Prevention, 8* (Supplement 2), ii3-ii8. Retrieved from http://injuryprevention.bmj.com/content/8/suppl_2/ii3.full.html	Besides the fact that driver education and training lead to higher and earlier licensure rates, explanations as to why driver education and training have failed to result in safety benefits are: (a) the courses fail to teach the knowledge and skills that are critical for safe driving in teens, (b) the students in the courses are not motivated to use the safety skills that they do learn, (c) completing the courses fosters overconfidence in students, (d) the courses fail to adequately address teenage lifestyle issues such as risk-taking , and (e) the courses are one-size-fits-all that do not tailor the safety content to individual student needs (Mayhew & Simpson, 2002).	Traffic safety researchers recommend that driver education and training programs be changed to focus on the development of skills that are more important to safety and find more effective methods for teaching the courses.

Citation	Overview	Takeaway
McCartt, A. T., Shabanova, V. I., & Leaf, W. A. (2003). Driving experience, crashes and traffic citations of teenage beginning drivers. *Accident Analysis & Prevention, 35*(3), 311–320. doi: http://dx.doi.org/10.1016/S0001-4575(02)00006-4	Researchers examined self-reported crash involvements and citations for participating teenagers' first year of licensure and first 3,500 miles driven. Risk of first crash and citation were higher during the first month after licensure than for any of the following 11 months. When they looked at cumulative miles driven, McCartt et al. found that risk of a first crash or citation was highest during the first 500 miles driven after licensure. They also found that fewer parental restrictions (e.g., no nighttime curfew) and a lower grade point average were associated with a higher crash risk. Further, male gender, a lower GPA, and living in a rural area were associated with a higher citation rate.	This study highlights the increased crash risk facing new drivers during their first months of licensure. Additionally, countermeasures may be developed to target at-risk behaviors. These findings informed recommendations regarding hours of supervised driving.
McKenna, C. K., Yost, B., Munzenrider, R. F., & Young, M. L. (2000). *An evaluation of driver education in Pennsylvania* (Report No. PA-2000-025+97-04). Harrisburg, PA: Pennsylvania Department of Transportation.	The Driver's Education Task Force, as well as driver education instructors, identified rates of young-driver crashes and convictions as reasonable measures of the effectiveness of driver education. However, when reviewing Pennsylvania data, the researchers found the following: no lower crash rate, no lower conviction rate, no demonstrated change in seat belt use, no lower rate of risk-taking behaviors, and no lower rate of crash severities or injuries. The researchers also provided a comparison of Pennsylvania's program to programs in other states.	The results demonstrate the difficulties involved in choosing effective criteria for measuring learning outcomes in driver education.
Mirman, J. H., & Kay, J. (2012). From passengers to drivers: Parent perceptions about how adolescents learn to drive. *Journal of Adolescent Research, 27*(3), 401-424. doi: http://dx.doi.org/10.1177/0743558411409934	U.S. parents' knowledge and beliefs about the learning-to-drive process were explored through semi-structured interviews and surveys. Researchers asked parents to identify and describe important skills and concepts, learning methodologies, common problems, and evaluation metrics for novice drivers. An account of the learning-to-drive period was generated to inform future interventions to support families and to generate hypotheses for future research. Mirman and Kay identified four categories of common problems reported by parents: (a) lack of experience, (b) errors of omission (e.g., distraction), (c) errors of commission (e.g., speeding), and (d) developmental issues.	The research provides an insightful overview of not only findings regarding driver education efforts in general, but, more specifically, parental involvement efforts and parental perceptions regarding driver education and training.

Citation	Overview	Takeaway
Morgan, J. F., Tidwell, S., Medina, A., & Blanco, M. (2011). On the training and testing of entry-level commercial motor vehicle drivers. *Accident Analysis & Prevention*, *43*, 1400–1407.	This study examined the effectiveness of three different training types on commercial motor vehicle (CMV) drivers' skill levels. The training types included a conventional eight-week certified course, a conventional eight-week certified course with approximately 60% of driving time spent in a CMV driving simulator, and a Commercial Driver's License (CDL) test-focused short course. Participants' scores on the DMV road and range tests were assessed. In addition to their DMV scores, participants replicated DMV road and range driving tests in an instrumented vehicle and the CMV driving simulator. Results indicated no training group differences in DMV road tests. There were differences between training groups on DMV range tests and real truck and simulator versions of the DMV road and range tests; on these tests conventional- and simulator-trained participants generally scored higher than CDL-focused participants did. However, all groups performed higher in the real truck than in the simulator for both road and range tests.	These findings support of the use of a driving simulator for training entry-level drivers; however, testing using a simulator does not appear to be feasible with current technology. These findings informed the development of the current effort's assessment tool recommendations, specifically the inclusion of the simulator metric.
National Driver Education Standards Project. (2009, August). *Novice Teen Driver Education and Training Administrative Standards*. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from http://www.nhtsa.gov/drivereducationprogram	This document, when used with the model curriculum developed by NHTSA and ADTSEA in 2005, and the model education standards introduced by the two agencies in 2007, is meant to provide a comprehensive framework for state driver education systems. Use of this framework provides a professional, yet flexible approach that may promote consistency and quality assurance across programs and among states.	These standards informed the development of the current effort's assessment tool and implementation plan recommendations.
National Institute for Driver Behavior. (2013). *Standards for a driver risk management program*. Retrieved from: http://nidb.us/index.php?option=com_content&task=view&id=14&Itemid=32	The National Institute for Driver Behavior (NIDB) developed well-defined and measurable standards for a driver risk-management program. These standards are used to assess current driver education programs and to help guide them in achieving industry-wide goals for risk-prevention management programs. Further, the accreditation scores provide consumers with a means of comparing programs.	These standards were developed through a collaborative process of national and international representatives, including Randall R. Thiel, Ph.D., of Wisconsin's Department of Public Instruction. These standards informed the recommended program assessment tool metrics.

Citation	Overview	Takeaway
New Jersey Motor Vehicle Commission. (2010, May). *Kyleigh's Law FAQs*. Retrieved from: http://www.state.nj.us/mvc/pdf/Licenses/FAQdecals.pdf **See also:** New Jersey Motor Vehicle Commission. (2010). *Graduated Driver License*. Retrieved from http://www.state.nj.us/mvc/About/safety_gdl.htm **See also:** New Jersey Motor Vehicle Commission. (2010). *New Jersey Graduated Driver License: Frequently asked questions*. Retrieved from http://www.njteendriving.com/gdl#Q3	In May 2010, New Jersey enacted Kyleigh's Law, which implemented a first-in-the-nation GDL decal provision. The New Jersey Motor Vehicle Commission distributes the decal, which must be displayed on a vehicle's front and rear license plates when a permit or probationary license holder under 21 years of age is driving. The decal, which costs $4 per pair (although bulk pricing is available), is displayed only when the GDL holder is driving, is reflectorized for night visibility, and is nondescript (as it is intended for law enforcement purposes). Failure to display the decals during operation of a vehicle by a learner's permit, an examination permit, or probationary license holder who is subject to the GDL requirements is a violation subject to a $100 fine. An initial evaluation of the program (Curry, 2013) suggests that the law is positively affecting probationary drivers' safety.	New Jersey's decal laws program serves as an example for policymakers who are considering implementing a decal program as part of an existing GDL program. The program informed the implementation plan recommendations.
Nichols, J. L. (2003). *A review of the history and effectiveness of driver education and training as a traffic safety program*. Washington, DC: National Transportation Safety Board.	Nichols presented the history and research on driver education. He posited that the key factors associated with youth crashes include driver age (i.e., the youngest drivers), experience (first six months of driving), alcohol, a low rate of seat belt use, presence of young passengers, nighttime driving, gender (males), and vehicle age (older). On-road experience was identified as a priority countermeasure as it is the safest and best way for new drivers to prepare. Delayed licensure and restrictions also reduce crashes and crash risk.	Because GDL systems have been found effective, Nichols noted that driver education should be better coordinated with GDL systems. This effort to coordinate GDL with driver training is highlighted in the program assessment tool.
Pashler, H., Bain, P. M., Bottge, B. A., Graesser, A., Koedinger, K., McDaniel, M., & Metcalfe, J. (2007). *Organizing instruction and study to improve student learning: IES practice guide*. Washington, DC: U.S. Department of Education, National Center for Education Research, Institute of Education Sciences.	Seven recommendations were made in order to help students comprehend and retain new knowledge and skills. The recommendations range from a low level of evidence, (e.g., using quizzes to promote learning and helping students dictate their own study time efficiently), to a moderate level of evidence (e.g., distributing learning over time and discovering which learning form works best), to a strong level of evidence (e.g., using quizzes to re-expose students to key content and asking deep explanatory questions).	These recommendations can help organizations design their driver education curricula in order to produce the best retention of new drivers' knowledge.

Citation	Overview	Takeaway
Pezoldt, V. J., Womack, K. N., & Morris, D. E. (2007). *Parent-taught driver education in Texas: A comparative evaluation* (Report No. DOT HS 810 760). Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from http://mcs.nhtsa.gov/index.cfm/product/335/parent-taught-driver-education-in-texas-a-comparative-evaluation--fact-sheet.cfm	An evaluation of the Parent-Taught Driver Education (PTDE) program in Texas was conducted. It was found that the students participating in this program earn their permits at a younger age than students in commercial/public school education, adding to the risk of young-age drivers. The program was also associated with poorer driving knowledge and skills. Both before and after the implementation of GDL, parent-taught new drivers committed more traffic offenses and were in more crashes as compared to commercial/public driver education students. However, the parent-taught program did have advantages, which included lower costs, individualized personal attention, and higher comfort for the student. The researchers noted that professional driver education instructors believed the risks associated with the parent-taught driver education program outweighed its positive factors.	Parent-taught driver education programs should be evaluated in comparison with commercial- or public-taught programs to ensure comparable learning outcomes.
Potvin, L., Champagne, F., & Laberge-Nadeau, C. (1988). Mandatory driver training and road safety: The Quebec experience. *American Journal of Public Health, 78*(9), 1206–1209. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1349395/	In 1983, the Quebec Government made driver-training classes mandatory for first-time drivers. Researchers used data over a five-year period to see the impact the mandated program had on the crash risk of new drivers, the death rate of these crashes, the number of new drivers, and the average age of new drivers. Researchers found no noticeable effect of crash risk and death rate for new drivers over the age of 18.	The increased number of young driver crashes may be due to the increased number of licensed females aged 16–17.
Preusser, D. F., Ferguson, S. A., & Williams, A. F. (1998). The effect of teenage passengers on the fatal crash risk of teenage drivers. *Accident Analysis and Prevention*, *30*, 217–222. doi: http://dx.doi.org/10.1016/S0001-4575(97)00081-X	Using the Fatality Analysis Reporting System, researchers conducted a review of fatal crash-involved drivers of passenger vehicles for the period 1990 through 1995. Drivers were categorized based on number of passengers and driver fault. Preusser et al. found that passenger presence was associated with more at-fault fatal crashes for drivers aged 24 and younger, was a neutral factor for drivers aged 25–29, and was associated with fewer at-fault involvements for drivers aged 30 and older. Further, they found that the relative risk of fatal crash involvement was particularly high for teenage drivers traveling, day or night, with two or more teenage passengers.	These research findings demonstrate the importance of increased parental involvement in setting limits for newly licensed, young drivers. The research also appears to demonstrate the importance of GDL restrictions on passengers. These findings informed the development of the Guardian Involvement and GDL Coordination metrics and recommendations.

