DRIVER EDUCATION
New Methods and Expanded Requirements

Joint Transportation Committee
FINAL Report, December 11, 2014

EXECUTIVE SUMMARY

The Legislature directed the JTC to coordinate a Work Group to study driver education for young novice drivers (ESSB 6001, Sec 204(8). In particular, the study was to:

- develop parameters for and make recommendations regarding a pilot program that would allow students to meet traffic safety education requirements online, and
- make recommendations related to requiring driver training for individuals between the ages of eighteen and twenty-four who have not previously passed a driver training education program, or other methods of enhancing the safety of this high-risk group.

The study was conducted by JTC staff with assistance from other legislative and executive branch staff. The stakeholder Work Group appointed to assist in the study included legislators and representatives of commercial driving schools, public school driver education programs, Department of Licensing, Traffic Safety Commission, Washington State Patrol, Superintendent of Public Instruction, AAA, and Farmers Insurance.

Background

There is a dual path to licensure in Washington. For novice drivers under 18 years old, students are required to take driver education and engage in a number of safety-related requirements, including supervised practice driving hours and driving restrictions for the first year.

In contrast, first time licensees who are 18 and older need only pass the driver knowledge and skills tests to obtain their license. There are no requirements for driver education, and no targeted safety measures for novice drivers between 18 and 24 years old.

The Washington State's Strategic Highway Safety Plan (Target Zero) has identified young drivers as a Priority Level One to address with safety improvements because 16 to 25 year olds were involved in 34.6% of traffic fatalities and 38% of serious injuries. The youngest drivers, at 16 and 17 years old, are the riskiest drivers in terms of rates of fatal and serious crashes. Eighteen to 24 year olds are still risky drivers and are involved in more fatal and serious crashes because they are a larger group of drivers.

The research literature has been consistent for some time: driver education *on its own* is not likely to reduce crashes. However, getting more young drivers into traffic safety education also sets them on the Intermediate Driver License (IDL) pathway to licensure, which has shown positive safety impacts for the youngest drivers. A recent analysis of IDL programs reported an overall crash reduction of 22 percent for 16 year olds and a 6 percent decrease tor 17 year olds.

From 2003 to 2009, Washington saw a trend of some new licensees waiting until 18 or 19 years of age, bypassing driver education and the IDL program. As of 2013, roughly 33% of new teen drivers are 18 and 19 year olds who have bypassed these requirements. Although the reasons for delay in Washington are not known, a national study found the most common reasons for delayed licensure included not having a car, able to get around without driving, costs associated with driving, and lower household income.

Online driver education has not been evaluated as to its safety or educational outcomes. Research in general education has found that students in online learning conditions performed modestly better on standardized tests, course exams and grades than those receiving face-to-face instruction, *especially when online and face-to-face instruction were blended*. Furthermore, blending computer-based instruction with teacher support can allow customization, more interactive instructional activities, student feedback, and detailed progress monitoring.

Not all states require drivers under 18 to take driver education. Of those that do, 12 states allow online driver education. For novice drivers 18 and older, 11 states have some type of requirement: driver education, learner's permits, or supervised driving.

Some have suggested online driver education is a means to reduce the cost of driver education, thereby encouraging more students to take driver education. However, online driver education may not reduce the cost for the student. Washington's motorcycle safety education subsidy program provides a model for a means to increasing the affordability of driver education.

Work Group Preferences and Study Findings

The Work Group's policy preferences and related study findings are shown below:

1. Start with a new requirement for online driver education for 18-24 year old novice drivers.
   - Goal: improve safety
   - Short course (less than the 36 total hours required of younger drivers)
   - Include behind-the-wheel requirement
   - Not a temporary pilot

2. Do not offer online driver education to 15-17 year olds at this time. However, if the Legislature chooses to offer it to 15-17 year olds, it should have the following elements:
   - Goal: accessibility and affordability
   - Blend classroom and online instruction
   - Online should supplement, not substitute for classroom
   - Teacher involvement is important
   - Do not change behind-the-wheel driving requirements
   - Pilot project which tests performance outcomes prior to permanent authorization

3. The quality of an online course can be regulated by course criteria or performance outcomes.

4. Transparency of implementation is important: a stakeholder panel should have a role in determining the details of the new program and should ensure broad participation of interests.

5. Sufficient time (at least two years) should be allowed to get a program up and running. DOL and SPI will need additional resources to design new programs and for ongoing oversight.

6. Finally, Washington's current knowledge and skills tests may be too easy, and may need to be strengthened.

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CHAPTER 1: INTRODUCTION

The 2014 Supplemental Transportation Budget (ESSB 6001) section 204(8) directed the Joint Transportation Committee (JTC) to coordinate a work group to assist with two tasks:

- develop parameters for and make recommendations regarding a pilot program that would allow students to meet traffic safety education requirements online, and
- make recommendations related to requiring driver training to individuals between the ages of eighteen and twenty-four who have not previously passed a driver training education program or other methods of enhancing the safety of this high-risk group.

The JTC must issue a report of its findings to the transportation committees of the House of Representatives and Senate by December 1, 2014.

The objective of the study is to provide the Legislature with useful information as it considers these policy initiatives for young, novice drivers. During the course of the study, in addition to soliciting the opinions and expertise of the study Work Group, information was gathered to provide context and options for any changes that may be made to novice driver requirements.

Chapter 2: Background provides information about current requirements for driver licensing and education, changes to driver education over the last dozen years, data on young driver safety, information about what is being tried in other states and what the research literature has to say about novice driver safety, driver education and online education.

Chapter 3: Parameters for Changes to Driver Education Requirements is focused on options for a pilot project for online driver education and recommendations regarding driver training and other safety enhancements for older novice drivers.

What is a parameter? For this study, a parameter was defined as an element of a program or policy choice that should be included in legislation to implement online driver education or safety initiatives for young novice drivers.

The Work Group, approved by the Executive Committee of the JTC, was made up of 21 members, as follows:

- Senator Marko Liias and Senator Christine Rolfes
- Representative David Hayes and Representative Cindy Ryu
- Beth Redfield and Mary Fleckenstein, Joint Transportation Committee staff
- State Agency representatives: Tony Sermonti, Department of Licensing; Angie Ward, Washington State Traffic Safety Commission; Captains Rob Huss and Mark Brogan, Washington State Patrol; Glenn Gorton, Traffic Safety Education, Office of the Superintendent for Public Instruction; Karl Nelson, Digital Learning, Office of the Superintendent for Public Instruction
- Driver Training School representatives (commercial and public): JC Fawcett, Joe Giammona, Deb Grenier, Mike Jackson, Clay Monson, Margo Peterson, Lynn Rogers, Dave Sedelmeyer
- Janet Ray, AAA Washington
- Michelle Stender, Farmers Insurance

To kick-off the study, staff sent questionnaires to Work Group members to identify the range of opinions and to locate resources regarding the two study tasks.

The Work Group held two meetings: June 4th, 2014, in Olympia; and August 1st, 2014, in Seattle. Meeting materials may be found on the JTC's website at: http://www.leg.wa.gov/JTC/Pages/On-lineDriversEducation.aspx

At the meetings, the Work Group engaged in moderated discussions of potential pilot project parameters for online driver education and new requirements for older novice drivers. The Work Group was also briefed on various subjects relevant to the study policy issues:

- current licensing and driver education requirements,
- changes to driver education over the last dozen years,
- current efforts by the Department of Licensing to update its curriculum and driver guide,
- data on young driver safety,
- information about what is being tried in other states and
- what the research literature has to say about novice driver safety, driver education and online education.

In addition, staff conducted a review of research literature on the effectiveness of various young driver safety strategies and education programs. This information was circulated via email to Work Group members for their comments and suggestions.

A staff group supported preparation of materials for meetings. The staff group included staff representation from the legislative transportation committees, all four legislative caucuses, Office of Financial Management, Department of Licensing (DOL), and Traffic Safety Commission.

CHAPTER 2: BACKGROUND

Getting a Driver License in Washington

There is a dual path to licensure reflecting a public policy that the immaturity of teens younger than 18 justifies restricted access to the driving privilege.

For novice drivers under 18 years of age, students are required to take driver education and engage in a number of safety-related requirements, which includes supervised practice driving hours and driving restrictions for the first year.

In contrast, first-time licensees who are 18 and older need only pass the driver knowledge and skills tests to obtain their driver license. There are no requirements for taking driver education, and no targeted safety measures for novice drivers between 18 and 24 years old.

Two paths to licensure in Washington:

- 16 and 17 year olds must complete driver education and have driving restrictions.
- 18 and older only need to pass the knowledge and skills tests

Intermediate driver license. Novice drivers younger than 18 are subject to the intermediate driver license (IDL) law. Enacted in 2001, applicants must:

- Be at least 16 years old and have held an instruction permit for six months.
- Complete at least 50 hours of driving practice (including 10 hours at night) with an experienced driver.
- Pass a driver education course (30 hours classroom and 6 hours behind-the-wheel or BTW).
- No alcohol or drug offenses while holding the instruction permit.
- Pass the knowledge (written) and driving skills tests.

Driving restrictions for IDL holders include:

- First six months: no passengers under 20 years old, except for immediate family members.
- Next six months: no more than three passengers under 20 years old who aren't immediate family members.
- First twelve months: no driving between 1 a.m. and 5 a.m. unless accompanied by a license driver at least 25 years old.
- Second twelve months: may drive at any hour if no accidents or traffic offenses.
- No use of any wireless devices (no exemption for hands-free devices).

Driver education requirements. The Department of Licensing's statutory authority (46.82 RCW) relating to driver training is primarily concerned with business licensing of commercial driver training schools, including consumer protection issues. DOL does not regulate the driver education programs offered by public schools. The statutory authority for the Office of the Superintendent of Public Instruction (SPI) (28A.220 RCW) specifies the duties of SPI and local school boards as well as reimbursement processes. Most substantive decisions regarding driver

education are delegated to the agency rule making process, or in the case of the K-12 system, to local school boards.

State law also requires that DOL develop and maintain a basic minimum required curriculum which must be furnished to licensed driver training schools and instructors. The basic curriculum describes course content which includes 28 core elements and basic minimum topics required by law. Separately, DOL offers a model curriculum with detailed lesson plans. A commercial driving school may develop its own curriculum, subject to DOL approval, or use DOL's model curriculum.

DOL's requirements (WAC 308-108) cover other features of the course as well:

- The curriculum schedule must include a total of 30 hours of classroom instruction, with no more than two hours in any day, and a minimum of six hours of behind-the-wheel instruction.
- Classroom and behind-the-wheel instruction must be complementary, meaning that practical skills lessons are integrated in a timely manner with classroom instruction.
- All students must be on the same lesson and no self-paced instruction is allowed.
- At least 50 percent of classroom time must be instructor-led.

SPI's traffic safety education regulations (WAC 392-153) describe instructor qualifications, vehicle requirements, curriculum schedule and subjects, student requirements, and school board administrative requirements. Each school district creates its own curriculum.

Recent History of Teen Driver Education in Washington

Driver education has not been publicly funded since 2002.

More students are being taught in commercial schools.

Public school fees are less than commercial school fees.

Average fees
Public schools $357
Commercial $450

Sixteen years ago, the landscape of driver education in Washington looked very different than it does today. In 1998, 244 school districts and 42 commercial schools offered driver education. By the 2013-14 school year, the situation was reversed: 93 school districts and 440 commercial schools offered driver education programs. As in many other states, this change came about with the elimination of state funding for traffic safety education in the public school system.

In 2002, all state funding distributed to local school districts for driver education was eliminated. Financial support for staff at SPI to conduct oversight was also eliminated. At that time, the Legislature considered numerous bills proposing transportation sources of funding to pay for traffic safety education, either for full program funding or scholarship or need-based funding. None of this legislation was enacted.

Prior to 2002, SPI set curriculum standards and annually approved all programs. DOL also licensed private schools and instructors. In 2002, commercial school oversight was consolidated at DOL. Legislation enacted in 2006 increased DOL's oversight authority of commercial driving schools making it more consistent with other areas of business regulation: allowing disciplinary action, defining

fraudulent business practices, requiring inspections prior to licensure, standardizing instructor training requirements, and clarifying background check requirements.

With the elimination of public funding, driver education became a fee-based program. All schools set their own prices, based on costs and competition. No statewide subsidies are available to reduce prices for needy students. Some school districts set prices below costs.

Public schools charge less on average than commercial schools. Fall 2014 prices for public schools averaged $357. One school district does not charge a fee and a significant number of districts charge less than $300. A quick survey of commercial school rates showed an average of about $450. No commercial school was found to charge less than $350. In some cases the commercial schools include the cost of the driver licensing examinations in the price.

Washington's motorcycle education program (voluntary for riders) provides an example of a subsidy program which a number of Work Group members cited as a potential model for driver education. Training programs apply to receive subsidy grants and if chosen as a grant recipient must charge $50 for students under 18 and $125 for students 18 and older. DOL distributes grants to successful applicants in amounts which are intended to compensate for training expenses not covered by the student fees. In the 2009-11 biennium, about 29,000 students received subsidized training at a cost of $2.9 million. The program is funded by endorsement and instruction permit fees paid by motorcyclists. Issues to consider in creating a similar program for driver education would be an appropriate subsidized price level, assumed numbers of eligible students, and the source of funds to pay for the program.

Data on Young Drivers and Safety in Washington

According to Target Zero 2030, motor vehicle crashes were the leading cause of death for 16 to 25 year olds in Washington State in 2012.

In 2012, motor vehicle crashes were the leading cause of death for 16 to 25 year olds in the Washington.

What do we know about young drivers and traffic safety in Washington? In Washington State in 2013, over 92,000 young drivers up to 25 years old obtained their first driver license. Of that group, 55% were 16 and 17 year olds and 25% were 18 and 19 year olds.

For context, during the same year, 5.3 million licensed drivers were on Washington's roads. While 16 and 17 year olds make up more than half of newly licensed young drivers, they account for only 1.4% of all licensed drivers in the state. Eighteen and 19 year olds are a larger group accounting for 2.4% of all licensed drivers.

