pennsylvania
DEPARTMENT OF TRANSPORTATION

The Impact of the Sanctioning Process on Driver Safety

Final Report

Submitted to:
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

Safety Administration
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Executive Summary

The Pennsylvania Department of Transportation's Bureau of Driver Licensing administers a driver sanctioning system to help improve driving habits and to ensure safe driving. Improvements to this system should be evidence-based. Driver records, which the Bureau maintains for every licensed Pennsylvania driver (as well as unlicensed drivers who are convicted of violations), contain histories of points incurred for each moving violation and sanctions imposed when point totals reach six (6) or more. These records were analyzed to test the effectiveness of sanctions and, together with observations of Pennsylvania's sanctioning system in action, interviews with stakeholders, a review of relevant research, and review of best practices of other states, informed a set of recommendations for system improvements to foster a safer motoring environment for all who travel Pennsylvania's roadways.

Literature Search

A literature search on the effects of sanctions on subsequent driver behavior was conducted. This addressed such topics as effects of sanctions on driver behavior, design of driver point and sanction systems, licensing practices, effectiveness of driver safety education programs, and attitude change and safe driving behavior. A report was produced as a stand-alone product that organized and summarized 239 studies.

Best Practices Survey

A survey/questionnaire to collect information from other state departments of transportation and departments of motor vehicles was conducted. The purpose of this survey was to provide knowledge of the state of practice concerning the sanctioning procedures of other agencies and evidence available regarding their effectiveness. Eighteen states responded, including Arkansas, California, Georgia, Idaho, Iowa, Kentucky, Maryland, Minnesota, New Jersey, Nevada, Ohio, South Carolina, Tennessee, Texas, Utah, Washington, and West Virginia.

Stakeholder Interviews

A series of meetings were held among the researchers, the project technical advisor, and key stakeholders who are responsible for administering PennDOT's driver sanctioning system. These individuals possess a wealth of knowledge, information, and insight concerning operation of the sanctioning system. We conducted targeted focus groups and individual interviews of knowledgeable insiders to gain a detailed understanding of the system. In addition, we saw the sanction process in action by attending as observers Special Point Examination sessions and Departmental Hearings in Harrisburg, Philadelphia, and State College, and Traffic Court sessions in Philadelphia and Pittsburgh. We supplemented stakeholder interviews and sanction process observations by reviewing available documentation concerning the design, application, and effectiveness of PennDOT's sanctioning system.

Analyses of Driver Records

Analyses of driver records were conducted to answer several specific research questions that collectively elaborated the general theme of whether or not drivers who have been sanctioned "…become safer drivers as a result of the penalties incurred." Three primary analytic approaches were used: (1) descriptive statistics, such as frequency distributions, percentages, and cross tabulations, to characterize drivers and the violations they committed; (2) survival analyses, including life tables and graphs of survival functions, to determine whether and when violations occurred among samples of drivers; and (3) random coefficient modeling, including graphs of point accumulation trajectories, to test whether sanctions have their intended effects in reducing post-sanction rates of violations.

Findings from analyses of driver records:

(1) 46% of drivers are convicted of zero driving violations, 13% of drivers are convicted of one driving violation, and 41% of drivers are convicted of two or more driving violations during their driving careers;

(2) first driving violations are likely to occur within a few years of Pennsylvania licensure, and second driving violations, if they occur, are likely to occur within a few years of first violations;

(3) males, especially young males, are more likely to be convicted of violations than females;

(4) drivers who incur sanctions typically do so within a few years of Pennsylvania licensure;

(5) all sanction types (Special Point Examinations, Type II Hearings, Type III Hearings, Suspensions, Speed Hearings, and Young Driver Hearings) are effective in reducing post-sanction rates of violations and associated accumulations of points, although they vary in effectiveness.

Final Report with Recommendations

The qualitative and quantitative findings of this research were integrated to (1) provide an evaluation of the effectiveness of PennDOT's driver sanctioning process, (2) identify opportunities for improvement to the system, and (3) formulate practical recommendations for improvements to the sanctioning process. A final report with improvement recommendations and an oral presentation with Powerpoint briefing slides of project findings were provided. Recommendations addressed the following topics: (1) sanctions and the sanctioning process; (2) violations and points; (3) communications with drivers; (4) PennDOT staff; (5) database; and (6) visibility recommendations.

Introduction

The Pennsylvania Department of Transportation's Bureau of Driver Licensing administers a driver sanctioning process to help improve driving habits and to ensure safe driving. Improvements to this system should be evidence-based. Driver records, which the Bureau maintains for every licensed Pennsylvania driver, contain histories of points incurred for each moving violation and sanctions imposed when point totals reach six (6) or more. These records contain a wealth of information that shed light on the effectiveness of sanctions and, together with results of a process evaluation of Pennsylvania's sanctioning system and review of best practices of other states, inform a set of recommendations for system improvements and a safer motoring environment for all who travel Pennsylvania's roadways.

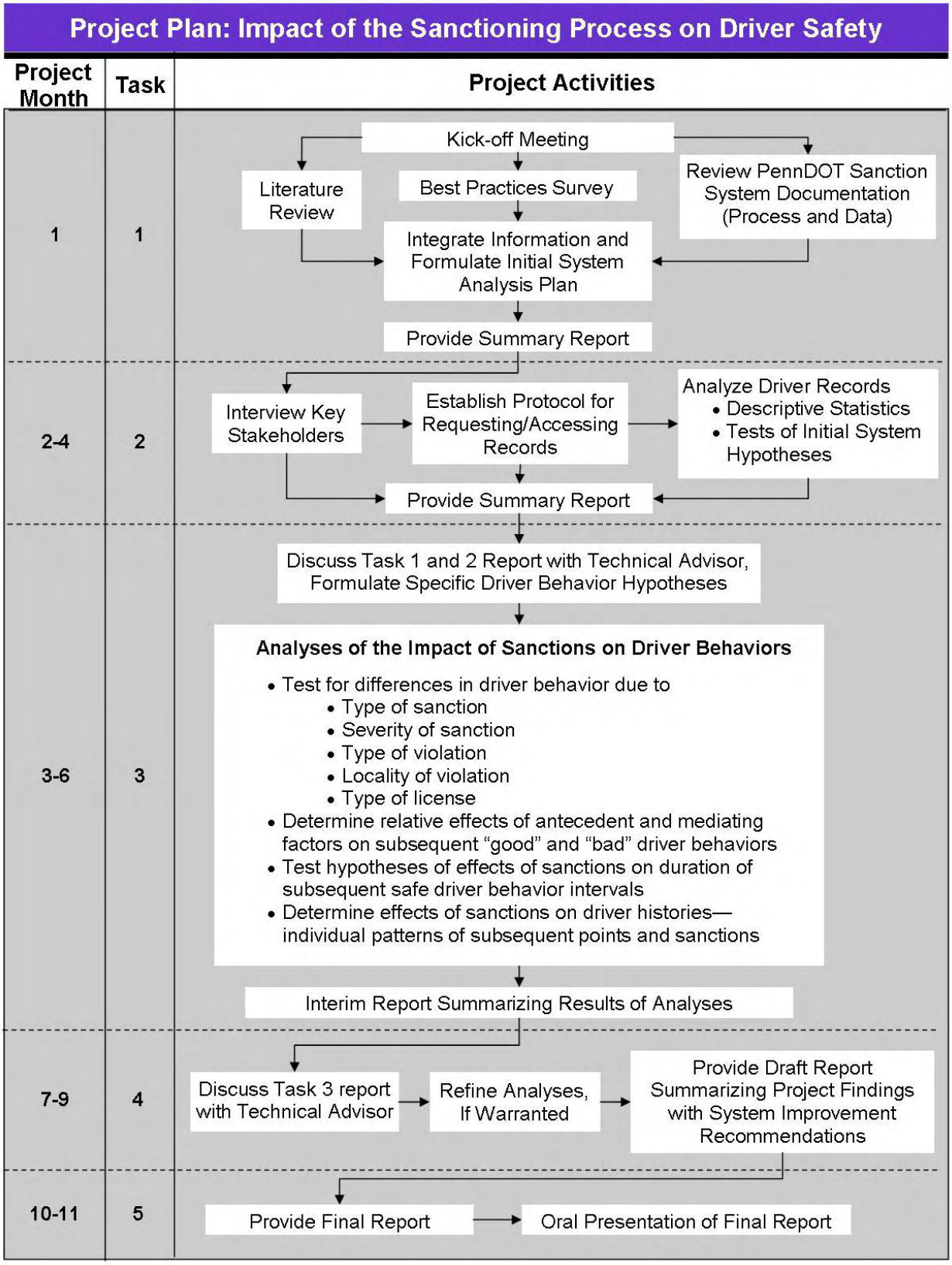
This report summarizes the work performed for this project. Figure 1 presents the original Project Plan. As shown, the work was organized into five major tasks and numerous subtasks. Sections of this report correspond to the five major tasks: (1) Literature Search and Best Practices Review, (2) Review of PennDOT Data, (3) Analyses of Driver Records, (4) Draft Final Report with Recommendations, (5) Final Report Presentation. Before describing the work performed for each task, we provide a conceptual overview of driving and driver sanctioning. These considerations relate closely to the specific research questions addressed in this report.

Driver Behavior and the Sanctioning Process

An overarching goal of this research project is to determine if PennDOT's driver sanctioning process is effective in encouraging safer driver behaviors. Driver safety can be conceptualized along three dimensions, shown in Figure 2. The first dimension is a societal dimension, encompassing the laws, regulations, and sanctions intended to encourage safe driving and to punish transgressors. As shown, society's rules act both as deterrents to unsafe driving and as punishments for drivers who violate them. The deterrence value of the sanction process arises from drivers' awareness of laws, the consequences of violating them, and their desire to avoid these consequences. Its punishment value is realized when violators are apprehended, suffer the penalties imposed, and seek to avoid future penalties by obeying the law.

A driver's interaction with society (driver X society) is the second dimension of this model. Through driver licensing, PennDOT grants driving privileges to individual drivers. Driver knowledge and skill qualifications are established. Each prospective driver must demonstrate driving competence before PennDOT issues a license to operate a motor vehicle. A driving privilege may be revoked if a driver becomes incapable of safe driving (e.g., due to illness, disability). Driving privileges may also be revoked, temporarily or permanently, for violations of laws.

Figure 1.


Project Plan: Impact of the Sanctioning Process on Driver Safety
Project Month
Task
Project Activities
1
1
Kick-off Meeting
Literature Review
Best Practices Survey
Review PennDOT Sanction System Documentation (Process and Data)
Integrate Information and Formulate Initial System Analysis Plan
Provide Summary Report
2-4
2
Interview Key Stakeholders
Establish Protocol for Requesting/Accessing Records
Analyze Driver Records
• Descriptive Statistics
• Tests of Initial System Hypotheses
Provide Summary Report
3-6
3
Discuss Task 1 and 2 Report with Technical Advisor, Formulate Specific Driver Behavior Hypotheses
Analyses of the Impact of Sanctions on Driver Behaviors
• Test for differences in driver behavior due to
• Type of sanction
• Severity of sanction
• Type of violation
• Locality of violation
• Type of license
• Determine relative effects of antecedent and mediating factors on subsequent "good" and "bad" driver behaviors
• Test hypotheses of effects of sanctions on duration of subsequent safe driver behavior intervals
• Determine effects of sanctions on driver histories—individual patterns of subsequent points and sanctions
Interim Report Summarizing Results of Analyses
7-9
4
Discuss Task 3 report with Technical Advisor
Refine Analyses, If Warranted
Provide Draft Report Summarizing Project Findings with System Improvement Recommendations
10-11
5
Provide Final Report
Oral Presentation of Final Report

Driver psychology is the third dimension. Safe driving requires application of one's knowledge of and skill in vehicle operation, awareness of relevant laws and regulations, and intentions to obey laws and avoid risky maneuvers. Driver psychology includes stable attributes that affect driving behavior such as personality (e.g., sensation seeking), maturity (e.g., taking responsibility for one's actions), and skill, and changeable or momentary attributes such as attitudes toward safety, intentions to obey laws, and specific driving decisions (e.g., whether to slow down or speed up as a traffic light changes from green to yellow).

Each dimension of driver safety is useful in interpreting results of analyses of driver records. For example, one can ask whether suspensions of violators' driving privileges reduce the likelihood of further violations. It is also useful, in this regard, to consider the proportion of drivers who commit one or more violations (and suffer the consequences) relative to the proportion of drivers who have no convictions (and who are presumably deterred by awareness of the laws and consequences of violations).

In general, it is helpful to think about sanctions in terms of drivers to whom they are applied (because of one or more violations) compared to sanction-free drivers (presumably, those who are effectively deterred from violating). Figure 3 provides a summary of a driver's history that helps to illustrate this point. Simply stated, as shown in the top portion of the figure, a driver must commit a violation before a sanction is applied. A driver may then fall into a cycle of repeat violations and sanctions.

An effective sanction process breaks this cycle, encouraging a repeat-violator to reform and avoid further violations. The sanction process may be *most* effective for drivers to whom sanctions are not applied because they commit no violations. Many violation-free drivers are undoubtedly law-abiding citizens whose primary motivation is to obey the laws. Other violation-free drivers are motivated to drive safely at least in part by their desire to avoid the unpleasantness of having a sanction imposed; for them, the existence of the sanction process is sufficient deterrent against violations.

We return to these ideas later in this report when discussing findings of analyses of driver records and recommendations for sanction process improvements.

Figure 2.

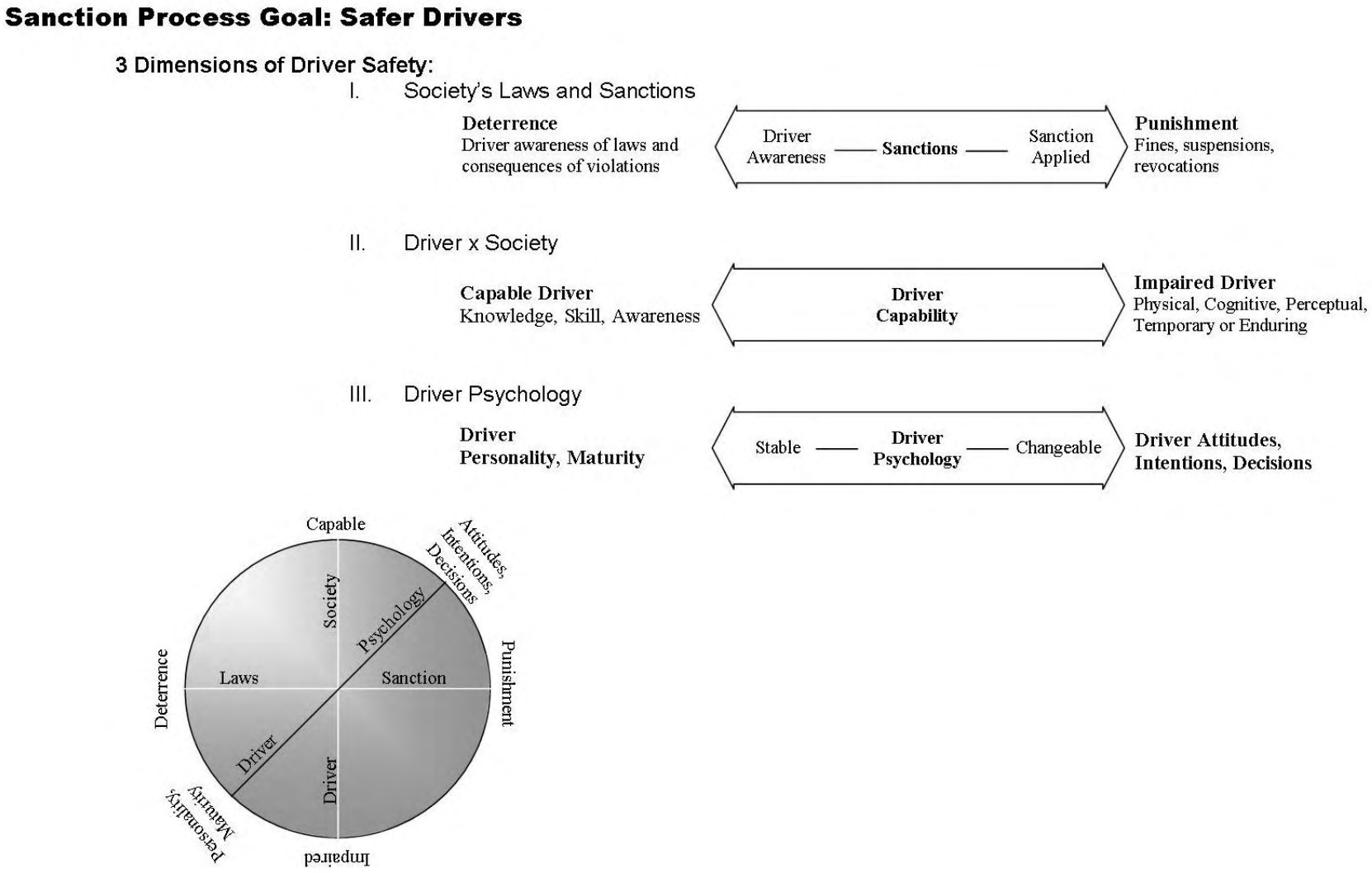
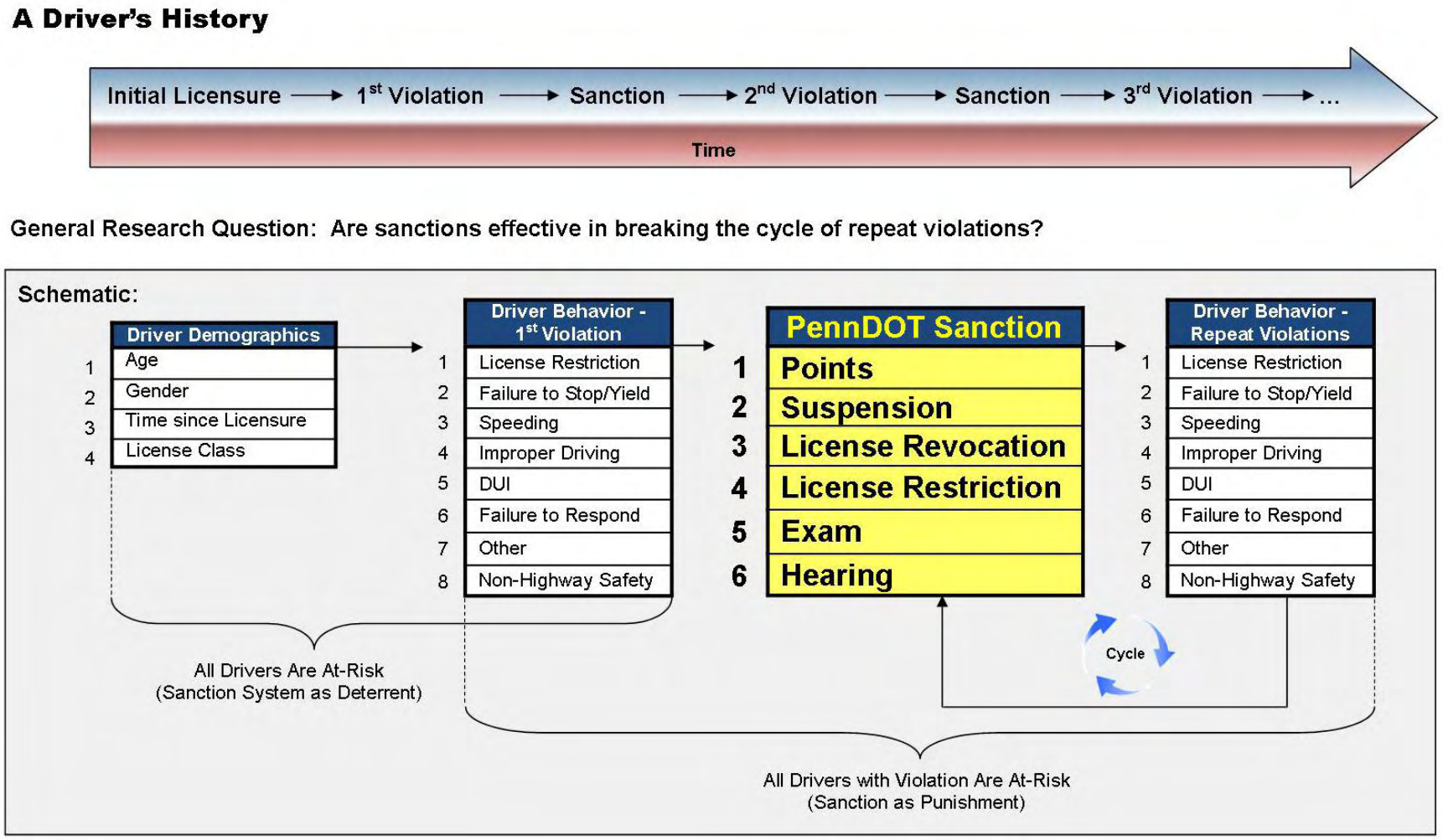

Sanction Process Goal: Safer Drivers
3 Dimensions of Driver Safety:
I. Society's Laws and Sanctions
Deterrence
Driver awareness of laws and consequences of violations
Driver Awareness
Sanctions
Sanction Applied
Punishment
Fines, suspensions, revocations
II. Driver x Society
Capable Driver
Knowledge, Skill, Awareness
Driver Capability
Impaired Driver
Physical, Cognitive, Perceptual, Temporary or Enduring
III. Driver Psychology
Driver
Personality, Maturity
Stable
Driver Psychology
Changeable
Driver Attitudes, Intentions, Decisions
Capable
Attitudes, Intentions, Decisions
Society
Psychology
Deterrence
Laws
Sanction
Punishment
Driver
Driver
Personality, Maturity
Impaired

Figure 3.


A Driver's History
Initial Licensure → 1st Violation → Sanction → 2nd Violation → Sanction → 3rd Violation → …
Time
General Research Question: Are sanctions effective in breaking the cycle of repeat violations?
Schematic:
Driver Demographics
1 Age
2 Gender
3 Time since Licensure
4 License Class
Driver Behavior - 1st Violation
1 License Restriction
2 Failure to Stop/Yield
3 Speeding
4 Improper Driving
5 DUI
6 Failure to Respond
7 Other
8 Non-Highway Safety
PennDOT Sanction
1 Points
2 Suspension
3 License Revocation
4 License Restriction
5 Exam
6 Hearing
Driver Behavior - Repeat Violations
1 License Restriction
2 Failure to Stop/Yield
3 Speeding
4 Improper Driving
5 DUI
6 Failure to Respond
7 Other
8 Non-Highway Safety
Cycle
All Drivers Are At-Risk
(Sanction System as Deterrent)
All Drivers with Violation Are At-Risk
(Sanction as Punishment)

Task 1: Literature Search and Best Practices Review

Literature Review

A literature search on the effects of sanctions on subsequent driver behavior was conducted. This focused on a range of topics relating to this central issue, including:

- effects of sanctions on driver behavior
- design of driver point and sanction systems
- effects of crashes on subsequent safe driver behavior
- effectiveness of driver training programs
- effectiveness of driver safety education programs
- attitude change and safe driving behavior
- driver characteristics (age, gender, experience), propensity to engage in unsafe behavior

Published and unpublished studies were sought from such literature domains as psychology and human factors, safety and crash prevention, insurance, and law enforcement in domestic and international books and journals. Of particular importance were searches of transportation resources such as the Transportation Research Board's (TRB) TRIS database and for current research, the TRB Research-in-Progress database, and others such as the International Transport Research Documentation database.

Our literature search yielded 239 studies which we summarized in a Literature Review Report (printed as a separate stand-along document) organized into three sections:

I. Introduction
II. Synopsis of Findings: What the Literature Says about Factors Implicated in Risky Driving Behavior
III. Listing of References, Abstracts, and Relevant Topics of Articles and Reports Cited

Survey of Best Practices

A Survey of Best Practices was distributed via email to other state departments of transportation (DOTs) and departments of motor vehicles (DMVs). Survey topics included:

- driver sanctioning policies and practices
- research and evaluation studies of sanction process effectiveness
- recent improvements to driver sanctioning policies and practices
- the top three most successful practices in promoting driver safety

Eighteen states completed the survey, including: Arkansas, California, Georgia, Idaho, Iowa, Kentucky, Maryland, Minnesota, New Jersey, Nevada, Ohio, Oregon, South Carolina, Tennessee, Texas, Utah, Washington, and West Virginia. The survey and responses are included in Appendix A.

Task 2: Review of PennDOT Data

Stakeholder Interviews

A meeting was held on November 2, 2007 among the researchers, the project technical advisor (Scott Shenk, Manager, Driver Safety Division) and key stakeholders responsible for administering PennDOT's driver sanctioning system (including Janet Dolan, Director, Bureau of Driver Licensing; Diana Henning, Manager, License Control Division; Anne Titler, Manager, Driver Improvement and Evaluation; and Brenda Collins, Manager, Judicial/Information Sales). These individuals possess a wealth of knowledge, information, and insight concerning operation of the sanctioning system. By virtue of their "front line" observations and experience, they understand PennDOT's current practices, including types of sanctions, variations in their applications, their effectiveness, and ideas for improvements.

The focus of this discussion was an overview of operations of the Bureau of Driver Licensing. The researchers then met separately with each of these individuals, and also with Melanie Sterling (Manager, Hearings and Exams), Vita Youch (Manager, OLL/PL), and Harold Cramer (Assistant Chief Counsel). Stakeholder interviews addressed topics such as:

- role or roles in the sanctioning system and amount of experience in each role,
- duties and responsibilities in administering the system,
- perspective on how effectively and consistently the system is applied (over time, across localities/regions of the state, across individuals),
- views on what is working and what can be improved.

In addition to the formal stakeholder interviews, the researchers had numerous opportunities throughout the course of the project to ask questions of these and other PennDOT staff members as the need arose, share preliminary findings, and incorporate feedback into subsequent reports. Through these discussions we developed an understanding of the current sanction process and, particularly as we began to formulate improvement recommendations, were able to solicit their opinions concerning practical issues raised by specific recommendations.

Review of Documentation

We supplemented stakeholder interviews by reviewing documentation concerning the design, application, and effectiveness of PennDOT's sanctioning system. Documents included:

- Pennsylvania Vehicle Code
- Chapter 87 of the Pennsylvania Code
- The Pennsylvania Point System Fact Sheet
- Pennsylvania Driver's Manual
- What You Need to Know about Pennsylvania's Young Driver Law
- PennDOT Special Point Examination Driver's Handbook
- Release 1 Components of *.centric* system
- Release 2 Components of *.centric* system
- Release Roadmap V2 of *.centric* system

In addition, we were provided with samples of PennDOT's correspondence with drivers on topics including:

- Violations (letters informing drivers of points assessed due to particular violations)
- Special Point Exam Notification
- Hearing Notification
- 11-Point Notification
- Suspension Notification
- Failure to Respond Notification
- Young Driver Violation (letters to young drivers and parents)
- Driving without a License
- Occupational Limited License Recall
- License Restoration
- CDL Disqualification
- License Restoration Requirements Notification
- License Revocation

Our review of these documents led to several recommendations regarding PennDOT's communications with drivers, including improvements to handbooks, manuals, fact sheets, and driver correspondence.