Citation	Overview	Takeaway
Ray, H. W., Sadof, M., Weaver, J., Brink, J. R., & Stock, J. R. (1980). *Safe performance secondary school driver education curriculum demonstration project* (Report No. DOT HS-805-880). Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration.	The purpose of this project was to determine the crash reduction potential of the Safe Performance Curriculum (SPC), a 70-hour course consisting of classroom, simulation, range, and on-street training. The SPC was compared to the Pre-Driver Licensing Course (PDL), which was a program only requiring the minimum training needed to obtain a license, and a control (no formal driver education). The design was a comparative analysis of randomly assigned students. Participants were assigned to SPC education, the PDL course, or the control group that received no driving instruction in the secondary school. The report discusses the operational activities from July 1979 to June 1980.	This effort was an early exploration of curriculum delivery alternatives.
Raymond, P., Johns, M., Golembiewski, G., Seifert, R. F., Nichols, J., & Knoblauch, R. (2007). *Evaluation of Oregon's graduated driver licensing program* (Report No. DOT HS 810 830). Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from http://www.oregon.gov/ODOT/TS/docs/DE/OR_GDL_Study07.pdf	Researchers identified that the clearest safety improvements, that is those improvements in 16-year old drivers in their first 6 months of licensure, occurred not only when the restrictions were the greatest but also when parents reported the greatest vigilance in supporting GDL restrictions. (In focus groups, parents had reported relaxing their supervision over time, and this parallels the lessening safety improvements as time passes after licensure.)	These research findings demonstrate the importance of increased parental involvement in setting limits for newly licensed, young drivers. The research also appears to demonstrate the importance of GDL restrictions on passengers. These findings informed the development of the Guardian Involvement and GDL Coordination metrics and recommendations.
Robertson, L. S. (1980). Crash involvement of teenaged drivers when driver education is eliminated from high school. *American Journal of Public Health, 70*(6), 599–603. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1619449/	In 1976, Connecticut removed state funding for high school driver education. This research effort examined the effects that resulted when some high schools dropped driver education from their curricula. Robertson found that there were fewer 16–17-year olds earning licenses compared to areas in the state that did not drop the course from their curricula. Because fewer 16–17-year olds were licensed, there was also a drop in the number of crashes involving this age group.	The study's findings support the fact that high school driver education is a key contributor of younger licensed drivers.

Citation	Overview	Takeaway
Robertson, L. S., & Zador, P. L. (1978). Driver education and fatal crash involvement of teenaged drivers. *American Journal of Public Health, 68*(10), 959–965. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1654060/	Researchers noted that driver education in high schools among 16–17-year-olds resulted in an increase in licensed drivers, but did not result in a corresponding decrease in the number of fatal crashes for this age group. The researchers posited that without high school driver education programs, 80% of 16–17-year-olds that obtained their licenses would have waited until they were 18–19-year-olds. For states not requiring high school driver education, the researchers found that fatal crash involvement per 10,000 licensed 18–19-year old drivers was not significantly related to either high school driver education or delayed licensure.	The study's findings support the fact that high school driver education is a key contributor of younger licensed drivers.
Simons-Morton, B., Lerner, N., & Singer, J. (2005). The observed effects of teenage passengers on the risky driving behavior of teenage drivers. *Accident Analysis and Prevention, 37*(6): 973–82. doi: http://dx.doi.org/10.1016/j.aap.2005.04.014	Researchers explored the effect of passengers and crash risks among young drivers. They found that teenage drivers of both genders drove faster than the general traffic and allowed shorter headways, particularly in the presence of a male teenage passenger (relative to having no passenger or a female passenger). For male teenage drivers, the presence of a female teenage passenger resulted in longer headways. Overall, researchers found that the observed rate of high-risk driving (defined as speed ≥15 mph or more above the posted speed limit and/or headway of ≤1.0 s) for the teen male driver/male passenger condition was about double that of general traffic.	Parental involvement and GDL regulations may be useful in reducing the risky driving behavior among teenage drivers associated with the presence of male teenage passengers. These findings informed the development of the Guardian Involvement and GDL Coordination metrics and recommendations.
Stock, J. R., Weaver, J. K., Ray, H. W., Brink, J. R., & Sadof, M. G. (1983). *Evaluation of safe performance secondary school driver education curriculum demonstration project*. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from http://ntl.bts.gov/lib/25000/25700/25721/DOT-HS-806-568.pdf	A comparative analysis was conducted to determine the crash reduction potential of the Safe Performance Curriculum (SPC), a 70-hour course consisting of classroom, simulation, range, and on-street training. The SPC was compared to the Pre-Driver Licensing Course (PDL), which was a program only requiring the minimum training needed to obtain a license, and a control (no formal driver education). There was statistical significance with SPC and PDL resulting in lower crashes and violations during the first six months of licensed driving; however, the difference between groups decreased as time went on. The authors conclude the significance was offset by the fact that SPC and PDL drivers received their licenses earlier than the control group.	Organizations can determine if SPC or PDL would be beneficial to implement in their driver education programs.

Citation	Overview	Takeaway
Strang, P. M., Deutsch, K. B., James, R. S., & Manders, S. M. (1982). *A comparison of on-road and off-road driver training* (Report No. 1/82). Hawthorne, Victoria, Australia: Victoria Road Safety and Traffic Authority. Retrieved from http://trid.trb.org/view.aspx?id=194062	Researchers explored the effects of different training courses on young male learner drivers. The aim of the study was to determine if there are any specific advantages of training in off-road areas. Eight hundred participants were divided into four experimental groups. Two groups had off-road training for a four-day course which included five behind-the-wheel training hours, one group received the same number of practical training hours but with less academic preparation, and the last group did not receive any formal training.	Off-road training did not appear to produce better driving skill and no difference was found between the number of accidents and convictions of all four groups.
Thomas, F. D., III., Blomberg, R. D., & Fisher, D. L. (2012). *A fresh look at driver education in America* (Report No. DOT HS 811 543). Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from http://www.nhtsa.gov/staticfiles/nti/pdf/811543.pdf	Researchers evaluated current driver education and training programs, determined the most effective teaching methods, examined the best sequencing for delivering the curricula and behind-the-wheel training to the students, and determined whether a new approach to driver education programs would be helpful. Important findings were that driver education programs prepare students to pass state licensing examinations; however, driver education by itself did not lead to lower young driver crash rates. GDL programs were noted as having significant safety advantages with further benefits resulting from greater parental involvement and integration into classroom and behind-the-wheel training. Additional recommendations call for an expanded driver education system that begins preparing students at an earlier age. An expanded education program should incorporate consistent and stricter testing than what is currently enforced.	These recommendations informed the development of the current effort's assessment tool and implementation plan recommendations. Specifically, this research supports the emphasis placed on parental involvement.
Thomas, F. D., III., Blomberg, R. D., Korbelak, K., Stutts, J., Wilkins, J., Lonero, L., Clinton, K., & Black, D. (2012). *Examination of supplemental driver training and online basic driver education* (Report No. DOT HS 811 609). Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from www.nhtsa.gov/staticfiles/nti/pdf/811609.pdf	Researchers evaluated supplemental driver training programs and online basic driver education. They identified 56 supplemental programs in the U.S. The researchers noted the similarities across supplemental programs, as most covered the same topics using similar training techniques. Similarly, most of the online programs covered the same material; however, the level of interaction of the student and instructor varied. Although most program providers believed these types of programs increased driver safety, no formal evaluations existed to support their claims. The researchers noted that, due to a lack of significant oversight and regulations of the programs, formal evaluations of online programs are needed. Additionally, the researchers noted that there may not be one best approach, but rather a number of models from which to choose.	This review included an overview of the online programs offered by Wisconsin's Cooperative Educational Service Agency, Region 2 (CESA2), and Southwest Tech.

Citation	Overview	Takeaway
Wiggins, S. (2005). *Graduated Licensing Program: Interim evaluation report-year 3*. Vancouver, BC: Insurance Corporation of British Columbia. Retrieved from http://www.icbc.com/csDelPrd/Satellite?c=ICBC_Document_C&cid=1225926387873&pagename=ICBC%2FICBC_Document_C%2Ficbc_DocumentLinkT	Wiggins evaluated the effectiveness of a GDL program in British Columbia. Results indicated that, when tracked over a 2.4-year period, GDL new drivers included in the study had a crash involvement rate that was estimated to be 16% lower than a comparison group of pre-GDL drivers. Additionally, Wiggins found no evidence to support a continuance of a time incentive (i.e., earlier licensure) for new drivers who complete an approved driver education course. Results indicated that during the first six months of unsupervised learning those who completed the course were at an estimated 27% higher risk than those who did not, which may be attributed by the shorter time spent in the learner stage.	Several recommendations, including removing the time incentive associated with the completion of the approved driver education course and altering the time periods and restrictions associated with GDL stages, informed the development of the program assessment tool and implementation plan recommendations.
Williams, A. F., & O'Neil, B. (1974). On-the-road driving records of licensed race drivers. *Accident Analysis & Prevention, 6*, 263–270. Retrieved from http://dx.doi.org/10.1016/0001-4575(74)90004-9	When driving records of national competition license holders were compared with drivers of the same sex and age, licensed race drivers had a higher average number of crashes and violations, with findings significant for reported crashes, speeding violations, and non-moving violations. The researchers concluded that race drivers were not superior drivers in regard to crash and violation experience on the highway.	The researchers noted that these results cast doubt as to the validity of the Master Driver's License concept (i.e., a more-difficult-test-to-pass license that addresses special emergency training procedures such as skid control and off-road recovery). Additionally, researchers noted the need for caution in assuming that advanced driver education crash-avoidance techniques can be translated into reduced crash experience.
Williams, A. F., Braitman, K. A., & McCartt, A. T. (2011). Views of parents of teenagers about licensing policies: A national survey. *Traffic Injury Prevention, 12*, 1–8. doi: http://dx.doi.org/10.1080/15389588.2010.515631	Researchers obtained the opinions of a nationally representative sample of parents on a number of issues related to licensing requirements. In reviewing the opinions of 1,226 parents of 15- to 18-year olds, researchers found the parents generally favored licensing policies that were as strong as or stronger than those currently implemented in any U.S. jurisdiction. Findings indicated that the majority of parents approved of tougher driving tests, including a test to graduate to full license status (75%), enhanced penalties for traffic violations (94%) and violations of graduated licensing restrictions (78%), cell phone and texting bans (96–98%), and, to a somewhat lesser extent, license status identifiers (decals) on vehicles (65%) and the application of graduated licensing rules to novice drivers 18 and older (61%).	Results indicate that parents support comprehensive licensing policies including license status identifiers on vehicles. These findings informed the development of the Guardian Involvement and GDL Coordination metrics and recommendations.