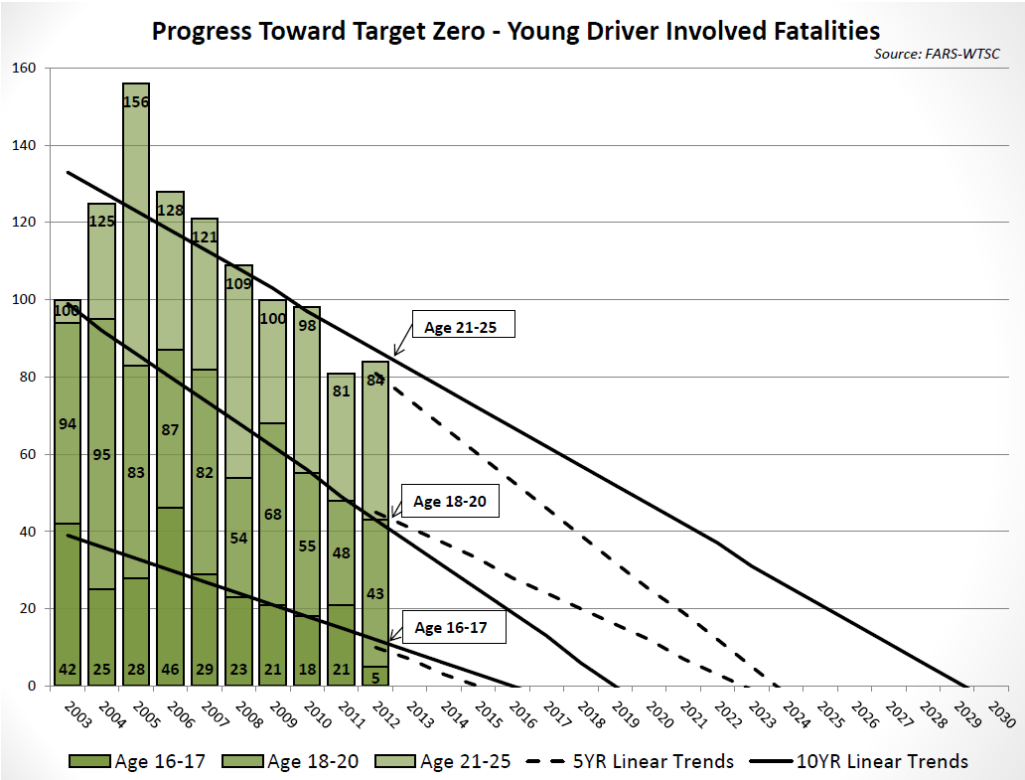
Washington State's Strategic Highway Safety Plan, also known as Target Zero, sets and monitors statewide priorities for all traffic safety partners over a four year period. The plan's goal is zero deaths and serious injuries and it is intended to be incorporated into the plans and programs of key state traffic safety agencies. The top three factors contributing to traffic fatalities were impaired drivers, run-off-the-road, and speeding. Strategies focusing on reducing these factors

benefit drivers of all ages and experience, including young drivers. Target Zero's strategies focus on education, enforcement, engineering, and emergency response, as well as policy changes.

> Washington's Target Zero plan has identified young drivers as a Priority Level One to address with safety improvements because 16 to 25 year olds were involved in 34.6% of traffic fatalities and 38% of serious injuries.

As can be seen in Figure 1, in Washington State, progress has been steady in reducing the number of fatalities for drivers 25 years old and younger.

Figure 1



Source: Washington Traffic Safety Commission, 2014.

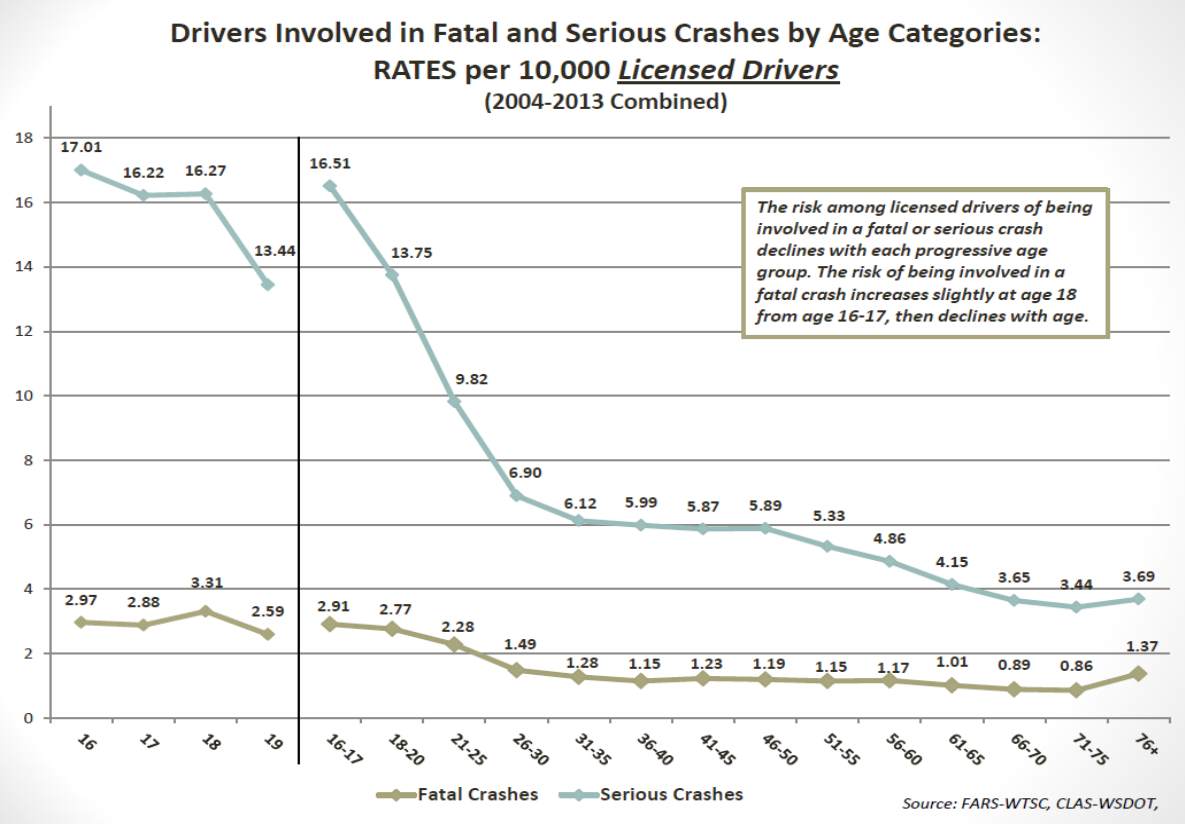
For each of the age groups shown in Figure 1, different forces are at work influencing their driving experience. The youngest age group, 16 and 17 year olds, is subject to existing safety strategies such as driver education requirements and restricted driving rules under the intermediate driver license law. The 18 to 25 year old age group experiences a larger number of fatalities, in part because there are more drivers in this group. In addition, for this age group, the legal drinking age of 21 begins playing more of a role in involvement in collisions. For all three age groups, speeding and distraction were the most common contributing circumstances for collisions.

Figure 2 looks at rates of fatal and serious crashes by age. It shows that the youngest drivers have dramatically higher rate of fatal and serious crashes, and that the rate declines by the time drivers reach their mid-20s.

Young drivers are risky drivers

- 16 and 17 year olds are the riskiest drivers in terms of rates of collisions
- 18 to 24 year olds are still risky drivers and are involved in more fatality and serious crashes because they are a larger group of drivers.

Figure 2

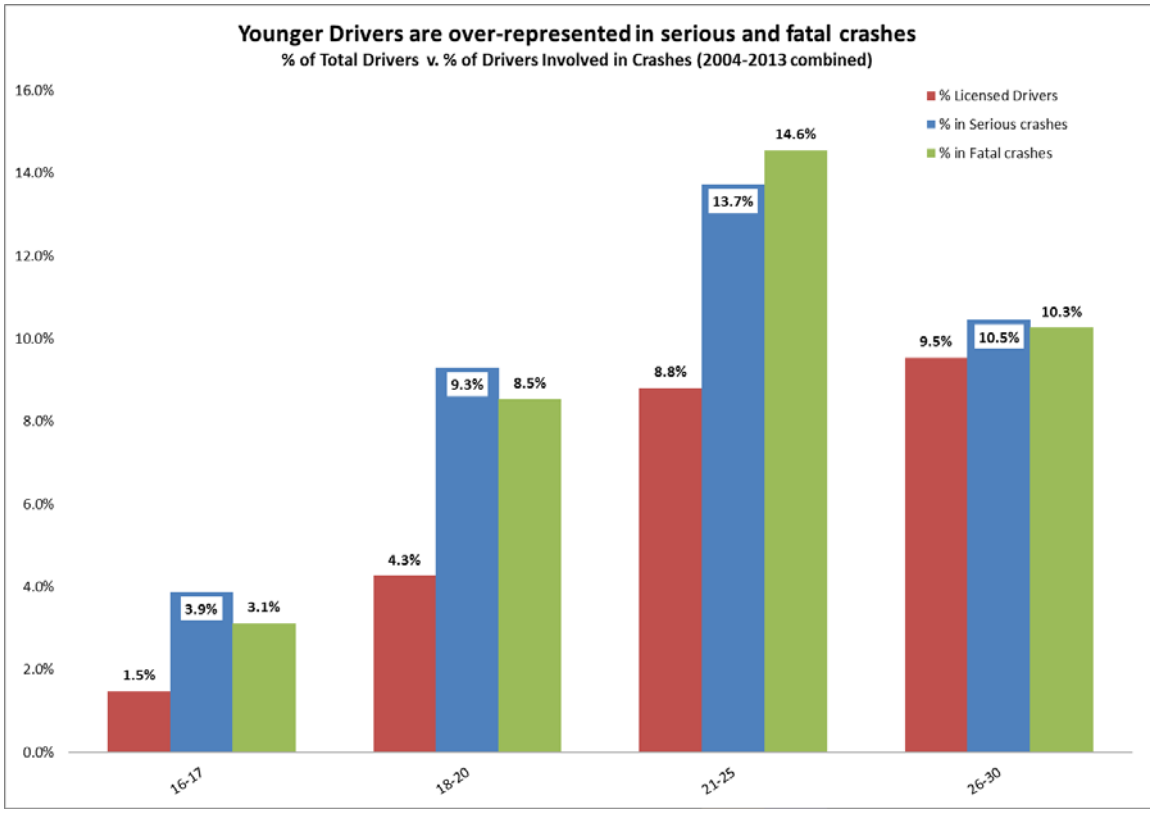


Source: Washington Traffic Safety Commission, 2014.

Figure 3 compares the rate of involvement in crashes to the percent of all licensed drivers by age group, showing that all young drivers are disproportionately represented in crashes, both serious and fatal:

- 16 and 17 year olds make up 1.5% of drivers, but 3.9% of serious crashes, or 2.6 times more than would be expected.
- 18 to 20 year olds make up 4.3% of drivers, but 9.3% of serious crashes or 2.2 times more than would be expected.
- Of the young driver group, 21 to 25 year olds are the largest group, making up 8.8% of drivers and 13.7% of serious crashes, or 1.6 times more than would be expected.

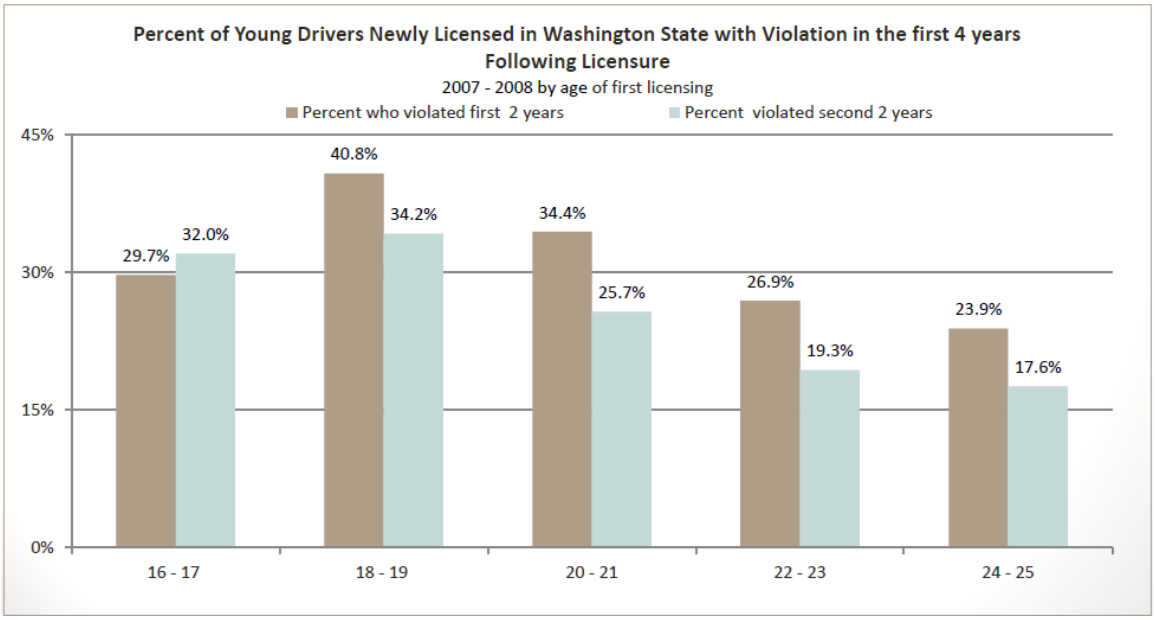
Figure 3



Source: Washington Traffic Safety Commission, 2014.

Another way of measuring safety outcomes is to track driving violations in the years following licensure. Figure 4 shows that 16 and 17 year olds have fewer violations than older novice drivers, but the number of violations increases in their third and fourth year of driving, after license restrictions are lifted. Eighteen and 19 year olds have the highest rates of violations.

Figure 4



Source: Washington Department of Licensing, 2014.

Literature Review: How to Increase Young Driver Safety?

In support of the study's efforts to recommend develop parameters for online driver education for 15 to 17 year olds and enhancements for the safety of 18 to 24 year old drivers, a review of research was conducted to find out what is known about novice driver safety and how outcomes may be improved. This effort focused on topics raised during discussions with the stakeholder Work Group and also relied heavily on literature reviews conducted by authors active in the subjects of driver education and teen driver safety. The full literature review conducted for this study is attached as Appendix A.

Driver education program evaluation. There is a long history of examining the safety impact of driver education. Until 1983, research supported the expansion of driver education programs around the country. A significant 1983 study (based on a DeKalb, Georgia, driver education course) failed to show a long term safety benefit of driver education. The study evaluated long term outcomes for students taking a course of education which included 32 hours of classroom instruction and 38.3 hours of practical instruction: 16 hours of driving simulation, 16 hours on a driving range, 3 hours of collision evasion, and 3.3 hours of on-road instruction.

The research literature has been consistent for some time: driver education *on its own* is not likely to reduce crashes.

A recent analysis of graduated/intermediate driver licensing programs reported an overall crash reduction of 22 percent for 16 year olds, a 6 percent decrease tor 17 year olds. Regarding 18 and 19 year olds, findings have not been consistent about the impact of GDL restrictions after they expire.