Observations of Exams, Hearings, and Traffic Court

The research team conducted observations of Special Point Exam sessions (Harrisburg on December 10, 2007 and State College on December 20, 2007), Hearings (State College on December 20, 2007, Philadelphia on January 9, 2008, and Harrisburg on January 25, 2008), and Traffic Court/District Attorney Court (Philadelphia on March 28, 2008). More than 20 individual hearings were observed, including speed hearings, young driver hearings, Type II hearings, and Type III hearings. More than 20 individual court cases were observed. In addition, the researchers had opportunities to interview PennDOT's hearing examiners and Philadelphia's Traffic Court judges.

These observations afforded the researchers opportunities to witness first-hand typical interactions between the driver sanctioning system (in the persons of examiners and judges) and drivers who incur sanctions. We were impressed with the care and professionalism with which the examiners and judges approached their roles. Although their individual styles in dealing with drivers varied, all endeavored to communicate clearly with drivers, and to treat them respectfully. We believe they largely succeeded, often in the face of drivers who were openly dismissive and belligerent. They explained to drivers their predicaments, what they needed to do to comply, and how to avoid future problems. These observations contributed to improvement recommendations.

Driver Records Database

Vance & Renz, LLC received 1/10th of the driver records database in June, 2007. The data was provided by Scott Shenk via two DVDs, comprising 5 main tables, and over 47 million records. Upon receiving the data, it was converted from flat text tiles and imported into a SQL Server database and then also into a Microsoft Access database.

Initially, our main data concern was that all date fields within the data were stored as 6 digit integers (2 digit day, 2 digit month, and 2 digit year) – obviously meaning the system and data pre-dated the Y2K compliance factor. To solve this issue, PennDOT uses a second "century" field to flag which dates are in the 1900s and which are in the 2000s. We converted these dates to standard single field (mm/dd/yyyy) format.

The next step was to review the data to become familiar with coding and formatting. It soon became apparent that we did not have everything needed. Any coded field within the data was still in coded fashion, unable to be decoded without the related definition tables. Scott Shenk was contacted, and the 21 necessary code tables were provided in July, 2007.

Given the code tables, data, and detailed data definitions, the next review led to some new questions. We met with Scott Shenk and other expert system users to answer these questions and also review summary reports we created to ensure that the data were imported into our databases correctly. This meeting was very helpful to our understanding of how the system stores information and why/when particular data fields are used. Additional meetings and discussions were held throughout the project with appropriate PennDOT personnel as questions arose about data records and the sanctioning process. These communications were in person, by conference call, and via email.

One feature of the current PennDOT sanctioning system is the way points are assessed and stored within the system. When any driver's data within the sanctioning system database is retrieved at any given time, their point total is shown on screen. However, this point total is not necessarily their *current* point total – meaning if that particular driver hasn't had any points/sanctions for a few years since their last conviction, the point total isn't updated to reflect the automatic deduction of 3 points per year. Rather, their *actual* current point total must be hand calculated. This is not a safe data management practice. Human error (miscalculations, typographical errors, etc.) should not be a factor in determining a driver's current point total. Although not a hindrance to data analyses (we calculated point totals directly from violation records), this and other database issues prompted us to offer several recommendations concerning design of the new driver records database.

Task 3: Analyses of Driver Records

Although evidence-based decisions are central to achieving PennDOT's stated goal of determining "…whether or not drivers who have been subjected to special point exams, hearings and/or suspensions ultimately become safer drivers as a result of the penalties incurred" (RFQ 060801, p. 1), it is important to note the characteristics of the data available and their ability to support valid inferences about driver behavior. A driver record shows sanctions and points incurred for violations. Points and sanctions are actions of PennDOT's sanctioning system. Although these actions are responses to driving violations, they are not direct measures of driver behavior.

Indeed, it would be a mistake to assume that a driving record provides a complete picture of a driver's behavior. PennDOT's driver records database contains records for millions of drivers spanning many years. Analyzing these records to reach meaningful conclusions about sanction system effectiveness that support practical and useable improvement recommendations required a sophisticated analytic approach. A number of specific research questions were addressed in this research project that collectively elaborated the basic issue of sanction process effectiveness. Each specific question posed its own data requirements and analytic approach.

Analyses of driver records are presented in three sections: (1) descriptive summaries of violations including breakdowns by driver gender and type of violation, (2) analyses to determine whether and when drivers commit violations, and (3) analyses to determine the effects of sanctions on subsequent violations. Before presenting these results, we describe some of the complexities of driver records as these affect data requirements and interpretations of specific analyses.

Complexities of Driver Records

PennDOT's driver records databases contain records for millions of Pennsylvania drivers extending over many years. Records are stored in 10 databases corresponding to the last digit of a driver license number. Driver license numbers are assigned sequentially (each new license issued ends in 1, 2, 3, etc.), so each database contains a random sample of the driver population. PennDOT decided at the outset of this project to provide a copy of the database containing records of drivers whose license numbers end in '1' to the researchers for analysis. Personal identifiers such as names, addresses, and social security numbers were purged from the records by PennDOT prior to transfer of the database to the researchers. This database, created in June 2007, contains records for approximately 1.6 million drivers.

Most analyses reported in the following sections were conducted using a random sample of 100,000 driver records. Because many of the analyses planned were computationally intensive, very large samples (involving hundreds of thousands or millions of cases) would tax the resources of even today's powerful computer processors. A random sample of 100,000 records (the "100K sample") is (a) sufficient for statistical purposes, (b) representative of the population of Pennsylvania drivers, and (c) efficient in terms of data processing and computational resources.

Although preliminary analyses were conducted on the full sample of 100,000 driver records, some analyses required particular "cuts" or subsamples of the records. For example, *survival analyses* -- to test whether and when violations occurred in a driver's career -- require a "beginning of time," such as date of initial Pennsylvania licensure. Preliminary analyses revealed that, prior to 1980, the "date of initial license" (product issue date) field was updated each time a license was renewed, which precludes accurate determination of the initial licensure date. Therefore, survival analyses were conducted using only drivers whose dates of initial Pennsylvania licensure were 1980 or later. PennDOT's current driver sanction process of 6-point exams and hearings was instituted in October, 1990. Therefore, analyses testing the effectiveness of sanctions included only drivers whose date of initial Pennsylvania licensure was October 1, 1990 and later.

PennDOT's driver records are exceedingly complex. This is in part due to the multiple legacy database systems that preceded today's records databases, and also due to the fact that driver histories involve many transactions over many years. The researchers devoted a great deal of time to processing these records to create datasets suitable for analyses (and verifying the accuracy of each dataset created). Each major type of analysis (frequency, survival, and random coefficient modeling) presented in this report required creation of a separate dataset. Our objective was to conduct a series of analyses with an overall goal of understanding the effectiveness of sanction processes. Particular choices concerning which drivers to include in an analysis affected specific results; in their entirety, however, we believe that a clear picture emerges from these analyses.

Frequencies of Violations

As illustrated in Figure 3, a driver must commit (in fact, must be convicted of) one or more violations before a sanction is imposed. Preliminary analyses of driver records revealed a large number of specific violation codes (more than 800). To reduce these myriad codes to a manageable number of violation types, the researchers categorized them into eight categories: License Restriction, Failure to Stop/Yield, Speeding, Improper Driving, DUI, Failure to Respond, Other Violations, and Non-Highway Safety Violations. These categories are shown in Figure 3. To create these categories, the researchers discussed similarities and differences among violation codes and code descriptions, and identified a preliminary set of violation categories. Two of the researchers (Renz and Vance) independently categorized all violations, resolving coding discrepancies by discussion. An Excel® spreadsheet summarizing violation categories was then provided to Scott Shenk, the project's Technical Advisor, who reviewed and revised the categories and violation code assignments as needed. The final violation categories are shown in Figure 3; violation codes and descriptions are listed by category in Appendix B.

Violation categories 1 – 5 (License Restriction, Failure to Stop/Yield, Speeding, Improper Driving, and DUI) involve operating a vehicle in a prohibited manner. Violation categories 6 – 8 (Failure to Respond, Other Violations, Non-Highway Safety Violations) generally do not involve vehicle operation. Categories 6 – 8 include crimes and procedural offenses (e.g., underage alcohol possession or possession of marijuana). Some analyses presented next were conducted considering each violation category separately, whereas other analyses were conducted using only driving violations (Categories 1 – 5).

Figure 4 shows the proportions of male and female drivers with no driving violations, 1 or more violations, and 2 or more violations. These estimates are based on the 100K Sample, considering Category 1 – 5 violations only, over drivers' entire Pennsylvania driving careers. The earliest date of birth of any driver in this sample was May 1, 1900 and the latest date of birth was December 5, 1990 (drivers who are now deceased were included in analyses, with estimated date of death used in analyses as needed). Approximately 57% of drivers in this sample had no driving violations, 43% had one or more violations, and 24% had two or more violations. Males were more likely to commit violations than females, and gender differences increased with each successive violation. Approximately 35% of male and 65% of female drivers had no violations. Of drivers with 1 or more violations, 65% were males and 35% were females. Of drivers with 2 or more violations, 74% were males and 26% were females.

Figure 5 shows the proportions of drivers with 1 or more, 2 or more, and 3 or more driving violations by violation Categories 1 – 5. The pie charts of Figure 5 are roughly proportional in size to the number of drivers at each violation count (decreasing from 43% of drivers with 1 or more violations to 14% of drivers with 3 or more violations). It is apparent from these pie charts that the proportions of violations per category remain fairly constant as the number of violations increases. Speeding accounts for most of the violations (more that 50%), followed by Failure to Stop/Yield (16 – 20%), Improper Driving (10 - 14%), License Restriction (8 – 9%), and DUI (5 – 8%). Speeding may be the most common type of violation in part because police can passively monitor driver behavior (e.g., using radar), whereas other violation types are not as easily detected.

Whereas Figure 5 shows cumulative percentages of violation frequencies by categories (violations of drivers with 1 or more violations, 2 or more violations, and 3 or more violations), an alternative approach is to ask about the types of driving violations committed by drivers as their first, second, and third violations, considering only drivers whose maximum numbers of violations are specifically one, two, and three. This places the focus directly on violations that occur first, second, and third. Following that thinking, Figure 6 shows frequencies of violations for drivers with 1 through 10 violations. The percentages of drivers shown by the left-most bar for each violation category were calculated for drivers with one, and only one, violation. The second bar for each category was calculated for drivers with two, and only two, violations. The percentages shown were calculated considering only the *second* violations of these drivers. Thus, among 18,810 drivers with exactly 1 violation (out of 100,000 drivers total), approximate percentages of these 18,810 *first* violations were: 6% License Restriction, 20% Fail to Stop/Yield, 61% Speeding, 8% Improper Driving, and 5% DUI. Among 335 drivers with exactly 10 violations (out of 100,000 drivers total), approximate percentages of *tenth* violations were: 29% License Restriction, 10% Fail to Stop/Yield, 31% Speeding, 13% Improper Driving, and 17% DUI.

Considering the overall picture of frequencies of violations by categories reveals some noteworthy trends as the number of violations per driver increases. Speeding violations predominate regardless of total number of violations, although the proportion of violations that are Speeding decreases as drivers accumulate more violations. Proportions of License Restriction violations increase with successive violations, perhaps due to driving under

suspension for prior violations. Proportions of violations that are Failure to Stop/Yield decrease somewhat with increasing numbers of violations. Proportions of violations that are Improper Driving and DUI increase somewhat with increasing numbers of violations.

Figures 7 and 8 present the proportions of driving violations by categories separately for female (Figure 7) and male (Figure 8) drivers. Compared to males, somewhat greater proportions of first, second, and third violations of females are Speeding. Males have slightly greater proportions of Improper Driving and DUI violations at each violation count. Although males commit (or are convicted of) more violations than females, comparison of these figures reveals substantial similarities in their proportions of violations by categories.

One can also ask whether drivers tend to be consistent in the types of violations they commit from one violation to the next. Table 1 shows cross-tabulations of consecutive violations by violation categories. Tabled values are the percentages of drivers whose next violation fell into the same (value shown in **bold**) or different category as the previous violation. Thus, for example, reading across the first row of data in Table 1, of 2,589 drivers whose first violation was License Restriction, second violations were: 34% License Restriction, 18% Failure to Stop/Yield, 30% Speeding, 11% Improper Driving, and 7% DUI. Reading down the full columns of Table 1 reveals that, for each subsequent violation, the preceding violation was most likely to fall into the same category – that is, if the second violation was License Restriction, the first violation was more likely to be License Restriction than anything else; if the third violation was Failure to Stop/Yield, the second violation was more likely to be Failure to Stop/Yield than anything else; if the fourth violation was Speeding, the third violation was more likely to be Speeding than anything else; if the fifth violation was Improper Driving, the fourth violation was more likely to be Improper Driving than anything else. Thus, there is a distinct tendency for drivers to repeat the same type of violation from one violation to the next (for drivers who commit another violation). This tendency is strongest for License Restriction and Speeding violations (as shown by the comparatively high repeat-violation percentages for these types of violations).

In summary, we learn from Figures 5 through 8 that most drivers (57%) commit (or are convicted of) no violations, and a substantial minority (19%) commit only one violation during their driving careers. By far the most common type of violation is speeding, although the preponderance of this category diminishes somewhat as drivers accumulate more violations. The category that increases the most with multiple violations is license restriction, perhaps because many drivers continue to drive under suspension (for previous violations). Males commit far more violations than females, but the relative frequency of violation types is approximately equal across genders. Finally, there is a tendency for drivers with multiple violations to repeat the same type of violation.

Figure 4. Proportions of Male and Female Drivers with Violations

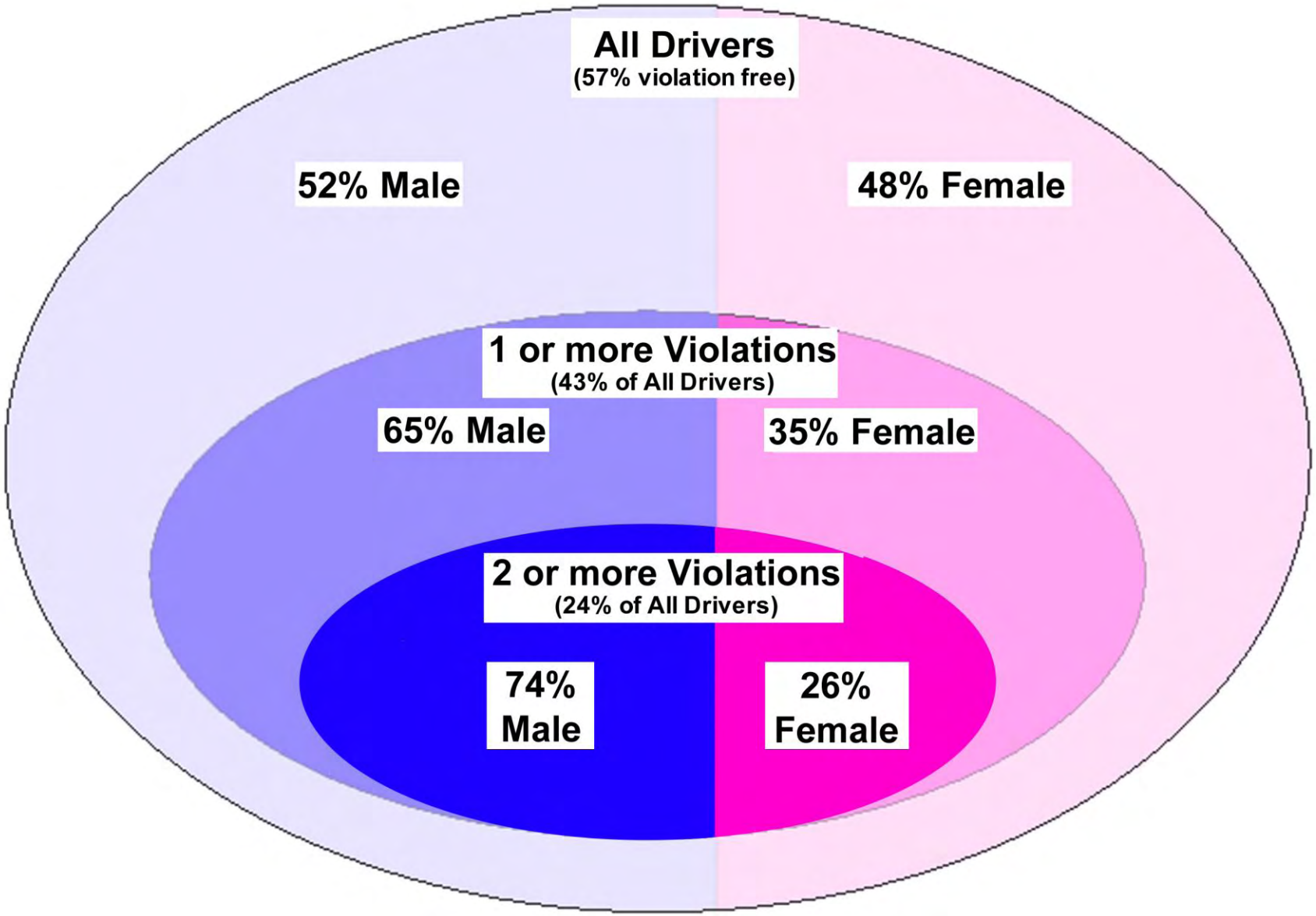


Figure 5. Proportions of Violations by Categories

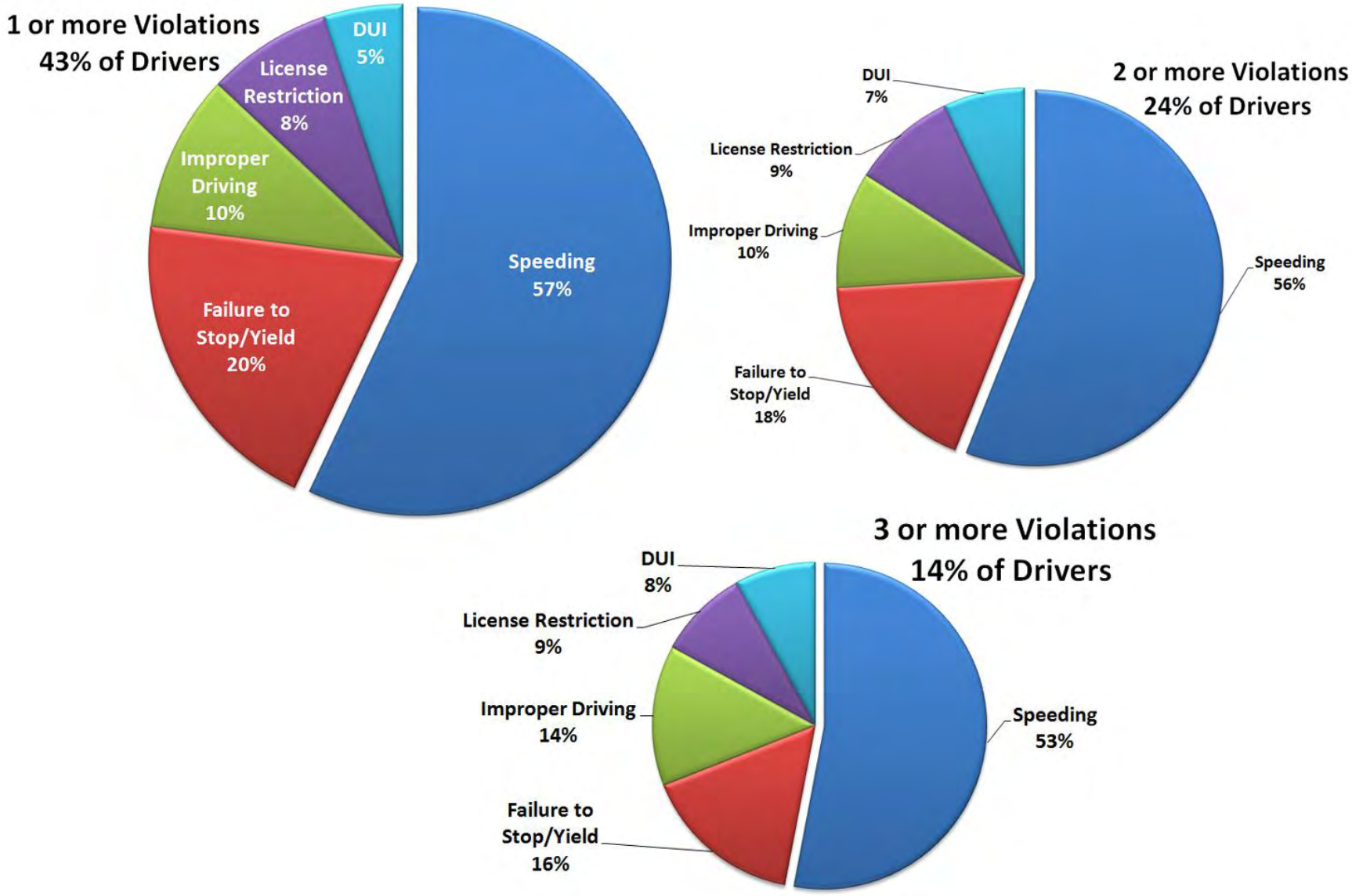


Figure 6.

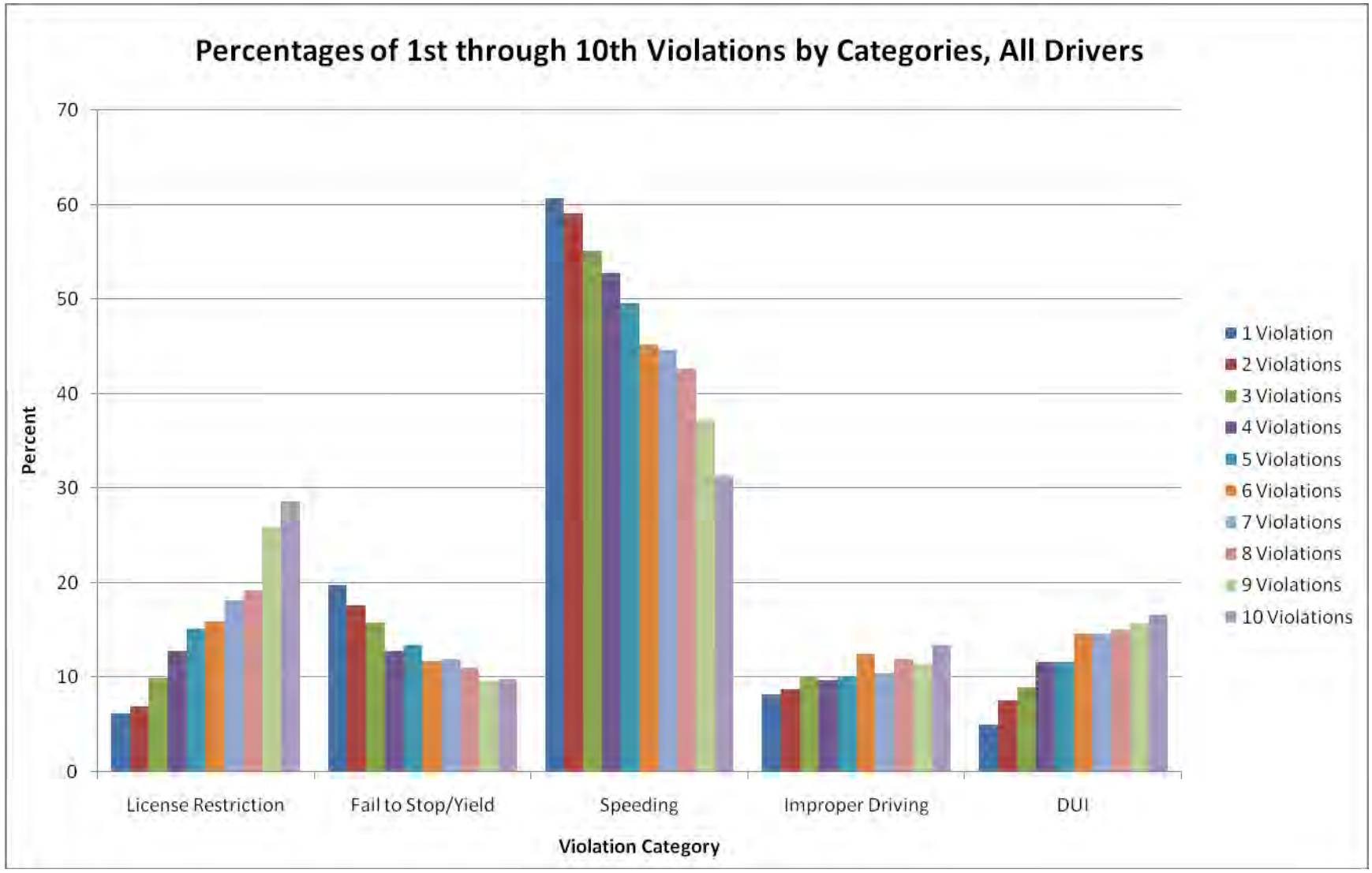

Percentages of 1st through 10th Violations by Categories, All Drivers
Percent
70
60
50
40
30
20
10
0
License Restriction
Fail to Stop/Yield
Speeding
Improper Driving
DUI
Violation Category
1 Violation
2 Violations
3 Violations
4 Violations
5 Violations
6 Violations
7 Violations
8 Violations
9 Violations
10 Violations

Figure 7.