Citation	Overview	Takeaway
Williams, A. F., Preusser, D. F., & Ledingham, K. A. (2009). *Feasibility study on evaluating driver education curriculum* (Report No. DOT HS 811 108). U.S. Department of Transportation, National Highway Traffic Safety Administration. Retrieved from http://www.nhtsa.gov/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811108.pdf	Williams et al. noted that although professional driver education has been used in attempts to reduce the problem of teen driving crashes, scientific evaluations have indicated that these programs generally do not produce safer drivers. The researchers explored the feasibility of evaluating the ADTSEA education program, noting two evaluation design alternatives: a random assignment study or a variation of a quasi-experimental study. However, as the ADTSEA program has not been fully implemented, an evaluation was not possible. The researchers also noted that an adequate evaluation of the ADTSEA program would likely be high-cost, and would require an environment in which there was community acceptance and leadership, and the administrative apparatus to support such a program.	The researchers noted that because almost all prior driver education evaluations were unable to identify positive effects on crashes, and some even found adverse effects, evaluators need to consider the possibility of those outcomes. Additionally, policy makers should consider steps to eliminate the early licensing effects. This suggestion informed the development of the current effort's assessment tool and implementation plan recommendations.
Williams, A. F., Tefft, B. C., & Grabowski, J. G. (2012). Graduated driver licensing research, 2010 – present. *Journal of Safety Research, (43)*3, 195–2003. doi: http://dx.doi.org/10.1016/j.jsr.2012.07.004	This review of recent GDL-related research efforts identified the current state of knowledge about GDL and identified information gaps and areas where clarification of research findings are needed.	Researchers noted the need for additional research to determine how safe driving competencies develop and how parents and passengers influence teenage driving and crash risks. These recommendations were considered with other noted studies in this annotated bibliography and informed the development of the current effort's assessment tool and implementation plan recommendations.
Wynne-Jones, J. D., & Hurst, P. M. (1984). *The AA driver training evaluation* (Report No. 33). Wellington, New Zealand: Traffic Research Branch, Road Transport Division, Ministry of Transport. Retrieved from http://www.worldcat.org/title/aa-driver-training-evaluation/oclc/152429842	An experimental evaluation of the Automobile Association (AA) secondary school driver-training program was conducted. The experiment compared the driving records 18 months after licensing between new drivers who took the AA secondary school driver training and a control group. The measures were self-report accidents and traffic offenses. Official accident and conviction records were also examined.	Driver education was not shown to have a significant effect as measured by accidents or convictions. However, driver education did result in earlier driver licensure among those in the training group.

Citation	Overview	Takeaway
Zakrajsek, J. S., Shope, J. T., Ouimet, M. C., Wang, J., & Simons-Morton, B. G. (2009). Efficacy of a brief group parent-teen intervention in driver education to reduce teenage driver injury risk. *Family & Community Health, 32*, 175–188. doi: http://dx.doi.org/10.1097/FCH.0b013e318199482c	Researchers tested the efficacy of an adapted Checkpoints Program designed to increase parental limits on novice teen independent driving under high-risk conditions. Researchers compared groups participating in the Checkpoints Program with a comparison group; both groups were led by a trained health educator. Researchers found that, at licensure, program parents had increased awareness of teen driving risk and were more likely to have completed a parent-teen driving agreement and have met Checkpoints recommendations for restrictions on teen driving in inclement weather and road types than non-Checkpoint program participants.	The researchers concluded that this study indicates that it is feasible to implement the Checkpoints Program in driver education with positive effects on parent management practices. These findings informed the development of the Guardian Involvement metrics and recommendations.
Zhao, J., Mann, R. E., Chipman, M., Adlai, E., Stoduto, G., & Smart, R. G. (2006). The impact of driver education on self-reported collisions among young drivers with a graduated license. *Accident Analysis & Prevention*, *38*(1), 35–42. Retrieved from http://dx.doi.org/10.1016/j.aap.2005.06.019	The authors evaluated the impact of driver education on the risk of collisions in a Graduated Licensing System (GLS). Ontario's GLS requires all new drivers to complete successfully two stages, G1 and G2, of a graduated license in order to receive their full license. Multivariate logistic regression showed significantly lower odds of self-report collisions for students in the G1 phase who received driver education. G2 phase students did not have significant effects.	The results suggested that the significance of driver education might be dependent on the stage of driver learning in which it occurs. The results can help organizations decide what education may be needed at certain phases of the student's graduated license.

APPENDIX B. KNOWLEDGE DATABASE

BACKGROUND

During Tasks I and II, the team developed an annotated bibliography and knowledge database that detailed the results of the literature review for such resources as studies, best practices, and State data collection and retention policies. The knowledge database supplements the program information, resources, and best practices presented during the Interim Briefings, within the body of the report, and in the annotated bibliography presented in Appendix A. The knowledge database provides a compilation of additional key resources that supported the development of the metrics presented in the program assessment tool. Part one presents standard best practices and recommendations, while part two reviews additional Wisconsin-specific data collection and retention policies.

PART ONE: STANDARD BEST PRACTICES AND RECOMMENDATIONS

The primary sources referenced include the Novice Teen Driver Education and Training Administrative Standards, the National Institute of Driver Behavior's Standards for Driver Risk-Management, the American Driver and Traffic Safety Education Association's National Curriculum Standards, and the National Highway Traffic Safety Administration's Highway Safety Program Guideline No. 4 (Driver Education). This appendix lists each metric in the assessment tool under its corresponding quadrant. The sources that support the metric are highlighted under each metric.

Key References

Key references noted in this appendix:

- Novice Teen Driver Education and Training Administrative Standards.[23]
- State of Kansas Technical Assessment of the Driver Education Program.[24]
- State of Maryland Technical Assessment of the Driver Education Program.[25]
- State of Oregon Technical Assessment of the Driver Education Program.[26] (Additional information regarding Oregon's Self-Assessment to the Novice Teen Driver Standards is available online at http://www.nhtsa.gov/drivereducationprogram.)
- State of Vermont Technical Assessment of the Driver Education Program.[27]
- NIDB's Standards for a Driver Risk Management Program.[28]
- ADTSEA's National Curriculum Standards.[29]
- NHTSA's State Highway Safety Program Guidelines.[30]
- AAA Foundation's Novice Driver Education Model Curriculum Outline[40]
- Maryland Department of Transportation Motor Vehicle Administration[56]

Program Assessment Tool Quadrant One: Guardian Involvement

Metric: Guardian/Student Orientation

- **Novice Teen Driver Education and Training Administrative Standard 4.1.1 (relevant section):** Require the parent of a teen driver education and training student to attend a parent seminar, pre-course, or the initial session of the teen's driver education and training course. The session should outline the parent's responsibility and opportunity to reduce his or her teen's crash risk in several ways, including modeling safe driving behavior.

- **Kansas Priority Recommendation 4.1.1**: Require a driver education teacher/instructor to conduct a pre-course parent seminar during the initial session of the teen's driver education and training course.
- **Maryland Priority Recommendation 4.1.1**: Require parents/mentors of novice teen drivers to participate in an orientation session that describes how to effectively supervise teen driving, and understand and use the Maryland Graduated License System restrictions during the provisional phase.
- **Oregon Status**: The Oregon Risk Prevention Curriculum (ORCP) guide has an entire folder on Parent Night, including a PowerPoint, teacher's notes, activities and demonstrations that address the parent's responsibility in parental monitoring.
- **Vermont Priority Recommendation 4.1.1**: Require parents of novice teen drivers to participate in an orientation session that addresses topics including parents' responsibility and opportunity to impact teen crash risk, Vermont's Graduated Driver Licensing System, conducting effective supervised practice driving, modeling safe driving behavior, and adopting a written parent-teen driving agreement.

- **NIDB Standard for Driver Risk-Management J.2:** A mandatory parent and tutor orientation session is held during the first week of the program.
- **ADTSEA National Curriculum Standard, Classroom 1.0:** Become aware of program goals through a student/parent orientation. Examples under C 1.0 include:
  - **C 1.4:** Identify the GDL requirements and responsibilities.
  - **C 1.12**: Explain the need for maintaining communications.
  - **C 1.13**: Identify injury risk for teens.
  - **C 1.14**: Introduce reduced-risk driving goals.
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV.** Driver Training and Education (relevant excerpt): Each state should ensure there is a program that engages parents and/or guardians in the driver education and GDL programs.

Metric: Guardian Supervises Learning-to-Drive Experience

- **Novice Teen Driver Education and Training Administrative Standard 4.1.1 (b):** Supervise an extended learner permit period of at least six months that provides at least weekly opportunities for the novice driver to accumulate a minimum of 50 hours of supervised practice driving in a wide variety of increasingly challenging circumstances. Hours of supervised practice driving required in GDL should not be reduced by a novice driver's participation in other driver education and training programs, nor should any other activity be considered a substitute.
  - **Kansas Priority Recommendation 4.1.1(b) (relevant section):** Require the parent seminar, pre-course or initial session to include the known best practices of GDL and parent involvement (including): how to supervise an extended instruction permit period of one year that provides at least weekly opportunities for the novice driver to accumulate the 50 hours of supervised practice driving in a wide variety of increasingly challenging circumstances.
  - **Maryland Status:** Maryland statutes require that parents/mentors participate in at least 60 hours of supervised driving during the learner's permit period.
  - **Oregon Secondary Recommendation 4.1.1(b):** Provide more awareness of the minimum of 5 hours of supervised home practice that must be completed prior to the

completion of the course. *Oregon Status Note: Oregon requires a minimum of 50 hours supervised driving during the instruction permit phase; 5 hours of supervised home practice must be completed prior to the completion of the course.*

  - **Vermont Priority Recommendation 4.1.1(b):** Require parents of novice teen drivers to participate in an orientation session that addresses topics including parents' responsibility and opportunity to impact teen crash risk, Vermont's Graduated Driver Licensing System, conducting effective supervised practice driving, modeling safe driving behavior, and adopting a written parent-teen driving agreement.