Evaluations since that time have not changed the finding that driver education, on its own, does not impact crash outcomes. Many researchers in this topic area observe that crashes have complex causes and no single safety strategy can be expected to make a meaningful impact (Lonero and Mayhew, 2010).

The national general driver education standards were jointly developed by the National Highway Traffic Safety Administration (NHTSA), the American Driver and Traffic Safety Education Association (ADTSEA), AAA Foundation for Traffic Safety, and the Driving School Association of the Americas (DSAA). Published in 2008, the standards are not mandated for state driver education programs, but are intended as a guide to quality, consistent driver education and training. The recommended curriculum schedule is a minimum of 45 hours in the classroom, ten hours behind-the-wheel, and ten hours in-car observation. It is also recommended that field training be enhanced by simulation or driving range practice. No research studies were found showing that the recommended course schedule would decrease collisions.

Graduated/Intermediate Driver Licensing. Graduated driver licensing (GDL) laws were introduced in the mid-1990s to phase in exposure to driving for novice drivers under 18 years old. GDL replaced laws which allowed quick and easy access to full driving privileges. The core elements of a GDL program include an extended, supervised learning period, during which driving is supervised, and a restricted phase after initial licensure, with limits on night driving and carrying passengers. All jurisdictions in Canada and the United States have versions of GDL and many have upgraded their original legislation. There is a large amount of research on GDL establishing it as a solidly evidence-based strategy.

A 2012 analysis of 11 GDL studies reported an overall crash reduction of 22 percent for 16 year olds. For 17 year olds, this same analysis reported a 6 percent decrease in crashes. Regarding 18 and 19 year olds, findings have not been consistent about the impact of GDL restrictions after they expire (AAA Foundation for Traffic Safety, November 2012).

Online driver education. This study's literature review found no outcome evaluations of online driver education. A 2012 NHTSA report catalogues existing online driver education programs and classifies the courses according to level of student engagement. The AAA Foundation was a partner in this research and Table 1 shows the AAA summary of this research, identifying the seven key components of online course delivery and strong versus weak characteristics for each component.

Table 1 Seven Key Components of Online Driver Education Course Delivery

	Weak Characteristics	Strong Characteristics
General Course Delivery & Presentation	Lengthy screens of text	Short, easy-to-read screens, interactive animations, photos and diagrams, videos, puzzles
Level of Interaction with Instructor	Clerical/technical support only Interaction only when sought by student	Certified driving instructors provide personalized feedback on tests, assignments, and progress
Time Requirements	Minimal; students advance through material as fast as they can Students can skip all lessons and take final exam	Lessons required to be spread out over a number of days/weeks Timers prevent skipping or moving too quickly through lesson screens
Linkage with Other Training	None; stand-alone online program Enrollment in separate on-road training course required	Integrated behind-the-wheel component, either with parent or other driving school/instructor
Level of Parental Involvement	Parents take no part; students complete the program independently	Parents copied on all correspondence with students, including feedback on assignments Parents proctor tests, provide in-vehicle instruction, verify student driving experience
Security & Identity Verification	Not addressed Limited to "I Accept" button after words of caution regarding fraud	Students must verify identity by answering security questions throughout course Tests monitored by parents using pass codes, or given in-person
Exam Difficulty/Rigor	One test only that can be re-taken after seeing correct answers Very easy multiple choice questions	Multiple versions of exams with large, challenging question pool Must complete additional assignments prior to re-taking a failed exam

Source: AAA Foundation for Traffic Safety, "Online Basic Driver Education Programs," October 2011.

The 2012 NHTSA report also sought to understand "supplemental driver training" programs for licensed drivers seeking skills beyond basic driver education. This was the only report found that examined training for drivers 18 and older. The evidence of a safety benefit of these supplement programs was mixed. Some studies showed that hazard anticipation training may increase safety. However, evaluations of the effects of "advanced driving performance" courses suggest that these courses may affect safety negatively by engendering a false sense of

confidence in young drivers. Generally, there were few evaluations and little or no oversight of post-licensure programs.

Online driver education has not been evaluated as to its safety or educational outcomes.

From general education research:

Students in online learning conditions performed modestly better than those receiving face-to-face instruction, *especially when online and face-to-face instruction were blended*.

Blending computer-based instruction with teacher support can allow customization, more interactive instructional activities, student feedback, and detailed progress monitoring.

Online general education. There is growing body of research about general education online learning methods. A 2010 study reviewed research literature from 1996 through June 2008, screened for studies using a rigorous research design, and using the data from these studies, calculated student learning outcomes from online and face-to-face teaching settings. Learning outcome measures included scores on standardized tests as well as course exams and grades. Only a small number of these studies considered programs for K12-aged students with most focused on professional training and higher education (Means et. al., September 2010). With that caveat, the findings were as follows:

- Students in online learning conditions performed modestly better than those receiving face-to-face instruction, *especially when online and face-to-face instruction were blended*.
- Blended conditions often included additional learning time and instructional elements.
- The positive effects associated with blended learning should not be attributed to the mode of delivery (i.e., online or classroom).

As noted above, blending online and face-to-face instruction resulted in somewhat better educational outcomes for students when compared to online- or classroom-only instruction. The standards for online education courses developed by the International Association of K-12 Online Learning (iNACOL), a non-profit organization, include guidance on blended learning models. More information on these standards is provided in the Literature Review, Appendix A.

A 2014 review of studies evaluating technology initiatives for at-risk high school students found that achievement was improved when technology is more interactive and combined, or blended, with teacher support. This review found that newer computer-based instruction can diagnose students' levels of understanding, customize material, offer more interactive instructional activities, provide feedback to students, and detailed information about student progress (Darling-Hammond et. al., September 2014).

There is a considerable buzz about the "flipped classroom," a type of blending of classroom and computer-based instruction in which interactive group learning activities occur inside the classroom and direct computer-based individual instruction occurs outside the classroom. The theoretical foundations of the flipped classroom are based in student-centered learning principles and focus on using classroom time for student-teacher and peer-assisted collaborative learning activities, instead of lecture.

A review of evaluations of flipped classrooms (Bishop, 2013) found that studies have mostly focused on higher education and student opinions of the method of instruction. The researchers found only one study which examined student performance in a flipped environment, showing significantly higher scores on tests, assignments, and projects. The results were encouraging but not sufficient evidence of a general benefit of the teaching method.

License delay. In Washington State, data provided by the Department of Licensing showed that between 2003 and 2009, there was a decline in the percent of newly licensed drivers who were 16 years old and a concurrent increase in 18 and 19 year old newly licensed drivers. During that time 16 year olds decreased from 59% to 53% of newly licensed teen drivers and 18 and 19 year olds increased from 26% to 33% of newly licensed teen drivers. This trend has largely leveled out since that time, but many have expressed concern that roughly 33% of new teen drivers are 18 and 19 year olds who have bypassed driver education and intermediate driver license requirements.

From 2003 to 2009, Washington saw a trend of some new licensees waiting until 18 or 19 years of age. The trend has leveled off recently.

A national study found the most common reasons for delayed licensure:

- not having a car,
- able to get around without driving,
- costs associated with driving, and
- lower household income.

A 2014 study examined the prevalence and timing of licensure among young adults around the country, and explored factors associated with delaying licensure among those not licensed before age 18. Of particular interest was whether license restrictions implemented as part of graduated driver licensing (GDL) systems have contributed to the delay. Some experts have suggested that GDL might encourage young people to wait until age 18 to obtain a license, to avoid GDL requirements, resulting in older teenagers having less driving experience and higher crash risk than they might have had without GDL. There was little evidence that GDL is a major contributor to delayed licensure. The most common self-reported reasons for not becoming licensed sooner were not having a car, being able to get around without driving, and the costs associated with driving. Lower household income was independently associated with delayed licensure (Tefft et. al., 2014).

Other States' Activities

For this study, the DOL assisted in a survey of states' online driver education policies, and requirements for older novice drivers. Detailed state by state information is attached as Appendix B.

Online driver education for 15 to 17 year olds. Of the 50 states, 31 have a driver education requirement for young teens to be licensed to drive (the requirement expires at various ages between 16 and 18). This count excludes states which: only require a very short course, allow driving practice hours to meet educational requirements, or allow a student to get an earlier learner's permit if they complete driver education.

Of the 31 states requiring driver education, 12 allow the classroom portion to be online. In addition, four states allow online driver education to meet the requirements for a short course or an early learner's permit.

16 states allow online driver education. Of those, 12 are states which require driver education for a teen to get a driver license.

All substitute the online course for the classroom part of driver education.

11 states have some type of requirement for novice drivers over 18: driver education, learner's permits, or supervised driving.

All of the states authorizing online driver education substitute the online courses for classroom portion. Many of these states do not require that behind-the-wheel lessons be scheduled concurrently with related classroom lessons.

Online courses are offered by both commercial and public schools. Many public school courses arose out of distance learning programs and are virtual classrooms led by certificated teachers. Some public schools offer internet-based courses which are self-guided. Self-guided, internet-based courses may be locally or nationally developed. A few states have requirements which limit the involvement of national vendors: for instance, a very rigorous application process or performance standards.

Novice drivers 18 and older. Eleven states have some type of requirement for novice drivers 18 and older (totals do not add because of overlapping categories):

- Six states require a driver education course. Most are short five to six hour courses. Maryland requires 30 hours of classroom driver education and 6 hours of behind-the-wheel lessons for novice drivers up to 25 years old. Only two of these states provide an online option.
- Seven states require learner's permits for novice drivers 18 and older for a specified period of time before taking the road skills test.
- Four states make multiple requirements of these older novice drivers (learner's permit and practice driving or learner's permit and driver education). In New Jersey, novice drivers under 21 years are subject to GDL restrictions for 18 months prior to being granted an unrestricted license.

Pricing in online states. To help understand the impact of online driver education on affordability, JTC staff conducted a short survey of prices in selected states which have authorized online course work. While not conclusive, the information below suggests that online coursework does not necessarily make driver education less expensive for students.

Table 2 shows the average prices found for a subset of schools operating in each state. The two right-most columns show the average price of combining behind-the-wheel (BTW) lessons and either online or traditional classroom work. Only California shows a clear savings to the student from taking an online version of driver education. In Colorado and Idaho, the prices of the two options were the same.

Table 2

Average pricing of driver training courses, by state
Comparison of online vs. classroom

	Online only	6 hours BTW only	Online + BTW	Classroom + BTW
Ohio	$ 99	$ 310	$ 409	$ 380
California	$ 32	$ 339	$ 371	$ 455
Colorado	$ 39	$ 361	$ 400	$ 401
Georgia	$ 65	$ 352	$ 417	$ 405
Idaho	$ 75	n/a	$ 338	$ 338
Indiana	$ 100	$ 305	$ 405	$ 305

(Less expensive result is highlighted)

Other observations about the pricing in other states:

- In some states, the online courses are all priced exactly the same; in other states, there appears to be a fair amount of competition in pricing, with wide variability.
- In California, the traditional classroom may be disappearing. It was difficult to find schools which offered the classroom option.
- In Colorado and Indiana, some schools added a premium if the behind-the-wheel lessons were combined with an online course.

CHAPTER 3: PARAMETERS FOR CHANGES TO DRIVER EDUCATION REQUIREMENTS

This chapter identifies parameters for an online driver education program, and other safety initiatives for young novice drivers aged 15 to 24.

What is a parameter? For this study, a parameter was defined as an element of a program or policy choice that should be included in legislation to implement online driver education or safety initiatives for young novice drivers.

To the extent possible, these parameters reflect consensus from the Work Group members. In many cases, however, the Work Group did not reach agreement or identify a preference. Where the Work Group identified no preference, the study findings reflect background research conducted by staff throughout the course of the study.

A note about the Work Group composition: Of the 21 members of the Work Group, eight represented commercial or public schools which could see a change in business or workload from any initiative to change requirements for driver education, either for the school-aged or older novice drivers.

Work Group preferences

The Work Group generally agreed that an initial pilot project of online driver education should be targeted at novice drivers 18 and over. While some states have implemented other requirements for older novice drivers, such as requiring a new driver license applicant to have held an instruction permit for 30 to 90 days or in a few cases document supervised hours practice, in the context of this study, Work Group preferred to focus on driver education.

For student drivers aged 15 to 17, the Work Group was divided on whether online driver education is appropriate. Many viewed online education as an opportunity to make driver education more accessible and affordable. Ultimately, this could lead to safer drivers if more students enter driver education and the intermediate license program.

However, a stalwart subset of the Work Group did not support online driver education for the younger drivers, believing it will dilute the safety messages delivered in the classroom and produce more unsafe drivers. Other Work Group members observed that online educational tools are widely used in general education, where the quality of the course has been found not to be a matter of the classroom versus online setting.

During Work Group discussions, it became apparent that many believe the current knowledge test is not very rigorous and the system of testing may be easily gamed. Many agreed DOL should address these weaknesses in the current system, to ensure that newly licensed drivers have adequate knowledge and skills. DOL is currently working on curriculum and knowledge test improvements.

A Summary of Work Group Preferences and Study Findings is shown in Table 3. For each parameter, Work Group preferences are summarized along with other relevant study findings. The sections which follow provide more in-depth discussion of these parameters and findings. Table 3 below summarizes the Work Group preferences and study findings related to the two major elements of this study:

- Developing parameters for online driver education for 15 to 17 year old driver education students.
- Recommending safety enhancements for novice drivers between 18 and 24 years old

Table 3 Summary of Work Group Preferences and Study Findings

Parameter	Work Group Preferences and Study Findings
Why change current driver education or safety requirements for 15-24 year old novice drivers?	**Study findings:** 1. There are safety gains to be made for all young drivers, 15 to 24 years old • 16 and 17 year olds have the highest crash rates • 18 to 24 year olds have higher than average crash rates • Research/data do not provide a rationale for choosing an upper age limit of less than 24. 2. It would be a significant policy change to expand driver education to novice drivers over 18.
What should be the intent or purpose of any new driver education or safety initiatives for 15-24 year old novice drivers? ***How best to achieve these purposes?***	**Work Group preferences:** 1. For 18-24 year old novice drivers who have not taken driver education, any new initiative should address safety enhancements. 2. In the context of this study, the Work Group preferred to focus new requirements for 18 to 24 novice drivers on new driver education requirements rather than new driving restrictions (e.g. those associated with the Intermediate Driver's License). 3. For 15-17 year olds, new initiatives should address accessibility and affordability of driver education. 4. No worsening of existing safety outcomes. **Study findings:** 5. As a stand-alone policy, driver education has not been proven to reduce collisions. 6. As part of a multi-pronged safety approach, driver education gets more of the youngest drivers into the Intermediate Driver

Parameter	Work Group Preferences and Study Findings
	License (IDL) pathway to licensure – which has been shown to reduce collisions for 15 to 17 year olds. 7. Blending classroom and online education may make learning more attractive to students, enhance accessibility, and improve educational outcomes. 8. Washington's current knowledge and skills tests may be too easy, and may need to be strengthened. 9. Subsidy programs increase affordability.
What should online driver education look like? ***What can Washington learn from other online educators?***	**<u>Work Group Preferences:</u>** 1. Start with a new requirement for online driver education for 18-24 year old novice drivers • Goal: improve safety • Short course (less than the 36 total hours required of younger drivers) • Include behind-the-wheel requirement 2. Do not offer online driver education to 15-17 year olds <u>at this time</u>. However, if the Legislature chooses to offer it to 15-17 year olds, it should have the following elements: • Goal: accessibility and affordability • Blend classroom and online instruction • Online should <u>supplement</u>, not substitute for classroom • Teacher involvement is important • Do not change behind-the-wheel driving requirements **<u>Study Findings:</u>** 3. Definition: Alternative method of course delivery in which learning and teaching takes place via computer network. 4. The quality of an online course can be regulated by course criteria or performance outcomes. 5. Blended learning offers opportunities to improve educational outcomes.
Pilot project or not?	**<u>Work Group Preferences:</u>** 1. The new requirement for a short online + behind-the-wheel driver education program for the 18-24 year old age group, should be a permanent requirement -- **not a temporary pilot.** • It should be used as proof of concept to identify and resolve implementation problems.