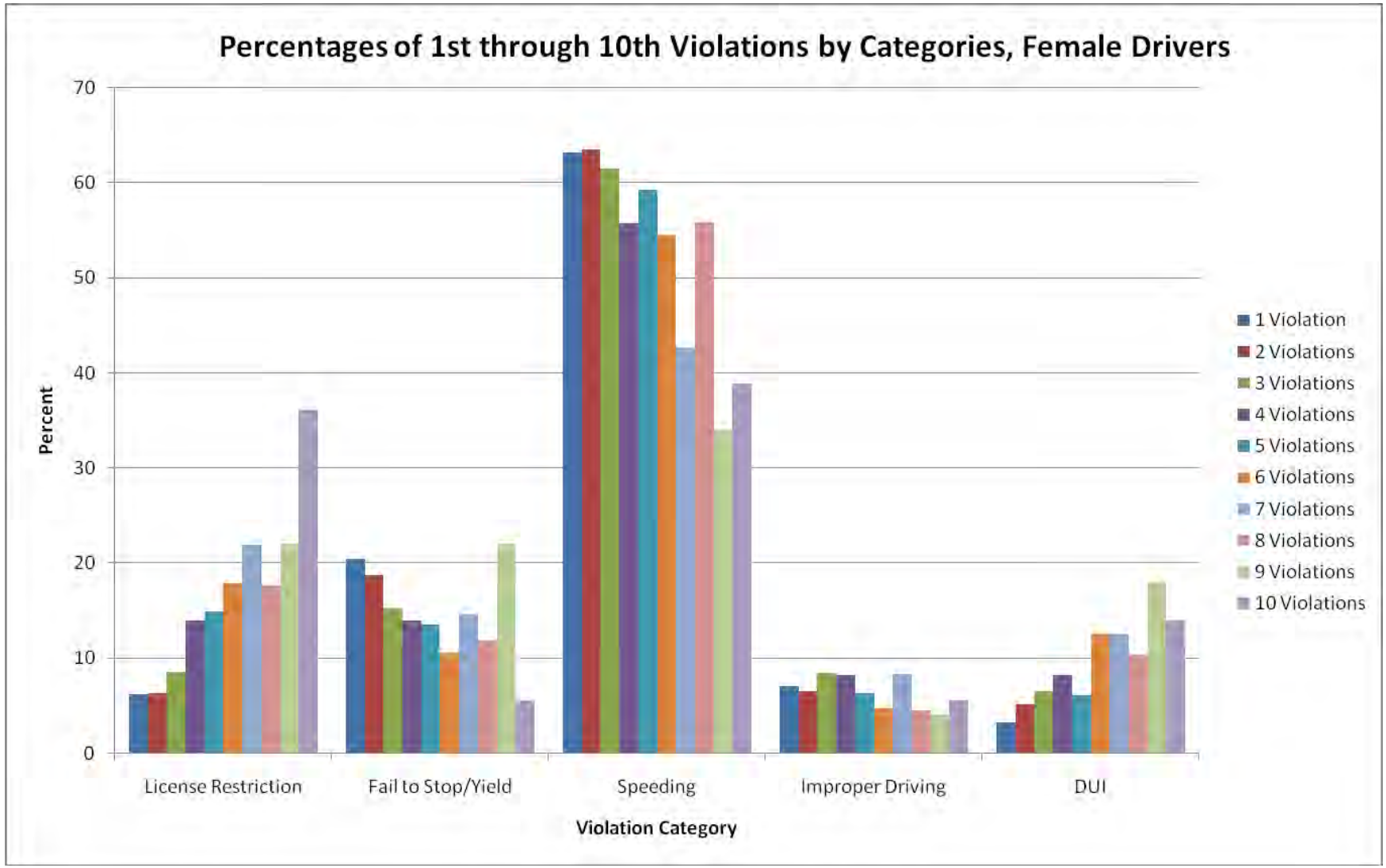

Percentages of 1st through 10th Violations by Categories, Female Drivers
Percent
70
60
50
40
30
20
10
0
License Restriction
Fail to Stop/Yield
Speeding
Improper Driving
DUI
Violation Category
1 Violation
2 Violations
3 Violations
4 Violations
5 Violations
6 Violations
7 Violations
8 Violations
9 Violations
10 Violations

Figure 8.

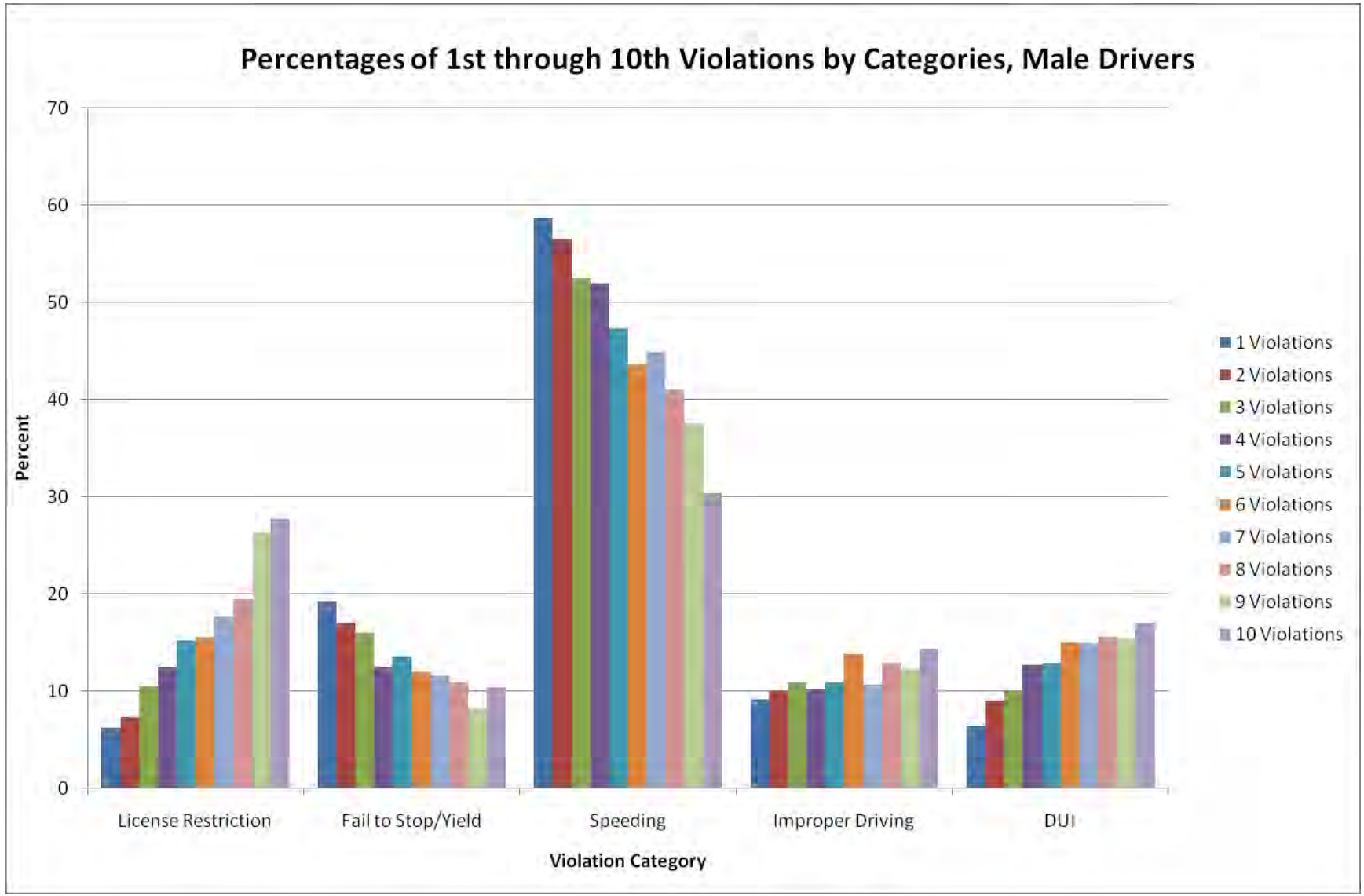

Percentages of 1st through 10th Violations by Categories, Male Drivers
Percent
70
60
50
40
30
20
10
0
License Restriction
Fail to Stop/Yield
Speeding
Improper Driving
DUI
Violation Category
1 Violations
2 Violations
3 Violations
4 Violations
5 Violations
6 Violations
7 Violations
8 Violations
9 Violations
10 Violations

Table 1.

Cross-Tabulations of Consecutive Violations by Violation Categories

		Second Violation				
First Violation	***N***	License Restriction	Failure to Stop/Yield	Speeding	Improper Driving	DUI
License Restriction	2,589	**34%**	18%	30%	11%	7%
Failure to Stop/Yield	4,936	8%	**24%**	51%	11%	5%
Speeding	13,409	5%	16%	**65%**	9%	5%
Improper Driving	2,619	10%	18%	48%	**16%**	9%
DUI	1,248	14%	14%	33%	14%	**25%**

		Third Violation				
Second Violation	***N***	License Restriction	Failure to Stop/Yield	Speeding	Improper Driving	DUI
License Restriction	1,699	**44%**	16%	25%	9%	7%
Failure to Stop/Yield	2,746	12%	**22%**	47%	11%	7%
Speeding	8,036	8%	14%	**63%**	10%	6%
Improper Driving	1,769	13%	17%	42%	**17%**	12%
DUI	949	13%	14%	35%	14%	**24%**

		Fourth Violation				
Third Violation	***N***	License Restriction	Failure to Stop/Yield	Speeding	Improper Driving	DUI
License Restriction	1,513	**46%**	14%	24%	10%	7%
Failure to Stop/Yield	1,629	15%	**19%**	44%	13%	9%
Speeding	4,914	9%	13%	**62%**	10%	7%
Improper Driving	1,101	14%	13%	42%	**17%**	13%
DUI	753	17%	12%	31%	14%	**27%**

		Fifth Violation				
Fourth Violation	***N***	License Restriction	Failure to Stop/Yield	Speeding	Improper Driving	DUI
License Restriction	1,255	**47%**	13%	22%	10%	9%
Failure to Stop/Yield	990	19%	**17%**	44%	12%	8%
Speeding	3,146	11%	13%	**59%**	10%	7%
Improper Driving	796	18%	13%	38%	**17%**	14%
DUI	591	19%	11%	32%	16%	**21%**

Survival Analyses

Analyses summarized in the preceding section documented the types of violations that drivers committed and the proportions of drivers who committed them. *Survival analyses* presented in this section address the question of *whether* and *when* violations occurred. Survival analyses are particularly well-suited to studies of events that unfold over time. A typical question addressed by a survival analysis could be: What proportion of drivers committed at least one violation, and when did it occur? To provide a proper answer one must consider the time frame. A violation within the first year of Pennsylvania licensure? First ten years of Pennsylvania licensure? Ever? Considering that some drivers have been licensed for many years whereas others were newly licensed, how should license tenure factor into the answer?

Initial Licensure to First Violation

Survival analyses require a beginning of time, a measure of time, and an event (such as a violation). The first set of survival analyses examined elapsed time (in years) from date of initial Pennsylvania licensure (beginning of time) to first driving violation (event). An advantage of survival analysis in examining whether and when an event occurs is that it accounts for drivers for whom the event does not occur. We know, for example, that some drivers never commit (are never convicted of) a violation. Survival analyses properly include them in calculations of whether and when events occur.

Table 2 summarizes results of survival analyses from initial licensure to first driving violation. Separate analyses addressed time from Pennsylvania licensure to first violation (any Category 1 – 8 violation) for all drivers, and by gender and license class (C, CDL, M) breakdowns. In addition, analyses were conducted for elapsed time to first violation for each violation category (1-License Restriction, 2-Failure to Stop/Yield, 3-Speeding, 4-Improper Driving, 5-DUI, 6-Failure to Respond, 7-Other Violations, and 8-Non-Highway Safety), also with gender and license class breakdowns.

Table 2 shows the proportions of drivers who "survived" each interval since Pennsylvania licensure (1, 3, 5, 10, and 20 years) without committing a driving violation. For example, 94% of female drivers committed no driving violations by the end of their first year of licensure (they survived without a violation); conversely, 6% of female drivers committed a driving violation during their first year of licensure. Comparable values for male drivers are: 85% survived their first year without a driving violation, and 15% committed a driving violation during their first year of licensure. At 20 years since licensure, 57% of female drivers and 39% of male drivers are predicted to survive violation-free. Therefore, to answer a question concerning the proportion of drivers who will ever commit a driving violation, we can state that about 43% of females and 61% of males are predicted to eventually commit a driving violation. We can further summarize the predicted proportions of violation-free drivers (or the converse) at any given interval.

It is useful to plot the results of survival analyses in the form of a survival function. Figure 9 shows a continuous curve of the probability of surviving without a first violation from the beginning of time (time 0 = date of Pennsylvania licensure) through a 27-year observation

period. (As previously noted, date of initial Pennsylvania licensure was not reliably recorded until 1980. Therefore, the earliest date of licensure for drivers included in this first set of survival analyses was 1980. The observation period extended for 27 years, until 2007 when the driver records were provided to the researchers. Note that year 1 of license tenure corresponds to 1980 only for drivers licensed in 1980; for other drivers, year 1 is first year of licensure, which could have been any year from 1980 to 2006. Similarly, only drivers licensed in 1980 could have been observed for the entire 27 year study period for other drivers in the sample, the duration of observation was shorter. The observation period for each driver extended from licensure until a first violation was committed, until 2007 [end of time], or until approximate date of death [if available in the records provided]. As will be explained in more detail below, survival analysis builds upon available data.)

Two important conclusions can be drawn from Figure 9. First, survival rate dropped precipitously during the first few years after Pennsylvania licensure. The curve became more gradual with increasing years after licensure until it leveled off after about 25 years. Thus, drivers were most likely to commit a first driving violation within a few years of licensure. Second, approximately 46% of drivers are predicted to survive 27 years without committing a driving violation. The longer a driver survived without a violation, the less likely he or she was to ever commit a violation.

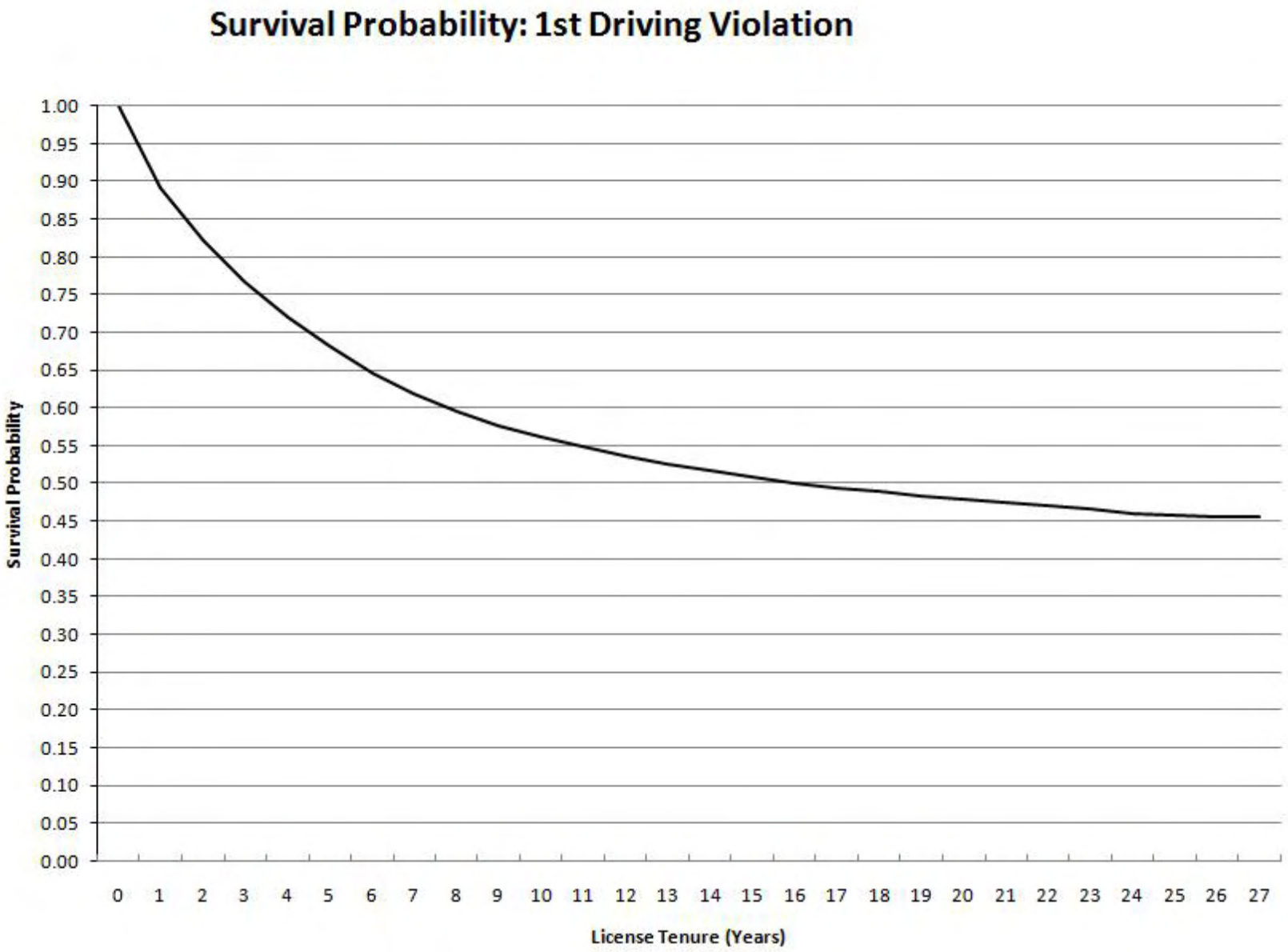
Results of a survival analysis can be examined in greater detail. A *life table* (the primary tool for describing event occurrence data) for the survival function depicted in Figure 9 is presented in Table 3. This analysis included 72,035 drivers who received a license between 1980 and 2007, a period of 27 years (out of the 100,000 drivers in the full sample that covered a much longer period). Reading across the first line of data, at year 1 (column 1, the beginning of time) all 72,035 drivers entered the analysis (column 2). No drivers had yet been *censored* (explained below) at the beginning of year 1 (column 3). All 72,035 drivers were *at risk* of a violation at the outset (column 4); that is, all drivers could potentially have committed a violation at any time after licensure. During this first year of licensure 7,750 drivers committed a violation (column 5). The proportion of drivers committing a violation during year 1 was 0.107 (*hazard rate* = 7,750 / 72,035, column 6). The proportion of drivers who survived year 1 violation-free is shown in column 7 (0.892; i.e., 1 – hazard rate). The *cumulative proportion* of drivers who survived each interval violation-free is shown in column 8 (0.892); this column provides the values of the *survival function* plotted in Figure 9.

All 72,035 drivers included in this analysis (i.e., all drivers in the original sample of 100,000 who received a license from 1980 to 2007) were not observed for 27 years. Only drivers licensed in 1980 could have been observed for 27 years. Drivers licensed in 1981 could have been observed for 26 years. Drivers licensed in 2006 could have been observed for 1 year. Thus, the potential observation period for a given driver depended on year of licensure. Drivers who were licensed in 1981 or later were *censored* from the analysis beginning in year 2; that is, they did not contribute data to observation periods longer than their license tenure. Therefore, the number of drivers who entered a time interval decreased with each successive year (Table 3, column 2, year 2 and later). In year 2, 2,520 drivers were censored (Table 3, column 3, year 2).

Table 2. Proportions of Drivers without First Violations

Type of Violation	Years since Licensure	Driver Characteristics				
		Female	Male	Class C	CDL	Class M
Any Driving (Category 1-5)	1	94	85	90	81	86
	3	85	69	77	62	69
	5	77	59	69	51	59
	10	66	47	57	38	43
	20	57	39	49	28	35
License Restriction	1	99	97	98	97	98
	3	98	94	96	95	96
	5	97	92	95	93	95
	10	96	89	93	90	93
	20	95	86	91	87	91
Fail to Stop/Yield	1	98	96	97	96	96
	3	96	91	93	89	91
	5	94	87	90	85	87
	10	91	81	86	79	82
	20	88	76	82	73	77
Speeding	1	96	92	94	90	90
	3	88	79	84	74	76
	5	83	71	77	64	66
	10	74	58	66	49	52
	20	67	48	58	40	42
Improper Driving	1	99	97	98	95	96
	3	98	93	96	88	92
	5	97	91	94	84	89
	10	96	87	92	78	85
	20	95	83	89	71	80
DUI	1	100	99	99	99	99
	3	99	97	98	97	98
	5	99	95	97	95	96
	10	98	91	94	91	93
	20	97	87	92	87	90
Failure to Respond	1	98	96	97	96	97
	3	95	91	93	91	94
	5	93	87	90	88	92
	10	90	82	86	82	89
	20	87	77	82	77	85
Other	1	100	99	99	97	99
	3	99	98	99	93	98
	5	99	96	98	90	97
	10	98	94	97	84	95
	20	97	92	96	79	92
Non-Highway Safety	1	99	96	97	97	98
	3	97	93	95	95	96
	5	97	92	94	94	95
	10	97	91	94	94	95
	20	96	90	93	93	94

Figure 9.


Survival Probability: 1st Driving Violation
Survival Probability
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
License Tenure (Years)

The number of drivers at risk of a violation in a given year was equal to the number of drivers who were at risk in the previous year minus the number of drivers who committed a violation in the previous year, minus the number of censored drivers. Statistics shown for a given interval in Table 3 were calculated from data for drivers who were available at that interval. In this way, hazard rates and survival function values were calculated from the available data, thereby maximizing its information value.

It is important to note here that there is a fundamental difference between an estimate of proportion of violators from survival analysis and a direct calculation of proportion of violators. Figures 4 and 5 showed that 43% of drivers committed one or more violations, and 24% of drivers committed two or more violations. These proportions were calculated directly (proportion of violators = [number of violators / number of drivers]). In comparison, the survival analysis estimate of proportion of violators is *greater* than the directly calculated proportion at every period with censored cases.

In accounting for censoring, survival analysis estimates the proportion of violators that would have occurred *if all cases were observed throughout the entire study period*. Accounting for censoring is an important benefit of survival analysis. Consider two extreme (but actual) cases. A driver licensed in 1980 who drove violation-free throughout the entire 27-year observation period contributes more information to the analysis than a driver licensed in 2006 who drove violation-free for one year (the latter case was censored after one year). Survival analysis properly accounts for censored cases (those whose license tenure was less than 27 years). Survival analysis estimates proportions of violators according to the number of violators *at each interval* relative to the number of drivers at risk of a violation at that interval (see hazard rates, Table 3, column 6). In contrast, direct calculation of proportion of violators ignores the fact that the durations of opportunities to observe drivers vary dramatically across drivers. Thus, direct calculation of proportion of violators *underestimates* the proportion of violators that would have been observed if all drivers in the sample had been observed for a full 27-year period. Estimates of proportions of violators obtained from survival analyses are superior to direct calculations because survival analyses account for censoring in the data.

Two important conclusions can be reached from the data presented in Table 3. First, the survival graph presented in Figure 9 is based on a very large sample of drivers. Although the sample diminishes in size when extended to 27 years, over this long period a smooth trend is evident. Second, the survival function provides another way to answer the question concerning the proportion of drivers who committed a violation. The *median lifetime* is the point in the survival function when 50% of the sample has committed a violation. As can be seen in column 8 of Table 3, a value of .50 occurred at year 16. This indicates that 50% of drivers who were at risk committed a first driving violation by about year 16 of their driving careers. Of the 50% of drivers who were at risk and were violation-free at year 16, most (92%, or .46 / .50) will probably never commit a driving violation. This is shown in Figure 8, where the survival function plateaus at 46% of drivers surviving indefinitely without a driving violation.

Table 3. Life Table: First Driving Violation after Licensure

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	72,035	0	72,035	7,750	0.107587	0.892413	0.892413
2	64,285	2,520	61,765	4,823	0.078086	0.921914	0.822728
3	56,942	2,473	54,469	3,721	0.068314	0.931686	0.766524
4	50,748	2,563	48,185	2,898	0.060143	0.939857	0.720423
5	45,287	2,715	42,572	2,290	0.053791	0.946209	0.681671
6	40,282	2,442	37,840	1,974	0.052167	0.947833	0.64611
7	35,866	2,328	33,538	1,423	0.042429	0.957571	0.618696
8	32,115	1,881	30,234	1,136	0.037574	0.962426	0.595449
9	29,098	2,044	27,054	865	0.031973	0.968027	0.576411
10	26,189	2,053	24,136	653	0.027055	0.972945	0.560816
11	23,483	1,929	21,554	479	0.022223	0.977777	0.548353
12	21,075	1,885	19,190	401	0.020896	0.979104	0.536894
13	18,789	1,563	17,226	339	0.01968	0.98032	0.526328
14	16,887	1,435	15,452	260	0.016826	0.983174	0.517472
15	15,192	1,448	13,744	223	0.016225	0.983775	0.509076
16	13,521	1,296	12,225	199	0.016278	0.983722	0.500789
17	12,026	1,331	10,695	130	0.012155	0.987845	0.494702
18	10,565	967	9,598	116	0.012086	0.987914	0.488723
19	9,482	1,023	8,459	78	0.009221	0.990779	0.484217
20	8,381	1,085	7,296	83	0.011376	0.988624	0.478708
21	7,213	1,028	6,185	55	0.008892	0.991108	0.474451
22	6,130	1,004	5,126	47	0.009169	0.990831	0.470101
23	5,079	1,059	4,020	42	0.010448	0.989552	0.46519
24	3,978	1,065	2,913	29	0.009955	0.990045	0.460558
25	2,884	1,045	1,839	12	0.006525	0.993475	0.457553
26	1,827	925	902	3	0.003326	0.996674	0.456031
27	899	756	143	0	0	1	0.456031

Explanation of Life Table Columns:

Year = number of years since a driver's license was issued ("license tenure")
Number Entering = number of drivers at each interval who are still driving and who have not yet committed a violation
Number Censored = number of drivers whose license tenure ends during an interval and who must be dropped from further consideration
Number at Risk = Number Entering – Number Censored (indicates true number of drivers who are at risk of a violation at each interval)
Number Committing Violation = number of drivers who commit a violation during an interval
Proportion Committing Violation = Number Committing Violation / Number at Risk (indicates within-interval violation rate)
Proportion Surviving Violation-Free = 1 – (Number Committing Violation / Number at Risk) (indicates within-interval *survival* rate)
Cumulative Proportion Surviving = the percentage of drivers who remain violation-free through the end of each interval

As summarized in Table 2, survival analyses from date of initial Pennsylvania licensure to first violation were conducted for each violation type and for gender and license class breakdowns. Survival graphs and life tables for these analyses are included in Appendix C. To briefly summarize these findings, (a) male drivers were more likely to commit first violations and commit them sooner after licensure than female drivers, especially Speeding and Improper Driving violations; and (b) CDL license holders were somewhat more likely than Class C and M license holders to commit first violations. Considering that CDL holders drive for a living, they probably have greater exposure than typical Class C and M license holders.