- **NIDB Standard for Driver Risk-Management J.5:** Parents and tutors have access to in-car support materials defining what to focus on and when to practice and they maintain a driving log of their practice sessions.
- **NIDB Standard for Driver Risk-Management G.4:** There is strong evidence that parent and tutor practice sessions are integrated throughout the course.
- **ADTSEA National Curriculum Standard Classroom Performance Concurrent Phase One Goals** (relevant sections).
  - Extend supervised practice with licensed parent or guardian to develop precision in the use of skills, processes, habits, and responsibilities.
  - Extend supervised practice with licensed parent or guardian: based on delivery of parent guide and completion of Program Skills Log.

Metric: Guardian/Student Contract

- **Novice Teen Driver Education and Training Administrative Standard 4.1.1(d):** Negotiate and adopt a written agreement between the teen and parent that reflects the expectations of both teen and parent and clearly defines the restrictions, privileges, rules, and consequences that will serve as the basis for the teen to earn and for the parent to grant progressively broader driving privileges.
  - **Kansas Priority Recommendation 4.1.1(d) (relevant section):** Require the parent seminar, pre-course or initial session to include the known best practices of GDL and parent involvement: how to negotiate and adopt a written agreement between the teen and parent that reflects the expectations of both teen and parent and clearly defines the restrictions, privileges, rules, and consequences that will serve as the basis for the teen to earn and for the parent to grant progressively broader driving privileges.
  - **Maryland Secondary Recommendation 4.1.1(d):** Require the use of a contract/agreement between students and their parents/mentors to outline the conditions for driving while on a provisional license and explain the penalties or legal ramifications for violations of that contract/agreement.
  - **Oregon Status**: Parent/teen contracts are available through the Oregon Risk Prevention Curriculum CD and various Web sites. These materials are promoted during the parent meetings.
  - **Vermont Priority Recommendation 4.1.1(d):** Require parents of novice teen drivers to participate in an orientation session that addresses topics including parents' responsibility and opportunity to impact teen crash risk, Vermont's Graduated Driver Licensing System, conducting effective supervised practice driving, modeling safe driving behavior, and adopting a written parent-teen driving agreement.

Metric: Instructor/Guardian Progress Reporting

- **Novice Teen Driver Education and Training Administrative Standard**: No Novice Teen Driver Standard directly corresponds to this metric. Two states include communication/progress reporting to guardians under Standard 5.1.2.
- **Novice Teen Driver Education and Training Administrative Standard 5.1.2**: Have a GDL system that includes, incorporates, or integrates driver education and training. Completion of driver education and training should not reduce the time requirements in the GDL process.
    - **Maryland Secondary Recommendation 5.1.2**: Modify Graduated Licensing System requirements to require driving school to communicate regularly with the permit holder's parent, guardian, or mentor.
    - **Oregon Secondary Recommendation 5.1.2**: (1) All providers should provide student grades to the parents, guardians, or mentors, not the permit holders. (2) Driver education providers should be required to communicate on a regular basis with permit holders' parents, guardians, or mentors.
- **NIDB Standard for Driver Risk-Management G.5**: Contact with a parent or tutor regarding a student's progress during the course is consistent.

Metric: Instructor/Guardian Debriefing

- **Novice Teen Driver Education and Training Administrative Standard 4.1.2**: Each state should require a parent to complete a debriefing with the driving training instructor to inform the parent of the progress and proficiency of the teen driver. This final session should include a reminder that it is the parent who must ultimately determine the teen's readiness to obtain a license with full driving privileges and of the parent's responsibility and important role in helping the teen to become a safe driver.
    - **Kansas Secondary Recommendations 4.1.2**: (1) Require a driver education teacher/instructor to conduct a debriefing with the guardian to discuss the progress of the teen driver. (2) Require the parent debriefing to include a reminder that it is the parent who must ultimately determine the teen's readiness to obtain a license with full driving privileges and of the parent's responsibility and important role in helping the teen to become a safe driver.
    - **Maryland Priority Recommendation 4.1.2**: Require a parent to complete a debriefing with the driver-training instructor to inform the parent of the progress and proficiency of the teen driver. This final session should include a reminder that it is the parent who must ultimately determine the teen's readiness to obtain a license with full driving privileges and of the parent's responsibility and important role in helping the teen to become a safe driver.
    - **Oregon Priority Recommendation 4.1.2**: The Oregon Department of Transportation's Traffic Safety Division should establish a procedure for providing an end-of-course evaluation or progress report to parents. This end-of-course "debriefing" could be a written student progress report which includes areas of successful completion of safe driving practices and any necessary recommendations for continued practice prior to licensing.

    - **Vermont Priority Recommendation 4.1.2**: Require each parent to complete an end-of-course briefing with the driving training instructor to discuss the progress and proficiency of the teen driver.
- **ADTSEA National Curriculum Standard, Classroom 45.0**: Attend the student/parent debriefing and complete home practice guide. Examples under C 45.0 include:
    - 45.1. Review program driver skill log requirements.
    - 45.2. Evaluation of destination driving route.
    - 45.3. Review licensing requirements.
    - 45.4. Student responsibilities.
    - 45.7. Parent responsibilities.
    - 45.8. Making safe vehicle choices.

Metric: Guardian/Student Post-course Evaluation

- **Novice Teen Driver Education and Training Administrative Standard 2.1.5**: Require a course provider to conduct valid post-course evaluations of driver education and training programs to be completed by the students and/or parent for the purpose of improving the effectiveness of the program (a resource for help in conducting these evaluations is the AAA Foundation for Traffic Safety).
    - **Kansas Secondary Recommendations 2.1.5**: (1) Establish a statewide committee made up of stakeholders to design an evidence-based, post-course evaluation to be completed by parents and students that measures the effectiveness of the program. (2) Request that the State Board of Education amend the Driver Education Administrative Standards to require course providers to conduct a post-course evaluation, and add this tool to the audit process to evaluate compliance with state regulations and program effectiveness.
    - **Maryland Secondary Recommendation 2.1.5**: Establish a statewide committee made up of researchers, content specialists, teachers and other qualified persons to design a post-course evaluation to be completed by parents and students that measures the effectiveness of the program.
    - **Oregon Secondary Recommendations 2.1.5**: (1) The Oregon Department of Transportation should require course providers to conduct a valid post course evaluation. (2) The Oregon Department of Transportation should establish a statewide committee made up of researchers, content specialists, teachers, and other qualified persons to design an evidence-based post-course evaluation to be completed by parents and students that measures the effectiveness of the program.
    - **Vermont Priority Recommendation 2.1.5**: Require that all approved course providers conduct a valid, evidence-based post-course evaluation that measures the effectiveness of the program be completed by students and parents, and that the information collected from these evaluations be analyzed and utilized for the purpose of improving positive program learning outcomes.
- **NIDB Standard for Driver Risk-Management G.7**: Evaluation sheets are completed by all students and parents at the conclusion of the course and retained for a minimum of 5 years.
- **NIDB Standard for Driver Risk-Management G.9:** Former students, when surveyed, make favorable comments about training received.

Program Assessment Tool Quadrant Two: Driver Education and Training Curricula
Metric: Curricula Requirements

- **Novice Teen Driver Education and Training Administrative Standard 2.1.1**: Have driver education and training that meets or exceeds current nationally accepted content standards and benchmarks.
- **Novice Teen Driver Education and Training Administrative Standard 2.1.2**: Approve curricula that are based on nationally recognized standards such as ADTSEA and Driving School Association of the Americas. Each state retains authority in determining what curricula meet its state standards. Other resources include AAA and NIDB.
    - **Kansas Priority Recommendations 2.1.1 and 2.1.2**: Collaborate with other state agencies to provide the ADTSEA model curriculum to all schools, as the 2007 Model Standards adopted by the Kansas Board of Education mirror the ADTSEA standards.
    - **Maryland Priority Recommendation 2.1.1**: Establish a curriculum revision team that includes school owners, teacher trainers, teachers, content development experts, and others with expertise in assessment and the development of curriculum for culturally diverse learners who will meet to review and refine the curriculum on an annual basis.
    - **Maryland Secondary Recommendation 2.1.2**: Establish a statewide review committee made up of content specialists, teachers, and other qualified persons to compare the curriculum and approved textbooks with the ADTSEA standards, and develop a report on the correlation between the curriculum, textbooks, and the standards.
    - **Oregon Secondary Recommendation 2.1.1 and 2.1.2**: ODOT should compare the curriculum content with the ADTSEA or Driving School Association of the Americas standards.
    - **Vermont Priority Recommendation 2.1.1 and 2.1.2**: Develop or adopt Curriculum Content Standards, a Process for Curriculum Review and Standards for Curriculum Submission for driver education and training programs seeking approval for use in Vermont.
- **NIDB Standard for Driver Risk-Management A.2:** Curriculum meets NIDB or ADTSEA standards.
- **ADTSEA National Curriculum Standard:**
    - Novice Driver Preparation Segment I Classroom Standards (C 1.0-C 45.0)
    - Novice Driver Preparation Segment II In-car Standards (IC 1.0-IC 12.0)
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV. Driver Education and Training (summary of examples):** A driver education program provides each student with practice driving and/or instruction in at least the following: basic driving techniques, cognitive aspects of driving, risk prevention techniques, rules of the road and other State laws and local motor vehicle laws and ordinances, additional awareness training, peer pressure training, vehicle technology and its benefits, critical vehicle systems and subsystems requiring preventive maintenance, signs, signals, and highway markings, safe driving practices, and sharing the roadway with other users.

Metric: Learning Environment

- **Novice Teen Driver Education and Training Administrative Standard 1.1.20:** Ensure that all materials, equipment, and vehicles are safe and in proper condition to conduct quality, effective driver education and training.
    - **Kansas Secondary Recommendation 1.1.20**: (1) Verify that all classroom materials and equipment used by providers are in proper condition to conduct quality, effective driver education and training. (2) Verify that all driver education-specific vehicle equipment is present and in proper working condition at all driver education schools.