Parameter	Work Group Preferences and Study Findings
What should trigger ongoing authorization of a permanent program?	2. For 15 to 17 year olds, some members of the Work Group were interested in a pilot project which evaluates performance outcomes 3. With accessibility and affordability as goals, if/when online is implemented for 15 to 17 year olds: • the State should collect data on accessibility and affordability (cost and numbers of participants, and whether it has any impact on the trend of delayed licensure). 4. For the existing driver education and any new initiatives, to ensure no decline in safety or educational outcomes and for ongoing quality improvement purposes, the State should collect data to measure collisions, citations and educational outcomes.
Implementation process and administration	**<u>Work Group Preferences:</u>** 1. Transparency of implementation is important. 2. Ensure broad participation of interests. **<u>Study findings:</u>** 3. Delegate details of program design to DOL and SPI working with a stakeholder panel. 4. Details to include: curriculum design, online teaching methods, security issues, costs. 5. Allow at least two years for implementation including periodic check-ins with Legislature and Governor's Office. 6. Additional resources will be needed at administrating agencies to design new programs and for ongoing oversight.

In-Depth Discussion of Parameters and Findings

Why change current driver education or safety requirements for 15 to 24 year old novice drivers?

The data shown earlier in this report on young driver safety makes a compelling case that there is still work to be done to decrease the risks of all young drivers on the road.

The data on crashes shows that 16 and 17 year olds have the highest rates of both serious and fatal crashes. Until drivers are in their late 20s, crash rates continue to be above average. When looking at traffic violation data, in their first two years of driving, the youngest drivers show fewer violations than their immediately older peers. However, 16 and 17 year olds are the only age group that actually increases the number of violations incurred as they become more experienced drivers.

Eighteen to 24 year old drivers may not be the riskiest drivers but they still exhibit higher than average crash and violation rates. They represent a somewhat more significant share of drivers and thus more fatalities and injuries overall. Thus this older age group would appear to be a target for new safety measures.

It will be a significant policy change to make a new driver education requirement for novice drivers between 18 and 24 years of age. Currently this age group is only subject to written and road test requirements. Fees for driving school attendance will be added to the existing costs of getting licensed.

A new requirement would also affect the commercial driver education schools, significantly increasing the pool of students subject to driver education requirements. There are 42,000 novice drivers between the ages of 18 and 24 who would be subject to this new requirement, which represents an 82% increase in the pool of driver education students. Furthermore, if the state imposed a behind-the-wheel requirement on this older age group as well, it could drive increased demand for licensed commercial driving schools.

Given the significance of this policy change, the Legislature may want to consider applying new requirements to a smaller group within the 18 to 24 year old cohort, perhaps just 18 and 19 year olds. The research conducted for this study doesn't provide strong guidance as to a lower age threshold. States with requirements for novice drivers 18 and older have either applied the requirements to all drivers regardless of age or to the under 25 year old group. The literature review included a review of research on adolescent brain development showing that during this period, our brains are more responsive to the rewards of risky behaviors, but the systems of self-regulation remain immature. However, no specific age threshold is identified where the brain's balance leans more toward self-regulation.

What should be the intent or purpose of new driver education initiatives for 15 to 24 year olds?

The Work Group identified meeting Target Zero's safety goals as most important for the entire 15 to 24 year old group. However, they identified different goals for the two age groups.

For novice drivers 18 and older, the Work Group agreed that there are safety gains to be made. Unlike student drivers, older novices have not been targeted with requirements for driver education or restrictions on driving during the first few months of licensure.

For the 15 to 17 year old drivers, online driver education may increase accessibility (by requiring fewer class periods and trips to class) and perhaps affordability. Furthermore, if more novice drivers choose to enroll in driver education before age 18, they will also be subject to the practice driving period and driving restrictions of the intermediate driver licensing law.

The members of the Work Group who were opposed online driver education for 15-17 year olds believed that it would be a poorer educational experience and have negative impacts on safety outcomes. To reflect this concern, this study recommends that a final objective of any new driver education initiative would be to ensure existing safety and educational outcomes are at least maintained and not worsened.

What is the best way to achieve these purposes?

Safety. Based on the literature review and other states' programs, Intermediate/Graduated Driver License programs are viewed as having the most success in reducing collisions for 15 to 17 year olds.

The literature review conducted for this study indicates that the jury is still out as to the impact of driving restrictions on safety outcomes for older novice drivers. In the context of this study, the Work Group preferred to focus on driver education for the 18 and older group. There were also some skeptics of IDL-like driving restrictions for the 18 and older group, due to the lack of parental oversight for older novice drivers, the ease of falsifying the journal of practice hours, and the lack of any guarantee of effective driving practice during the instruction permit period.

The fact that driver education, as a stand-alone policy, has not been shown to reduce collisions presents a difficulty for any policy recommendation which links driver education and safety. However, driver education is only one piece of a multi-pronged safety approach. Getting more young drivers into traffic safety education early also sets them on the Intermediate Driver License pathway to licensure, which has shown positive safety impacts for the youngest drivers.

Furthermore, the lack of a direct relationship between reduced collisions and driver education shouldn't deter improvements to the existing driver education programs. As discussed earlier, blending classroom and online education may improve educational outcomes and could make learning more attractive to students and enhance accessibility.

An unexpected outcome of the Work Group discussions was the general agreement that the current driver licensing written and skills exams are not demanding enough and should be strengthened.

New requirement for frequent violators? A number of Work Group members expressed an interest in making a new driver education requirement (online or otherwise) apply to drivers of any age who receive multiple citations or are seeking reinstatement of their driver license. Cities and local courts already have the option to establish "traffic schools" to defer or dismiss traffic citations. Traffic schools are locally controlled; each locality may define when to require traffic school attendance and the curriculum for the program. Analysis of a statewide requirement for certain drivers to attend traffic schools was beyond the scope of this study. More research would be needed on how existing programs function, including violations triggering traffic school, benefits to attendees, curriculum requirements, and instructor requirements.

Accessibility and Affordability. Research indicates the recent trend of licensure delay is largely due to the cost of driving, including the cost of car ownership, fuel and training, and licensing requirements. Some believe that reducing the price of driver education may increase accessibility and help to mitigate the licensure delay trend.

Online education may not reduce the cost of driver education. The review of pricing in other states only showed one state where the price of online coursework combined with behind-the-wheel lessons was cheaper than the traditional format. Some schools in online states even charged a premium if a student combined an online course with behind-the-wheel lessons.

In a blended classroom and online course, the opportunities for reduced cost can only be at the margin. According to Work Group members who operate driving schools, about 75 percent of the cost of driver education is the behind-the-wheel lessons and the remaining 25 percent is classroom costs. Blending may reduce the number of classroom meetings, but any savings may be offset by teacher preparation and interactions with students electronically.

A number of Work Group members suggested looking at Washington's Motorcycle Safety Education program as a model for subsidizing student driver education costs. Subsidies would be the most direct way to lower driver education costs. Efforts to pass legislation to create grant programs for driver education were not successful in the early 2000s.

In the Motorcycle Safety Education program, rider education is voluntary. Riders choosing to take a motorcycle safety education course may receive a $100 subsidy, funded by endorsement and instruction permit fees paid by motorcyclists. In the 2011-13 biennium, about 29,000 students received subsidized training, or almost 80% of all students. Schools apply to receive subsidy grants and if chosen as a grant recipient, must charge $50 tuition for students under 18 and $125 for students 18 and older. DOL distributes grants to successful applicants in amounts which are intended to compensate the school for training expenses not covered by the student fees.

If a similar program were made available to 80% of the roughly 50,000 newly licensed 16 and 17 year olds, the subsidy costs alone would be about $4 million per year, not counting administrative costs. Among the issues to consider in creating a similar program for driver

education would be the appropriate subsidized price level, school and student eligibility characteristics, the source of funds to pay for the program, and how program requirements might differ for public versus commercial schools.

What should online driver education look like?

Online driver education is an alternative method of instruction for driver education courses in which learning and teaching takes place via computer network. During initial conversations with legislators and other Work Group members, it became apparent that many believed that online driver education would most likely be low quality, have poor educational outcomes, and students would find it easy to minimize their effort.

Through the Work Group discussions, online program demonstrations, and research supporting this study, a number of parameter options emerged which could address many of these concerns.

Work Group members focused most of their comments about online driver education on this aspect of the discussion – what online driver education should look like. While the Work Group was opposed to offering it initially to 15-17 year old students, they did identify the following features that an online program should have if offered to 15-17 year old students:

- a blended model of classroom and online educational tools;
- online tools should be used only as a supplement to existing classroom work and not to fully replace classroom work as has been the case in other states;
- no change to behind-the-wheel requirements; and
- teacher involvement should be retained.

What can be learned from other online educators?

Based on the experience of educators elsewhere, the state can expect challenges in its implementation of online driver education. Any new initiative which seeks to effectively blend online material into the traditional classroom will need to determine the criteria for approving curricula which encourage collaborative, interactive learning as well as design instructor training on new teaching methods which effectively incorporate online tools.

SPI's Digital Learning Program. While no other state offers a role model for implementing online driver education which blends the classroom and online tools, Washington State's own Digital Learning program offers some guidance. It has been in place at SPI since 2009. SPI defines online education to recognize the mixed use of classroom and online tools. The definition also emphasizes the primary role of the teacher, requires student access to the teacher, and allows online courses to be delivered at school as part of regularly scheduled school day (WAC 392-501-010).

SPI uses a rigorous and comprehensive approval process consistent with iNACOL standards for online education. It is designed for providers with multiple course offerings for which a comprehensive approval process is more appropriate. To be approved as a provider of online courses to multiple school districts, an applicant must submit evidence showing how they meet

54 criteria. The criteria focus on teaching methods: instructional design, student assessment, classroom management, course evaluation, student support, school-based support, technology, staff development, and program management. Single school district online providers must only show accreditation and do not have to go through the whole process.

In contrast, driver education schools teach a single course, suggesting that SPI's rigorous and comprehensive approval process may need to be simplified if applied to online driver education. DOL's current curriculum review ensures that subject matter requirements are met and does not examine teaching methods. If DOL adopts a criteria-based review of the methods of using online driver education, the agency may also want to apply some of the same principals to its oversight of conventional driver education classroom curricula.

Currently SPI is in the process of modifying the online course approval process to only apply to new course providers (instead of requiring re-approval every four years). Once approved, providers will be measured against student achievement performance targets and will enter the rescindment process if targets are not met.

Other online programs. The National Highway Transportation Safety Administration's 2012 review of online driver education programs around the country includes a useful guide to the characteristics of online driver education programs which are oriented toward student engagement. Key characteristics include such features as avoiding lengthy screens of text, having certified driving instructors provide personalized feedback, and parental involvement.

The review of research literature generally supports a "blended learning" model for online driver education. One analysis of studies conducted from 1996 to 2008 found that students in online learning settings that blended elements of online and face-to-face instruction performed better than those receiving face-to-face instruction.

A recent review of studies evaluating technology initiatives for at-risk high school students found that achievement was improved when technology is combined, or blended, with teacher support. This study found that newer computer-based instruction can diagnose students' levels of understanding, customize material, offer more interactive instructional activities, provide feedback to students, and detailed information about student progress.

There is considerable interest in "flipped classrooms," a type of blending of classroom and computer-based instruction in which interactive group learning activities take place inside the classroom, and direct computer-based individual instruction takes place outside the classroom. Despite the buzz, the research in this area is not well developed.

Pilot project or not?

A pilot project is a temporary program used to test the effectiveness of an initiative. If the outcomes are not met, the pilot is modified or cancelled. The data gathering for testing the outcomes may be structured to produce statistically significant results and contribute to national program evaluation research, or the data gathering may be less formal and measure outcomes for

project managers to evaluate. In practice, many pilot projects are not temporary and are set up as a first phase of full implementation of a program.

During Work Group discussions, the Work Group member representing SPI's Digital Learning program observed that there isn't a need for a pilot project to test whether online education can work. SPI and local school districts have been using online teaching methods for years and are knowledgeable about what works.

Implementing a pilot project will not be without controversy. Many Work Group comments suggest that a pilot project which is temporary, very limited in size, or which assigns schools to test or control categories for a research study may be unpopular with the driving schools. Some of the driving school representatives said that getting to offer an online program would be a market advantage and make some schools more attractive than others. Another said that school participation in a pilot would be low if the pilot is too small. In that case, it may not be worth the cost of participation if the costs cannot be spread over all of the school's students. This same concept might apply to a temporary program as well.

For 18 to 24 year old novice drivers. The Work Group supported authorizing online driver education as a new permanent requirement for older novice drivers, not as a temporary pilot. They proposed a phase-in approach, focused on working through implementation issues. The program could serve as a proof of concept, if the Legislature later decided to implement online driver education for younger novice drivers.

The Work Group also generally agreed that older students should have a shorter course than the current requirement for 15 to 17 year olds, and that the affordability of meeting a new requirement should be kept in mind.

For 15-17 year old novice drivers. The Work Group was divided on the advisability of implementing online driver education for 15-17 year olds. While some supported the idea, believing there will be an increase in accessibility and affordability, others opposed it believing it will dilute the safety messages delivered in the classroom setting and produce more unsafe drivers. However, if the Legislature desires to proceed with online driver education for the 15-17 year olds, a measured approach may be appropriate. Lessons learned from implementation of online driver education for older students could provide a framework for implementation.