First to Second Violation

The second set of survival analyses examined elapsed time (in years) from date of first violation (beginning of time) to second violation (event). Table 4 summarizes results of these analyses. Separate analyses addressed time from first to second driving violation (any Category 1 – 5 violation) for all drivers, and by gender and license class (C, CDL, M) breakdowns. In addition, analyses were conducted for elapsed time to second violation for each violation category (1-License Restriction, 2-Failure to Stop/Yield, 3-Speeding, 4-Improper Driving, 5-DUI, 6-Failure to Respond, 7-Other Violations, and 8-Non-Highway Safety), also with gender and license class breakdowns.

Table 4 shows the proportions of drivers who survived each interval since first driving violation (1, 3, 5, 10, and 20 years) without committing a second driving violation. For example, 86% of female drivers committed no additional violations by the end of their first year after first violation (they survived without a violation); conversely, 14% of female drivers committed a second driving violation during the year following their first violation. Comparable values for male drivers are: 77% survived their first year without another violation, and 23% committed a second driving violation within a year after their first. At 20 years after first driving violation, 47% of female drivers and 25% of male drivers are predicted to survive violation-free. Therefore, to answer a question concerning the proportion of drivers who will ever commit a second driving violation, we can state that about 53% of females and 75% of males who commit a first violation are expected to eventually commit a second violation. We can further summarize the proportions of drivers with and without a second violation at any given interval.

Figure 10 shows a continuous curve of the probability of surviving without a second driving violation from the beginning of time (time 0 = date of first driving violation) through a 25-year observation period. Two important conclusions can be drawn from Figure 10. First, survival rate dropped precipitously during the early years after first violation. The curve became more gradual with increasing years. Thus, drivers were most likely to commit a second driving violation within a few years of a first violation. Second, approximately 29% of drivers are expected to survive 25 years without committing a second driving violation. The longer a driver survived without a second violation, the less likely he or she was to commit a second violation.

The life table for the survival function depicted in Figure 10 is presented in Table 5. This analysis included 42,793 drivers who committed a first driving violation. Although this large initial sample diminished in size when extended to 25 years, over this long period a smooth trend is evident. The median lifetime indicates that 50% of drivers committed a second driving

violation by about year 6 after their first violation. By 25 years, 29% of drivers survived without a second violation, and 71% had committed another violation. (Note that this compares to a direct calculation of second violation percentage of 56% [.24 / .43]. As explained above, survival analysis accounts for censoring of cases, and therefore provides a better estimate of violation percentage than a direct calculation.)

As summarized in Table 4, survival analyses from first to second violation were conducted for each violation type and for gender and license class breakdowns. Survival graphs and life tables for these analyses are included in Appendix C. To briefly summarize these findings, (a) male drivers were more likely to commit second violations and commit them sooner after first violations than female drivers, especially License Restriction, Speeding, and Improper Driving violations; and (b) CDL license holders were somewhat more likely than Class C and M license holders to commit second violations. As noted previously, considering that CDL holders drive for a living, they probably have greater exposure than typical Class C and M license holders.

Young Driver Violations

The third set of survival analyses examined elapsed time (in months) from date of Pennsylvania licensure (beginning of time) to first violation (event) for male and female drivers who were 16 or 17 years old at time of licensure. Table 6 summarizes results of these analyses. Separate analyses addressed time from licensure to first violation (any Category 1 – 8 violation) and for each violation category (1-License Restriction, 2-Failure to Stop/Yield, 3-Speeding, 4-Improper Driving, 5-DUI, 6-Failure to Respond, 7-Other Violations, and 8-Non-Highway Safety).

Table 6 shows the proportions of drivers who survived each interval since Pennsylvania licensure (6, 12, 18, 24, and 36 months, until young drivers were 19 or 20 years old) without committing a violation (Categories 1-8). For example, 97% of female drivers committed no violations by six months after licensure (they survived without a violation); conversely, 3% of female drivers committed a violation of some type during this period. Comparable values for male drivers are: 93% survived their first six months without a violation, and 7% committed a violation during this period.

Figure 11 shows a continuous curve of the probability of surviving without a violation from the beginning of time (time 0 = date of Pennsylvania licensure) through a 36-month observation period. Two important conclusions can be drawn from Figure 11. First, survival rate dropped gradually and continuously for both genders throughout the observation period. Thus, young drivers accumulated violations at a steady pace. Second, the rate at which violations were committed was greater for males than females. By 36 months since licensure, proportionally twice as many males as females committed violations (38% vs. 19%).

The life tables for the survival functions depicted in Figure 11 are presented in Tables 7 and 8. These analyses included 21,160 female (Table 7) and 24,427 male drivers (Table 8). Because of the short time-frame of these analyses (compared to the analyses presented in the preceding sections), very few cases were censored during the 36-month observation period. For both genders the median lifetime (the point at which 50% of drivers survived without a violation) was

Table 4. Proportions of Drivers without Second Violations

Type of Violation	Years since Licensure	Driver Characteristics				
		Female	Male	Class C	CDL	Class M
Any Driving (Category 1-5)	1	86	77	81	75	77
	3	72	55	61	53	55
	5	64	45	52	43	45
	10	55	33	42	31	34
	20	47	25	33	23	28
License Restriction	1	87	79	81	83	86
	3	79	67	70	73	77
	5	75	61	64	67	72
	10	70	54	57	61	67
	20	66	49	52	57	63
Fail to Stop/Yield	1	96	92	93	92	93
	3	91	84	86	84	85
	5	89	80	83	80	81
	10	85	73	77	73	75
	20	81	66	71	66	70
Speeding	1	90	85	87	84	84
	3	78	68	72	65	66
	5	72	59	64	56	57
	10	64	48	54	45	46
	20	57	40	46	37	38
Improper Driving	1	98	93	95	91	94
	3	95	86	89	83	87
	5	94	82	85	78	83
	10	91	76	80	70	77
	20	88	67	73	60	69
DUI	1	95	93	94	95	88
	3	90	85	86	89	83
	5	86	80	80	85	79
	10	77	68	69	76	71
	20	68	57	58	66	63
Failure to Respond	1	78	72	74	76	79
	3	65	56	59	62	66
	5	59	48	52	55	60
	10	52	40	43	47	52
	20	44	32	35	42	45
Other	1	95	90	94	81	89
	3	92	84	90	71	82
	5	91	81	88	65	78
	10	88	76	84	57	73
	20	86	73	82	51	69
Non-Highway Safety	1	94	87	88	90	90
	3	89	77	80	83	83
	5	87	74	77	81	81
	10	85	71	74	78	78
	20	84	68	72	76	76

Figure 10.

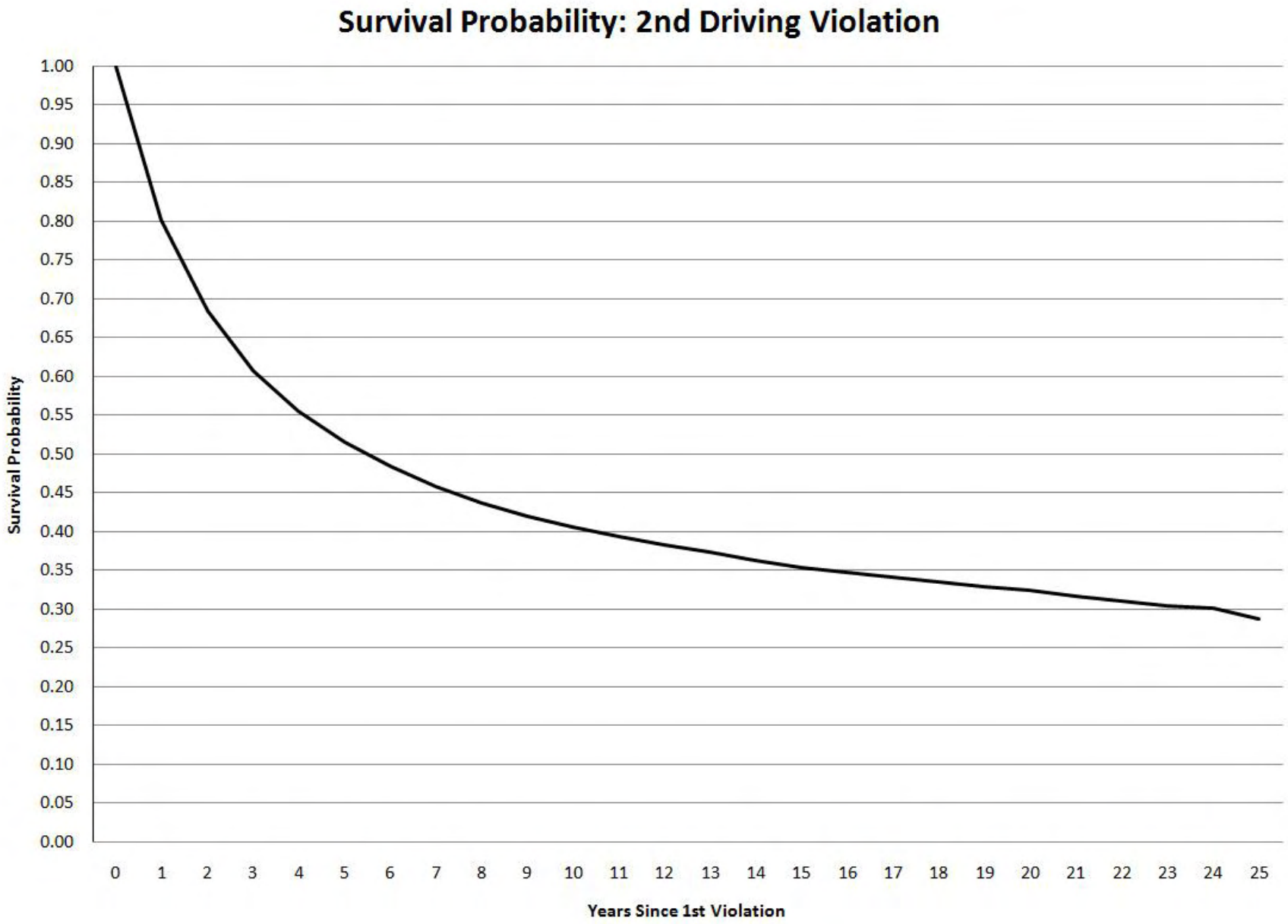

Survival Probability: 2nd Driving Violation
Survival Probability
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Years Since 1st Violation

Table 5. Life Table: Second Violations over 25 Years after First Violations (Categories 1-5)

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	42,793	0	42,793	8,492	0.198444	0.801556	0.801556
2	34,301	1,182	33,119	4,882	0.147408	0.852592	0.683401
3	28,237	1,422	26,815	2,999	0.11184	0.88816	0.606969
4	23,816	1,336	22,480	1,933	0.085988	0.914012	0.554777
5	20,547	1,253	19,294	1,377	0.071369	0.928631	0.515183
6	17,917	1,233	16,684	1,030	0.061736	0.938264	0.483378
7	15,654	1,165	14,489	770	0.053144	0.946856	0.457689
8	13,719	1,103	12,616	580	0.045973	0.954027	0.436648
9	12,036	1,023	11,013	416	0.037774	0.962226	0.420154
10	10,597	1,045	9,552	315	0.032977	0.967023	0.406298
11	9,237	893	8,344	255	0.030561	0.969439	0.393882
12	8,089	783	7,306	211	0.02888	0.97112	0.382506
13	7,095	711	6,384	159	0.024906	0.975094	0.372979
14	6,225	858	5,367	148	0.027576	0.972424	0.362694
15	5,219	699	4,520	115	0.025442	0.974558	0.353466
16	4,405	744	3,661	61	0.016662	0.983338	0.347577
17	3,600	739	2,861	49	0.017127	0.982873	0.341624
18	2,812	680	2,132	36	0.016886	0.983114	0.335855
19	2,096	612	1,484	26	0.01752	0.98248	0.329971
20	1,458	492	966	15	0.015528	0.984472	0.324847
21	951	259	692	16	0.023121	0.976879	0.317336
22	676	179	497	11	0.022133	0.977867	0.310313
23	486	136	350	6	0.017143	0.982857	0.304993
24	344	108	236	3	0.012712	0.987288	0.301116
25	233	78	155	5	0.032258	0.967742	0.291403

Explanation of Columns: See Table 3 note.

beyond the period studied: 81% of females and 62% of males survived for 36 months since licensure without a violation.

As summarized in Table 6, survival analyses for young male and female drivers from licensure to first violation were conducted for each violation type (Categories 1-8). Inspection of Table 6 reveals that speeding was by far the most common type of violation committed by young drivers, especially males. Figure 12 shows a continuous curve of the probability of surviving without a Speeding violation from the beginning of time (time 0 = date of Pennsylvania licensure) through a 36-month observation period. Proportionally twice as many males as females committed Speeding violations (25% vs. 12%) by the end of this period. The life tables for the survival functions depicted in Figure 12 are presented in Tables 9 and 10.

As summarized in Table 6, survival analyses for young drivers from Pennsylvania licensure to first violation were conducted for samples of drivers licensed during *four years before* and *four years after* the Young Driver Law (YDL) took effect on August 24, 1999. Significant differences in survival rates were found for three violation categories. As might be expected, because of the restrictions the law placed on young drivers, License Restriction violations increased somewhat comparing before to after violation rates, from 1% pre-YDL to 3% post-YDL. Speeding violations decreased somewhat after the law took effect, from 24% pre-YDL to 22% post-YDL.

Figure 13 shows a continuous curve of the probability of surviving without a Speeding violation from the beginning of time (time 0 = date of licensure) through a 36-month observation period for the before- and after-YDL samples. The life tables for the survival functions depicted in Figure 13 are presented in Tables 11 and 12. It is possible that the small reduction in speeding violations among young drivers documented in these tables was at least partially attributable to the effects of the Young Driver Law.

Table 6. Proportions of Young Drivers without First Violations

Type of Violation	Months since Licensure	Driver Characteristics			
		Female	Male	Before Young Driver Law	After Young Driver Law
Any Violation (Category 1-8)	6	97	93	No significant differences	
	12	93	86		
	18	90	79		
	24	87	73		
	36	81	62		
License Restriction	6	100	100	100	100
	12	100	99	99	99
	18	100	99	99	98
	24	100	98	99	98
	36	99	98	99	97
Fail to Stop/Yield	6	99	98	No significant differences	
	12	98	96		
	18	98	95		
	24	97	93		
	36	96	90		
Speeding	6	98	96	96	96
	12	96	92	92	93
	18	94	88	88	89
	24	92	83	84	85
	36	88	75	76	78
Improper Driving	6	100	98	No significant differences	
	12	99	97		
	18	99	96		
	24	99	94		
	36	98	92		
DUI	6	100	100	No significant differences	
	12	100	100		
	18	100	100		
	24	100	99		
	36	100	98		
Failure to Respond	6	100	100	No significant differences	
	12	100	100		
	18	100	100		
	24	100	99		
	36	100	98		
Other	6	100	100	No significant differences	
	12	100	100		
	18	100	99		
	24	100	99		
	36	100	99		
Non-Highway Safety	6	100	99	100	99
	12	99	99	99	99
	18	99	98	98	98
	24	99	97	97	96
	36	98	94	95	94

Figure 11.

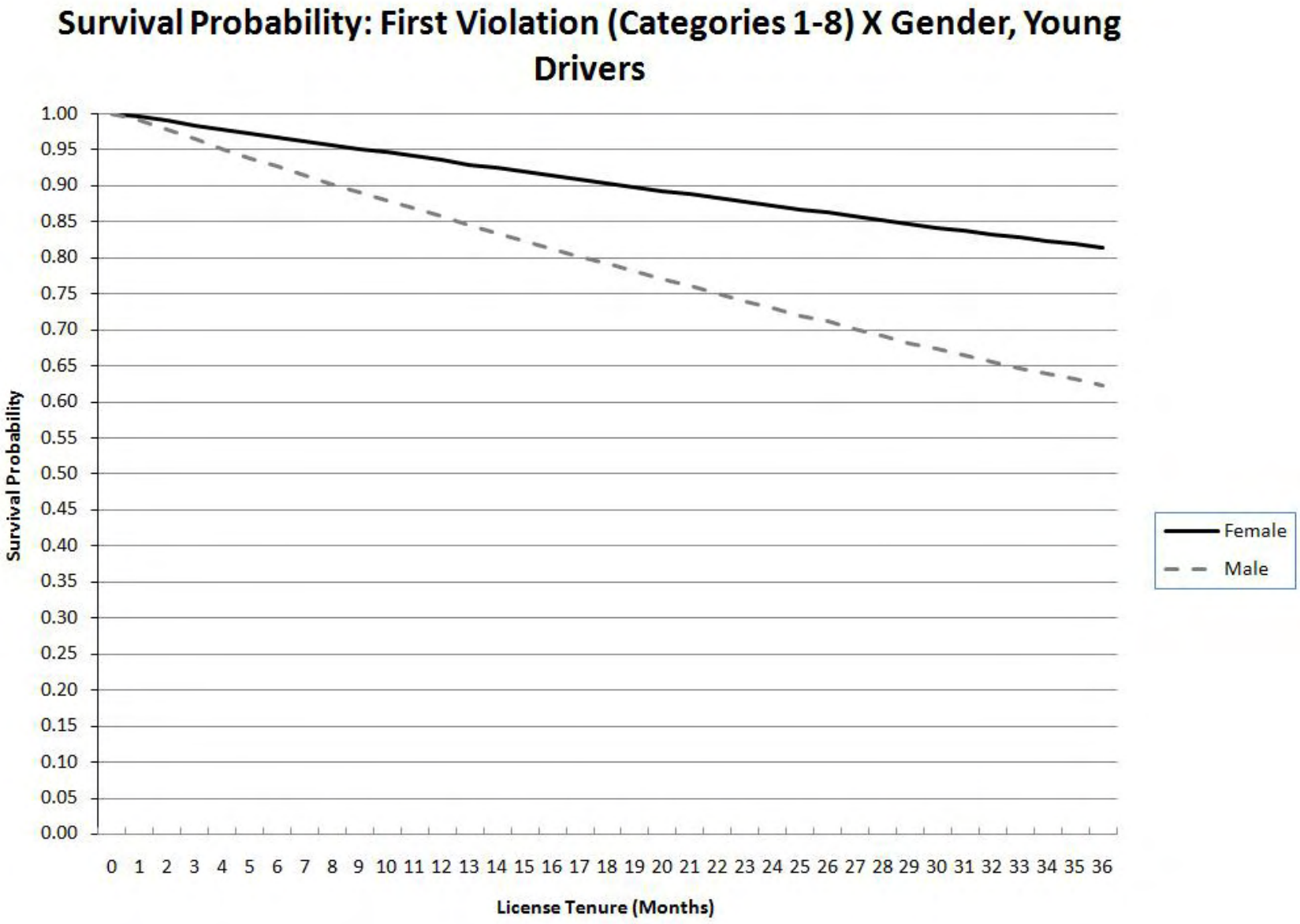

Survival Probability: First Violation (Categories 1-8) X Gender, Young Drivers
Survival Probability
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
License Tenure (Months)
Female
Male

Table 7. Life Table: First Violations over 36 Months of Licensure for Young Female Drivers

Month	Number Entering	Number Censored	Number at Risk	Number Committing Violation	Proportion Committing Violation (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	21,160	0	21,160	72	0.003403	0.996597	0.996597
2	21,088	8	21,080	114	0.005408	0.994592	0.991208
3	20,966	69	20,897	102	0.004881	0.995119	0.98637
4	20,795	59	20,736	120	0.005787	0.994213	0.980661
5	20,616	69	20,547	124	0.006035	0.993965	0.974743
6	20,423	49	20,374	118	0.005792	0.994208	0.969098
7	20,256	56	20,200	119	0.005891	0.994109	0.963389
8	20,081	64	20,017	103	0.005146	0.994854	0.958432
9	19,914	59	19,855	103	0.005188	0.994812	0.95346
10	19,752	56	19,696	93	0.004722	0.995278	0.948958
11	19,603	66	19,537	101	0.00517	0.99483	0.944052
12	19,436	83	19,353	114	0.005891	0.994109	0.938491
13	19,239	52	19,187	109	0.005681	0.994319	0.933159
14	19,078	67	19,011	103	0.005418	0.994582	0.928103
15	18,908	58	18,850	114	0.006048	0.993952	0.922491
16	18,736	61	18,675	114	0.006104	0.993896	0.916859
17	18,561	55	18,506	102	0.005512	0.994488	0.911806
18	18,404	64	18,340	103	0.005616	0.994384	0.906685
19	18,237	41	18,196	107	0.00588	0.99412	0.901353
20	18,089	46	18,043	104	0.005764	0.994236	0.896158
21	17,939	42	17,897	115	0.006426	0.993574	0.890399
22	17,782	51	17,731	111	0.00626	0.99374	0.884825
23	17,620	68	17,552	125	0.007122	0.992878	0.878524
24	17,427	62	17,365	97	0.005586	0.994414	0.873617
25	17,268	58	17,210	102	0.005927	0.994073	0.868439
26	17,108	80	17,028	93	0.005462	0.994538	0.863696
27	16,935	58	16,877	107	0.00634	0.99366	0.85822
28	16,770	61	16,709	102	0.006104	0.993896	0.852981
29	16,607	55	16,552	108	0.006525	0.993475	0.847415
30	16,444	41	16,403	90	0.005487	0.994513	0.842766
31	16,313	48	16,265	114	0.007009	0.992991	0.836859
32	16,151	41	16,110	100	0.006207	0.993793	0.831664
33	16,010	38	15,972	96	0.006011	0.993989	0.826665
34	15,876	49	15,827	85	0.005371	0.994629	0.822226
35	15,742	43	15,699	86	0.005478	0.994522	0.817722
36	15,613	61	15,552	102	0.006559	0.993441	0.812358

Explanation of Columns: See Table 3 note.

Table 8. Life Table: First Violations over 36 Months of Licensure for Young Male Drivers

Month	Number Entering	Number Censored	Number at Risk	Number Committing Violation	Proportion Committing Violation (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	24,427	0	24,427	223	0.009129	0.990871	0.990871
2	24,204	15	24,189	350	0.014469	0.985531	0.976533
3	23,839	70	23,769	334	0.014052	0.985948	0.962811
4	23,435	77	23,358	316	0.013529	0.986471	0.949786
5	23,042	73	22,969	322	0.014019	0.985981	0.936471
6	22,647	48	22,599	272	0.012036	0.987964	0.9252
7	22,327	65	22,262	308	0.013835	0.986165	0.912399
8	21,954	79	21,875	294	0.01344	0.98656	0.900137
9	21,581	70	21,511	274	0.012738	0.987262	0.888671
10	21,237	71	21,166	263	0.012426	0.987574	0.877629
11	20,903	60	20,843	276	0.013242	0.986758	0.866007
12	20,567	66	20,501	287	0.013999	0.986001	0.853884
13	20,214	66	20,148	284	0.014096	0.985904	0.841848
14	19,864	50	19,814	265	0.013374	0.986626	0.830588
15	19,549	50	19,499	248	0.012719	0.987281	0.820025
16	19,251	53	19,198	253	0.013178	0.986822	0.809218
17	18,945	64	18,881	244	0.012923	0.987077	0.79876
18	18,637	48	18,589	243	0.013072	0.986928	0.788319
19	18,346	55	18,291	250	0.013668	0.986332	0.777544
20	18,041	51	17,990	236	0.013118	0.986882	0.767344
21	17,754	66	17,688	223	0.012607	0.987393	0.75767
22	17,465	71	17,394	210	0.012073	0.987927	0.748522
23	17,184	61	17,123	259	0.015126	0.984874	0.7372
24	16,864	56	16,808	231	0.013743	0.986257	0.727069
25	16,577	54	16,523	205	0.012407	0.987593	0.718048
26	16,318	50	16,268	204	0.01254	0.98746	0.709044
27	16,064	49	16,015	205	0.0128	0.9872	0.699967
28	15,810	65	15,745	237	0.015052	0.984948	0.689431
29	15,508	68	15,440	218	0.014119	0.985881	0.679697
30	15,222	55	15,167	182	0.012	0.988	0.671541
31	14,985	37	14,948	178	0.011908	0.988092	0.663544
32	14,770	48	14,722	169	0.011479	0.988521	0.655927
33	14,553	36	14,517	201	0.013846	0.986154	0.646845
34	14,316	44	14,272	191	0.013383	0.986617	0.638189
35	14,081	43	14,038	159	0.011326	0.988674	0.63096
36	13,879	40	13,839	182	0.013151	0.986849	0.622662

Explanation of Columns: See Table 3 note.

Figure 12.