Metric: Simulation and Driving Ranges

- **Novice Teen Driver Education and Training Administrative Standard 2.1.3:** Regulate the use of simulation and driving ranges.
    - **Kansas Secondary Recommendation 2.1.3**: Provide guidance and instructional strategies for the use of simulation and driving ranges.
    - **Maryland Secondary Recommendation 2.1.3:** Provide additional guidance on instructional strategies for the use of simulation and driving ranges.
    - **Oregon Secondary Recommendation 2.1.3:** The Oregon Department of Transportation's Transportation Safety Division should provide additional guidance on instructional strategies for the use of simulation and driving ranges.
    - **Vermont Secondary Recommendation 2.1.3**: Adopt or develop criteria for augmenting the current curricula with additional educational delivery systems such as simulation, computer-mediated or self-directed study components. (Note: Vermont has published regulations regarding driving ranges. There appear to be no regulations for the use of driving simulators.)
- **NIDB Standard for Driver Risk-Management E.2.** The simulator reinforces previous learning and continues to prepare student for in-vehicle training.
- **NIDB Standard for Driver Risk-Management E.4**. Simulators are functional and capable of achieving instructional objectives.
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV. Driver Education and Training (relevant excerpt):** Each state should also ensure that research and development programs include adequate research, development, and procurement of practice driving facilities, simulators, online teaching resources, and other similar teaching aids for both school and other driver training use.

Metric: Knowledge and Skills

- **Novice Teen Driver Education and Training Administrative Standard 2.1.4**: Require an approved end-of-course knowledge and skill assessment examination based on the stated goals and objectives to graduate from the driver education and training program.
    - **Kansas Secondary Recommendations 2.1.4:** Establish a statewide review committee made up of content specialists, teachers, and other qualified persons to create a standardized summative assessment tool for classroom and in-car education that is aligned with the Kansas state standards for driver education.

    - **Maryland Secondary Recommendation 2.1.4**: Establish a statewide review committee made up of content specialists, teachers, and other qualified persons to create a summative assessment tool that is aligned with ADTSEA standards.
    - **Oregon Secondary Recommendation 2.1.4**: The Oregon Department of Transportation's Transportation Safety Division should establish a statewide review committee made up of content specialists, teachers, and other qualified persons to create a standardized summative assessment tool for classroom and in-car driver education that is aligned with Oregon's state standards.
    - **Vermont Secondary Recommendation 2.1.4**: (1) Adopt or create a standardized summative assessment tool for classroom and in-car driver education that is aligned with the Vermont state standards. (2) Require that all curricula include end-of-course knowledge and skill assessment based on the stated intended learning outcomes and conducted by the approved course provider to determine if successful completion of the course has been achieved.
- **NIDB Standard for Driver Risk-Management G.8:** Former students demonstrate a utilization of risk-prevention behaviors as evident in their driving records and by the results of tests conducted by the NIDB accreditation staff.
- **ADTSEA National Curriculum Standard (relevant sections of Essential Knowledge and Skills for Driver and Traffic Safety Education)**
    - **Classroom Segment I, C. Responsibilities**: Teachers manage student efforts to meet or exceed minimum competency standards through classroom instruction that includes student-centered activities, modeling, knowledge assessment, skill assessment, guided observation, and parental involvement. Concurrent and integrated operation of classroom and in-car instruction is required for student knowledge and skill development.
    - **In-car Skills, F. Responsibilities**. Teachers assist and guide students to meet or exceed minimum competency standards through in-car instruction that includes modeling, knowledge assessment, skill assessment, guided observation, and parental involvement. Concurrent and integrated operation of classroom and in-car instruction is required for student knowledge and skill development.
- **ADTSEA National Curriculum Standards, In-car 12.0. Driver Assessment**. The student enrolled in a certified driver education program will be able to successfully demonstrate the key core behavioral patterns while preforming the recommended procedures on a designated assessment route.

Metric: Violations and Crashes

- **Novice Teen Driver Education and Training Administrative Standard:** No Novice Teen Driver Standard directly corresponds to this metric though NHTSA in their Driver Education Program Assessment Process, which was used when conducting NHTSA State Assessments, includes a list of data elements such as crashes, convictions, suspensions, and breakdown of providers/schools by county. In addition, Oregon adapted Standard 5.1.4 to include data gathering on crashes and convictions, and Kansas adapted 2.1.1 and 2.1.2 to include gathering crash data.
- **Novice Teen Driver Standard 2.1.1:** Have driver education and training that meets or exceeds current nationally accepted content standards and benchmarks.

- **Novice Teen Driver Standard 2.1.2**: Approve curricula that are based on nationally recognized standards such as ADTSEA and Driving School Association of the Americas. Each State retains authority in determining what curricula meet its State standards. Other resources include AAA and NIDB.
- **Novice Teen Driver Standard 5.1.4**: Ensure that sanctions for noncompliance with GDL requirements by novice teen drivers are developed and enforced uniformly.
    - **Kansas Secondary Recommendation 2.1.1 and 2.1.2**: Request crash data from the Kansas Traffic Safety Office to inform instruction and focus curriculum.
    - **Oregon Secondary Recommendation 5.1.4**: The Oregon Department of Transportation's Driver and Motor Vehicle Services Division should work with law enforcement and the courts to develop an electronic capability to receive and record crash data and conviction data.
- **NIDB Standard for Driver Risk-Management G.8:** Former students demonstrate a utilization of risk-prevention behaviors as evident in their driving records and by the results of tests conducted by the NIDB accreditation staff.
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV. Driver Education and Training (relevant excerpt):** The State Highway Safety Office, in collaboration and cooperation with the State agencies responsible for driver education and training, should develop a comprehensive evaluation program to measure progress toward established project goals and objectives and optimize the allocation of limited resources. The State should promote effective evaluation by supporting the analysis of police accident reports.

Metric: Classroom Hours

- **Novice Teen Driver Education and Training Administrative Standard 2.1.6 (relevant section):** Require core driver educational hours that focus on the driving task and safe driving practices sufficient to meet the criteria established by the end-of-course examination. To enable states to select the appropriate guidelines for contact hours to meet the desired outcomes, the following instructional time should be:
    - First stage education: Minimum of 45 hours of classroom/theory
- **Novice Teen Driver Education and Training Administrative Standard 2.1.7:** Require distributive learning (applies here to classroom hours per day).

  <u>Classroom Hours</u>
    - **Kansas Secondary Recommendations 2.1.6:** (1) Increase classroom hours with the goal of meeting the 45 hours recommended by the Novice Teen Driver Education and Training Administrative Standards. (2) Require the Kansas Driver Education Administrative Standards to be consistent so that students in Kansas receive the same amount of instruction from all programs accredited by the Kansas State Department of Education.
    - **Maryland Secondary Recommendation 2.1.6**: Increase classroom hours from 30 hours to 45 hours.
    - **Oregon Priority Recommendation 2.1.6**: ODOT should increase classroom hours from 30 hours to 45 hours.
    - **Vermont Secondary Recommendation 2.1.6**: Increase classroom hours from 30 hours to 45 hours.

Hours Per Day:

- **Kansas Secondary Recommendation 2.1.7**: Amend the Board of Education's Driver Education Administrative Standards to allow a maximum of 90 minutes of classroom and 60 minutes of in-car instruction within any 24-hour period to provide for distributive learning (*ADTSEA, Recommendations on the Delivery of Driver Education*).
- **Maryland Secondary Recommendation 2.1.7**: (1) During the regular school year, instruction should not exceed a total of two periods of classroom and two periods of laboratory instruction within any 24-hour period. (2) Establish a regulation to modify the maximum hours of classroom instruction outside the regular school year that aligns with principles of distributed learning.
- **Oregon Secondary Recommendation 2.1.7**: The Oregon Department of Transportation's Transportation Safety Division should require that during the regular school year, instruction should not exceed a total of two hours of classroom and two hours of laboratory instruction within any 24-hour period.
- **Vermont Status**: Vermont Assessment states under Standard 2.1.7 that Vermont's Department of Education has promulgated rules that require distributive learning.

- **NIDB Standard for Driver Risk-Management A.5**: A minimum of 45 hours of classroom instruction and 8 hours of BTW training or an acceptable alternative format is required.
- **NIDB Standard for Driver Risk-Management A.7:** Classroom sessions are no longer than two hours and limited to one session per day.
- **ADTSEA National Curriculum Standard (text adapted from Novice Driver Preparation Segment I, Classroom Standards)**: Students will participate in the state approved driver education 45 hour classroom program comprised of not less than 22.5 sessions of 120 minutes training segments (C 1.0 through C 45.0).

Metric: BTW Hours

- **Novice Teen Driver Education and Training Administrative Standard 2.1.6 (relevant sections):** Require core driver educational hours that focus on the driving task and safe driving practices sufficient to meet the criteria established by the end-of-course examination. To enable States to select the appropriate guidelines for contact hours to meet the desired outcomes, the following instructional time should be:
  - First stage education: Minimum of 10 hours of behind the wheel instruction; 10 hours in-car observation;
  - The in-car instruction can be enhanced with simulation or driving range instruction.
- **Novice Teen Driver Education and Training Administrative Standard 2.1.7:** Require distributive learning (applies here to BTW hours per day).

BTW Hours

- **Kansas Secondary Recommendations 2.1.6**: (1) Increase the required hours of BTW instruction with the goal of meeting 10 hours as recommended by the Novice Teen Driver Education and Training Administrative Standards. (2) Require the Kansas Driver Education Administrative Standards to be consistent so that students in Kansas receive the same amount of instruction from all programs accredited by the Kansas State Department of Education.

- **Maryland Secondary Recommendations 2.1.6:** (1) Increase BTW instruction from six hours to ten hours. (2) Increase BTW observation from zero to ten hours.
- **Oregon Priority Recommendations 2.1.6**: (1) ODOT should increase BTW instruction from six hours to ten hours. (2) ODOT should increase in-car observation from six hours to ten hours.
- **Vermont Priority Recommendation 2.1.6**: Increase behind-the-wheel instruction from six hours to ten hours.
- **Vermont Secondary Recommendations 2.1.6**: (1) Increase in-car observation from six hours to ten hours. (2) Require mandatory observation time regardless of where students receive their driver education and training course.

Hours Per Day

- **Kansas Secondary Recommendation 2.1.7:** Amend the Board of Education's Driver Education Administrative Standards to allow a maximum of 90 minutes of classroom and 60 minutes of in-car instruction within any 24-hour period to provide for distributive learning (ADTSEA, Recommendations on the Delivery of Driver Education).
- **Maryland Secondary Recommendation 2.1.7:** During the regular school year, instruction should not exceed a total of two periods of classroom and two periods of laboratory instruction within any 24-hour period.
- **Oregon Secondary Recommendation 2.1.7**: The Oregon Department of Transportation's Transportation Safety Division should require that during the regular school year, instruction should not exceed a total of two hours of classroom and two hours of laboratory instruction within any 24-hour period.
- **Vermont Status**: Vermont Assessment states under Standard 2.1.7 that Vermont's Department of Education has promulgated rules that require distributive learning.