A measured approach for 15 to 17 year olds could mean delaying implementation until the requirement for older novice drivers has been implemented and evaluated, a slower program phase-in (perhaps by subject matter), or a longer-term research pilot designed to increase the quality of Washington State's driver education program over the next five to ten years.

What should be measured to trigger permanent authorization? For the 18-24 year old group, the Work Group's goal of increasing safety suggests permanent authorization of online driver education could be tied to showing improvement in collisions and citations, which would likely be a high bar to achieve. If as proposed by the Work Group, the new program is set up as a phase-in of a permanent program, collision and citation data would provide a baseline for ongoing quality improvement for the program.

For the 15 to 17 year olds, the Work Group's goal of increasing accessibility would suggest tying permanent authorization of online driver education to outcomes relating to accessibility (cost and numbers of participants) and whether it has any impact on the trend of delayed licensure. In addition, given the concerns about potential negative impacts of online driver education, permanent authorization may need to be tied to demonstrating that safety and educational performance measures do not decline.

Many Work Group members were interested in knowing the relationship between driver safety and the education the driver received. A useful management tool could be developed which ties individuals' driving records to the driver education program completed, if any, and even to their licensure exam performance. While it may be difficult to prove a causal relationship, it may be possible to identify trends worth further evaluation either for new initiatives or the existing driver education program.

Implementation process and administration

Currently, DOL and SPI oversee driver education programs. DOL has a small staff dedicated to oversight, SPI has one staff person with responsibility both for managing student transportation funding to local school districts and oversight of traffic safety education. Local school districts do not receive any state funding for traffic safety education. Public schools and commercial driver training schools charge similar per-student fees.

The two state agencies coordinate closely, with DOL taking the lead and SPI adopting rules consistent with those that apply to commercial driving schools. SPI has advocated for consolidating oversight at DOL, which would be consistent with the national driver training standards.

Design and implementation should be transparent. While the Work Group did not directly weigh in on implementation, they did express an interest in transparency and in participating in a stakeholder panel as part of designing and implementing online driver education. To ensure transparency of implementation decisions, the Legislature could delegate many details of program design to DOL under the guidance of a stakeholder panel, keeping in mind the intent and objectives stated in the authorizing legislation.

Details which may be appropriate for the stakeholder panel and DOL to decide would include:

- Curriculum elements – subject matter, schedule/hours requirements, online elements, approval process, standards to be met.
- Online teaching methods – virtual classrooms, internet-based, student-teacher engagement methods.
- Target populations – for example, rural, non-English speaking, and struggling students.
- Security issues – ensuring the identity of online students, validity of testing.
- School participation.
- Cost – to students, schools, state.

Allow sufficient time and funding for program design and implementation. Washington's recent experience with allowing commercial driving schools to conduct the knowledge and skills examinations suggests that it is important not to rush design and implementation of a new online driver education program. Authorizing legislation should allow at least two years to create the stakeholder panel, design the program, develop the curriculum, and test the program before implementation. This would also allow for periodic reports to the Legislature and Governor to review program design details and implementation progress, and to clarify legislative intent and direction as needed. An interim report could also include baseline outcome data by age group on collisions, citations, and driver license examination performance. It is also worth noting that data may need to be collected for five years or longer to see effects on collision and citation behavior.

It is also worth reiterating that either of these initiatives (online driver education or new requirements for older novice drivers) will pose an implementation challenge for the driving schools and administrative agencies alike. Given the limited number of staff devoted to these programs at DOL and SPI, additional resources likely will be needed to design and execute new programs while continuing ongoing administration of the existing driver education programs.

APPENDICES

APPENDIX A: Driver Education Literature Review

GENERAL YOUNG DRIVER SAFETY TRENDS

"Target Zero: Washington State Strategic Highway Safety Plan 2013," Washington Traffic Safety Commission, 2013.
www.targetzero.com
Each state must have a Strategic Highway Safety Plan and Washington's is called Target Zero. The plan coordinates traffic safety program across jurisdictions and aligns priorities and strategies based on data analysis of factors contributing to fatal and serious injury collisions on Washington roads. The plan identifies strategies for implementation over the next four years. Target Zero groups the contributing factors into Priority Levels one through three. Priority Level One factors, including Young Drivers 16 to 25, contributed to at least 30% of fatalities and serious injuries.

"Miles to go," Children's Hospital of Philadelphia and State Farm, 2012.
http://teendriving.statefarm.com/system/article_downloads/2013_miles_to_go_report.pdf
http://teendriving.statefarm.com/research-stats/2012-miles-to-go-report
A PowerPoint presentation, the 2012 report contains public health statistics on teen causes of death and driver safety, based on data for 2005 to 2010. Teens behind the wheel and their peer passengers accounted for one in every five deaths of 15-19 year olds in 2009; it was the top cause of death for this age group. There were steep declines in numbers between 2005 and 2009. Death rates were lowest in states with Graduated Driver License rules. Washington State has lower rate than national average but is not in the group of states with the best performance. Washington's rate of decline appears to have been slower than in other above average states.

"Driving through the eyes of teens," Children's Hospital of Philadelphia and State Farm, 2006.
http://teendriving.statefarm.com/research-stats/driving-through-the-eyes-of-teens-a-closer-look
The National Young Driver Study surveyed teens in 68 randomly selected high schools around the country in 2006 about safe driving attitudes. The purpose of the survey was to develop more effective interventions and tailor safety messages to teens. Key findings from the NYDS data:

- Teens don't consider themselves inexperienced drivers (being licensed =experience).
- Parents play an important role in teen driving safety: parents who set rules and monitor in a helpful way result in teens that are half as likely to be in a crash.
- Limiting primary access to vehicles for 1st 6 to 12 months reduces crash risk by half
- Unlicensed teen drivers engage in more unsafe behaviors than licensed teen drivers: speeding, DUI, seat belts.

"Curbing teen driver crashes," Governors Highway Safety Association and State Farm, 2012.
http://www.ghsa.org/html/publications/pdf/sfteens12.pdf
A report on state programs and initiatives, with descriptions of efforts to improve and enforce intermediate driver licensing laws, effectively engage parents, effectively message to teens about risky behavior, and address shortcomings in driver education.

The driver education section described efforts to increase the hours of behind-the-wheel training and efforts to fully fund administrative activities at state agencies charged with driving school oversight.

Organization for Economic Co-operation and Development (OECD) and the European Conference of Ministers of Transport (ECMT), "Young Drivers: The Road to Safety," 2006.
http://www.internationaltransportforum.org/Pub/pdf/06YoungDrivers.pdf

This report is the result of two years of study in the field of young driver risk throughout OECD and ECMT member countries in Europe, North America, Asia, and Australia/New Zealand. The findings of the study are consistent with those of comparable studies reviewed that focused on North America. A few emphases which are different: greater weight is given to increasing initial licensing age, there is more focus on the greater risk presented by young male drivers, and countermeasures include public support of increasing transportation options for young people so they don't have to drive.

While traffic death rates have decreased in many countries in recent decades, these reductions have mirrored overall improvements in road safety. Death rates for 18 to 24 year olds drivers typically remain more than double those of older drivers.

The report identifies experience and age as the key factors behind the problem and observes that the greatest risk faced by young, novice drivers is in the period immediately following licensing for solo driving. The report suggests counter measures: increasing public awareness, implementing overall road safety improvements that address young driver risk, resisting efforts to lower initial licensing age, promoting other transportation options for young people, introducing high levels of pre-licensing accompanied practice (50 to 120 hours), implementing protective restrictions during initial solo driving (including a lower legal blood alcohol level), creating disincentives to inappropriate driving behavior, improving driver training and testing, considering the impact of general public policy decisions on road safety, and understanding the benefit of technological solutions.

The included literature reviews explore why young drivers have very high risk levels and the effectiveness of countermeasures. They confirm the finding that pre-license driver training is not consistently effective as a safety measure, as it does not reduce crash rates.

Regarding driver training, the report recommends a curriculum outline which addresses all factors contributing to risky driving, including psychological and social factors. Current driver training focuses only on vehicle control and application of traffic rules. The recommended objective is creating safer drivers, capable of self-assessment and understanding risk factors, rather than driver exam passage.

Other recommendations related to driver training: conduct research to inform means of improving driver training, ensure that driver instructors have the necessary knowledge and teaching skills, provide accompanying drivers who are often parents with information

about how to use the practice hours effectively, and evaluate driver tests to increase their ability to filter out unsafe drivers.

Brian C Tefft, Allan F Williams and Jurek G Grabowski, "Driver licensing and reasons for delaying licensure among young adults ages 18-20, United States, 2012". Published in *Injury Epidemiology, a SpringerOpen Journal, 2014*
http://www.injepijournal.com/content/1/1/4
This study examined the prevalence and timing of licensure among young adults, and explored factors associated with delaying licensure among those not licensed before age 18. Of particular interest to the study was whether license restrictions implemented as part of graduated driver licensing (GDL) systems have contributed to the delay. Some experts have suggested that GDL might encourage young people to wait until age 18 to obtain a license, to avoid GDL requirements, resulting in older teenagers having less driving experience and higher crash risk than they might have had without GDL.

The study surveyed 18-20 year olds as to the timing of driver's license acquisition (a) within 12 months of the state minimum age for licensure, (b) before age 18. Respondents not licensed before age 18 were asked to rate the importance of various possible reasons for delaying licensure.

Results and Conclusions: 54% of respondents were licensed before age 18. Blacks (37%) and Hispanics (29%) were less likely than non-Hispanic whites (67%) to be licensed before age 18. Lower household income was independently associated with delayed licensure. The most common self-reported reasons for not becoming licensed sooner were not having a car, being able to get around without driving, and costs associated with driving.

There was little evidence that GDL is a major contributor to delayed licensure; however, a substantial minority of young people do not obtain a driver's license until age 18 or older and thus begin driving outside of the GDL system, which in most states only applies to new drivers younger than 18.

Steinberg, Laurence, "Should the Science of Adolescent Brain Development Inform Public Policy?" Issues in Science and Technology, Spring 2012.

Research since the mid-1990s has shown that important changes in brain anatomy take place far longer into development than was previously thought. Adolescents mature intellectually before they mature socially or emotionally. In particular, middle adolescence is a period when our brains are at their most responsive to rewards but the systems for self-regulation are still immature.

Policy makers in criminal justice and other areas are seeking to learn if neuroscience can help inform the question of where to draw age boundaries between adolescence and adulthood. There is no simple answer to this question. To the extent that an activity is subject to the conditions where adolescent brains are more immature, for instance

impulsivity and sensation seeking may play a role in committing violent crimes, the author argues for a higher age threshold for adulthood.

Four specific structural changes in the brain during adolescence are noteworthy:

- During pre- and early adolescence, synaptic pruning leads to major improvements in logical reasoning;
- During early adolescence, changes in the density and distribution of dopamine receptors have important implications for sensation seeking.
- In late adolescence and early adulthood, the sheathing of nerve fibers leads to more efficient connections within the pre-frontal cortex helping advance planning and the weighing of risks and rewards.
- In late adolescence the internal connections of the brain are strengthened, helping with the processing of emotional information and self-control.

These changes are paralleled by changes in how the brain works:

- Over the course of adolescence and early adulthood, the brain employs a wider network of regions during tasks requiring self-control, improving self-regulation.
- Adolescent reward centers activated more than occurs in children and adults. This heightened sensitivity is greater when anticipating rewards and when friends are present.
- With age, increased involvement of multiple brain regions in response to stimuli helps to control impulses.

The author also notes that there is growing evidence that the actual structure of prefrontal brain regions active in self-control can be influenced by training and practice.

DRIVER EDUCATION

Lonero, Lawrence and Dan Mayhew, "Large-Scale Evaluation of Driver Education: Review of the Literature on Driver Education Evaluation, 2010 Update," Northport Associates and Traffic Injury Research Foundation, sponsored by the AAA Foundation.
https://www.aaafoundation.org/large-scale-evaluation-driver-education-review-literature-driver-education-evaluation-2010-update
This paper is an updated literature review of driver education evaluation research intended to complement the AAA Foundations ongoing "Large Scale Evaluation of Driver Education Project."

Driver education programs are seeking to mitigate challenging difficulties presented by young novice drivers:

- Crash rates for 16 year olds are ten times the rate of experienced adult drivers and three times the rate of 18 year olds;
- Inadvertent errors and immature decision making both contribute to excess risk;
- Young drivers make deliberate choices to drive too fast, inadequate safety margins, with unrealistic confidence.

APPENDIX A: Driver Education Literature Review

Reviews of driver education program evaluations have found mixed results. Typically, evaluations find no statistically significant impact on crash records. In addition, the authors observe how little the evaluation literature has contributed to developing and improving programs.

Evaluating driver education based on crash rates is problematic because crashes are rare and therefore evaluations must have a very large sample to be statistically significant. Furthermore, crashes have complex causes; the reasons for minor crashes very different from reasons for fatal and serious-injury crashes. As a result, evaluations need to develop meaningful intermediate measures of program outcomes.

The authors observe that while good instruction can facilitate learning of cognitive and psychomotor skills, better knowledge and skills do not automatically lead to fewer crashes. Substantial evidence suggests that more skillful drivers do not necessarily crash less. Improvements in safety probably require safer driving behavior and habits, not just better skills. Lasting behavior leading to lower risk performance in all health and safety fields is much harder to accomplish than is generally understood.

"A Fresh Look at Driver Education in America," NHTSA, April 2012.
http://ntl.bts.gov/lib/45000/45700/45711/811543.pdf

This report includes detailed state-by-state tables of driver licensing requirements, driver education program requirements and driver education statistics. In addition, the report includes three literature reviews:

- the efficacy of driver education for teens,
- best teaching practices in the general education literature and
- injury prevention strategies for other risky behaviors (smoking, unsafe sex, obesity).

The project also worked with an expert review panel to discuss whether a new model of driver education integrated with GDL is warranted. The report describes an expanded driver education sequence addressing crash risks.

The key findings were: (1) driver education appears to do a good job in preparing students to pass State licensing examinations; (2) the expectation that driver education by itself will lead to a decreased teen crash rate is unrealistic; (3) GDL has shown evidence of a significant safety benefit and may benefit from greater parental involvement; (4) expanding driver education training beyond the current classroom and behind-the-wheel training by integrating it with graduated driver licensing may have increased traffic safety benefits for young drivers; and (5) an expanded driver education system would start preparing future drivers at an earlier age and encompass more stringent testing than is characteristic of current driver licensing practices.