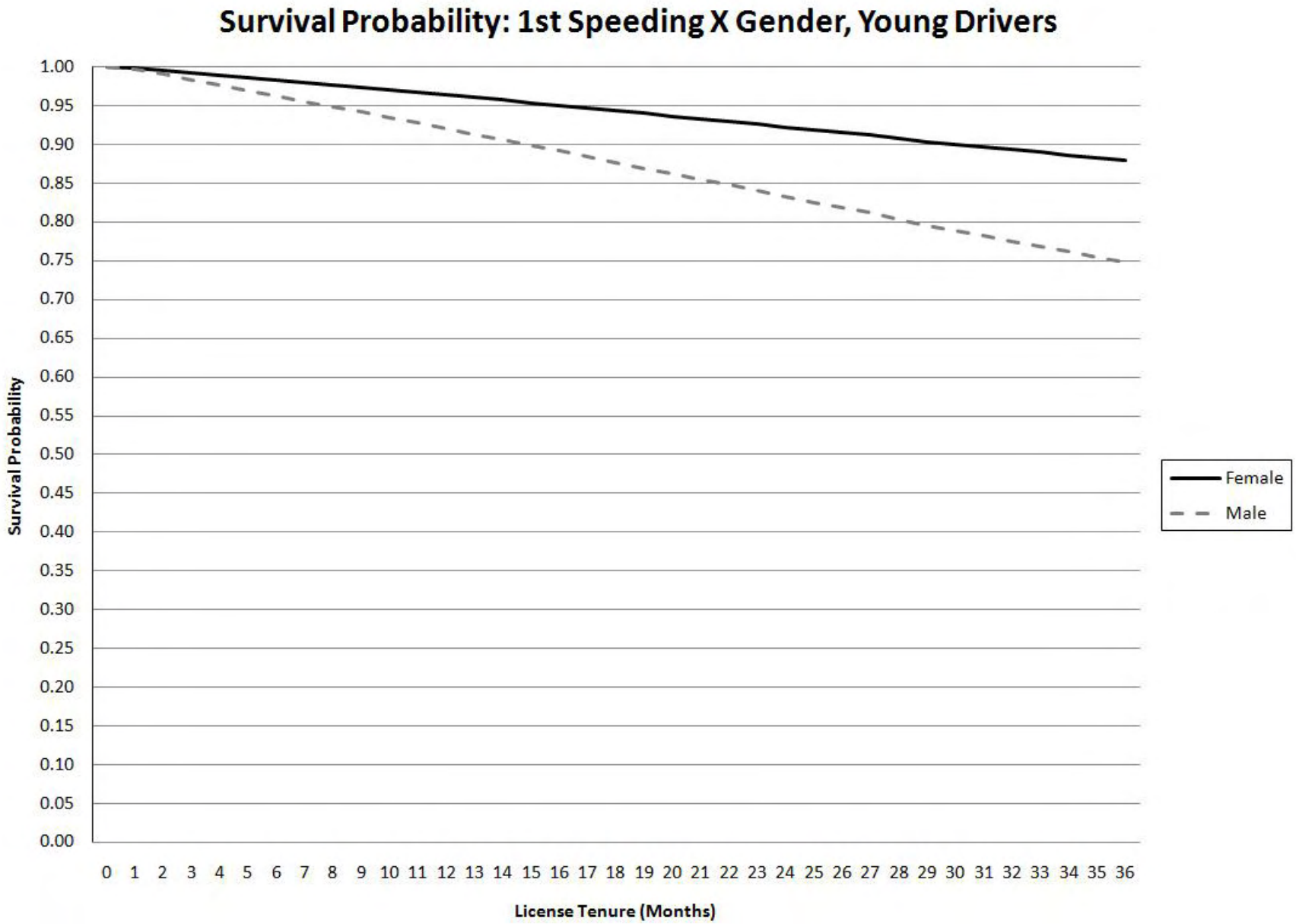

Survival Probability: 1st Speeding X Gender, Young Drivers
Survival Probability
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
License Tenure (Months)
Female
Male

Table 9. Life Table: 1st Speeding Violation over 36 Months after Licensure, Young Female Drivers

Month	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	21,160	0	21,160	20	0.000945	0.999055	0.999055
2	21,140	8	21,132	49	0.002319	0.997681	0.996738
3	21,083	69	21,014	55	0.002617	0.997383	0.994129
4	20,959	59	20,900	62	0.002967	0.997033	0.99118
5	20,838	69	20,769	67	0.003226	0.996774	0.987983
6	20,702	49	20,653	63	0.00305	0.99695	0.984969
7	20,590	57	20,533	69	0.00336	0.99664	0.981659
8	20,464	64	20,400	55	0.002696	0.997304	0.979013
9	20,345	59	20,286	57	0.00281	0.99719	0.976262
10	20,229	57	20,172	56	0.002776	0.997224	0.973552
11	20,116	66	20,050	65	0.003242	0.996758	0.970395
12	19,985	85	19,900	67	0.003367	0.996633	0.967128
13	19,833	53	19,780	63	0.003185	0.996815	0.964048
14	19,717	69	19,648	58	0.002952	0.997048	0.961202
15	19,590	62	19,528	76	0.003892	0.996108	0.957461
16	19,452	63	19,389	74	0.003817	0.996183	0.953807
17	19,315	55	19,260	61	0.003167	0.996833	0.950786
18	19,199	69	19,130	75	0.003921	0.996079	0.947058
19	19,055	47	19,008	73	0.00384	0.99616	0.943421
20	18,935	47	18,888	65	0.003441	0.996559	0.940175
21	18,823	45	18,778	74	0.003941	0.996059	0.93647
22	18,704	58	18,646	78	0.004183	0.995817	0.932552
23	18,568	75	18,493	92	0.004975	0.995025	0.927913
24	18,401	67	18,334	63	0.003436	0.996564	0.924724
25	18,271	61	18,210	78	0.004283	0.995717	0.920763
26	18,132	84	18,048	63	0.003491	0.996509	0.917549
27	17,985	59	17,926	78	0.004351	0.995649	0.913557
28	17,848	65	17,783	77	0.00433	0.99567	0.909601
29	17,706	59	17,647	81	0.00459	0.99541	0.905426
30	17,566	44	17,522	69	0.003938	0.996062	0.901861
31	17,453	51	17,402	82	0.004712	0.995288	0.897611
32	17,320	47	17,273	86	0.004979	0.995021	0.893142
33	17,187	44	17,143	71	0.004142	0.995858	0.889443
34	17,072	52	17,020	64	0.00376	0.99624	0.886098
35	16,956	50	16,906	71	0.0042	0.9958	0.882377
36	16,835	66	16,769	84	0.005009	0.994991	0.877957

Explanation of Columns: See Table 3 note.

Table 10. Life Table: 1st Speeding Violation over 36 Months after Licensure, Young Male Drivers

Month	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	24,427	0	24,427	104	0.004258	0.995742	0.995742
2	24,323	15	24,308	165	0.006788	0.993212	0.988983
3	24,143	70	24,073	176	0.007311	0.992689	0.981753
4	23,897	77	23,820	170	0.007137	0.992863	0.974746
5	23,650	73	23,577	164	0.006956	0.993044	0.967966
6	23,413	51	23,362	163	0.006977	0.993023	0.961212
7	23,199	66	23,133	179	0.007738	0.992262	0.953775
8	22,954	83	22,871	174	0.007608	0.992392	0.946518
9	22,697	73	22,624	173	0.007647	0.992353	0.939281
10	22,451	79	22,372	182	0.008135	0.991865	0.931639
11	22,190	64	22,126	174	0.007864	0.992136	0.924313
12	21,952	66	21,886	168	0.007676	0.992324	0.917218
13	21,718	73	21,645	178	0.008224	0.991776	0.909675
14	21,467	53	21,414	174	0.008126	0.991874	0.902283
15	21,240	59	21,181	170	0.008026	0.991974	0.895042
16	21,011	57	20,954	160	0.007636	0.992364	0.888207
17	20,794	73	20,721	169	0.008156	0.991844	0.880963
18	20,552	51	20,501	164	0.008	0.992	0.873916
19	20,337	60	20,277	185	0.009124	0.990876	0.865942
20	20,092	57	20,035	166	0.008286	0.991714	0.858768
21	19,869	73	19,796	170	0.008588	0.991412	0.851393
22	19,626	87	19,539	142	0.007268	0.992732	0.845205
23	19,397	67	19,330	175	0.009053	0.990947	0.837553
24	19,155	64	19,091	163	0.008538	0.991462	0.830402
25	18,928	65	18,863	161	0.008535	0.991465	0.823315
26	18,702	61	18,641	149	0.007993	0.992007	0.816734
27	18,492	61	18,431	158	0.008573	0.991427	0.809732
28	18,273	75	18,198	197	0.010825	0.989175	0.800967
29	18,001	77	17,924	173	0.009652	0.990348	0.793236
30	17,751	70	17,681	133	0.007522	0.992478	0.787269
31	17,548	51	17,497	128	0.007316	0.992684	0.78151
32	17,369	56	17,313	149	0.008606	0.991394	0.774784
33	17,164	46	17,118	161	0.009405	0.990595	0.767497
34	16,957	59	16,898	141	0.008344	0.991656	0.761093
35	16,757	54	16,703	138	0.008262	0.991738	0.754805
36	16,565	52	16,513	132	0.007994	0.992006	0.748771

Explanation of Columns: See Table 3 note.

Figure 13.

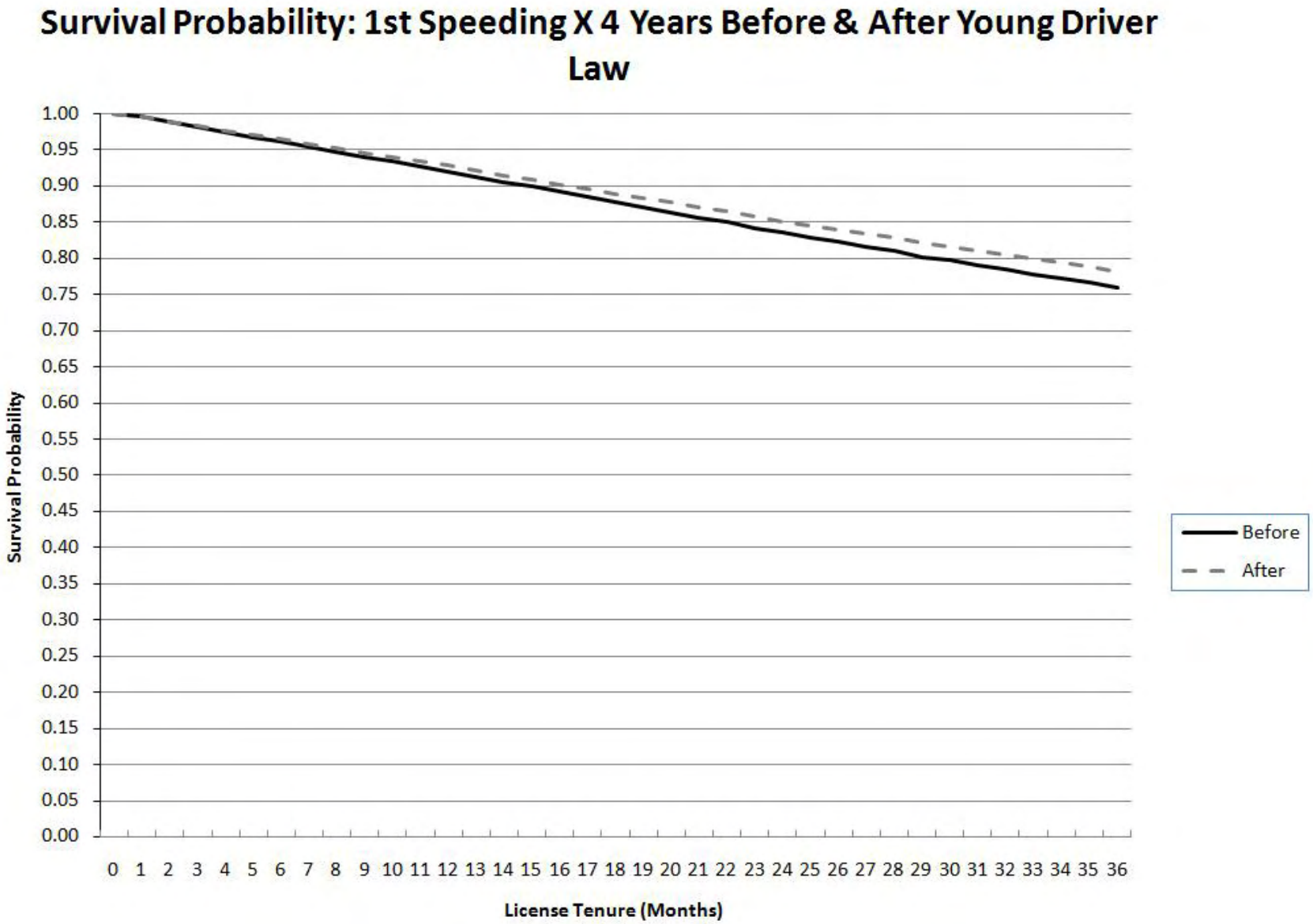

Survival Probability: 1st Speeding X 4 Years Before & After Young Driver Law
Survival Probability
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
License Tenure (Months)
Before
After

Table 11. Life Table: 1st Speeding Violation over 36 Months after Licensure, Before Young Driver Law

Month	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	6,472	0	6,472	24	0.003708	0.996292	0.996292
2	6,448	0	6,448	47	0.007289	0.992711	0.98903
3	6,401	0	6,401	48	0.007499	0.992501	0.981613
4	6,353	0	6,353	47	0.007398	0.992602	0.974351
5	6,306	0	6,306	40	0.006343	0.993657	0.968171
6	6,266	1	6,265	45	0.007183	0.992817	0.961216
7	6,220	0	6,220	45	0.007235	0.992765	0.954262
8	6,175	0	6,175	42	0.006802	0.993198	0.947772
9	6,133	0	6,133	44	0.007174	0.992826	0.940972
10	6,089	0	6,089	34	0.005584	0.994416	0.935718
11	6,055	0	6,055	50	0.008258	0.991742	0.927991
12	6,005	0	6,005	37	0.006162	0.993838	0.922273
13	5,968	1	5,967	45	0.007541	0.992459	0.915318
14	5,922	0	5,922	49	0.008274	0.991726	0.907744
15	5,873	0	5,873	32	0.005449	0.994551	0.902798
16	5,841	0	5,841	56	0.009587	0.990413	0.894143
17	5,785	0	5,785	48	0.008297	0.991703	0.886724
18	5,737	0	5,737	45	0.007844	0.992156	0.879769
19	5,692	0	5,692	47	0.008257	0.991743	0.872504
20	5,645	0	5,645	41	0.007263	0.992737	0.866167
21	5,604	0	5,604	47	0.008387	0.991613	0.858903
22	5,557	0	5,557	45	0.008098	0.991902	0.851947
23	5,512	0	5,512	52	0.009434	0.990566	0.84391
24	5,460	1	5,459	40	0.007327	0.992673	0.837727
25	5,419	0	5,419	34	0.006274	0.993726	0.83247
26	5,385	0	5,385	43	0.007985	0.992015	0.825823
27	5,342	0	5,342	44	0.008237	0.991763	0.819021
28	5,298	0	5,298	35	0.006606	0.993394	0.81361
29	5,263	1	5,262	57	0.010832	0.989168	0.804797
30	5,205	0	5,205	29	0.005572	0.994428	0.800313
31	5,176	0	5,176	44	0.008501	0.991499	0.79351
32	5,132	0	5,132	42	0.008184	0.991816	0.787016
33	5,090	0	5,090	46	0.009037	0.990963	0.779903
34	5,044	1	5,043	38	0.007535	0.992465	0.774027
35	5,005	0	5,005	45	0.008991	0.991009	0.767067
36	4,960	0	4,960	54	0.010887	0.989113	0.758716

Explanation of Columns: See Table 3 note.

Table 12. Life Table: 1st Speeding Violation over 36 Months after Licensure, After Young Driver Law

Month	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	6,141	0	6,141	23	0.003745	0.996255	0.996255
2	6,118	0	6,118	44	0.007192	0.992808	0.98909
3	6,074	0	6,074	41	0.00675	0.99325	0.982413
4	6,033	0	6,033	36	0.005967	0.994033	0.976551
5	5,997	0	5,997	36	0.006003	0.993997	0.970689
6	5,961	0	5,961	39	0.006543	0.993457	0.964338
7	5,922	0	5,922	43	0.007261	0.992739	0.957336
8	5,879	0	5,879	42	0.007144	0.992856	0.950497
9	5,837	0	5,837	40	0.006853	0.993147	0.943983
10	5,797	1	5,796	38	0.006556	0.993444	0.937794
11	5,758	0	5,758	35	0.006078	0.993922	0.932094
12	5,723	1	5,722	37	0.006466	0.993534	0.926067
13	5,685	0	5,685	44	0.00774	0.99226	0.918899
14	5,641	1	5,640	38	0.006738	0.993262	0.912708
15	5,602	0	5,602	47	0.00839	0.99161	0.90505
16	5,555	1	5,554	37	0.006662	0.993338	0.899021
17	5,517	0	5,517	35	0.006344	0.993656	0.893318
18	5,482	0	5,482	44	0.008026	0.991974	0.886148
19	5,438	0	5,438	43	0.007907	0.992093	0.879141
20	5,395	0	5,395	32	0.005931	0.994069	0.873926
21	5,363	1	5,362	43	0.008019	0.991981	0.866918
22	5,319	0	5,319	35	0.00658	0.99342	0.861213
23	5,284	0	5,284	43	0.008138	0.991862	0.854205
24	5,241	1	5,240	44	0.008397	0.991603	0.847032
25	5,196	1	5,195	34	0.006545	0.993455	0.841489
26	5,161	0	5,161	28	0.005425	0.994575	0.836923
27	5,133	0	5,133	45	0.008767	0.991233	0.829586
28	5,088	0	5,088	39	0.007665	0.992335	0.823227
29	5,049	0	5,049	41	0.00812	0.99188	0.816542
30	5,008	1	5,007	26	0.005193	0.994807	0.812302
31	4,981	0	4,981	35	0.007027	0.992973	0.806594
32	4,946	0	4,946	35	0.007076	0.992924	0.800887
33	4,911	0	4,911	32	0.006516	0.993484	0.795668
34	4,879	0	4,879	29	0.005944	0.994056	0.790939
35	4,850	0	4,850	26	0.005361	0.994639	0.786699
36	4,824	1	4,823	37	0.007672	0.992328	0.780663

Explanation of Columns: See Table 3 note.

Random Coefficient Modeling

Whereas survival analysis addresses the question of *whether* and *when* violations occur, random coefficient modeling tests the effects of sanctions on future driving behavior. Because points are assigned to drivers based on the specific violations committed, the cumulative point total for each driver serves as a reasonable indicator of driving safety over time.

On the day of licensure, each driver begins with zero points (excluding those with pre-licensure violations). As we know from analyses reported earlier, some drivers will not be convicted of any violations; this yields a flat trajectory indicating a lifetime point total of zero for this subset of the driving population. In contrast, for a driver convicted of multiple points-earning violations the trajectory has a positive slope, indicating that he or she is earning points at a non-zero rate over time (e.g., 2 points per year). As the violation data show, some drivers accrue dozens of points. The question that random coefficient modeling addresses is: What are the effects of sanctions on drivers' future point accumulation rates? If sanctions are effective, they should "break the trend" in drivers' point accumulation rates. If sanctions are ineffective, point accumulation rates should continue to follow the trends established before the sanctions were applied.

The type of random coefficient modeling employed here (i.e., modeling *discontinuous individual change*) requires specification of the variable to be modeled (accumulated point totals), a metric for time (years since Pennsylvania licensure), event dates (date of each points-earning violation), sanction dates (date when a given sanction was triggered), and an index of the end of time (June, 2007 or whenever the driver stopped driving). The first part of the analysis provides the estimated average accumulated point trajectory for drivers *before* a sanction was applied. The second part of the analysis provides the estimated average accumulated point trajectory for drivers *after* a sanction was applied. The difference between these two trajectories provides an estimate of the effectiveness of the sanctions.

To be included in this analysis and to properly construct a point trajectory, a driver must have committed two or more points-earning violations *and* received one of six types of sanctions: (1) Special Written Exam, (2) Type II Hearing, (3) Type III Hearing, (4) Suspension, (5) Speed Hearing, and (6) Young Driver Hearing. These analyses included only first-time applications of each type of sanction to a driver. The current sanction process was instituted by PennDOT in October, 1990. To evaluate the effectiveness of this sanction process, drivers who were licensed prior to October 1, 1990 (and therefore subject to the previous sanction process) were excluded. As we know from analyses reported earlier, most drivers are convicted of less than two violations during their driving careers. To ensure a sample of sufficient size, all drivers who met the above criteria were drawn from the full database of approximately 1.6 million drivers provided to the researchers.

A total of 48,749 drivers who met the above criteria were included in this data set. Among them, they accumulated 138,459 violations and 464,351 points. Table 13 summarizes results of random coefficient modeling to test the effectiveness of the six types of sanctions. These results are described in greater detail below.

Table 13. Summary of Random Coefficient Modeling Analyses

Number Of Drivers In The Analysis	Pre-Sanction Point Accumulation Rate (Points Per Year)	Sanction Type	Post-Sanction Point Accum. Rate (Points Per Year)	Effect Of Sanction On Point Accum. Rate	Percent Reduction In Point Accum. Rate	Annual Reduction In Points & 3-Point Violations		
						Points	=	Violations
21,350	0.79	Written 6-pt Exam	0.71	-0.08	10%	17,080	=	5,693
5,423	2.35	Type II Hearing	0.79	-1.56	66%	84,600	=	28,200
1,281	2.94	Type III Hearing	0.61	-2.33	79%	29,850	=	9,950
20,692	1.08	Suspension	0.52	-0.56	52%	115,880	=	38,627
2,265	1.43	Speed Hearing	0.71	-0.72	50%	16,310	=	5,437
246	3.35	Young Driver Hearing	1.08	-2.27	68%	5,580	=	1,860
					TOTAL :	269,280	=	89,760

Note. Analysis is based on an original data set of 10% of driver records including 48,749 drivers, 138,459 violations, and 464,351 points. Annual reductions in points and violations shown in columns 7 and 8 are extrapolated from the 10% driver records sample to the full population.

Males:

Number Of Drivers In The Analysis	Pre-Sanction Point Accumulation Rate (Points Per Year)	Sanction Type	Post-Sanction Point Accum. Rate (Points Per Year)	Esimated Effect Of Sanction On Point Accum. Rate	Estimated Percent Reduction In Point Accum. Rate
15,862	0.86	Written 6-pt Exam	0.74	-0.12	14%
4,429	2.38	Type II Hearing	0.80	-1.58	66%
1,114	2.95	Type III Hearing	0.62	-2.33	79%
15,651	1.20	Suspension	0.53	-0.67	56%
1,834	1.55	Speed Hearing	0.73	-0.82	53%
217	3.55	Young Driver Hearing	1.08	-2.47	70%

Females:

Number Of Drivers In The Analysis	Pre-Sanction Point Accumulation Rate (Points Per Year)	Sanction Type	Post-Sanction Point Accum. Rate (Points Per Year)	Esimated Effect Of Sanction On Point Accum. Rate	Estimated Percent Reduction In Point Accum. Rate	
5,488	0.61	Written 6-pt Exam	0.60	-0.01	2%	{ value not statistically significant
994	2.19	Type II Hearing	0.68	-1.51	69%	
167	2.86	Type III Hearing	0.52	-2.34	82%	
5,041	0.74	Suspension	0.49	-0.25	25%	
431	0.89	Speed Hearing	0.62	-0.27	30%	
29	1.33	Young Driver Hearing	1.05	-0.28	21%	{ value not statistically significant

Effectiveness of Special Written Exams, Type II Hearings, and Type III Hearings

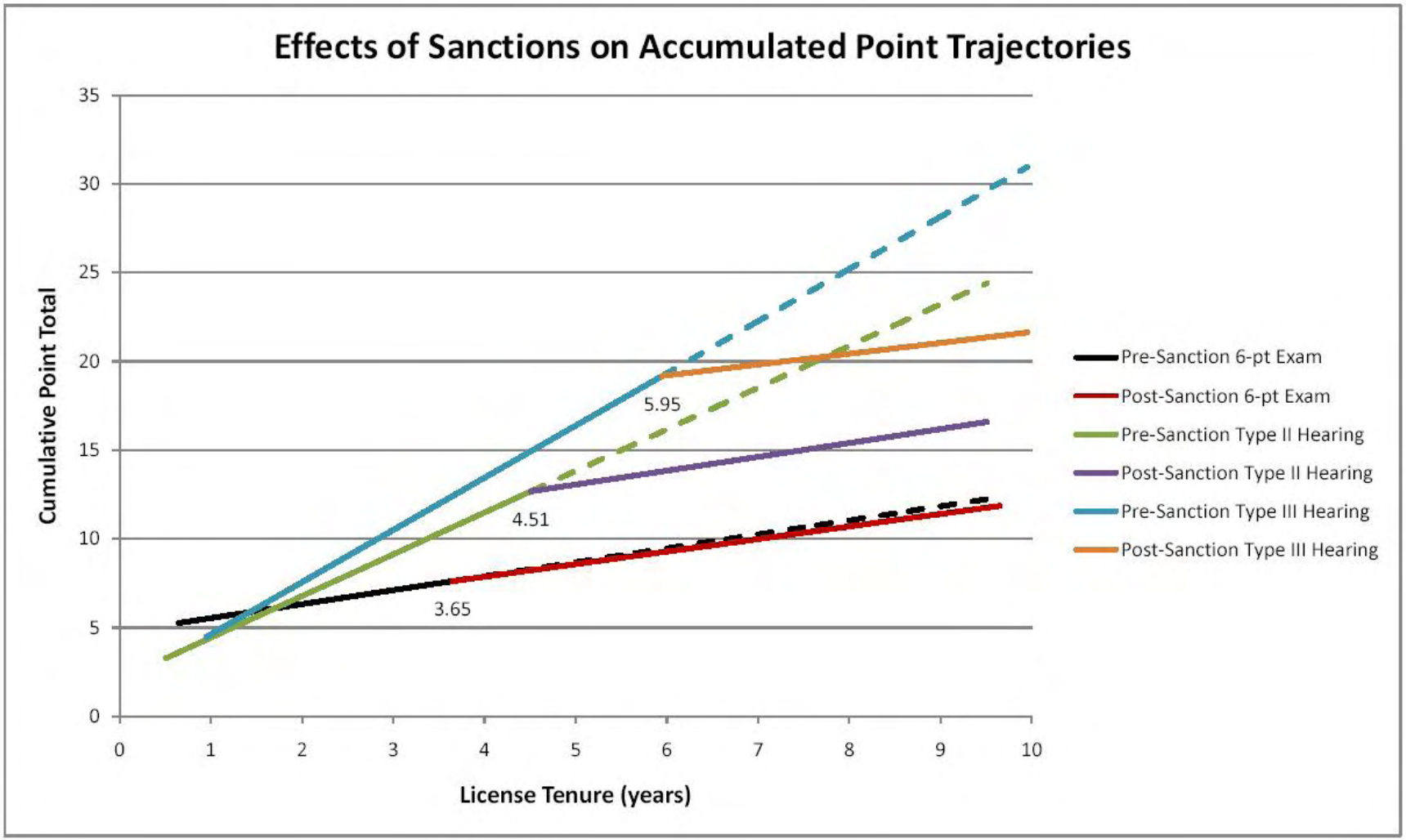
As shown in Table 13, 21,350 drivers took a Special Written Exam (triggered when a driver's point total reaches 6 or more). The accumulated point trajectory before the Exam (pre-sanction) was 0.79, which means that on average, drivers accumulated less than one point per year before taking the Exam. The accumulated point trajectory following the Exam (post-sanction) was 0.71. The difference between these two values is 0.08, and shows that there was a modest reduction (10%) in the average rate at which drivers continued earning points after taking the Exam. The practical implications of this reduction become more evident when considering the high number of drivers who took the Exam relative to other sanctions. As shown in Table 13, when the .08 reduction is multiplied by the 21,350 drivers with license numbers ending in '1' who took the Exam, and adjusting for the fact that this sample was $1/10^{th}$ of the total population, drivers earned an estimated 17,080 *fewer points per year* (or are convicted of what would be equivalent to 5,693 fewer 3-point violations per year) following the sanction. However, as we show below, even when considered against the relatively high volume of drivers who take the Exam, the practical effect is modest when compared with other sanction types.

Table 13 also shows that 5,423 drivers attended a Type II Hearing (generally triggered when a driver's point total reaches 6 or more for the second time). The pre-sanction accumulated point trajectory was 2.35, which means that on average, drivers accumulated more than two points per year before attending a Type II Hearing. The post-sanction accumulated point trajectory was 0.79, which indicates that on average, drivers accumulated less than one point per year after a Type II Hearing. The difference of 1.56 between these two values is a 66% reduction in the rate at which drivers continued earning points after a Type II Hearing. Considering the practical implications of this reduction (multiplying the 1.56 reduction by the 5,423 drivers who attended a Type II Hearing and extrapolating to the full population), Table 13 shows that drivers earned an estimated 84,600 *fewer points per year* (or are convicted of what would be equivalent to 28,200 fewer 3-point violations per year) following the sanction.