- **NIDB Standard for Driver Risk-Management A.5**. A minimum of 45 hours of classroom instruction and 8 hours of BTW training or an acceptable alternative format is required.
- **NIDB Standard for Driver Risk-Management A.9**. A maximum of one hour behind the wheel is established for any student during an in-vehicle session.
- **ADTSEA National Curriculum Standard** (text adapted from Novice Driver Preparation, Segment I In-car Standards): Students will participate in the state approved driver education 10-hour Segment I in-car training program and 12 hours observation comprised of not less than 20 sessions of 30 minute training segments. The participating student will demonstrate proficiency of the following tasks (IC 1.0-IC 12.0) in 20 planned instructional routes.

Metric: Distributive Learning

- **Novice Teen Driver Education and Training Administrative Standard 2.1.7:** Require distributive learning (applies here to number of weeks).
  - **Kansas Status:** There are no Kansas recommendations under Standard 2.1.7 related to number of weeks the course may run, though there is mention in Secondary Recommendation 2.1.7 of the need to provide for distributive learning.
  - **Maryland Status:** The Maryland Assessment only discusses distributive learning in terms of number of hours of instruction.
  - **Oregon Status:** In Oregon, courses may not be shorter than 35 days or longer than 180 days and must be delivered concurrently.

    - **Vermont Status**: Vermont Assessment states under Standard 2.1.7 that Vermont's Department of Education has promulgated rules that require distributive learning.
- **NIDB Standard for Driver Risk-Management A.6**. The program cannot be completed in less than 8 weeks.

Program Assessment Tool Quadrant Three: GDL Coordination
Metric: GDL Information

- **Novice Teen Driver Education and Training Administrative Standard 4.1.1:** Each state should require the parent of a teen driver education and training student to attend a parent seminar, pre-course, or the initial session of the teen's driver education and training course. This session should outline the parent's responsibility and opportunity to reduce their teen's crash risk in several ways, including modeling safe driving behavior. Information conveyed to the parent in this session should include, but not be limited to, the following known best practices of GDL and parental involvement.
    - **Kansas Priority Recommendation 4.1.1 (relevant section):** Require the parent seminar, pre-course, or initial session to include the known best practices of GDL and parent involvement including: how to supervise an extended intermediate license period that temporarily restricts driving unsupervised with teen passengers and during nighttime hours until the State's GDL requirements have been met and the parent determines the teen's readiness to drive unsupervised in these high risk conditions.
    - **Maryland Priority Recommendation 4.1.1**: Require parents/mentors of novice teen drivers to participate in an orientation session that describes how to effectively supervise teen driving, and understand and use Graduated License System restrictions during the provisional phase.
    - **Oregon Status**: During the required parent meeting, information is given regarding best practice in regards to risk management driving, GDL laws are explained, course outline is given, and expectations for parental involvement are presented.
    - **Vermont Priority Recommendation 4.1.1**: Require parents of novice teen drivers to participate in an orientation session that addresses topics including parents' responsibility and opportunity to impact teen crash risk, Vermont's Graduated Driver Licensing System, conducting effective supervised practice driving, modeling safe driving behavior, and adopting a written parent-teen driving agreement.
- **ADTSEA National Curriculum Standard, Classroom 1.4:** Identify the GDL Requirements and Responsibilities.
- **NHTSA Highway Safety Program Guideline No.4 Driver Education, Section IV. Driver Education and Training (relevant excerpt):** Each state should also ensure there is a program that engages parents and/or guardians in the driver education and GDL programs.

Metric: GDL Violations

- **NHTSA Driver Education Program Assessment Process**, which was used when conducting NHTSA State Assessments, includes a list of data elements such as:
    - Number of permitted drivers (15–16 years of age).
    - Number of licensed drivers (16–17 years of age).
    - Counties that deliver driver education and breakdown of providers/schools in those counties.

- **Novice Teen Driver Education and Training Administrative Standard 5.1.4:** Ensure that sanctions for noncompliance with GDL requirements by novice teen drivers are developed and enforced uniformly.
    - **Kansas Secondary Recommendations 5.1.4**: (1) Develop additional GDL outreach and education materials for use by judges, courts, and law enforcement agencies so that the GDL mandated sanctions are enforced uniformly. (2) Develop a law enforcement pocket guide describing how to interpret the license issue date and driver's age, GDL driving requirements, and restriction information to assist with consistent enforcement.
    - **Maryland Secondary Recommendations 5.1.4**: (1) Develop a Graduated Licensing System outreach and education program for use by judges, courts, and law enforcement agencies. The program must address the Graduated Licensing System provisions, restrictions, and mandated sanctions. (2) Develop additional Graduated Licensing System outreach materials for use by law enforcement personnel during roadside stops of provisional license holders.
    - **Oregon Secondary Recommendation 5.1.4**: (1) The Oregon Department of Transportation's Driver and Motor Vehicle Services and Transportation and the Transportation Safety Divisions should work together to develop additional outreach and education materials for use by judges, courts, and law enforcement agencies. The program must address the Graduated Licensing System provisions, restrictions, and mandated sanctions. (2) The Oregon Department of Transportation's Driver and Motor Vehicle Services and the Transportation Safety Divisions should develop additional Graduated Licensing System outreach materials for use by law enforcement personnel during roadside stops of provisional license holders. (3) The Oregon Department of Transportation's Driver and Motor Vehicle Services Division should work with law enforcement and the courts to develop an electronic capability to receive and record crash data and conviction data.
    - **Vermont Secondary Recommendation 5.1.4**: (1) Develop additional Driver and Motor Vehicle Services Division and Department of Education outreach and education materials for use by judges, courts, and law enforcement agencies so that the GDL provisions, restrictions, and mandated sanctions are enforced uniformly. (2) Develop a law enforcement pocket guide describing how to interpret the license issue date and driver's age, GDL driving requirements and restriction information to assist with consistent enforcement.
- **NIDB Standard for Driver Risk-Management G.8.** Former students demonstrate a utilization of risk-prevention behaviors as evident in their driving records and by the results of tests conducted by the NIDB accreditation staff.
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section III. Enforcement Program (relevant section):** Components of a state driver education enforcement program should include:
    - Visible and well-publicized law enforcement of the components of GDL and zero tolerance laws;
    - Licensing sanctions for violations of these provision.

Metric: License Completion

- **Novice Teen Driver Education and Training Administrative Standard:** No clear Novice Teen Driver Standard corresponds to this metric, though NHTSA in their Driver Education Program Assessment Process that is used when conducting NHTSA State Assessments, includes a list of data elements such as:
    - Number of permitted drivers (15–16 years of age).
    - Number of licensed drivers (16–17 years of age).
    - Number of 16–17 year olds in state eligible for driver education.
    - Number of students that take driver education (by age, 15–17 years of age).
    - Counties that deliver driver education and breakdown of providers/schools in those counties.

Program Assessment Tool Quadrant Four: Instructor Qualification
Metric: Certification Prerequisites

- **Novice Teen Driver Education and Training Administrative Standard 3.1.1:** Require the following prerequisites for instructors receiving certification and recertification:
    a) Possession of a valid driver's license by the State.
    b) Have an acceptable driving record as determined by the State.
    c) Pass a Federal and State criminal background check.
    d) Meet health or physical requirements as determined by the State.
    e) Achieve a minimum academic education requirement as determined by the State.
    f) Meet a minimum age requirement as determined by the State.
- **Novice Teen Driver Education and Training Administrative Standard 3.1.6**: Require an annual driving record review for instructors.
    - **Kansas Priority Recommendation 3.1.1 and 3.1.6**: Monitor all Kansas State Department of Education approved teachers/instructors driving records using an automatic employer notification program.
    - **Kansas Secondary Recommendations 3.1.1 and 3.1.6**: (1) Require the commercial driver-training school instructors to pass a Federal and State criminal background check for certification and recertification. (2) Require an annual driving record review for all Kansas State Department of Education approved teachers/instructors.
    - **Maryland Status**: Maryland Assessment states that requirements for an individual applying for a driving instructor license currently meet the standard recommended for instructor qualifications.
    - **Oregon Secondary Recommendations 3.1.1:** (1) The Oregon Department of Transportation's Transportation Safety Division should add prerequisite requirements for approved instructors regarding the following: pass a Federal criminal background check, meet health or physical requirements, achieve minimum academic education requirements, and meet a minimum age requirement. (2) The Oregon Department of Transportation's Transportation Safety Division should establish a procedure to validate instructor-training completion.
    - **Vermont Secondary Recommendation 3.1.1**: Require that Department of Education instructors meet health or physical requirements as determined by the State.
- **NIDB Standard for Driver Risk-Management B.1.** Instructors are certified through programs accredited by ADTSEA, NIDB, or according to other national standards.

- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV. Driver Education and Training (relevant excerpt):** The program is taught by instructors, public or private, certified by the State as qualified for these purposes; examples of such standards might include: minimum levels of education and continuing education, not being convicted of any felony or certain misdemeanor crimes, holding a valid driver license, and setting limits on numbers and types of driving violations.

Metric: Instructor Training

- **Novice Teen Driver Education and Training Administrative Standard 3.1.2:** Require instructors to complete approved standardized instructor training that applies to instructors and teachers in all public and private driver education and training programs. This preparation should include a course of study that is no less than 120 hours of preparatory time.
    - **Kansas Priority Recommendation 3.1.2:** Adopt State teacher/instructor training standards that meet the rigor defined by the National Novice Driver Education and Traffic Safety Administrative Standards.
    - **Maryland Priority Recommendation 3.1.2:** Increase the advanced instructor training to at least 120 hours. At a minimum, advanced training courses should include instruction in risk recognition and management, driver task analysis, vehicle operational and instructional skills, and classroom knowledge.
    - **Oregon Priority Recommendation 3.1.2:** The Oregon Department of Transportation's Transportation Safety Division should continue to support and provide funding for their instructor-training programs.
    - **Vermont Secondary Requirement 3.1.2**: Require that a Department of Education in-vehicle-only teacher complete basic preparation coursework that is no less than 120 hours of preparatory time.
- **NIDB Standard for Driver Risk-Management B.1.** Instructors are certified through programs accredited by ADTSEA, NIDB, or according to other national standards.
- **NIDB Standard for Driver Risk-Management B.2.** Instructor training includes advanced skills and vehicle technology.
- **NIDB Standard for Driver Risk-Management B.5.** Instructors have received initial or advanced training within the past 10 years.
- **NIDB Standard for Driver Risk-Management B.6.** The instructors' skills are documented and periodically reviewed by the program supervisor.
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV. Driver Education and Training (relevant excerpt):** The program is taught by instructors, public or private, certified by the State as qualified for these purposes; examples of such standards might include: minimum levels of education and continuing education, not being convicted of any felony or certain misdemeanor crimes, holding a valid driver license, and setting limits on numbers and types of driving violations.