Twenty-three States require driver education for all drivers under the age of 18. Most of the States had both high school and commercial programs in operation. At the time of the study, six states accepted internet driver education and 3 states accepted parent-taught

driver education. The great majority of driver education programs include 30 hours of classroom instruction although the lowest number is 8 hours and the highest number is 56 hours. Oversight varies widely among States and often involves both the state Departments of Motor Vehicles and Education.

AAA Foundation for Traffic Safety, "Graduated Driver Licensing Research Review, 2010-Present," November 2012.

Graduated driver licensing (GDL) laws were introduced in the mid-1990s to phase in exposure to driving for novice drivers under 18 years old. GDL replaced laws which allowed quick and easy access to full driving privileges. The core elements of a GDL program are an extended learner period, a supervised learning period, during which driving is supervised, and a restricted phase after initial licensure, with limits on night driving and carrying passengers. All jurisdictions in Canada and the United States have versions of GDL and many have upgraded their original legislation. There is a large amount of research on GDL establishing it as a solidly evidence-based strategy.

The research is clear that comprehensive GDL programs reduce all types of crashes in the program age groups. A 2012 analysis of 11 studies reported an overall crash reduction of 22 percent for 16 year olds. For 17 year olds, this same study reported a 6 percent decrease in crashes. Hispanics have not been as positively affected, suggesting that different races/ethnicities may require different/modified strategies.

Regarding 18 and 19 year olds, findings have not been consistent about the impact of GDL restrictions after they expire. This paper reviews studies which show both increases and decreases in involvement in fatal crashes for 18 year olds in GDL states. Two Australian states which have implemented GDL restrictions for older novice drivers are showing preliminary results of significant decreases in crashes for this demographic.

It is well established that crash risk during the **learner permit** period is low. Crash reduction benefits have been shown for older starting ages and longer learner periods. It is also well established that the highest crash rate occurs during the first month of driving and there are rapid decreases over the following months. The safety effects of **passenger and night-time restrictions** have been confirmed in recent studies, with driver deaths five times as high between 10 p.m. and 6 a.m. and two times as high with two or more passengers.

The positive effects of night and passenger restrictions indicate that there is considerable compliance with the restrictions, but compliance is not universal. A 2012 study found that 15 to 17 year olds were non-compliant with night-time restrictions in 15% of fatal crashes. Other studies have shown even larger percentages of fatal crashes in which one or more teenage passengers are present.

Few studies have shown effective methods of **compliance** with GDL restrictions. New Jersey's decal law, passed in 2010, requires learners and restricted drivers to display a decal when they drive. Designed to facilitate enforcement, no studies had been

completed of the crash impacts of the law. A 2012 study found that many teens do not use the decals as required. Decal use has been controversial due to concerns about targeting teen drivers by predators.

There is a lot of interest in the role of parents shaping driving behavior, but the research is mostly still underway. Parents generally support stronger licensing laws, especially night-time and passenger restrictions. Programs are proliferating which are aimed at providing parents with skills to more effectively supervise novice drivers as well as to talk about, demonstrate, and practice safe driving skills with their teens.

Curry, Allison, M. Pfeiffer, D. Durbin, M. Elliot, and K. Kim. "Young Driver Licensing in New Jersey: Rates and Trends, 2006-2011," AAA Foundation for Traffic Safety, July 2014.

This study looks at trends of licensure delay in New Jersey, the only state which applies graduated driver licensing laws to older novice drivers. Although the general perception is that licensure rates have declined in the U.S., few studies have assessed the trend. This study analyzes New Jersey's rates of licensure among 17 to 20 year olds, by gender, income and race/ethnicity. The results of the analysis were that the rate and timing of licensure in NJ has been relatively stable from 2006 to 2011, with a one to three percentage decline in rates over the time period. This output contrasts with U.S. survey results which documented a 12% decline.

Because NJ is the only state which applies Graduated Driver Licensing requirements to drivers between 18 and 20 years old, these results suggest that GDL laws do not contribute significantly to licensure delay.

Starkly different patterns of licensure were observed by socio-economic indicators: 65% of 17 year olds in high income zip codes were licensed in the first month of eligibility compared to only 13 percent in low income zip codes. These results confirm findings in other studies that teens delay licensure primarily for economic reasons.

Pezoldt, V.J., K.N. Womack, and D.E. Morris. "Parent Taught Driver Education in Texas: A Comparative Evaluation," NHTSA/Texas Transportation Institute, April 2007.

In 1997, Texas enacted parent or guardian-taught novice driver training for licensing between age 16 and 18, granting the same responsibilities as those for state-licensed and approved novice driver education instructors and programs. In a 1994 report to Congress, NHTSA noted that parents/guardians must play a greater role in the education of novice drivers as there will never be enough money to fully train novice drivers and there will always be a need for additional supervision during initial licensure.

The study found that there is evidence to suggest that parent-taught driver education has a negative influence on the overall safety of novice drivers in Texas, especially in terms of crash involvement.

Specific conclusions:

- Since the implementation of the graduated driver licensing (GDL) program, parent-taught students obtained instructional permits at a somewhat younger age than commercial/public school students. Earlier initial licensing increases risk exposure for the novice driver, albeit during the period of the most supervision.
- As measured by state-administered tests, parent-taught students demonstrated poorer driving knowledge and driving skills, requiring more attempts to pass the exams.
- Parent-taught novice drivers were convicted of more traffic offenses than their peers receiving training in other educational settings.
- During the GDL period when adult supervision is reduced and then removed, parent-taught novice drivers experience more crashes and more serious crashes than their peers receiving training in other educational settings.
- It is worth noting that since the implementation of GDL, the authors found substantially fewer convictions and crashes for all novice drivers.

"Novice Teen Driver: Education and Training Administrative Standards," NHTSA, June 2008.
http://ntl.bts.gov/lib/31000/31100/31169/5985-10-09-09-v3.pdf

The standards were developed by a committee of professional driver educators, specialists, and stakeholders with assistance by NHTSA. The standards are not required for state driver education programs, but are intended as a guide to quality, consistent driver education and training. Administrative standards describe program features such as course schedule and instructor training and are distinct from curriculum content standards. Separate curriculum content standards were updated in 2012 by the American Driver and Traffic Safety Education Association (ADTSEA).

Program Administration: This category provides a checklist of elements of program governance, procedures, audit, noncompliance sanctions, and evaluation. Examples include: single state administrator (or coordination among agencies) and a full-time state administrator of driver education who ought to be a qualified training instructor and curricula ought to have written goals and objectives.

Curriculum and schedule: The standards recommend adoption of nationally recognized curriculum content standards. The suggested curriculum schedule would be in two stages. For the first stage, a minimum of 45 hours in the classroom, ten hours behind-the-wheel, and ten hours in-car observation (student observes another student's BTW lesson) are recommended. In the second stage, a minimum of ten hours is recommended (not clear whether this is classroom or field training). In addition, it is recommended that the field training be enhanced by simulation or driving range practice.

Instructor Qualifications: The standards recommend standardized instructor training applicable to teachers in public and commercial schools. The course of study should be no less than 120 hours, include training in best practices in course delivery. Instructors

should be required to pass a written exam, complete annual continuing education hours, and an annual driving record review.

Parent Involvement: The standards recommend requiring parents to attend both pre- and post-course sessions on their role in driver education. A pre-course session should outline parental responsibilities for modeling safe driving behavior and provide best practices information to assist in supervising the teen driver. A final debriefing with the instructor should pass on information about the teen driver's proficiency and parents' ongoing responsibility.

Coordination with Driver Licensing: The standards recommend a formal system of communication and collaboration between the driver education/training agency and the driver licensing agency; integration of the intermediate driver licensing requirements with driver education; no reduction of time requirements of intermediate driver licensing associated with completing driver education; prevention of fraud in reporting of supervised hours; and requirements relating to knowledge and skill exams.

ONLINE DRIVER EDUCATION

"Examination of Supplemental Driver Training and Online Basic Driver Education," NHTSA, June 2012
http://ntl.bts.gov/lib/45000/45700/45712/811609.pdf

Related: AAA Foundation for Traffic Safety, "Online Basic Driver Education Programs," October 2011.
https://www.aaafoundation.org/online-basic-driver-education-programs

Supplemental Driver Training: The NHTSA report sought to review post-licensure programs addressing skills beyond basic driver education. The programs described are voluntary supplemental driver courses, rather than state required courses. The reasons for taking the course included: parental requirements, obeying court orders, removal of points, thrill seeking, and insurance discounts. The courses included basic driver education, advanced driver education, skid recovery training, fleet driver training, and race track programs. Of the programs to increase safety, topics may have included advanced vehicle handling and control and techniques for hazard anticipation.

The evidence of a safety benefit of supplement programs was mixed. Some studies have shown that hazard anticipation training may increase safety. However, evaluations of the effects of "advanced driving performance" courses suggest that these courses may affect safety negatively by engendering a false sense of confidence in young drivers. Generally, there were few evaluations and little or no oversight of post-licensure programs.

Online Driver Education: The NHTSA report describes the status of online driver education in the U.S. At the time of publication, 15 states accepted online driver education program as a substitute for the entire classroom portion of driver education.

Forty separate online programs were identified, of which about ten were offered by public schools or colleges.

Most do not require integration of the online coursework with behind-the-wheel instruction. The state by state review primarily describes approval process and requirements for online programs and whether programs were offered by commercial or public schools. There are limited evaluations of programs, and when data is collected studies don't seem to have been made available. Features of online programs reviewed: text intensiveness of material, methods of student engagement, availability of instructors, monitoring of time spent on course, identity verification, and exam security.

The NHTSA report classified the courses according to level of student engagement. The AAA Foundation's summary of this work identifies seven key components of online course delivery and strong versus weak characteristics for each component.

The NHTSA report did not recommend a best model, but identified promising emerging trends. These included partnerships between virtual high schools and some national online providers in Texas and Florida. The combination allows a blending of online work and teacher-student engagement.

Literature Review: The NHTSA report also includes a literature review of research on driver education generally, field training, and computer-based training. It is worth noting that while there is a long history of research on general driver education, the research on online delivery and programs for older novice drivers is much less developed. The following findings are drawn from research identified in this part of the report.

A 2010 literature review (see next abstract, Means et. al., 2010) of research on general internet-based learning (not driver education focused) found that most evaluated programs were for college-aged students. The review also found benefits in programs which blend the use of online and classroom.

One controlled study of driver education delivered online versus in classroom, found no significant difference in exam passage; although online students were more likely to have to take the exam a second time (see Masten and Chapman 2003). A series of studies of computer programs designed to enhance specific skills (such as hazard anticipation and intersection decision-making) suggest some successful outcomes.

ONLINE GENERAL EDUCATION

Means, Barbara, et. al., "Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies," U.S. Department of Education, Center for Technology in Learning, September 2010.

A systematic search of the research literature from 1996 through July 2008 identified more than a thousand empirical studies of online learning for general education. Analysts screened these studies to find those that (a) contrasted an online to a face-to-face

condition, (b) measured student learning outcomes, (c) used a rigorous research design, and (d) provided adequate information to calculate an effect size. As a result of this screening, 50 independent effects were identified that could be subjected to meta-analysis.

This meta-analysis approach found that, on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction. Learning outcome measures included scores on standardized tests, scores on teacher-created assessments (assignments, midterm/final exams), and grades. The difference between student outcomes for online and face-to-face classes—measured as the difference between treatment and control means, divided by the pooled standard deviation—was larger in those studies contrasting conditions that blended elements of online and face-to-face instruction with conditions taught entirely face-to-face. Analysts noted that these blended conditions often included additional learning time and instructional elements not received by students in control conditions. This finding suggests that the positive effects associated with blended learning should not be attributed to the media, per se. An unexpected finding was the small number of rigorous published studies contrasting online and face-to-face learning conditions for K–12 students. In light of this, caution is required in generalizing to the K–12 population because the results are derived for the most part from studies in other settings (e.g., medical training, higher education).

Darling-Hammond L., M. Zielezinski, and S. Goldman. "Using Technology to Support At-Risk Students' Learning," Stanford Center for Opportunity Policy in Education, September 2014.

This research paper reviews 70 studies describing technology initiatives for at-risk high school students. Barriers include the low computer ownership and internet access among low-income teens and teens of color. Teachers in high poverty schools are much more likely to report that the lack of access to digital technologies is a challenge in their classroom. Furthermore, more than 70 percent of public schools do not have sufficient broadband to allow their students to engage in digital learning at the same time.

The research finds that using computers as replacements for teachers in traditional drill exercises or as computerize workbooks has not produced success for at-risk students. Newer computer-based instruction, however, can diagnose students' levels of understanding, customize material, offer more interactive instructional activities, provide feedback to students, and detailed information about student progress.

More interactive, proactive, and teacher-supported uses have helped students improve achievement. The report offers the following recommendations:

- Technology initiatives need to ensure one-to-one computer access.
- Speed internet connections must be available when implementing digital learning programs.
- At-risk students benefit most from technology which promotes interactivity and engagement with data and information in multiple forms.

- Instructional plans should enable students to create content as a means to learning material.
- Blended learning environments offer significant levels of teacher support and opportunities for interactions among students as a companion to technology.

Bishop, J. L., M. Verleger. "The Flipped Classroom: A Survey of the Research," American Society for Engineering Education, 2013.

There is a considerable buzz about the "flipped classroom," however there is a lack of consensus about its effectiveness. The term "flipped" comes from the inversion of events taking place in the classroom and outside the classroom: interactive group learning activities inside the classroom and direct computer-based individual instruction outside the classroom.

The theoretical foundations of the flipped classroom are based in student-centered learning principles and focus on using classroom time for student-teacher and peer-assisted collaborative learning activities, instead of lecture.

Research on the success of the flipped classroom is not well developed. This research paper was interested in the application of the teaching method to college level engineering students. Nevertheless, it is telling that study found a limited number of studies, only one of which described a K-12 program. Most of the studies described student opinions of the method of instruction. The researchers found only one study which examined student performance in a flipped environment, showing significantly higher scores on tests, assignments, and projects. The results were encouraging but not sufficient evidence of a general benefit of the teaching method.

"National Standards for Quality Online Courses," International Association for K-12 Online Learning (iNACOL), version 2, October 2011.
http://www.inacol.org/resources/publications/national-quality-standards/

This updated version of national standards for online learning is designed to provide states, districts, online programs, and other organizations with a set of quality guidelines for online course content, instructional design, technology, student assessment, and course management. A non-profit organization, iNACOL is focused on research, policy and standards development, and supporting ongoing professional development.
The document identifies the following benefits of online learning: expanded course offerings, customized learning, and interactive learning with embedded assessments. Online learning supports new models of teaching: blended learning, personalized instruction, portable and mobile learning.