Table 13 shows that 1,281 drivers attended a Type III Hearing (generally triggered when a driver's point total reaches 6 or more for the third time). The pre-sanction accumulated point trajectory of 2.94 means that on average, drivers accumulated almost three points per year before attending a Type III Hearing. The post-sanction accumulated point trajectory of 0.61 indicates that, on average, drivers accumulated less than one point per year after a Type III Hearing. The difference of 2.33 is a 79% reduction in the rate at which drivers continued earning points after a Type III Hearing. In practical terms, multiplying the 2.33 reduction by the 1,281 drivers who attended a Type III Hearing and extrapolating to the full population reveals that drivers earned an estimated 29,850 *fewer points per year* (or are convicted of what would be equivalent to 9,950 fewer 3-point violations per year) following the sanction.

The results of these analyses are illustrated in Figure 14. The trajectory of an average driver is shown for each of the three sanction types (Special Written Exam, Type II Hearing, Type III Hearing), beginning with the date of initial licensure. The point at which the sanction is applied to the average driver (i.e., average elapsed time in years since licensure) is found where the initial trajectory breaks into two separate lines. The dashed line shows (hypothetically) how the

Figure 14.


Effects of Sanctions on Accumulated Point Trajectories
Cumulative Point Total
License Tenure (years)
0
5
10
15
20
25
30
35
0
1
2
3
4
5
6
7
8
9
10
5.95
4.51
3.65
Pre-Sanction 6-pt Exam
Post-Sanction 6-pt Exam
Pre-Sanction Type II Hearing
Post-Sanction Type II Hearing
Pre-Sanction Type III Hearing
Post-Sanction Type III Hearing

pre-sanction trajectory would have evolved had the driver continued earning points at the pre-sanction rate. The second line (shown in a different color), indicates the actual point trajectory for the average driver following the sanction. The differences in slope between the pre- and post-sanction trajectories illustrate sanction effectiveness. The conclusion from Figure 14 is that the three sanction types reduce the rate of future violations and point accumulations.

Effectiveness of Suspensions

As shown in Table 13, driving privileges of 20,692 drivers were suspended for points-earning violations. (Note that drivers who incurred suspensions for DUI violations were not included in these analyses, as suspensions but not points are imposed for DUI convictions.) The pre-sanction accumulated point trajectory was 1.08, meaning that on average, drivers accumulated about one point per year before receiving a suspension. The post-sanction accumulated point trajectory was 0.52, which indicates that on average, drivers accumulated about one-half point per year after suspension. The difference of 0.56 between these two values is a 52% reduction in the rate at which drivers continued earning points after a suspension. Considering the practical implications of this reduction (multiplying the .56 reduction by the 20,692 suspended drivers and extrapolating to the full population), these drivers earned an estimated 115,880 *fewer points per year* (or are convicted of what would be equivalent to 38,627 fewer 3-point violations per year) following the sanction.

Because a variety of factors determine the length of a suspension (e.g., type of violation, driving record), we tested whether the effects of suspensions depend on their durations. The results of this analysis are shown in Figure 15 for suspension durations of 15, 90, 180, and 365 days. As shown, the slope of the post-sanction point trajectory is less steep (i.e., shows a greater reduction in rate of accumulation of points) as the suspension duration increases. Note that the post-365-day trajectory is flat for the first year after the suspension is applied, consistent with the fact that drivers do not have driving privileges during this period (and presumably are not driving); also, drivers who commit driving violations while suspended receive additional suspensions, not additional points. The conclusion from Figure 15 is that suspensions of any duration are effective; longer duration suspensions are somewhat more effective in reducing the rate of future violations and point accumulations.

Effectiveness of Speed Hearings and Young Driver Hearings

As shown in Table 13, 2,265 drivers attended a Speed Hearing. The pre-sanction accumulated point trajectory was 1.43, which means that on average, drivers accumulated nearly one and a half points per year before attending a Speed Hearing. The post-sanction accumulated point trajectory was 0.71, which indicates that on average, drivers accumulated less than one point per year after a Speed Hearing. The difference of 0.72 between these two values shows a 50% reduction in the rate at which drivers continued earning points after a Speed Hearing. The practical implications of this reduction (multiplying the .72 reduction by the 2,265 drivers who attended a Type II Hearing and extrapolating to the full population) are that drivers earned an estimated 16,310 *fewer points per year* (or are convicted of what would be equivalent to 5,437 fewer 3-point violations per year) following the sanction.

Figure 15.

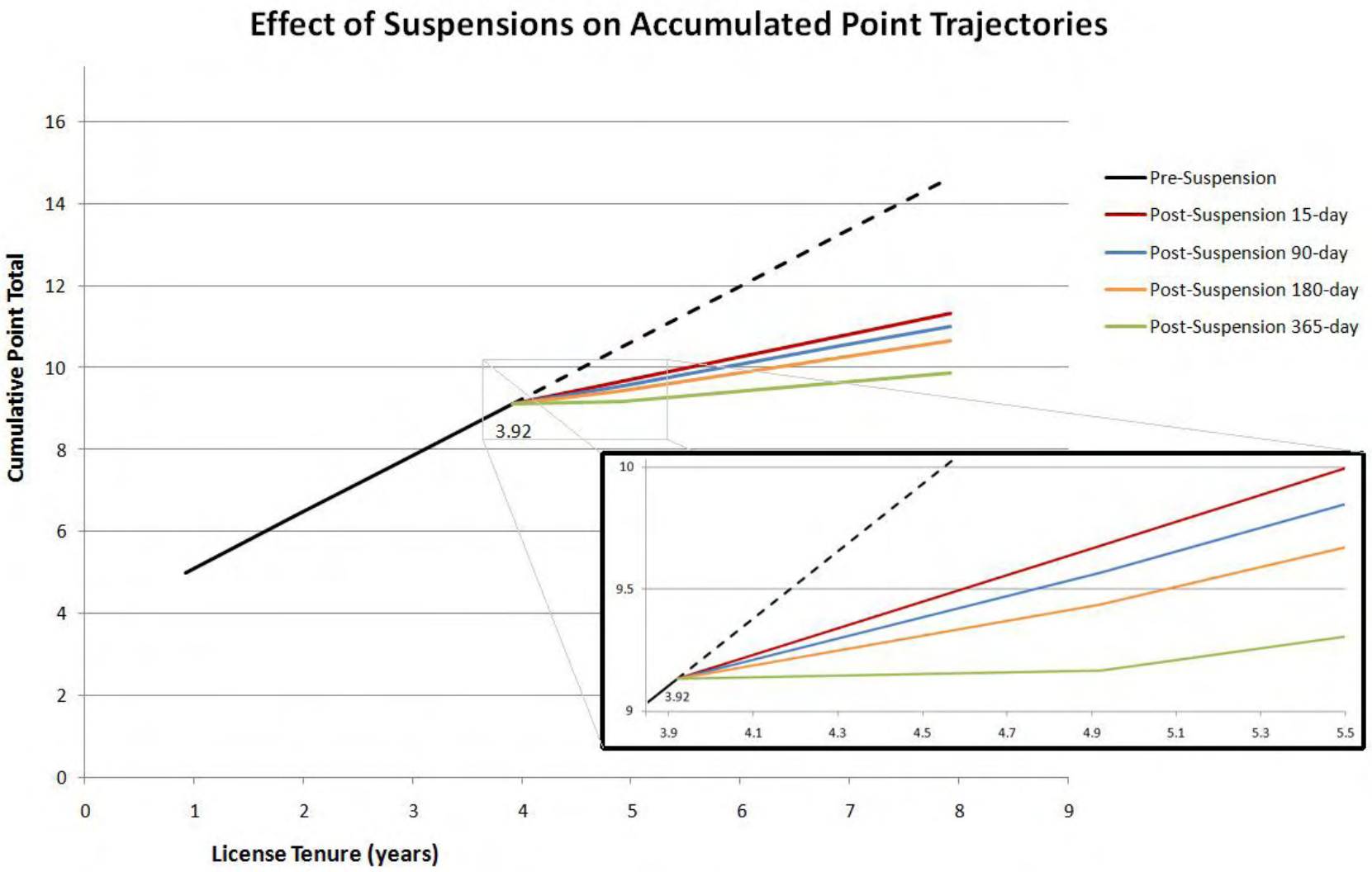

Effect of Suspensions on Accumulated Point Trajectories
Cumulative Point Total
License Tenure (years)
3.92
Pre-Suspension
Post-Suspension 15-day
Post-Suspension 90-day
Post-Suspension 180-day
Post-Suspension 365-day

Table 13 shows that 246 drivers attended a Young Driver Hearing. The pre-sanction accumulated point trajectory of 3.35 means that, on average, drivers accumulated more than three points per year before attending a Young Driver Hearing. The post-sanction accumulated point trajectory of 1.08 indicates that, on average, drivers accumulated just over one point per year after a Young Driver Hearing. The difference of 2.27 yields a 68% reduction in the rate at which drivers continued earning points after a Young Driver Hearing. In practical terms, multiplying the 2.27 reduction by the 246 drivers who attended a Young Driver Hearing, and extrapolating to the full population, reveals that drivers earned an estimated 5,580 *fewer points per year* (or are convicted of what would be equivalent to 1,860 fewer 3-point violations per year) following the sanction.

Figure 16 illustrates the accumulated point trajectory of an average driver for both sanction types (Speed Hearing, Young Driver Hearing) beginning with the date of initial Pennsylvania licensure. As before, the point at which the sanction was applied to the average driver is found where the initial trajectory breaks into two separate lines. The dashed line shows how the pre-sanction trajectory would evolve had the driver continued earning points at his/her pre-sanction rate, and the second line (shown in a different color) indicates the actual point trajectory for the average driver following the sanction. The differences in slope between the pre- and post-sanction trajectories illustrate sanction effectiveness. The conclusion from Figure 16 is that the two sanctions reduce the rate of future violations and point accumulations.

Gender Differences in Effectiveness of Sanctions

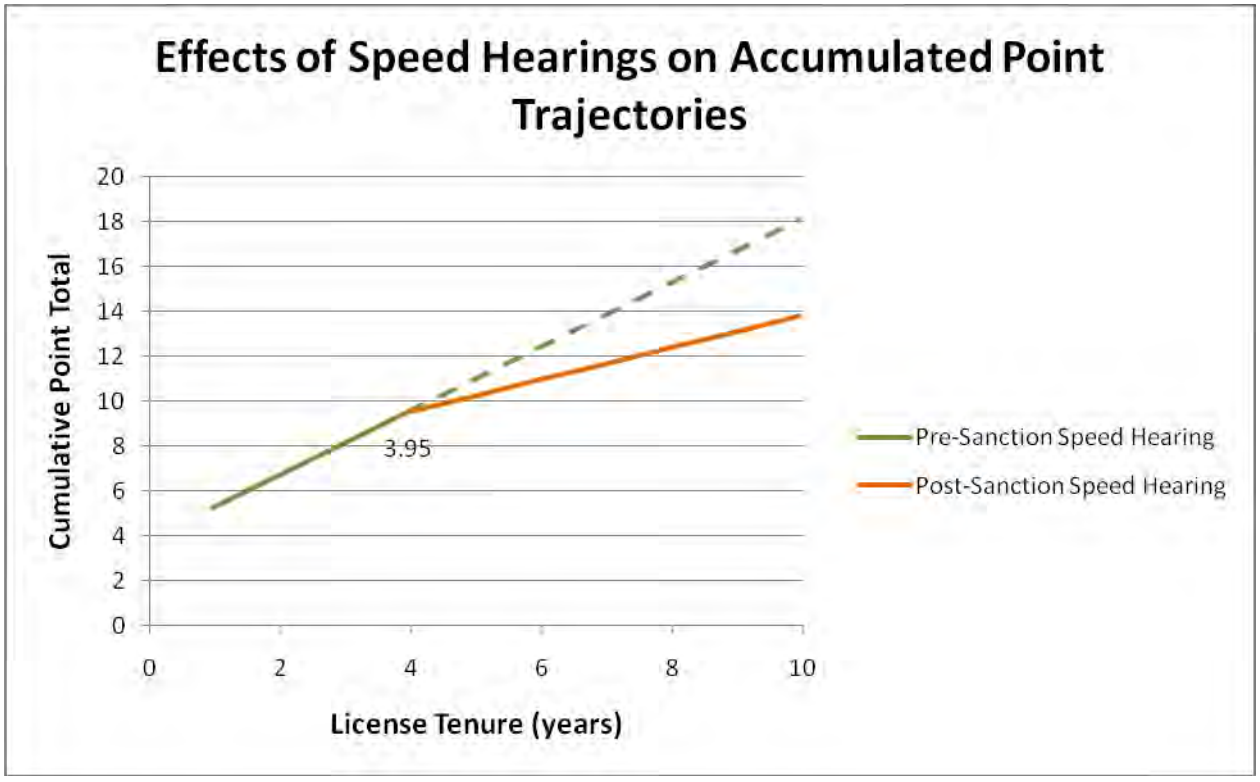
The analyses discussed above were conducted separately for male and female drivers to test whether the effects of sanctions on post-sanction point trajectories differed based on gender. As shown in Table 13, some gender differences were found. Notably, the estimated effect of the sanction on the point accumulation rate was stronger for males than females for Special Written Exams, Suspensions, Speed Hearings, and Young Driver Hearings. The analyses for Young Driver Hearings should be interpreted cautiously, as this analysis is based on a very small number of female drivers ($N = 29$). There were no gender differences for Type II or Type III Hearings. Is sum, sanctions are more effective for males than females for four of six sanction types. For the remaining two types, sanctions are equally effective for males and females.

Violations and Sanctions

The overarching goal of PennDOT's sanction process is to encourage safer driving. Recommendations for improvements should build on the successes of the current process. As reported in previous sections, most drivers commit (or are convicted of) fewer than two violations during their driving careers and are not subject to most sanctions that PennDOT applies. Improvement recommendations should therefore (a) focus on changing the behavior of that segment of the driving population likely to commit multiple violations (i.e., problem drivers), and (b) enhance the deterrent effects of the sanction process for all drivers.

Figure 17 shows the average time since Pennsylvania licensure when drivers incurred each type of sanction for the first time. Most sanctions are applied to drivers who have committed two or

Figure 16.


Effects of Speed Hearings on Accumulated Point Trajectories
Cumulative Point Total
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
3.95
License Tenure (years)
Pre-Sanction Speed Hearing
Post-Sanction Speed Hearing

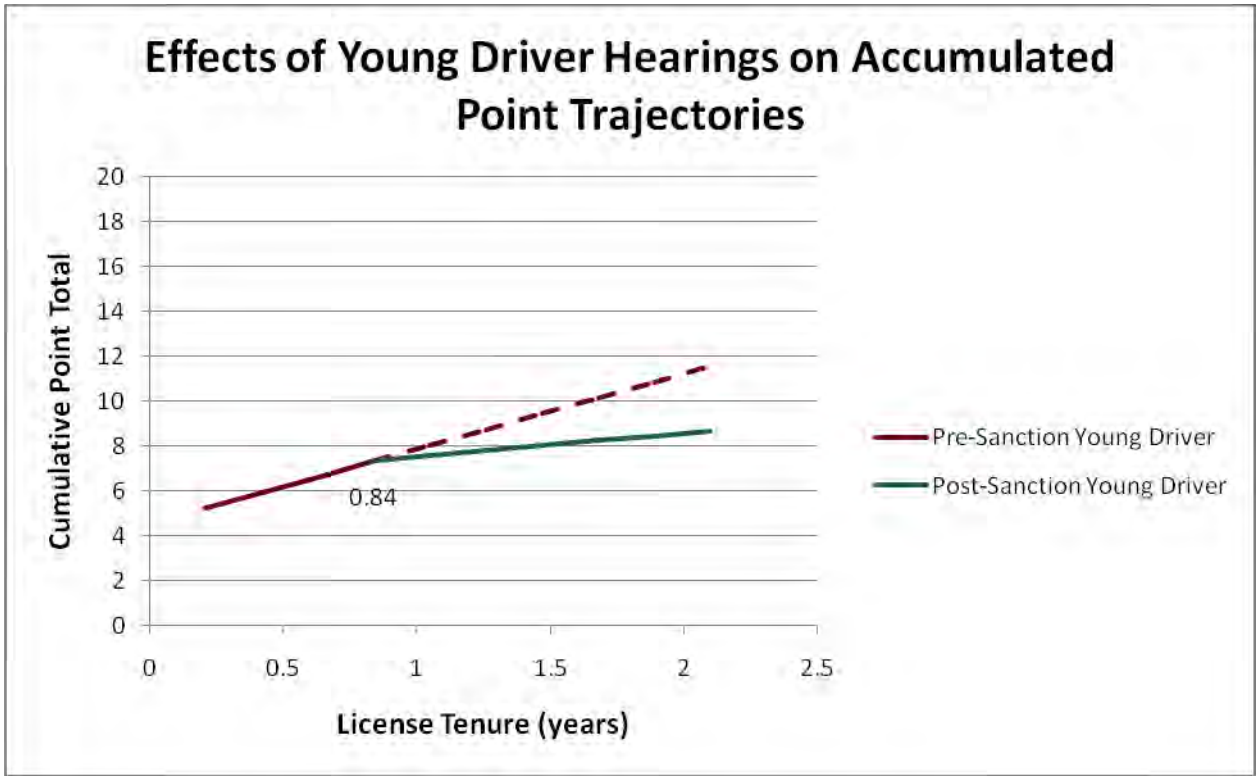
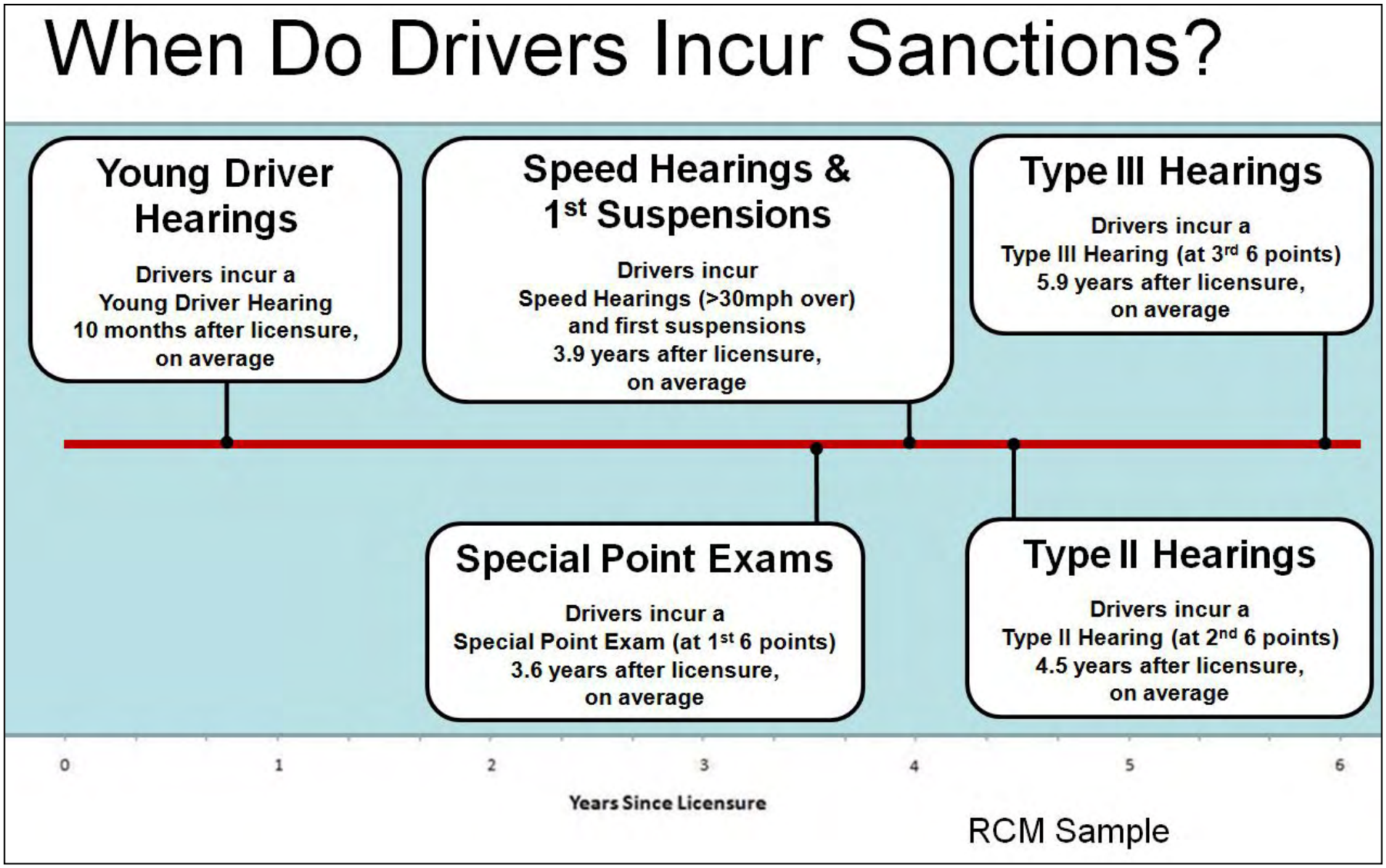

Effects of Young Driver Hearings on Accumulated Point Trajectories
Cumulative Point Total
20
18
16
14
12
10
8
6
4
2
0
0
0.5
1
1.5
2
2.5
0.84
License Tenure (years)
Pre-Sanction Young Driver
Post-Sanction Young Driver

Figure 17.


When Do Drivers Incur Sanctions?
Young Driver Hearings
Drivers incur a Young Driver Hearing 10 months after licensure, on average
Speed Hearings & 1st Suspensions
Drivers incur Speed Hearings (>30mph over) and first suspensions 3.9 years after licensure, on average
Type III Hearings
Drivers incur a Type III Hearing (at 3rd 6 points) 5.9 years after licensure, on average
Special Point Exams
Drivers incur a Special Point Exam (at 1st 6 points) 3.6 years after licensure, on average
Type II Hearings
Drivers incur a Type II Hearing (at 2nd 6 points) 4.5 years after licensure, on average
0
1
2
3
4
5
6
Years Since Licensure
RCM Sample

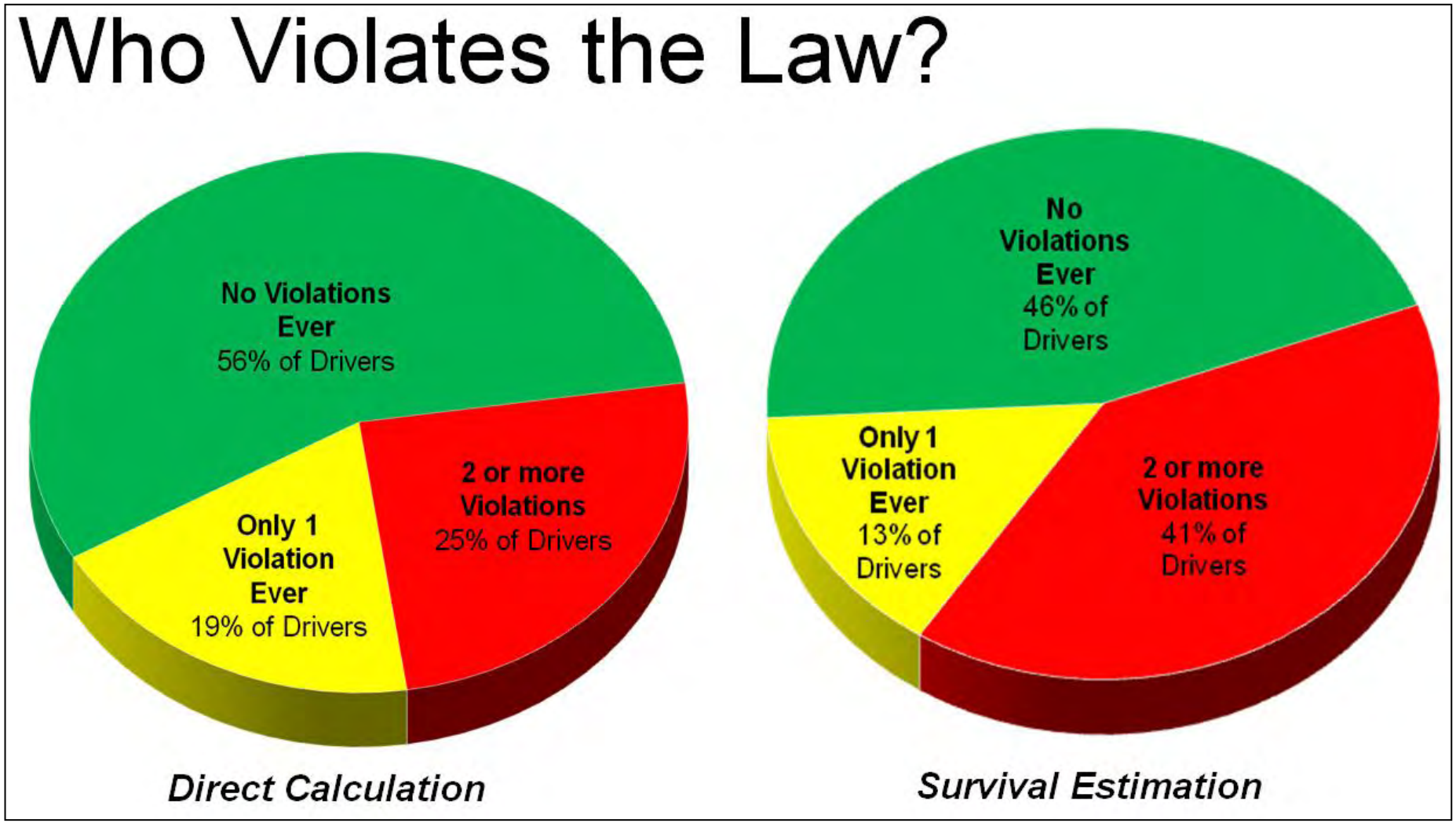
more violations. Survival analyses described above reveal a strong tendency for drivers with violations to commit a first violation soon after licensure, and a second violation soon after the first. Figure 17 complements these findings – on average, drivers incur first sanctions within six years of licensure, including the sequential sanctions of Special Point Exams, Type II Hearings, and Type III Hearings. Problem drivers appear to be a distinctly different subpopulation than drivers who are sanction-free, committing more violations sooner after licensure. Implications of these findings for sanction process improvement recommendations will be discussed in the next section.