Metric: Tests

- **Novice Teen Driver Education and Training Administrative Standard 3.1.4:** Require that an instructor pass a State-approved practical and/or written exam (e.g., Praxis II, National Teacher Certification Program [available at www.ADTSEA.org]).
    - **Kansas Secondary Recommendation 3.1.4:** Require all teachers to pass the Praxis exam.
    - **Maryland Secondary Recommendations 3.1.4:** (1) Develop a comprehensive exam that evaluates teacher effectiveness. (2) Utilize the Praxis exam as an option. (3) Test and evaluate instructors prior to full certification.
    - **Oregon Secondary Recommendation 3.1.4:** The Oregon Department of Transportation's Transportation Safety Division should develop a process to receive certification of completion of instructor training before an instructor is allowed to provide instruction in the classroom or in the vehicle.
    - **Vermont Status:** Vermont Assessment states that the Department of Education does not require that an instructor pass a State-approved practical and/or written exam specific to driver education. The Department of Education does require that any teacher pass the Praxis I (general practical exam) and driver education instructor course exams. The Department of Motor Vehicles requires that an instructor pass a State-approved written exam based on driver education instructional materials.
- **NIDB Standard for Driver Risk-Management B.1.** Instructors are certified through programs accredited by ADTSEA, NIDB, or according to other national standards.
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV. Driver Education and Training (relevant excerpt):** The program is taught by instructors, public or private, certified by the State as qualified for these purposes; examples of such standards might include: minimum levels of education and continuing education, not being convicted of any felony or certain misdemeanor crimes, holding a valid driver license, and setting limits on numbers and types of driving violations

Metric: Continuing Education

- **Novice Teen Driver Education and Training Administrative Standard 3.1.5:** Require annual continuing education and professional development hours for instructors.
    - **Kansas Secondary Recommendations 3.1.5:** (1) Require ongoing professional development for instructors licensed through the Kansas State Department of Education. (2) Partner with the state Driver Education Teachers Association and Kansas Department of Transportation to provide more opportunity for development.
    - **Maryland Secondary Recommendations 3.1.5**: (1) Enforce the continuing education regulation. (2) Collaborate with professional associations and institutions of higher learning to develop and offer continuing education opportunities. (3) Develop affordable workshop/courses that are held regionally to make attendance convenient. (4) Solicit input from instructors/managers/owners regarding topics that could be of interest or for which there is a need.
    - **Oregon Priority Recommendation 3.1.5**: The Oregon Department of Transportation's Transportation Safety Division should develop a list of approved topics for continuing education opportunities.

- **Vermont Secondary Recommendations 3.1.5**: (1) Require annual continuing education and professional development hours for the Department of Motor Vehicles instructors. (2) Maintain the requirement of continuing education and professional development hours for the Department of Education instructors.

- **NIDB Standard for Driver Risk-Management B.4.** Instructors have attended a traffic safety conference or workshop within the last three years and participate in other forms of ongoing professional development.
- **NHTSA Highway Safety Program Guideline No. 4 Driver Education, Section IV. Driver Education and Training (relevant excerpt):** The program is taught by instructors, public or private, certified by the State as qualified for these purposes; examples of such standards might include: minimum levels of education and continuing education, not being convicted of any felony or certain misdemeanor crimes, holding a valid driver license, and setting limits on numbers and types of driving violations.

PART TWO: WISCONSIN DATA SOURCES

As part of this effort, the research team documented existing laws, programs, and data sources in Wisconsin that potentially could contribute to a future evaluation methodology. This section presents the most relevant potential data sources, types of data contained within the sources, data collection and retention formats (e.g., paper copy, electronic data), and potential accessibility.

Table 14. Potential Wisconsin specific data summary.

Potential Data Sources	Types of Data Contained	Data Collection and Retention Methods	Potential Availability
DMV records database	Violation, conviction, and crash data	Data is electronically collected and retained	Easily accessible
DMV driver license application	Driver demographics, driving sponsorship information (i.e., parent, parent designee, qualified instructor)	Data is electronically collected and retained in the electronic driver record system.	Potentially available through a query
Graduated Driver Licensing Supervised Driving Log (HS-303)	Driving experience information (e.g., driving environment, conditions, breakdown of driving time, sponsor information), driving sponsor information (i.e., parent, parent designee, qualified instructor)	Not currently stored	Potentially available through electronic scans and retention
WI student knowledge and skills test scores	Test scores, pass/fail rates	An online certification system is currently being implemented.	Easily accessible upon full implementation of the online certification system
DPI form PI-1709	Driver instructor certification and driver school authorization information (e.g., hours of instruction, fees, estimated number of students)	Data is electronically collected and retained through an online application process.	Easily accessible; however, this system will likely be phased out

Potential Data Sources	Types of Data Contained	Data Collection and Retention Methods	Potential Availability
Wis. Adm. Code Trans 105.11 Driver School Point System	School violations and complaint records as enforced under Trans 105.12 Progressive Enforcement Actions	Transportation-related code data is electronically collected and retained.	Easily accessible
WisDOT commercial driver education application materials • MV3110 • MV3112 • MV3264 • MV3683 • MV3684 • MV3755 • MV2756 • MV3757	Driver instructor certification and driver school application data and associated information regarding school specifications	Data is collected via paper copies, but an online application system is being developed.	Information from paper copies is potentially available, assuming that forms are gathered and scanned. Information will be easily accessible upon full implementation of the online application system.
Individual commercial driver-training school records	Per Trans 105.05, programs are to maintain records, including student's name, date of birth, home address, total number of hours of lessons, lectures, tutoring and other instruction or services of any kind relating to motor vehicle operation instructions.	Format will vary by school, but schools are required to keep information for 4 years in a "readily accessible format."	Available, though fact-finding efforts will be necessary to request and analyze the information

APPENDIX C. PROJECT ASSESSMENT TOOL QUADRANT METRICS

Table 15. Guardian involvement quadrant metrics.

Metric	Measure	Driver Ed Program Data Source & Worksheet Tab	Driving School Data Source & Worksheet Tab
Guardian/Student Orientation	Program reported including an orientation	• **Data Source:** o PI-1709* o Survey Results* • **Worksheet Tab**: o No Tab	• **Data Source**: o MV3757* o Course Summary* • **Worksheet Tab**: o No Tab
Guardian Supervises Learning-to-Drive Experience	Program reported that it informs guardians of supervised driving requirements Bonus if training program offers and/or requires extra supervised driving hours	• **Data Source:** o PI-1709* o Survey Results* • **Worksheet Tab**: o No Tab	• **Data Source**: o MV3757* o Course Summary* • **Worksheet Tab**: o No Tab
Guardian/Student Contract	Program reported including a guardian/student contract	• **Data Source:** o PI-1709* o Survey Results* • **Worksheet Tab**: o No Tab	• **Data Source**: o MV3757* o Course Summary* • **Worksheet Tab**: o No Tab
Instructor/Guardian Progress Reporting	Program reported providing feedback to guardian(s) regarding student's progress during course	• **Data Source:** o PI-1709* o Survey Results* • **Worksheet Tab**: o No Tab	• **Data Source**: o MV3757* o Course Summary* • **Worksheet Tab**: o No Tab
Instructor/Guardian Debriefing	Program reported including a debriefing session	• **Data Source:** o PI-1709* o Survey Results* • **Worksheet Tab**: o No Tab	• **Data Source**: o MV3757* o Course Summary* • **Worksheet Tab**: o No Tab
Guardian/Student Post-course Evaluation	Program reported including a method for receiving a course evaluation from a guardian or student	• **Data Source**: o PI-1709* o Survey Results* • **Worksheet Tab**: o No Tab	• **Data Source**: o MV3757* o Course Summary* • **Worksheet Tab**: o No Tab

Table 16. Driver education and training curricula quadrant metrics.

Metric	Measure	Driver Ed Program Data Source & Worksheet Tab	Driving School Data Source & Worksheet Tab
Curricula	Program reported meeting curricula requirements	• **Data Source**: o PI-1709* o Survey Results* • **Worksheet Tab**: o Driver Ed Program Curricula	• **Data Source**: o MV3757 o Course Summary • **Worksheet Tab**: o Driving School Curricula
Learning Environment	Program reported meeting classroom and vehicle requirements	• **Not Applicable** DPI has approved classroom space and vehicles as part of school certification	• **Data Source**: o MV3264 o MV3684 o Course Summary • **Worksheet Tab**: o Learning Environment
Simulation and Driving Ranges	If a program uses these techniques, it must meet requirements	• **Data Source**: o PI-1709* o Survey Results* • **Worksheet Tab**: o Simulation & Range	• **Not Applicable**: Commercial schools may not substitute BTW time with simulation/range
Knowledge and Skills	Pass/fail rates of first-time license tests for students from past year	• **Check Query**	• **Check Query**
Violations and Crashes	Ratio of violations and crashes of students and licensed drivers linked to each program/school	• **Check Query**	• **Check Query**
Classroom Hours	Program reported meeting minimum classroom hour requirements	• **Data Source**: o PI-1709 o Survey Results* • **Worksheet Tab**: o Class Hours	• **Data Source**: o MV3110 o Course Summary • **Worksheet Tab**: o Class Hours
	Bonus if training program provides more than the minimum classroom hours		
BTW Hours	Program reported meeting minimum BTW hour requirements	• **Data Source**: o PI-1709 o Survey Results* • **Worksheet Tab**: o BTW Hours	• **Data Source**: o MV3110 o Course Summary • **Worksheet Tab**: o BTW Hours
	Bonus if training program provides more than the minimum BTW hours		
Distributive Learning	Program reported meeting minimum distributive learning requirements	• **Data Source**: o PI-1709 o Survey Results* • **Worksheet Tab**: o Distributive Learning	• **Data Source**: o MV3110 o Course Summary • **Worksheet Tab**: o Distributive Learning
	Bonus if training program extends the distributive process at least 1 week over the minimum required		

Table 17. GDL coordination quadrant metrics.