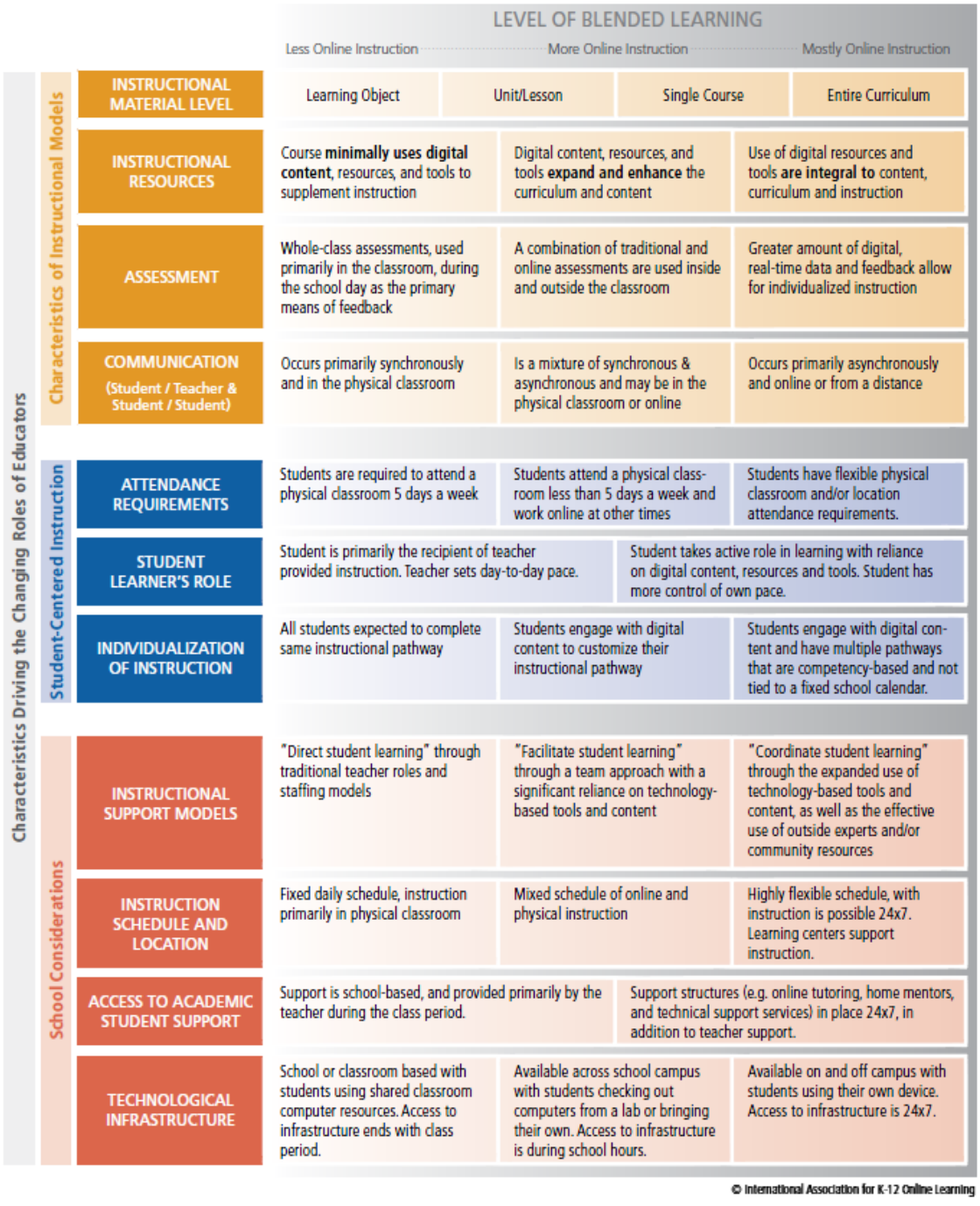
The report includes a one page Blended Learning diagram (see Table A1 on the next page) designed to help course planners consider the range of ways that online content and digital tools can be implemented to complement classroom work. Also included is a multi-page standards review document is set up for evaluators to rate an online course's conformity to the quality benchmarks. The standards are divided into five categories:

APPENDIX A: Driver Education Literature Review

Content, Instructional Design, Student Assessment, Technology, and Course Evaluation and Support. The application of the standards assumes that there is a teacher actively involved in instruction.

Table A1

THE DEFINING DIMENSIONS OF BLENDED LEARNING MODELS



APPENDIX B: State by State survey, Requirements of 18 to 24 year olds

11 states found to have a requirement for novice drivers 18 to 24 years old ("novice" defined as never having had a license)

- 6 states require a driver education course (all short courses, except MD)
- 7 states require learner's permits for adults for a specified period of time before taking the road skills test
- 2 states require a learner's permit & supervised or practice driving
- 2 states (MD, NY) require a learner's permit and driver education

	18-24 requirements (Driver Ed, Learner's Permit, Supervised Driving)
Driver Education requirements	
Florida	Novice drivers of all ages must complete a 4-hour Traffic Law and Substance Abuse Education (TLSAE) course before they can receive their license. (FL is an online state).
Louisiana	18+ must show certificate of driver education: either 30 hour or 6 hour pre-licensing course (LA is an online state, but none implemented).
Maryland	The Rookie Driver program requires license applicants of all ages who have never been licensed to take a full driver education course (30/6). Under 25, hold learner's permit for 9 months and present evidence of 60 hours of supervised driving. Over 25, learner's permit for 45 days and 14 hours of supervised driving. (MD not an online state)
New Mexico	First time licensees between 18 and 24 must take "None for the Road," a DWI class administered by University of NM Continuing Education (available online). Appears to be a short workbook plus videos. Fee is $25 for workbook.
New York	First time drivers 18+ must have a learner permit and complete a 5 hour pre-licensing course or a driver education course (NY not an online state).
Texas	Persons between 18 & 24 with no prior license must complete a 6-hour course (TX is an online state.)
Learner's Permit	
Connecticut	Must have an adult learner's permit for at least 90 days prior to road skills test.
Virginia	If 19 or older must hold a learner's permit at least 60 days before taking the road skills test.
West Virginia	Novice 18 and older must hold instruction permit for 30 days.
Learner's Permit & Supervised or Practice Driving	
Michigan	Temporary Instruction Permit and must practice driving for 30 days before taking road skills test.
New Jersey	If less than 21 years old, 18 month supervised driving and probationary license period. GDL restrictions apply during this period: including, but not limited to, display of a decal on each license plate, nighttime driving restrictions, and passengers limitations.

APPENDIX C: State by State Survey, Online Driver Education for 15 to 17 year olds

SUMMARY

16 states were found to authorize online driver education. 12 of these states require driver education of new licensees up to age 18.

The reasons for authorizing/offering online were not often available, but included:

- School districts with less funding for driver education sought means of continuing the program more efficiently.
- Online programs were originally designed for home-schooled students and were subsequently made more broadly available. (TX, OK, VA)
- A couple of states adopted or significantly expanded the use of online programs coincident with new driver education and Graduated Driver License requirements (GA, NV)

For the most part, the online course fully substitutes for the classroom requirement. Most of the states do not require concurrency of behind-the-wheel lessons and classroom course content, so it does not present an issue for online courses.

In most of the states, online courses are offered by both public schools and commercial schools. Public school offerings may be via a virtual high school and involve some amount of student-teacher interaction. Public schools also offer online courses via the internet which do not actively involve a teacher. In many states, because public education is controlled at the local level, there is quite a bit of diversity of decisions about how to deliver driver education courses in the public schools. Commercial school online offerings are often internet courses which do not actively involve a teacher. (Many internet courses do have instructors available to answer questions, live or delayed.)

Internet course offerings may be locally or nationally developed. Some states make requirements which limit the involvement of national third party vendors of online driver education. These requirements may include having a physical location in the state or a rigorous application process designed to ensure that state education performance standards are met.

	Driver's Education Requirements for Novice Drivers, Under 18	**Description of online program**
California	Teens under 18 years of age must show proof of completion of 30 hours of formal classroom driver's education and 6 hours of behind the wheel drivers training to get their license.	May or may not integrated classroom and BTW. Online may substitute for classroom. Earliest online courses began around 2000. CA DMV and Dept of Ed have limited/no oversight of schools designated as "private secondary." Very little centralized information.
Colorado	CO classroom requirements decline with age: up to 15, must take a 30 hour classroom course; up to 15.5 years, may take a 4 hour Driver Awareness Course; up to 16.5 years there is no classroom requirement, but must get a 6-hour "Behind the Wheel" (BTW) certificate. (Exceptions for rural areas.) Up to 18 years, must hold permit for at least 12 months.	Legislation to accept online in lieu of classroom passed in 2001. Oversight rules not adopted until December 2006. Same curriculum requirements for classroom and online. Online only programs may not conduct exam.
Florida	Novice drivers **of all ages** must complete a 4 hour Traffic Law and Substance Abuse Education (TLSAE) course before they can receive their license. Intermediate license restrictions continue to age 18.	List of approved TLSAE programs (16/17 offered online): http://www.flhsmv.gov/ddl/TLSAE_providers.html NHTSA report: rigorous approval and evaluation process. Public school driver education may substitute for 4-hour requirement. The Florida Virtual School offers an 18 week program for free to all public, private and home school students in Florida.
Georgia	Teens under 17 must complete a driver education course approved by the Department of Driver Services in order to receive a Provisional License (law effective 2007). The course must include 30 hours of online or classroom instruction, as well as 6 hours of instructor-taught time behind the wheel, or 40 hours of parent-taught time driving. At least six of those hours must be at night. Those who do not complete an approved driver education course must wait until age 17 to become licensed.	Online program substitutes for classroom. NHTSA report: To be approved, online course must submit 15 page detailed application; DDS has passcode access for audit purposes. In 2009, 40% of students completed classroom requirements online. List of schools and online courses: http://www.dds.ga.gov/teens/DTschools.aspx
Idaho	Prospective drivers between the ages of 14.5 and 17 must complete 30 hours of formal classroom driver's education along	Longstanding online course developed by the Idaho State Department of Education in 2005. The 10-week course meets

APPENDIX C: State by State Survey, Online Driver Education for 15 to 17 year olds

	Driver's Education Requirements for Novice Drivers, Under 18	Description of online program
	with 12 hours of in-car driver's training. During the driver's training, 6 of the hours are to be spent driving while the other 6 are spent observing. BTW must be concurrent.	national standards for driver education and online education. Offered through the Idaho Digital Learning Academy. Strict requirements for instructor involvement. Commercial schools were recently authorized to offer an online course: in a quick survey could not find traditional classrooms, schools relied on ID Dept. of Ed or national online driver education courses.
Indiana	Taking a driver's education class in Indiana allows a driver to get a learners permit at 15.5 years old rather than 16, and can receive their license at 16, 180 days old rather than at 16 years, 270 days. 30 hours classroom, 6 BTW; no curriculum requirements as such but commercial schools must cover a list of topics.	Online programs began in 2009 as a joint effort of DriversEd.com and Regional Educational Service Centers. Also beginning in 2009, commercial schools could contract with an approved online provider. Online substitutes for classroom. 8 online programs currently approved. Online programs are not licensed and must be associated with a driver training school. Details of online program offered by an ESC: Students will complete 13 units of online instruction. Each unit has a quiz that requires a student to pass at 80% before moving to the next unit. Only one unit can be completed per day. Once all the units are completed, a student has three attempts to achieve an 80% on the final exam. Students may move through the online class in as little as 15 days.
Kansas	To receive a restricted driver's license at age 15, must complete a state-approved driver's training course. At 16, the license has fewer restrictions and driver education is not required. Unrestricted licenses are available to persons 17 years and older. For public schools, the classroom requirement is not hours based; students must demonstrate competency by 80% exam results. For commercial schools, still must document at least 8	Commercial online programs not available. In 2001, school districts began to offer online driver education. Schools have either developed their own online course or contracted with a private provider. Requirement that any provider of driver education have a physical location in the state effectively excludes national online driver education companies. Example public school course: http://www.bluevalleyk12.org/education/components/scrapbook

	Driver's Education Requirements for Novice Drivers, Under 18	**Description of online program**
	hours of classroom time.	/default.php?sectiondetailid=44620&
Nebraska	To receive a Provisional Operator's permit at age 16, drivers may either complete a DMV approved driver safety course **OR** present to the Driver Licensing Staff a 50 Hour Certification form signed by a parent, guardian or licensed driver who is at least 21 years old.	Minimal information available. Southeast Community College information includes option for 20 hours to be completed thru online lecture: https://www.southeast.edu/assets/0/74/87/324/344/b3cbcd6d-c741-4cf7-b3d3-1da4e64f8474.pdf
Nevada	Nevada beginning drivers under age 18 must complete a driver education course; if no course exists within 30 miles of their residence they may complete 100 hours behind-the-wheel with an adult. They can enroll in the driver's education course at age 15.	Both commercial and public schools offer online options. The Nevada DMV oversees commercial schools. The earliest online programs were licensed in 2002. Public school districts exercise local control over programs. Some of the public school programs are offered through Virtual High Schools and community colleges. Example course: http://www.gbcnv.edu/drivers-ed/
Ohio	Teens under 16 holding a Temporary Instruction Permit must complete driver education consisting of 24 hours of classroom instruction and eight hours of behind-the-wheel driver training.	Authorized in 2012, allows students to take the 24 classroom hours online, must still go to traditional driving school for BTW. Launched in 2014, approved programs appear to be national online providers: http://www.drivertraining.ohio.gov/onlineprogram.htm General information: http://www.drivertraining.ohio.gov/onlineprogram.htm
Oklahoma	Teens completing driver's education may get their learners permit at 15 1/2 instead of 16. Driver education may be offered by public, private, and commercial schools and includes Parent Taught Driver Education as well.	Online courses have been approved as parent-taught driver education since 2001. Ten national providers are currently approved. Not limited to home-schooled students. Online course fully substitutes for classroom.