Figure 18 shows the proportions with zero, one, and two or more violations among drivers who obtained a license since 1980. The pie chart on the left is based on direct calculations, whereas the pie chart on the right shows survival estimates. As explained earlier (p. 26), direct calculations do not take into account the fact that some drivers were observed for much longer periods than others, as determined by date of licensure. They therefore *underestimate* the proportions of drivers with two or more violations that would be obtained if all drivers were observed for their entire careers. Survival analysis estimates of drivers with two or more violations are greater than estimates derived from direct calculations because they adjust for differences among drivers in observation periods – in effect, they produce estimates of violations that drivers will have across their entire driving careers.

By either calculation, fewer than half of all drivers are expected to be convicted of two or more violations during their driving careers. In contemplating ways to improve the current driver sanctioning process, it is important to keep in mind that the current process appears to effectively deter most drivers from committing multiple violations. The goals of improvement recommendations should be to enhance the effectiveness of the current process as applied to problem drivers *and* to enhance its effectiveness as a deterrent against unsafe driving for all drivers.

Survival analysis assumes that censored drivers (i.e., drivers whose license tenure was less than the full observation period) do not differ in any important way from non-censored drivers (i.e., drivers who were observed for the entire period), except for having obtained their licenses more recently. We believe this assumption to be valid, and survival analyses provide better estimates of proportions of violators than direct calculations. However, factors such as improvements to the driver sanction process can threaten this assumption. For example, if awareness of the importance of safe driving increases among drivers, and if sanctions become even more effective, then survival analysis estimates of proportions of violators will prove to be overestimates. That is the goal of the recommendations for sanction process improvements offered in the next section.

Figure 18.


Who Violates the Law?
No Violations Ever
56% of Drivers
Only 1 Violation Ever
19% of Drivers
2 or more Violations
25% of Drivers
Direct Calculation
No Violations Ever
46% of Drivers
Only 1 Violation Ever
13% of Drivers
2 or more Violations
41% of Drivers
Survival Estimation

Task 4: Recommendations

As previously stated, the overarching goal of PennDOT's driver sanctioning process is to encourage safer driving. Recommendations for improvements should build on the successes of the current process. As reported in previous sections, most drivers commit (or are convicted of) fewer than two violations during their driving careers and are not subject to most sanctions that PennDOT applies. Improvement recommendations should therefore (a) focus on changing the behavior of that segment of the driving population likely to commit multiple violations, and (b) enhance the deterrent effects of the sanction process for all drivers.

Drivers who are sanctioned at some point during their driving careers appear to be a distinctly different subpopulation than drivers who remain sanction-free. Sanctioned drivers commit more violations sooner after licensure. However, sanctions are effective in improving their driving behavior; after a first sanction, the rate of accumulation of points for violations decreased by amounts ranging from 10% for Special Point Exams to 79% for Type III Hearings.

Note that alternative explanations attributing post-sanction reductions to causes other than sanctions cannot be entirely ruled out. It is possible, for instance, that with increasing age and maturity drivers naturally commit fewer violations. Drivers incur their first sanctions at different ages, however, and it is unlikely that age or any variable other than actual sanctions would coincide with the observed reductions in rates of point accumulations. We therefore conclude that sanctions have their intended effects – they encourage safer driving.

Some unsafe drivers, of course, do not respond to sanctions and continue to drive unsafely. Others require multiple sanctions before they improve. For example, drivers who incur a Type III Hearing have previously been subjected to one or more Special Point Exams and Type II Hearings. At the time of their first Type III Hearing, on average, drivers have been licensed for just under six years, accumulating violations and points at a rapid pace. The rate of post-sanction improvement for these drivers is the most dramatic of any sanction we studied. Most sanctioned drivers improve, although some drivers require multiple sanctions before they reform.

Estimates of proportions of drivers who commit two or more violations provided in previous sections vary depending on the sample studied and the type of estimate, either direct calculation from the data (24%) or survival analysis predictions (41%). We regard direct calculations as underestimates because they fail to adjust for differences among drivers in observation periods – in effect, many drivers in the sample who would eventually commit two or more violations have simply not had sufficient time to do so by the time the data were analyzed. On the other hand, survival analysis predictions assume that the future will be like the past – nothing will intervene in the future to influence driving behavior that wasn't also operating during the data gathering period. The goal of the recommendations presented next is to suggest changes to the sanction process that will improve their effectiveness. Once these improvements take effect, survival

predictions of multiple violators may prove to be overestimates. However, barring any such improvements, survival estimates better predict future rates of violations than direct calculations.

To drive safely and responsibly, drivers must (a) know the laws that regulate driving, (b) understand that driving is a privilege and that PennDOT administers driving privileges through its licensing and sanctioning processes, and (c) understand the linkages among unsafe driving, violations, points, and sanctions. Several major themes that underlie our recommendations follow from these points.

- First, we believe that many (indeed, probably most) drivers do not have a clear understanding of Pennsylvania's point and sanction system. Several recommendations address the need to make drivers more aware of the linkages among unsafe driving, violations, points, and sanctions. This is especially true for drivers with multiple violations and suspensions.
- Second, PennDOT's role as administrator of the driving privilege system should be more salient to drivers. Drivers should understand that PennDOT keeps records of all convictions for driving violations, even for those drivers who have never possessed a Pennsylvania driver's license, and that these records are shared with law enforcement agencies, the courts, and insurance companies. PennDOT can and does suspend or revoke driving privileges. We believe that greater understanding of the penalties for unsafe driving as well as PennDOT's authority to intervene by imposing sanctions will enhance the deterrent value of the sanction process and help drivers make better driving decisions.
- Third, the sanction process should distinguish among drivers who incur few if any convictions during their driving careers and those who commit violations early and often after licensure. Sanctions are effective in reducing violations – they should be applied sooner to drivers whose patterns of violations reveal a likelihood of becoming repeat or habitual offenders.
- Fourth, we endorse PennDOT's work in creating a new driver records database system that will make information from driving records more accessible to authorized personnel so that important trends in driving safety can be monitored and evaluated. Adjustments to the sanction process should be evidence-based, and this new database will support future decision makers.

RECOMMENDATIONS

A. Sanctions and the Sanctioning Process

A1: Type II Hearing within 3 Years after Licensure

Drivers who trigger a Type II Hearing (i.e., who reach six [6] points for a second time) within three (3) years after initial licensure should receive a 30-day suspension.

A2: Six Points within First 18 Months after Licensure

Drivers who accumulate six (6) or more points within their first 18 months after initial licensure should incur a Special Point Examination *and* a Departmental Hearing. The outcome of this hearing should be biased toward a suspension of at least 30 days. The hearing should immediately follow the Special Point Examination.

A3: Six Points within First 18 Months after Licensure for Young Drivers

Young drivers (16 – 17 years old) who accumulate six (6) or more points should incur a Special Point Examination *and* a Departmental Hearing. The outcome of this hearing should be a suspension of at least 90 days. The hearing should immediately follow the Special Point Examination. Enforce Section 1503(c3), Jr License of the Vehicle Code.

A4: The Special Point Examination

A4a. <u>Review and update the contents of the Special Point Examination.</u>
Review and revise for clarity items on the Special Point Examination. Expand the content coverage of items on the Special Point Examination to test knowledge of violations, points, and sanctions, in conjunction with expansion of content coverage of the Special Point Examination Driver's Handbook (see Recommendation A4b).

A4b. <u>Review and update the contents of the Special Point Examination Driver's Handbook.</u>
The Special Point Examination Driver's Handbook focuses on DUI and suspensions in Part 1. The safe driving section, Part 2, doesn't have any wording on the sanctions that may accompany unsafe driving, it really only focuses on how to avoid an accident. What is missing is information on what to expect if the driver doesn't change behavior -- more points, hearings, etc. Material that addresses points, sanctions, and the likelihood that past bad driving patterns will lead to further sanctions should be included. Understanding of this material should be assessed with questions added to the Special Point Examination.

**Note: See Appendix D for Supporting Materials relating to A4, Special Point Examination.*

B. Violations and Points

B1. Violation-free Drivers

Acknowledge drivers whose driving records remain violation-free. In the current system, there is no positive reinforcement for drivers who maintain violation-free driving records. There is only the absence of punishment that comes with sanctions. PennDOT should occasionally compliment violation-free drivers and remind them of the importance of safe driving, perhaps in license renewal letters. This would both reinforce safer driving practices and subtly remind drivers that PennDOT keeps records.

B2. Points and Sanction System Details

Make details of the points and sanction system more readily available to learners, drivers, and especially violators. Revise the Special Point Examination and Driver's Handbook (Publication 248) as follows:

B2a. Add the point system details to the Driver's Handbook. Express in an easy to understand format. Include in Part 1 of the Handbook, not as an appendix.

B2b. Include questions in the Sample Test Items (Part 1)
Regarding point values for specific violations and other relevant violation/sanction issues.

B2c. Include questions on the Special Point Examination
That determine working knowledge of the point system and sanctions for violations.

B2d. Add narrative to the Driver's Handbook
Perhaps in the form of short scenarios that describe common situations seen that lead to points, special exams, hearings and license revocation. See Appendix D for examples and illustrations.

B2e. Add information to the Driver's Handbook, Part 1
Regarding sanctions for non-driving offenses that exacerbate the impact of driving behavior violations.

B2f. Add an additional reference to the *Pennsylvania Point System Fact Sheet* in Chapter 6 of the Pennsylvania Driver's Manual (Publication 95).

B3. Frequently Asked Questions about Driving Privileges

Prepare FAQ sheet that describes the point system in a more user-friendly manner, like has been done with insurance documents – using personal pronouns and other readily identifiable language. Some of this language could be used in the Driver's

Handbook as described above. Include an FAQ as an insert with each letter informing drivers of violations and points.

Rationale:
Drivers do not appear to understand how easily they can trigger a Type II Hearing in the year following a Special Point Exam – one more violation is all it takes. The Exam appears to be an annoyance to drivers and little else; having passed it, they lose 2 points and think they're done with it. Drivers should be encouraged to contemplate their driving habits and realistically consider what they need to do to improve, and avoid another sanction. What we're after here is to increase the deterrence value of the Special Point Exam by making them realize that they could soon face more serious punishments; this increased awareness/salience will lead to better driving decisions and behavior.

C. Communications with Drivers

From the documents received in the course of the study, we grouped the various correspondences with motorists into categories and present recommendations for seven of the categories that deal most directly with sanctioning actions.

- General Violation (letters informing drivers of points due to a violation but no further action, e.g., speeding, careless driving)
- Special Point Exam Notification
- Hearing Notification
- 11 Point Notification
- Suspension Notification
- Failure to Respond Notification
- Young Driver Violation (driver and driver's parents)

C1. Letters to Violators

C1a. Write bolder, clearer, and more informative letters to violators.
Correspondence with motorists conveys the basic information regarding the violation and sanction as well as what is needed to be done resulting from the sanction. Yet, many of the letters can be written using more "plain English," and minimizing language that is clear to PennDOT, but potentially not clear to the typical motorist. Some of the wording currently used in letters to violators that could be clarified includes:

- In some instances, references to forms or publications are by number only; references to forms and publications should include number, title, and how to obtain a copy (if a copy is not included with the letter).
- In some instances, violations are referred to by abbreviations; the full violation name/description should be used.
- In some instances, the word *sanction* is used as a general term; use a specific term (such as suspension, hearing, special point examination) when that is what is meant. For example, an 11-point suspension letter states that "… a sanction of 55 DAY(S) is hereby imposed…".
- General statements such as having "6 or more points" should be replaced by statements citing the precise number of points on the person's record.

C1b. Include a subject line.
In general, letters could be more readily understood if there was a subject line including the significant sanction with date, such as "Suspension of license for 55 days effective February 29, 2008 12:01 a.m." or "Special Written Examination required by March 15, 2008" or some short description.

C1c. Organize information in letters using a consistent format.
A number of the letters reviewed showed a need for organization that groups together each of the basic elements to be communicated, e.g., all information

about the consequences of the sanction should be grouped together. Many letters have the consequence information described in one paragraph with a reference to more details about the sanction elsewhere in the letter. Letters can be organized in the following 5-step fashion – fully discussing each element:

1. Explanation of the violation
2. What sanction is imposed and why
    - Include list of violations for motorists having more than one violation
    - Include a reference to an enclosed *Pennsylvania Point System Fact Sheet*
3. What this means to the motorist
    - Warn that due to this history a more serious sanction, such as examination, hearing and/or loss of license, will likely be imposed at the next violation
4. What the motorist needs to do next and what happens if motorist does not comply and what may be the future
    - The consequences of not responding
    - How the motorist risks making things worse by failure to comply/respond
5. Recap of forms or attachments (with website references as well) and how to get relevant forms or publications if not enclosed with the letter

C1d. <u>Emphasize key messages.</u>

Specific messages should be emphasized appropriate to the reason for the letter. For example, it should be clearly stated in a *suspension* letter that, **"No credit toward serving the suspension or revocation shall be earned until the driver's license/learner's permit is surrendered to PennDOT" (PA Driver's Manual, p. 56).** The distinction between suspension period and credit for suspension should be clearly explained; it should be clear to the driver that a license must be surrendered or a suspension must be acknowledged, and that credit for a suspension period does not begin until the date of receipt of the license or acknowledgement by PennDOT.

C1e. <u>Address the issue of non-response/non-compliance.</u>

"What happens if I don't do what this letter says," is a question that a number of the letters do not address. Review each type of letter to determine if it provides a full and clear explanation of what will happen if the motorist does not comply within the timeframe specified. For example, a notification of the requirement to take and pass a special points examination states that no extensions will be granted, but there is no discussion of further sanctions or consequences if the motorist does not comply or if the motorist fails the examination. The letter refers the motorist to the Special Point Examination Driver's Handbook, which states in the first and last paragraphs of the document what the consequence is – license suspension, but this should be clearly stated in the body of the letter.

C1f. Enclose a copy of a driver's record.
Enclose a copy of a driving record with correspondence to violators having *more than one violation*. The list of the person's violations, whether they still are affecting the point total or not, provides a degree of personalization to the letter and conveys additional accountability to PennDOT. Having such information shows motorists their driving behavior history and reminds them they may have to "clean up their act."

C1g. Enclose a copy of the *Pennsylvania Point System Fact Sheet*.
Enclose a copy of the *Pennsylvania Point System Fact Sheet* with every letter, so that motorists can review what another violation will do to their driving privileges. Explain why this document is enclosed. Such addition is an expense for PennDOT, yet it can help motorists understand what is potentially in store for them if they do not change behavior, and it can make them generally more aware that consequences exist.

C1h. Enclose a copy of *Frequently Asked Questions about Driving Privileges*.
See Recommendation B3 for a description of this document.

C1i. Add Webpage(s) to PennDOT DMV website to describe the point system.
Each of the letters has contact information at the end. If people have questions by the time they read the whole letter, they can call for clarification. However, better direction to materials on the website and easier access to and more website information on the points system may reduce telephone calls.

**Note: See Appendix D for Supporting Materials relating to C1, Letters to Violators.*

C2. Letter Formats

Reformat letters, print on better quality stationery (including envelopes), with professional letterhead, an official seal or logo, better font, etc. Include authoritative statement on the outside of the envelope such as "Important Driver License Communication from PennDOT." The appearance and feel of the letter should convey authority and command attention – it should not be easily overlooked, forgotten, or inadvertently discarded as junk mail.

C3. No-Action Correspondence

When the decision following a hearing is to take no action, inform the driver of this via a letter that reminds the driver of the number of points currently on the driving record.

C4. Video Cameras in Examination/Hearing Rooms

A ceiling-mounted video camera should be clearly visible in each room used for examinations and hearings. Whether these are actually operational or not, drivers should have the impression that they are being monitored.

C5. Sanctioning Project Results

Make selected results of study available to driving public to inform drivers regarding risks and probability of violations and sanctions.

- Prepare a fact sheet or a FAQs sheet that discusses the risks associated with patterns of violations and their consequences that have been brought out by the study. Discuss findings about the timeframe and number of violations and the history of what has happened in the future to others having been in the same position.
- Incorporate these risks in Chapter 4 of the driver's manual.

C6. Media Coverage

At completion of the study, get media coverage on selected results to assist in communicating messages to Pennsylvania drivers. Message might focus on

- Lack of awareness of points and consequences.
- Issues surrounding revocation of license not well understood
- Hearings and exams promote better driving behavior
- Potential risks associated with age/number of violations

Rationale for Recommendations:

Most drivers appear to be only somewhat familiar with Pennsylvania's points and sanction process. They probably don't know how many points are assigned for violations, and lack specific understanding that some violations trigger hearings and/or suspensions, that accumulation of points leads to various sanctions, and so on. A goal of these recommendations is to increase driver awareness of the sanction process, thereby enhancing its deterrence value. The expectation is that informed drivers will make better choices in their driving behavior, leading ultimately to safer driving habits.

D. PennDOT Staff

D1. Share Study Findings

Use results of this study to encourage the workforce and to facilitate successful practices. Provide a synthesis of findings for distribution to PennDOT field hearing and examiner staff that shows benefit of their activities.

- Prepare briefing materials and a presentation for PennDOT executives
- Prepare handout information for staff

D2. Facilitate Staff Development

Have annual meetings of PennDOT staff involved in driver licensing and sanctioning to surface issues in need of attention, to share successful practices, to offer advice on dealing with difficult or irate drivers, and so on.

E. Database

E1. Violation Records

Store each violation for each driver as a single record, with an identifying "ViolationID". The ViolationID would serve as a key to link all information and transactions pertaining to a given violation. A report of violation records could easily assemble all data pertaining to a violation for a given driver. Currently, violation information is duplicated with every transaction related to that violation. Storing redundant data unnecessarily complicates the task of compiling a complete violation record. Proper database design would simplify the task of quickly identifying and sorting pertinent violation data.

E2. Point Histories

Point totals should be automatically updated by programming and applying the rules for adding and subtracting points. Currently, a driver could have 0 actual points but show many points. The point tally for any given driver is only updated as the record is accessed by PennDOT staff, whereupon it is updated by hand. This requires time and attention of PennDOT staff that could be directed to more productive activities, and leaves room for human error.

E3. Data Integrity Checks

Data errors should be corrected by running integrity checks periodically. This could also uncover any potential system errors causing data problems. Some data errors are due to the data being imported over many legacy systems, some are from human error. Simple things like mis-keyed dates should be fixed prior to importing data into a new database system. Other checks for unmatched codes (invalid codes not found in code tables), improper violation codes, etc., should also be run periodically.

E4. Legacy Data Flags

Because the driver records system has been updated many times since its inception, drivers who have been in the database for a long time may have incomplete, missing, or misleading data. For instance, the Original Issue Date for drivers receiving their licenses prior to 1980 is generally not an *original* issue date. Until 1980, the database only had a single field for "issue date." After a first renewal, a driver's record lost the actual original issue date (it was overwritten with the more recent issue date). A mechanism is needed to flag data fields for drivers whose data values were imported from legacy systems when the specific codes are no long used or their meaning has changed.

E5. Code Table Glossary

There are many code tables used in conjunction with the driver records system. A glossary/help area in the system would be very useful for quickly interpreting code values and selecting proper codes when entering data. The glossary should define cryptic code labels (e.g., "ISSUE INVITATION TO RECERT HM"). This would be helpful to PennDOT staff in entering data and when answering driver's questions

about their records, and to researchers and administrators who analyze and interpret the data.

E6. Reporting

Good reporting capabilities are very helpful, and essential for answering most questions anyone could have about data within the system. Some useful features of reporting from the driver records database could be:

E6a. Overall Driver Reports

1. Dynamic Reporting
   - allow selectable criteria to build a report on the fly
   - save the criteria to rerun later/with different parameters
2. Assess how many Speeding/DUI/etc., violations between selectable date ranges
3. Other dynamic reports to view current suspended drivers, OLLs, PLLs, revocations, etc.

E6b. Single Driver Reports

1. Lifetime totals (points, suspensions, number of violations, violation types, etc)
2. Current Violations on record, accounting for only the points currently on record
3. Lifetime Violations on record, showing every violation ever received
4. Exam/Hearing Report
   - Showing violations that triggered an exam or hearing
   - To be reviewed by PennDOT staff, and a copy given to the driver at the exam or hearing

E6c. Violation Reports

Statistics of driver demographics, day of week, time of day, etc., based on a selected type of violation

E6d. Sanction Reports

Ability to get synopsis of who is getting sanctions based on violation types, driver demographics, location, driver age, license class, etc.

F. Visibility Recommendations

Document the results of the study in the appropriate literature.

F1. TRB

Prepare a paper documenting the results of the study for the Transportation Research Board Annual Meeting, January 2009. Paper due August 1, 2008.

F2. Press Release

Prepare press release for the driving public to inform regarding risks and probability of violations and sanctions.

F3. AAMVA

Share study results at the American Association of Motor Vehicle Administrators international and/or regional conference in 2008 or 2009.

Task 5: Final Report

A final report oral presentation with Powerpoint briefing slides was held at PennDOT's Riverfront Office Center on April 7, 2008. A copy of the Powerpoint slides, printed as a handout with briefing notes, is included in Appendix E.

Implementation of some of the recommendations provided in this report will require additions and modifications to existing documents and communications such as the Special Point Examination, Driver's Handbook, and correspondence letters to drivers, plus creation of new documents such as Frequently Asked Questions about Driving Privileges. Assistance with implementation can be provided by the Research and Innovation Implementation Program of PennDOT's Bureau of Planning and Research, Research Division. In addition to help in preparing these documents, the Implementation Program can help with field testing of these materials. Samples of drivers and learners can be recruited to review these communications to determine: (1) reading level, (2) drivers' understanding of messages and instructions from PennDOT, (3) drivers' understanding of their responsibilities to respond to instructions and complete next steps, and (4) drivers' reactions to the content and tone of these communications from PennDOT. These field tests and evaluations will help to ensure that PennDOT's documents and communications achieve their goals of promoting driver safety.

pennsylvania
DEPARTMENT OF TRANSPORTATION

The Impact of the Sanctioning Process on Driver Safety

Final Report Appendices

Submitted to:
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

Safety Administration
Bureau of Driver Licensing
1101 South Front Street – 4th Floor
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Submitted By:

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May 20, 2008

Vance & Renz

Table of Contents

Appendix A:
Survey of Best Practices

Survey of Best Practices

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?

- Yes
- No

(If 'Yes,' please provide the specific website address here:

or mail a copy of the documentation to the address below .)

2. Does your Department have written documentation describing its driver licensing policies and procedures?

- Yes
- No

(If 'Yes,' please provide the specific website address here:

or mail a copy of the documentation to the address below.)

3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?

- Yes
- No

(If 'Yes,' please provide the specific website address here:

or mail a copy of the documentation to the address below.)

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?

- Yes
- No

(If 'Yes' and the report of this research is available, please provide the specific website address here:

or mail a copy of the report to the address below.)

5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?

- Yes

- No

(If 'Yes'and the report of this research is available, please provide the specific website address here:

or mail a copy of the report to the address below.)

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?

- Yes
- No

If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.

7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?

- Yes
- No

If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :

1.
2.
3.

9. What are the top three practices that your Department considers to be the *least*

effective or beneficial in promoting safer driving? Please provide a brief explanation:

1.

2.

3.

Please provide your name, title, address, telephone, and email.

Name:

Title:

Address:

Telephone:

Email:

May we contact you if we have additional questions or need to clarify your responses?

- Yes
- No

Would you like a copy of the results of our study?

- Yes
- No

Thank you for your responses. If you have any questions about this study, please contact Dr. Robert J. Vance at 814-231-8155 or bob@vancerenz.com. Please mail any reports or documentation not available online to:

Dr. Robert J. Vance
Vance & Renz, LLC
606 Wayland Place
State College, PA 16803

Submit

Jerry G. Pigman
Manager of Traffic & Safety/ Research Engineer
140 Raymond Bldg.
KY Trans. Center, Univ. of KY
Lexington, KY 40506
6/22/2007 11:03:00 AM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? **this survey is being forwarded to others to complete**	**No**
2. Does your Department have written documentation describing its driver licensing policies and procedures?	**No**
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**No**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system? **copy will be mailed - not on our website**	**Yes**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**No**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. 2. 3.
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Jerry G. Pigman**

Title: **Manager of Traffic & Safety/ Research Engineer**

Address: **140 Raymond Bldg.**
KY Trans. Center, Univ. of KY
Lexington, KY 40506

Telephone: **859-257-4521**

Email: **jpigman@engr.uky.edu**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Edward Pemble
Driver Services Manager
Idaho Transportation Department
PO Box 7129
Boise, ID 83707-1129

6/22/2007 2:07:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? **http://itd.idaho.gov/dmv/DriverServices/ds_viol.htm**	**Yes**
2. Does your Department have written documentation describing its driver licensing policies and procedures? **http://itd.idaho.gov/dmv/DriverServices/ds.htm**	**Yes**
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? **http://adm.idaho.gov/adminrules/rules/idapa39/0273.pdf**	**Yes**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**No**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**Yes**

Online classes are now offered as an alternative to an in-person class

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **graduated driver licensing for young teens** 2. **Driver sanctions for convictions** 3. **Restraint laws: Seat-belt useage/child safety seats.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. **Promotional materials** 2. **Interlock requirement (because it is under-utilized)** 3. **Media messages that do not change.**

Please provide your name, title, address, telephone, and email.

Name: **Edward Pemble**

Title: **Driver Services Manager**

Address: **Idaho Transportation Department** **PO Box 7129** **Boise, ID 83707-1129**	
Telephone: **208-332-7830**	
Email: **ed.pemble@itd.idaho.gov**	
May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

JOHN BROWNLEE
Driver Improvement Supervisor
T.D.O.S
1150 Foster Ave.
Nashvill TN 37211
6/27/2007 5:15:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**
http://www.tennessee.gov/sos/rules/1340/1340-01/1340-01-04.pdf	
2. Does your Department have written documentation describing its driver licensing policies and procedures?	**No**
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**Yes**
http://www.tennessee.gov/sos/rules/1340/1340-01/1340-01-04.pdf	

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of	**No**

its driver point and sanctioning system?	
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**

In 2005 Changed the time frame for searching for points. Under the old system when a ticket posted to a record it scaned back 12 months looking for 12 points. Now the system scans back 24 months and looks for 12 or more points within any 12 month period. The number of drivers entering the point system has increased 40% Started a juvenile point system March 1, 2006. A juvenile driver that receives 3 or more points must have a hearing with the Department of Safety, the legal parent or guardian must be present.