Metric	Measure	Driver Ed Program Data Source & Worksheet Tab	Driving School Data Source & Worksheet Tab
GDL Information	Program reported that it informs guardians and students of GDL requirements and restrictions	• **Data Source**: o PI-1709* o Survey Results* • **Worksheet Tab**: o No Tab	• **Data Source**: o MV3757* o Course Summary • **Worksheet Tab**: o No Tab
GDL Violations	Ratio of GDL violations to students and link to each school	• **Check Query**	• **Check Query**
License Completion	Ratio of registered students to licensing	• **Check Query**	• **Check Query**

Table 18. Instructor qualifications quadrant metrics.

Metric	Measure	Driver Ed Program Data Source & Worksheet Tab	Driving School Data Source & Worksheet Tab
Certification Prerequisites	All instructors have met prerequisite requirements	• **Data Source**: o DPI Certification Forms • **Worksheet Tab**: o Prerequisites	• **Data Source**: o MV3112 • **Worksheet Tab**: o Prerequisites
Instructor Training	All instructors have minimum hours and/or credits of training	• **Data Source**: o DPI Certification Forms • **Worksheet Tab**: o Training	• **Data Source**: o MV3112 • **Worksheet Tab**: o Training
	Bonus if program requires instructors to exceed minimum training requirements		
Tests	All instructors have passed state-approved test(s)	• **Not Applicable**: Public Driver Ed Programs are currently not required to pass state-approved driver training test(s)	• **Data Source**: o MV3112 • **Worksheet Tab**: o Tests
Continuing Education	All instructors have completed required continuing education and professional development hours	• **Not Applicable**: Public Driver Ed Programs are currently not required to complete continuing education in the field of traffic safety	• **Data Source**: o MV3112 • **Worksheet Tab**: o Continuing Ed

APPENDIX D. SAMPLE PROGRAM SELF-ASSESSMENT FORM

The following program self-assessment tool is an example of an education tool that may be distributed to commercial programs in advance of their (re)certification. The goal of this type of tool is to improve administrative transparency by detailing those program components which the DMV actively reviews when making the (re)certification assessments. The results of the self-assessment could be compared with the results of WisDOT's auditing and licensing review. Discrepancies between the two reviews could be discussed and improvement plans could be developed.

Sample Wisconsin Driver Education and Training Program Self-Assessment Tool

Prior to the (re)certification and licensure of your driver education program, please assess whether or not your program meets the listed goals and requirements as set forth in Wisconsin Statutes and Administrative Rules (WI Requirements) and nationally recognized Best Practices (BP). This program self-assessment focuses on the following areas:

1. Wisconsin laws and rules governing driver education and training requirements.
2. An assessment of the instructional program, staff qualifications, and facilities.
3. The participation, where appropriate, of staff, parents, and students.
4. The development of a plan for program improvement.

Curriculum Standards

Quality instructional programs are characterized by the proper selection and use of instructional materials, facilities, vehicles, and equipment. To be successful, your program must ensure that these elements are maintained and updated as necessary.

Wisconsin Requirements	Response		Improvement Plan
	Yes	No	
1. Do each of your lesson plans include all requirements noted in Section F. of the MV3757: Driver Training School Checklist? ☐ Objectives ☐ Title of Lesson/Session Number ☐ Reference Materials ☐ Training Aids ☐ Time Allotted ☐ Type of Lesson – Lecture, Video, etc.			
2. Does your program cover all of the following topics required for the classroom course as noted in Section F. of the MV3757: Driver Training School Checklist? ☐ Awareness of Motorcycles, Bicycles, Pedestrians ☐ City Driving ☐ Environmental Dynamics ☐ Freeway Driving ☐ Hazards – Farm Animals, Machinery ☐ Hazards – Railroad Crossings (30 min) ☐ Move-Over-Law ☐ Organ and Tissue Donation (30 min)			

Wisconsin Requirements	Response		Improvement Plan
	Yes	No	
☐ Pre-driving Skills/Maneuvers ☐ Psychophysical Aspect – Alcohol, Mood, Health, etc. ☐ Responsibility of Vehicle Operations ☐ Rural Driving ☐ Traffic Citizenship and Highway Safety Progress ☐ Vehicle Mechanical/Control Features ☐ Vehicle Ownership Responsibilities			

Wisconsin Requirements	Response		Improvement Plan
	Yes	No	
4. Does your program cover all of the topics required for a behind-the-wheel training course noted in Section F, Part 2 of the MV3757: Driver Training School Checklist? ☐ Backing and Y-turns ☐ City Driving ☐ Hazards – Farm Animals, Machinery ☐ Hazards – Railroad Crossings ☐ Introduction to the Automobile			
3. Does your program acquaint each student with the hazards posed by composing or sending electronic text messages or electronic mail messages while driving and with the provisions of s. 346.89 (3). (i.e., no texting while driving)?			
5. Does your program provide an environment that is conducive to learning as noted on MV3784: Driver Training School Classroom Certification? ☐ Adequate Space o At least 20 square feet per occupant o Maximum number of students is no more than 35 ☐ Space Layout (as included in sketch form) o Room number o Dimensions o Door and Window Locations o If the classroom is not a numbered room within the building, include as part of the sketch the classroom location within the building.			
6. Are your programs' vehicles registered appropriately in accordance with Section A – Registration Complete of the MV3264: Driver Training Vehicle Record?			
7. Are your programs' vehicles inspected appropriately in accordance with Section B – Inspection Complete of the MV3264: Driver Training Vehicle Record?			
8. Are your programs' vehicles certified in accordance with Section C – Certification Complete of the MV3264: Driver Training Vehicle Record?			
9. Consistent with the requirements noted on MV3110: Driver School Application, does your program provide students with at least 30 hours of classroom instruction?			

Wisconsin Requirements	Response		Improvement Plan
	Yes	No	
10. Consistent with the requirements noted on MV3110: Driver School Application, do your program's lesson plans cover no more than 2 hours of instruction per day, excluding breaks?			
11. Consistent with the requirements noted on MV3110: Driver School Application, do your program's BTW lesson plans meet one of the following approved Behind-the-Wheel/Observation Options? □ 6 BTW – 6 Observation □ 7 BTW – 4 Observation □ 8 BTW – 2 Observation □ 9 BTW – 0 Observation			
11. Consistent with the requirements noted on MV3110: Driver School Application, do your program's BTW lesson plans ensure that each student has no more than 1 hour of BTW driving per day?			
12. Consistent with the requirements noted on MV3110: Driver School Application, does your program's BTW lesson plans ensure that each student has no more than 2 hours of in-car observation per day?			
13. Consistent with the requirements noted on MV3110: Driver School Application, does your program's classroom lesson plans extend over a minimum of 3 weeks for each student?			
14. Consistent with the requirements noted on MV3110: Driver School Application, does your programs' BTW lesson plans extend over a minimum of 3 weeks for each student?			

Use of Driving Simulators

If your program uses a driving simulation unit as part of your teen driver instruction program, please indicate if the following criteria are met.

Best Practices	Response			Improvement Plan
	Yes	No	Not Applicable	
1. Is simulation equipment maintained in good working order?				
2. Is your simulation program conducted after or in concurrence with classroom instruction?				

Instructor Qualifications

The instructor is the most important factor in a quality teen driver education and training programs. Teachers must serve as positive role models for their students and instill in them the knowledge and skills needed for safe driving. To do this, instructors must create learning situations that afford students with opportunities to acquire necessary skills and an attitude respectful of the driving process.

Wisconsin Requirements	Response		Improvement Plan
	Yes	No	
1. In accordance with the requirements noted on MV3112: Driver Instructor Application, do each of your program's instructors hold a valid state driver's license?			

Wisconsin Requirements	Response		Improvement Plan
	Yes	No	
2. In accordance with the requirements noted on MV3112: Driver Instructor Application, have each of your program's instructors passed a driver record check?			
3. In accordance with the requirements noted on MV3112: Driver Instructor Application, have each of your program's instructors passed all required Federal and State criminal background checks?			
4. In accordance with the requirements noted on MV3112: Driver Instructor Application, do each of your program's instructors meet the health and physical requirements? Has each instructor been certified physically fit to teach driving?			
5. In accordance with s. 343.62(4)(a)3, do each of your program's instructors meet the minimum age and experience requirement, i.e., 19 years of age and 2 years of experience operating a motor vehicle?			
6. In accordance with the requirements noted on MV3112: Driver Instructor Application, have each of your program's instructors achieved minimum academic requirements by completing one of the following? □ 40 hour course □ DPI Certification □ 9 Credit Hours in Driver Education			
7. In accordance with the requirements noted on MV3112: Driver Instructor Application, have each of your program's instructors completed a knowledge test developed by the department and administered as provided by rule, and designed to evaluate the applicant's knowledge of instruction procedures, motor vehicle and traffic laws, safety equipment requirements, and functions of essential automotive equipment, and the applicant passes the test with a score of at least 80 percent?			
8. In accordance with the requirements noted on MV3112: Driver Instructor Application, have each of your program's instructors passed, with a score that exceeds the minimum standard for obtaining an operator's license, a driving skills test that includes driving maneuvers and parking involved in typical traffic situations?			
9. In accordance with the requirements noted on MV3112: Driver Instructor Application, have instructors' licenses been renewed within the appropriate time period (an instructor's license expires on the date stated on the license, but not later than 24 months after the date on which the license is issued)?			
10. In accordance with the requirements noted on MV3112: Driver Instructor Application, has each applicant for an instructor's license renewal attended at least one approved traffic safety related workshop or conference per licensing period?			

Guardian Involvement

While specific guardian involvement activities are not currently required, activities related to increased guardian involvement have the potential to make the most difference in the driver education and GDL process. These best practices are designed to encourage guardians' involvement and engagement in the learning-to-drive process.

Best Practices	Response		Improvement Plan
	Yes	No	
1. Does your program include a guardian orientation session?			
2. Does your program inform guardians of Wisconsin's supervised driving requirements?			
3, Does your program offer and/or require extra supervised driving hours beyond the minimum BTW requirements?			
4. Does your program encourage/require guardians and students to complete a guardian/student driving contract?			
5. Does your program provide feedback (either verbal or written) to guardians regarding students' progress during the course?			
6. Does your program include a debriefing session at the end of the course where students' course progress is discussed with his/her guardians?			
7. Does your program include a method for receiving a course evaluation from a guardian and/or student?			

Graduated Driver Licensing Coordination

GDL programs have been proven effective in reducing the crash risk for teen drivers, especially when GDL requirements are combined with parental or guardian involvement efforts.

Best Practices	Response		Improvement Plan
	Yes	No	
1. Does your program inform guardians and students of Wisconsin's GDL requirements and restrictions?			

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