APPENDIX C: State by State Survey, Online Driver Education for 15 to 17 year olds

	Driver's Education Requirements for Novice Drivers, Under 18	Description of online program
		http://www.dps.state.ok.us/dls/ptde.htm
Pennsylvania	If a teen completes a driver's education course of 30 classroom and 6 behind-the-wheel hours they are eligible to get their unrestricted license at 17.5 rather than 18.	Online offered by both public and commercial schools, but few school districts offer. Overseen by Department of Education. Approval application must demonstrate compliance with the state's content performance expectations. Requirements for approval are strict and effectively exclude non-PA based programs. Approval is for two years. 44 programs are currently approved for online driver education. http://www.portal.state.pa.us/portal/server.pt/community/driver_and_safety_education/7527 Online course may substitute for classroom. Unclear if there is a requirement for integration of classroom and BTW.
Texas	Teens under 18 must complete a driver education course to get a provisional license. Courses must include at least 32 hours of classroom instruction and 44 hours of skills training (7 hours BTW, 7 hours observation, 30 hours with a licensed adult with at least one year of driving experience).	Online driver education is available as a parent-taught program (starting in 1997), through the public schools via the Texas Virtual School Network (starting in 2010), and from commercial driving schools (beginning in 2010). Currently, 4 online commercial programs have been authorized as "alternative methods of instruction." Online programs fully substitute for the classroom requirement. http://www.txdps.state.tx.us/driverlicense/parenttaught.htm http://www4.esc13.net/drivers/courses-drivers/drivers-education/driver-education-alternative-method-of-instruction-32-hour-classroom
Utah	Teens under 18 are required to complete driver's education of at least 18 classroom hours, 6 hours behind-the-wheel, and 6 hours observing. There are two home-study driver's education courses that have been approved by the state.	Online course substitutes for classroom portion. Many school districts offer driver education online: http://share.ehs.uen.org/classes#driver.ed 7 online programs currently approved. Online programs have been offered since 2004. Example of online course options: https://www.a-1drivingschool.com/internetStudy.aspx

	Driver's Education Requirements for Novice Drivers, Under 18	**Description of online program**
Virginia	Virginia residents 18 years old and younger must complete a driver's education course of 30 classroom periods, 7 periods driving and 7 periods observing. (A period equals 50 minutes.) Classroom and BTW must be concurrent.	NHTSA report: 90% of students receive classroom portion of driver education in lieu of 10th grade health education requirement at their high school. Online courses (also known as correspondence courses) approved for home-school students only. Four programs currently available. The first online courses were approved in 2003. http://www.dmv.virginia.gov/drivers/#homeschoolers.asp
Wisconsin	Teens under 18 must pass an approved driver education course, which includes a minimum of 30 hours of classroom time, a minimum of 6 hours of BTW and 6 hours of observation time.	Only two approved online courses, offered by a Cooperative Educational Service Agency and a technical college. The two programs developed their own curricula and did not contract with national web-based providers. Estimated to take as much or more time than traditional classes.

Sources: National Conference of State Legislatures, National Highway Traffic Safety Administration 2012 report, Association of American Motor Vehicle Agencies survey, state DMV and Department of Education websites.

APPENDIX D: State by State Survey, Summary of Driver Education Requirements, All States

	Driver's Education Requirements for Driver License under 18	**Require DE? To get license 14-17**	**Online DE allowed?**	**18 and older requirements? DE, permit, supervised driving?**
Alabama	Teen drivers under age 18 must complete 30 hours of behind-the-wheel driving or take a state-approved driver education course in order to get their unrestricted license.	No		
Alaska	A parent, legal guardian or employer must provide proof that the driver under 18 years old has had at least 40 hours of driving experience. This must include at least 10 hours of driving in challenging circumstances such as inclement weather and nighttime driving.	No		
Arizona	Teen drivers may forego formal classroom training and instead drive a minimum of 30 hours, at least 10 hours of which are at night.	No		
Arkansas	No driver's education requirement.	No		
California	Teens under 18 years of age must show proof of completion of 30 hours of formal classroom driver's education and 6 hours of behind the wheel drivers training to get their license.	Yes	Yes	
Colorado	CO classroom requirements decline with age: up to 15, must take a 30 hour classroom course to get an instruction permit; up to 15.5 years, may take a 4 hour Driver Awareness Course; up to 16.5 years there is no classroom requirement, but must get a 6-hour "Behind the Wheel" (BTW) certificate. (Exceptions for rural areas.) Up to 18 years, must hold permit for at least 12 months.	No	Yes	
Connecticut	Drivers under 18 are required to complete 22-hours of formal classroom training and eight hours of behind-the-wheel training before they can receive their license. In order to better instruct their teens, parents or guardians are required to attend a two-hour formal training class as well.	Yes		Yes (permit)
Delaware	Without taking a driver's education course, a teen in Delaware cannot receive a license until they are 18. In order to get a learner's permit at age 16, a teen must present a Delaware Driver Education Certificate at the DMV. The class must consist of at least 30 hours of formal classroom time and at least seven hours behind-the-wheel and seven hours in observing.	Yes		
Florida	Novice drivers **of all ages** must complete a 4 hour Traffic Law and Substance Abuse Education (TLSAE) course before they can receive their license.	No	Yes	Yes (DE)

	Driver's Education Requirements for Driver License under 18	Require DE? To get license 14-17	Online DE allowed?	18 and older requirements? DE, permit, supervised driving?
	Intermediate license restrictions continue to age 18.			
Georgia	Teens under 17 must complete a driver education course approved by the Department of Driver Services in order to receive a Provisional License (law effective 2007). The course must include 30 hours of online or classroom instruction, as well as 6 hours of instructor-taught time behind the wheel, or 40 hours of parent-taught time driving. At least six of those hours must be at night. Those who do not complete an approved driver education course must wait until age 17 to become licensed.	Yes	Yes	
Hawaii	Requires that teens under age 18 provide proof that they have completed a driver's education program and a behind-the-wheel driver training course certified by the Director of Transportation before receiving a driving license. The course must include 30 hours of classroom instruction coupled with either six hours behind-the-wheel or a simulator course and two hours driving.	Yes		
Idaho	Prospective drivers between the ages of 14.5 and 17 must complete 30 hours of formal classroom driver's education along with 12 hours of in-car driver's training. During the driver's training, 6 of the hours are to be spent driving while the other 6 are spent observing. BTW must be concurrent.	Yes	Yes	
Illinois	All students under the age of 18 must have successfully completed a driver education course with 30 hours of classroom and 6 hours of behind the wheel training to receive a license. The course is taught in public schools but is open to all residents between the ages of 15 and 21.	Yes		
Indiana	Taking a driver's education class in Indiana allows a driver to get a learners permit at 15.5 years old rather than 16, and can receive their license at 16, 180 days old rather than at 16 years, 270 days. 30 hours classroom, 6 BTW.	Yes	Yes	
Iowa	To receive an Intermediate Driver License, drivers under 18 must complete an approved driver education course, hold an instruction permit for at least 12 months, and complete 20 hours of supervised driving. An approved driver education course includes 30 hours classroom and 6 or more hours of behind-the-wheel training.	Yes		
Kansas	To receive a restricted driver's license at age 15, must complete a state-approved driver's training course. At 16, the license has fewer restrictions and driver education is not required. Unrestricted licenses are available to persons 17 years and older. For public schools, the classroom requirement is not hours based;	Yes	Yes	

APPENDIX D: State by State Survey, Summary of Driver Education Requirements, All States

	Driver's Education Requirements for Driver License under 18	Require DE? To get license 14-17	Online DE allowed?	18 and older requirements? DE, permit, supervised driving?
	students must demonstrate competency by 80% exam results. For commercial schools, still must document at least 8 hours of classroom time.			
Kentucky	There is no driver's education requirement in Kentucky. Teens must complete 60 hours of driving practice with 10 hours of night driving to get their license, however.	No		
Louisiana	First-time license applicants age 15 or 16 must complete a driver's education course consisting of 30 hours of classroom instruction and eight hours of driving time behind-the-wheel.	Yes		Yes (DE)
Maine	For driver's under 18 to get their learners permit, which is a required first step towards a full license, they must complete a driver's training course that includes 30 hours of classroom instruction and ten hours behind-the-wheel training.	Yes		
Maryland	Learner's permit holders under the age of 25 must complete driver education course consisting of 30 hours classroom and 6 hours behind-the-wheel instruction.	Yes		Yes (DE and permit)
Massachusetts	To receive a Class D or M license, teens under the age of 18 must compete a driver's education course consisting of 30 hours of classroom instruction and 18 hours of driving training, six of which are to be spent observing.	Yes		
Michigan	Teens drivers under age 18 must complete a driver's education course with 24 hours of classroom instruction and six hours of behind-the-wheel time.	Yes		Yes (permit & practice driving)
Minnesota	Driver's education of 30 classroom hours coupled with 4 on-road driver's training hours is required for persons 18 and under to receive a drivers license.	Yes		
Mississippi	Driver's education is not required to get a driver's license. However, teens may obtain a learners permit at age 14 that exclusively allows them to drive with an instructor.	No		
Missouri	There is no formal driver's education requirement, but the teen must have received 40 hours of driving instruction, including a minimum of 10 hours of nighttime driving instruction between sunset and sunrise, with a parent, legal guardian, grandparent, or qualified driving instructor.	No		
Montana	Teens may get a Traffic Education Learner's License (an instruction permit allowing practice driving with a parent/legal guardian) under 16 if they are	No		

	Driver's Education Requirements for Driver License under 18	Require DE? To get license 14-17	Online DE allowed?	18 and older requirements? DE, permit, supervised driving?
	enrolled in a state-approved traffic education program (60 hour class, of which 6 must be behind-the-wheel hours). If not, they have to wait until they are 16.			
Nebraska	To receive a Provisional Operator's permit at age 16, drivers may either complete a DMV approved driver safety course **OR** present to the Driver Licensing Staff a 50 Hour Certification form signed by a parent, guardian or licensed driver who is at least 21 years old.	No	Yes	
Nevada	Nevada beginning drivers under age 18 must complete a driver education course; if no course exists within 30 miles of their residence they may complete 100 hours behind-the-wheel with an adult. They can enroll in the driver's education course at age 15.	Yes	Yes	
New Hampshire	Teens under 18 must take a driver's education course with 30 hours of classroom instruction. They must also complete 10 hours of driving with a certified driving instructor, and observe their peers driving for six hours.	Yes		
New Jersey	Teens must show proof of enrollment in a driver training course (6 hours BTW) to get a learner's license at age 16, otherwise they must wait until 17.	No		Yes (permit & supervised driving)
New Mexico	To receive a graduated driver's license, drivers under 18 must show proof of having completed or of being enrolled in a state-approved driver education program. This course must include 30 hours of classroom instruction and 7 hours of driving.	Yes		Yes (DE)
New York	Before a driver may take a road test to get their license, they must complete a 5-hour pre-licensing class **OR** a driver education course.	No		Yes (permit and DE)
North Carolina	Driver's education is required for teens under age 18. They must complete 30 hours of classroom instruction as well as six hours of behind-the-wheel training.	Yes		
North Dakota	Teens under 16 must complete driver education (either a 30/6 program through their school or 6 hours of BTW with a commercial school approved by the Highway Patrol).	Yes		
Ohio	Teens under 16 holding a Temporary Instruction Permit must complete driver education consisting of 24 hours of classroom instruction and eight hours of behind-the-wheel driver training.	Yes	Yes	
Oklahoma	Requires driver's ed to get a Learner Permit at 15 1/2. Otherwise may not get learner's permit until 16. Oklahoma accepts Parent Taught Driver Education.	No	Yes	
Oregon	Teens under age 18 in Oregon must either complete 50 hours of supervised driving practice and driver education course consisting of 30 hours classroom	No		

APPENDIX D: State by State Survey, Summary of Driver Education Requirements, All States

	Driver's Education Requirements for Driver License under 18	Require DE? To get license 14-17	Online DE allowed?	18 and older requirements? DE, permit, supervised driving?
	and 12 hours in the car with an instructor, **OR** 100 hours of supervised driving practice.			
Pennsylvania	If a teen completes a driver's education course of 30 classroom and 6 behind-the-wheel hours they are eligible to get their unrestricted license at 17.5 rather than 18.	Yes	Yes	
Rhode Island	Teens under the age of 18 will need to complete a 33-hour driver's education course, which they may take as early as 15 years 10 months, in order to get their provisional license at age 16.	Yes		
South Carolina	For a 15 or 16 year old in South Carolina to receive their license, they must complete a driver's education course with 30 hours of classroom instruction, six hours of behind-the-wheel training, and six hours of observing other driving.	Yes		
South Dakota	Beginning at age 14, a teen may hold a learner's permit. With successful completion of a driver education program may hold the learner's permit for 90 days instead of 180 days before upgrading to GDL or unrestricted license. Driver education courses consist of 30 hours classroom and 6 hours BTW.	No		
Tennessee	Does not require driver's education, but teens must have 50-hours behind-the-wheel before graduating from a learner's permit.	No		
Texas	Teens under 18 must complete a driver education course to get a provisional license. Courses must include at least 32 hours of classroom instruction and 44 hours of skills training (7 hours BTW, 7 hours observation, 30 hours with a licensed adult with at least one year of driving experience).	Yes	Yes	Yes (DE)
Utah	Teens under 18 are required to complete driver's education of at least 18 classroom hours, 6 hours behind-the-wheel, and 6 hours observing. There are two home-study driver's education courses that have been approved by the state.	Yes	Yes	
Vermont	To receive a Junior Operators License at age 16, teens must complete a driver's education course of 30 hours of classroom instruction, 6 hours of behind-the-wheel time, and 6 hours of observing.	Yes		
Virginia	Virginia residents 18 years old and younger must complete driver's education consisting of 36 classroom periods 14 periods of driver's training, 7 periods driving and 7 periods observing. (A period equals 50 minutes.) Classroom and	Yes	Yes	Yes (permit)

	Driver's Education Requirements for Driver License under 18	Require DE? To get license 14-17	Online DE allowed?	18 and older requirements? DE, permit, supervised driving?
	BTW must be concurrent.			
Washington	To receive an intermediate license, teens under 18 must have passed a course of driver education, consisting of 30 hours of classroom instruction and a minimum of six hours behind-the-wheel instruction.	Yes		
West Virginia	To be eligible for a graduated driver's permit/license, 15 - 17 year olds must prove general school enrollment and certify 50 hours of supervised practice.	No		Yes (permit)
Wisconsin	If under 18 years old, driver education requirements include a minimum of 30 hours of classroom time, a minimum of six hours of behind-the-wheel driver education training and six hours of observation time.	Yes	Yes	
Wyoming	No driver's education requirements, but teens must drive for 50-hours with their parents or guardian, 10 of which must be at night.	No		
District of Columbia	No driver's education requirements. Teens under 18 must show that they have 40 hours behind the wheel, with 10 of those hours at night.	No		
	TOTALS	31	16	11

Assumptions: Driver Education requirement must be for license eligibility (not for a learner's permit). Classroom requirement must be more than 8 hours to be counted (see Florida, New York). If a short course or practice driving hours may be substituted to meet the driver education requirement, not counted as a driver education requirement (see Nebraska, New York, Oregon).

Sources: National Conference of State Legislatures, state agency websites, National Highway Traffic Safety Administration 2012 Report.