7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**Yes**

Required each school to be insured and bonded. Back ground check on owners and instructors. Instructor's must be certified AAA, NSC or equivalent

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **The point system of the Department indicates when a driver has been convicted with such frequency for moving traffic violations or contributing to the occurrence of accidents as to indicate a disrespect for traffic laws or that the driver is accident prone. This gives the Department the wright to suspend these drivers or allow them a chance to improve their driving habits.** 2. **The juvenile point system show's young drivers and their parents the importants of safe driving.**

	3.
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. **n/a** 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **JOHN BROWNLEE**

Title: **Driver Improvement Supervisor**

Address: **T.D.O.S**
1150 Foster Ave.
Nashvill TN 37211

Telephone: **615-251-5193**

Email: **JOHN.BROWNLEE@STATE.TN.US**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Robert Hagge
Research Manager II
Department of Motor Vehicles
2415 First Avenue
Mail Station F-126
Sacramento, CA 95818
7/3/2007 1:49:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? **www.dmv.ca.gov**	**Yes**
2. Does your Department have written documentation describing its driver licensing policies and	**Yes**

procedures? **www.dmv.ca.gov**	
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? **www.dmv.ca.gov**	**Yes**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system? **report will be mailed**	**Yes**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes? **reports will be mailed**	**Yes**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**No**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**Yes**

Developed a more extensive and improved curriculum lesson plan for private driver education and training courses. Goal is to increase driver competency of

novice drivers.

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **The Negligent Operator Treatment System. Sanctions (warning letters, licensing suspension/revocation, probation) are taken when drivers accumulate too many demerit points for traffic convictions and crashes. These have been shown in research studies to reduce traffic violation and crash rates by providing both specific and deterrent effects on the broad population of high-risk negligent drivers.** 2. **The Driver Safety Program that includes a reexamination of licensed drivers with physical or mental conditions or knowledge/skill deficiencies that affects their ability to drive safely. This process leads to revoking or restricting the driving privileges of drivers who are unable to meet the department's driver competency standards, which includes passing vision, knowledge, and skill tests.** 3. **The original and regular renewal driver licensing process, which ensures that drivers have the requisite knowledge and skill to safely operate the motor vehicle they will be licensed to drive. The screening process, which includes assessment of vision, knowledge, and skill, encourages drivers to attain and maintain the knowledge and skills necessary to drive safely and screens out those who are unable to do so.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. **There are many programs the department administers that does not have a traffic safety nexus. For example, the motor-voter, organ donor, and child support programs.** 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Robert Hagge**

Title: **Research Manager II**

Address: **Department of Motor Vehicles**
2415 First Avenue
Mail Station F-126
Sacramento, CA 95818

Telephone: **916-657-7030**

Email: **rhagge@dmv.ca.gov**	
May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Cindy VanHoose
Assistant Director, Division of Driver Licensing
200 Mero Street
Frankfort, KY 40622
7/5/2007 11:45:00 AM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? **http://drlic.kytc.ky.gov//**	**Yes**
2. Does your Department have written documentation describing its driver licensing policies and procedures? **http://drlic.kytc.ky.gov//**	**Yes**
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? **http://drlic.kytc.ky.gov//**	**Yes**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the	**No**

effectiveness of its driver skills and/or safe driving classes?

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**

Increased points for School Bus Passing due to new legislation being enacted.

7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**Yes**

New legislation was enacted regarding the Graduated Licensing Program.

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Graduated Licensing Program - This program targets teenage drivers.** 2. **Driver Improvement Clinic - Our State Traffic School is a four hour class designated to highway safety.** 3. **"Drive Smart" Program - This program is designed to promote highway safety through public appearances, lectures, brochures, demonstrations, commercials, etc.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Cindy VanHoose**

Title: **Assistant Director, Division of Driver Licensing**

Address: **200 Mero Street**
Frankfort, KY 40622

Telephone: **502-564-6800 ext 4249**

Email: **cindy.vanhoose@ky.gov**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Mary Grosso
Driver Control Unit Coordinator
1905 Lana Avenue NE
Salem, OR 97314
7/17/2007 4:29:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**

Here is a link to the Oregon's Driver Improvement Program information: http://www.oregon.gov/ODOT/DMV/driverid/driverimprovement.shtml For other information on sanctions, info can be found on Oregon DMV's Web site: http://www.oregon.gov/ODOT/DMV/

2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**

Not available to public. Used internally.

3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**No**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**Yes**

A recent evaluation of Oregon's Driver Improvement Programs was completed. Here is a link: http://www.oregon.gov/ODOT/TD/TP_RES/docs/Reports/DMVDriver.pdf

5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**

The Driver Improvement Program was modified in January 2002. An evaluation of this program has been completed and is in review regarding possible future modifications.

7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**Yes**

Eliminated driver improvement courses as part of a mandatory requirement in the Driver Improvement Program - effective January 2002.

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Warning letters. In Oregon, this is currently done through a restriction of driving privileges from Midnight until 5 am, except for driving to/from employment.** 2. **Suspension** 3. **In the evaluation, literature shows that concensus is difficult to obtain on what is the most effective action to use in programs such as a driver improvement program because the base of drivers in these programs are heterogenous and vary greatly.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please	1. **Again based on a recent evaluation: Education materials** 2. **Safety driving classes, again, based on the study that they are not proven to be effective. According to the study, diversion safety classes have lost quality of content because third parties are**

provide a brief explanation:	**conducting the classes and content is not audited.**

3.

Please provide your name, title, address, telephone, and email.

Name: **Mary Grosso**

Title: **Driver Control Unit Coordinator**

Address: **1905 Lana Avenue NE**
Salem, OR 97314

Telephone: **(503) 945-5520**

Email: **mary.l.grosso@odot.state.or.us**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Christine Howard
Analyst
Maryland MVA - Operations Research Unit
6601 Ritchie Highway, N.E.
Glen Burnie, Maryland 21062
7/25/2007 1:53:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**

http://www.marylandmva.com/Resources/DL-002A.pdf
http://www.marylandmva.com/AboutMVA/INFO/Safety.htm

2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**

http://www.marylandmva.com/DriverServ/Apply/default.htm

3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**Yes**
http://www.marylandmva.com/MVAProg/SafetyProg/default.htm **http://www.marylandmva.com/MVAProg/moto/default.htm** **http://www.marylandmva.com/AboutMVA/INFO/Safety.htm** **http://www.marylandmva.com/AboutMVA/INFO/Motocycle.htm**	

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**No**
7. Has your Department modified/improved its driver skills and/or	**No**

safe driving classes within the past ten (10) years?	

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Individual evaluation of medically referred drivers â€“ The Maryland MVAâ€™s Medical Advisory Board (MAB) provides an individualized medical opinion formulated by a licensed physician to inform administrative license regulation in cases where there is concern over a driverâ€™s medical fitness to drive. The goal and philosophy of the MAB is to preserve mobility safely. Through the Administrationâ€™s Driver Wellness Division, the MAB accepts referrals for evaluation from Law Enforcement, the Courts, physicians and other clinicians, family, friends, neighbors, and MVA counter personnel. Each driver to be evaluated submits an executed questionnaire, a physicianâ€™s report, driving record, as warranted a functional capacity screen, and as warranted an evaluation by a Certified Driving Rehabilitative Specialist Occupational Therapist. The case is assembled and presented by nurse/case managers and is reviewed by a physician who will render an advisory opinion to the Administration. Informed by the advisory opinion, the Administration takes the appropriate action which may include no action, restriction, licensing conditioned on training or treatment, licensing conditioned on follow-up, or license suspension.** 2. **Functional Capacity Screening - Maryland MVA, in cooperation with TransAnalytics, LLC, and the University of Alabama at Birminghamâ€™s Dr. Karlene Ball, developed a battery of brief tests that have demonstrated correlation with heightened risk of at-fault crash involvement. The battery, known alternately as the Functional Capacity Screen or the Driving Health Inventory, is employed regularly by Marylandâ€™s MAB in the medical evaluation of drivers referred to the Administration over concern about medical fitness to drive.** 3. **Graduated License System.**
9. What are the top three practices that your Department considers to be the	1. **no comment**

least effective or beneficial in promoting safer driving? Please provide a brief explanation:	2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Christine Howard**

Title: **Analyst**

Address: **Maryland MVA - Operations Research Unit**
6601 Ritchie Highway, N.E.
Glen Burnie, Maryland 21062

Telephone: **1-800-950-1MVA**

Email: **mhoward1@mdot.state.md.us**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Debbie Wilson
Management Analyst
555 Wright Way
Carson City NV 89711
10/11/2007 12:12:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**

www.dmvnv.com

2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**

These are internal documents only. Some information is included on our website at www.dmvnv.com

3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**No**

NV DMV does not provide driver skills and safe driving classes.

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**

Sanction and driver point revisions were passed in 2005 in response to MCSIA.

7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **The NV Department of Motor Vehicles has not bee involved in the promotion of safe driving other than information that is included in our driver handbook. Most safe driving campaigns and programs are handled through the Department of Public Safety, Office of Traffic Safety.**

	2. 3.
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Debbie Wilson**

Title: **Management Analyst**

Address: **555 Wright Way**
Carson City NV 89711

Telephone: **(775) 684-4778**

Email: **dwilson@dmv.state.nv.us**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Joyce A Abbott
Manager
Division of Motor Vehicles
Building 3 Room 124
Charleston WV 25317
10/12/2007 9:21:00 AM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? **http://www.wvdot.com/6_motorists/dmv/6g1f_points.htm**	**Yes**
2. Does your Department have written documentation describing its driver licensing policies and procedures?	**No**
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**No**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**
To remove discretionary provisions and replace with mandatory suspension time periods that graduate with the total number of points accumulated.	
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. 2. 3.
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Joyce A Abbott**

Title: **Manager**

Address: **Division of Motor Vehicles**
Building 3 Room 124
Charleston WV 25317

Telephone: **304-558-0946**

Email: **jabbott@dot.state.wv.us**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

R. Douglas Thompson
Manager Driver Licensing
1800 Kanawha Blvd. East
Capitol Complex
Charleston WV 25317
10/12/2007 2:25:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**
2. Does your Department have written documentation describing its driver licensing policies and procedures? **WWW.WVDMV.GOV**	**Yes**
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? **WWW.WVDMV.GOV**	**Yes**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. 2. 3.
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **R. Douglas Thompson**

Title: **Manager Driver Licensing**

Address: **1800 Kanawha Blvd. East**
Capitol Complex
Charleston WV 25317

Telephone: **304-558-2350**

Email: **dthompson**

May we contact you if we have additional questions or need to clarify your responses?	**No**
Would you like a copy of the results of our study?	**No**

10/15/2007 12:46:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? **Chapter 321 of Iowa Code -**	**Yes**
2. Does your Department have written documentation describing its driver licensing policies and procedures? **Iowa Departmental Rules**	**Yes**
3. Does your Department have	

written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**Yes**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Iowa's suspension/revocation process.** 2. **Education: Iowa requires driver education for young drivers. Older and younger driver safety programs. Iowa Graduated driver license remedial interviews following a conviction or contributive accident.** 3. **Driver Improvement classes.**
9. What are the top three practices	

that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. 2. 3.

Please provide your name, title, address, telephone, and email.

Name:	
Title:	
Address:	
Telephone:	
Email:	
May we contact you if we have additional questions or need to clarify your responses?	**No**
Would you like a copy of the results of our study?	**No**

10/15/2007 12:47:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? **Chapter 321 of Iowa Code -**	**Yes**
2. Does your Department have written documentation describing its driver licensing policies and procedures? **Iowa Departmental Rules**	**Yes**
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**Yes**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Iowa's suspension/revocation process.** 2. **Education: Iowa requires driver education for young drivers. Older and younger driver safety programs. Iowa Graduated driver license remedial interviews following a conviction or contributive accident.** 3. **Driver Improvement classes.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. 2. 3.

Please provide your name, title, address, telephone, and email.	
Name:	
Title:	
Address:	
Telephone:	
Email:	
May we contact you if we have additional questions or need to clarify your responses?	**No**
Would you like a copy of the results of our study?	**No**

Kim Snook
Director of the Office of Driver Services
Office of Driver Services
PO Box 9204
Des Moines, IA 50306-9204
10/15/2007 2:20:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**
Chapter 321 of Iowa Code - www.legis.state.ia.us	
2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**
Iowa Departmental Rules - Section 761-615 - http://www.legis.state.ia.us/Rules/Current/iac/761iac/761615/761615.pdf	
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**Yes**
Iowa Departmental Rules - Section 761-615.43 - http://www.legis.state.ia.us/ACO/IAChtml/761.htm#rule_761_615_43	

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

However, we are in the process of research

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**

Changed some commercial sanctions for Iowa's Commercial compliance review to meet the FMCSA guidelines.

7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Iowa's suspension/revocation process.** 2. **Education: Iowa requires driver education for young drivers. Older and younger driver - Public Safety programs.** 3. **Iowa Graduated Driver License - Remedial Driver Improvement classes. Iowa's Rocket Docket court process for those convicted of driving while under suspension.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. **Problems with suspension/revocation process which involve persons driving while under suspension or revocation.** 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Kim Snook**

Title: **Director of the Office of Driver Services**

Address: **Office of Driver Services**
PO Box 9204
Des Moines, IA 50306-9204

Telephone: **515-237-3010**

Email: **kim.snook@dot.iowa.gov**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Derek Goudriaan
Assistant Administrator, Planning & Performance Section
1125 Washington St SE
Olympia, WA 98507
10/15/2007 7:37:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**No**

No point system in use; http://www.dol.wa.gov/driverslicense/suspensions.html

2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**

http://www.dol.wa.gov/driverslicense/steps.html

3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**Yes**

http://www.dol.wa.gov/driverslicense/drivertraining.html

II. RESEARCH AND EVALUATION

4. Has your Department conducted or

sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**No**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**Yes**

Consolidated administration of the oversight and regulation of all commercial driver training classes under the Department of Licensing. Previously this department and the Superintendent of Public Instruction had shared this responsibility.

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Intermediate driver licensing requirements and restrictions.** 2. **The standardized driver training curriculum that all schools must follow.** 3. **Requiring a knowledge and driving skills test of all first time license applicants.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in	1. **Group violator counseling sessions; these carry little incentive for the violator to improve their performance.** 2. **Requiring 50 hours of parent-supervised driving practice without also requiring evidence or**

promoting safer driving? Please provide a brief explanation:	**documentation of actual completion of the practice.** 3. **The limited number of hours (1 am to 5 am) when teen drivers must be under the supervision of an adult. Attempts to start the restriction at 10 or 11 pm have been unsuccessful.**

Please provide your name, title, address, telephone, and email.

Name: **Derek Goudriaan**

Title: **Assistant Administrator, Planning & Performance Section**

Address: **1125 Washington St SE**
Olympia, WA 98507

Telephone: **360-902-0126**

Email: **dgoudriaan@dol.wa.gov**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Terry Kersey
Driver Control Hearing Officer
1900 West 7th Street, Rm. 1070
Little Rock, AR 72201
10/16/2007 9:34:00 AM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**

Mailing point assessement and point list.

2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**

Mailing Arkansas Motor Vehicles and Traffic Laws and Sate Highway Commission Regulations.

3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**No**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**No**
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most*	1. **Assessing points to violations allows for action to be taken in relation to the number of points accumulated by licensee.** 2. **Requiring alcohol education treatment**

effective or beneficial in promoting safer driving? Please provide a brief explanation :	**programs for licenseesâ€™ with alcohol related violations.** 3. **Driver watch program which allows employers to be notified when licensee receives violations or suspensions on record.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. **Allowing probation in lieu of suspension for first time offender with accumulation of points.** 2. **At the age of 14 you can get a learners license to drive with adult supervision. At the age of 16 you can receive an intermediate license (which allows licensee to drive without supervision) as long as you have had six months of driving with a licensed adult. If a learnerâ€™s license is obtained at 14, this gives a two year period with supervision. If they wait until the age of 16, the learnerâ€™s period is just 6 months.** 3. **Hearing officers may offer the licensee to take a defensive driving course (from outside vendor) to reduce suspension time for accumulation of points. However, it should be a requirement for licensees to take a defensive driver course who accumulate to many points.**

Please provide your name, title, address, telephone, and email.

Name: **Terry Kersey**

Title: **Driver Control Hearing Officer**

Address: **1900 West 7th Street, Rm. 1070**
Little Rock, AR 72201

Telephone: **501-682-1631**

Email: **Terry.Kersey@rev.state.ar.us**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Kim Snook
Director of the Officer of Driver Services
Office of Driver Services
PO Box 9204
Des Moines, IA 50306-9204
10/16/2007 12:57:00 PM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**
Chapter 321 of Iowa Code - http://coolice.legis.state.ia.us/Cool-ICE/default.asp?category=billinfo&service=IowaCode&ga=82	
2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**
Iowa Departmental Rules - Section 761-615 - http://www.legis.state.ia.us/ACO/IAChtml/761.htm#chapter_761_615	
3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**Yes**
Iowa Departmental Rules - Section 761-615.43 - http://www.legis.state.ia.us/ACO/IAChtml/761.htm#rule_761_615_43	

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**
5. Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**
However, we are in the process of research	

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**

Changed some commercial sanctions for Iowa's Commercial compliance review to meet the FMCSA guidelines. Graduated Driver License Legislation was also enacted during the last 10 years.	
7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Iowa's suspension/revocation process.** 2. **Education: Iowa requires driver education for young drivers. Older and younger driver - Public Safety programs.** 3. **Iowa Graduated Driver License - Remedial Driver Improvement classes. Iowa's Rocket Docket court process for those convicted of driving while under suspension.**
9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	1. **Problems with suspension/revocation process which involve persons driving while under suspension or revocation.** 2. 3.

Please provide your name, title, address, telephone, and email.

Name: **Kim Snook**

Title: **Director of the Officer of Driver Services**

Address: **Office of Driver Services**
PO Box 9204
Des Moines, IA 50306-9204

Telephone: **515-237-3010**

Email: **kim.snook@dot.iowa.gov**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**Yes**

Gregory A. Noose
Chief - Records and Driver Control Bureau
Motor Vehicle Division

PO Box 201430
Helena MT 59620
10/19/2007 11:21:00 AM

I. DOCUMENTATION OF POLICIES AND PRACTICES:

1. Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations?	**Yes**

There is extensive documentation for DI Action - Sanction in Montana, however, it is not maintained on a website. I will email a MT driver control manual as an attachment. A Montana glossary can be viewed at http://www.doj.mt.gov/driving/forms/manuals/UnderstandingMontanaDrivingRecord.pdf

2. Does your Department have written documentation describing its driver licensing policies and procedures?	**Yes**

Yes - there is an extensive Field Operations Manual - but it is not maintained on a web site - a separate request needs to be made to Kristine Thatcher, Bureau Chief - Field Operations Bureau - kthatcher@mt.gov.

3. Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers?	**No**

II. RESEARCH AND EVALUATION

4. Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system?	**No**

5. Has your Department

conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes?	**No**

III. CHANGES TO POLICIES AND PRACTICES

6. Has your Department modified/improved its driver point and sanction system within the past ten (10) years?	**Yes**

Major revisions occurred in the 2003 MT bieenial legislative session with additional changes in 2005 and 2007. The 2003 outcomes were summarized in a poster that can be viewed at http://www.mdt.mt.gov/publications/docs/brochures/safety/duiposter.pdf

7. Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years?	**No**

IV. BEST PRACTICES SUMMARY

8. What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation :	1. **Response from the Records and Driver Control Bureau - Motor Vehicle Division - Montana Department of Justice - most effective contribution to safe driving is aggregated driver information that supports accountability and enforcement: Accurate, complete and timely driver records** 2. **Recogntion that for enforcement, prosecution and adjudication of problem drivers, driver record information has a "moment in time" - that moment when information leads to effective intervention. It is my job to ensure that means and schedule for providing information meets the needs of the officials who intervene with offenders - significant improvements in these areas.** 3. **Improvements and support for breath alcohol ignition interlock devices**
	1. **Traffic Citation Dismissal policies supported by defensive driving schools have not proven effective - See CA DMV RSS-070223 (Michael Gebers) April 2007 - this**

9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation:	**reflects the experience in MT** 2. **The MT DUI Watch Program managed by the MT Dept of Corrections for Felony DUI offenders has shown promise / low recidivism - but I have not been able to extend this to other offenders.** 3. **The PHADD Behavior Modification Program managed by the Rocky Mountain Traffic School - http://www.rmtschool.com/courses.html - shows promise, but I have not been able to convince upper management that this program should be mandated for MT habitual offenders.**

Please provide your name, title, address, telephone, and email.

Name: **Gregory A. Noose**

Title: **Chief - Records and Driver Control Bureau**

Address: **Motor Vehicle Division**
PO Box 201430
Helena MT 59620

Telephone: **406-444-1776**

Email: **gnoose@mt.gov**

May we contact you if we have additional questions or need to clarify your responses?	**Yes**
Would you like a copy of the results of our study?	**No**

American Association of Motor Vehicle Administrators
Serving an International Community of Motor Vehicle and Law Enforcement Officials

Survey Results

Impact of Sanctioning Process on Driver Safety

Survey Properties

Author: Janice Dluzynski

Jurisdiction: PA

Start Date: 7/23/2007 12:00:00 AM

End Date: 8/14/2007 12:00:00 AM

Contact Info/ Comments: Pennsylvania is seeking information about the impact of the sanctioning process on driver safety. Please respond to this survey.

If you have any questions about this study, please contact Dr. Robert J. Vance at 814-231-8155 or bob@vancerenz.com.

Thank you for taking the time to respond to this survey.

Total Responses: 5

All Details Sorted By Jurisdiction

Name: Jennifer Ammons

Contact Info/Comments:

Jurisdiction Georgia

Survey Response:

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1. **Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

   - ● Yes
   - ○ No

   Points are assessed pursuant to O.C.G.A. 40-5-57, which can be viewed on the General Assembly's website, http://www.legis.state.ga.us/, by clicking on "Georgia Code" at the bottom of the page. There is catch-all language in the statute the says that 3 points are imposed for "all other moving violations which are not speed violations." The DDS has enacted an administrative rule identifying these offenses. It can be found on our website, www.dds.ga.gov, by clicking on "Rules and Regulations." The rule number is Ga. Admin. Comp. Ch. 375-3-3-.01.

2. **Does your Department have written documentation describing its driver licensing policies and procedures? If yes, provide information or link in the comments area, or attach the document at the bottom of the survey.**

   - ● Yes

- ○ No

Comprehensive information can be found on our website, which has pages dedicated to various aspects of licensing. Access to our administrative regulations and the driver manual are also available. www.dds.ga.gov.

3. **Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

   - ● Yes
   - ○ No

   With the enactment of Joshua's Law as of January 1, 2007, the DDS has added extensive information about driver's education to our website, which includes information about approved providers. www.dds.ga.gov.

4. **Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system? If yes, please provide information or a link to the report in the comments area or attach the document to the bottom of the survey.**

   - ○ Yes
   - ● No

5. **Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes? If yes, please provide information or a link in the comments area or attach a document to the bottom of the survey.**

   - ● Yes
   - ○ No

   We have just begun collecting data for this project. We are collecting information as to which customers have taken driver's education and which schools they have attended. We will be monitoring the driving records of our customers for the next several years to determine whether we can see if completion of a driver's education course impacts future driving behavior.

6. **Has your Department modified/improved its driver point and sanction system within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - ○ Yes
   - ● No

7. **Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - ● Yes
   - ○ No

   Joshua's Law, which went into effect January 1, 2007, made completion of driver's education mandatory for a child to be eligible for a driver's license at age 16. Please see http://www.gateendrivereducation.dds.ga.gov/.

8. **What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

   The DDS has not identified 3 practices that are most effective. However, Georgia law does provide for graduated licensing, mandatory driver's ed to be licensed at age 16, and lower points suspension threshholds for teen drivers (see O.C.G.A. 40-5-57.1).

9. **What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

The DDS has not identified 3 practices that are least beneficial.

10. **May we contact you if we have additional questions or need to clarify your responses? If yes, please provide your name, title, organization, phone and/or e-mail address.**

Jennifer Ammons, General Counsel

Georgia Department of Driver Services

jammons@dds.ga.gov

678-413-8769

11. **Would you like a copy of the results of our study?**

- ● Yes
- ○ No

Name: Lisa Hager

Contact Info/Comments:

Jurisdiction Minnesota

Survey Response:

---

1. **Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

- ○ Yes
- ● No

2. **Does your Department have written documentation describing its driver licensing policies and procedures? If yes, provide information or link in the comments area, or attach the document at the bottom of the survey.**

- ● Yes
- ○ No

http://www.dps.state.mn.us/dvs/DriverLicense/DL%20Info/DL%20frame.htm

3. **Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

- ○ Yes
- ● No

4. **Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system? If yes, please provide information or a link to the report in the comments area or attach the document to the bottom of the survey.**

- ○ Yes
- ● No

5. **Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes? If yes, please provide information or a link in the comments area or attach a document to the bottom of the survey.**

   - ○ Yes
   - ● No

6. **Has your Department modified/improved its driver point and sanction system within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - ● Yes
   - ○ No

   To comply with MCSIA, eliminated limited licenses for commercial drivers.

7. **Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - ○ Yes
   - ● No

8. **What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

   Law Enforcement saturation campaigns (DUI, Seatbelt, Speeding)

   Crash victim impact stories

9. **What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

   Print media

10. **May we contact you if we have additional questions or need to clarify your responses? If yes, please provide your name, title, organization, phone and/or e-mail address.**

11. **Would you like a copy of the results of our study?**

    - ○ Yes
    - ● No

Name: Charlotte Piccinetti

Contact Info/Comments:

Jurisdiction New Jersey

Survey Response:

1. **Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

   - ● Yes
   - ○ No

   http://www.state.nj.us/mvc/violations/penalties.htm

2. **Does your Department have written documentation describing its driver licensing policies and procedures? If yes, provide information or link in the comments area, or attach the document at the bottom of the survey.**

   - ● Yes
   - ○ No

   http://www.state.nj.us/mvc/license/index.htm

3. **Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

   - ● Yes
   - ○ No

   http://www.state.nj.us/mvc/licenses/DriverProgram.htm

4. **Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system? If yes, please provide information or a link to the report in the comments area or attach the document to the bottom of the survey.**

   - ● Yes
   - ○ No

   Ongoing....conducted by Rutgers the State University of New Jersey, Edward J. Bloustein School of Planning and Public Policy, New Brunswick, NJ

5. **Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes? If yes, please provide information or a link in the comments area or attach a document to the bottom of the survey.**

   - ● Yes
   - ○ No

   Part of Rutgers University study.

6. **Has your Department modified/improved its driver point and sanction system within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - ○ Yes

- No

7. **Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

  - Yes
  - No

  Incorporated GDL information into program. Continually updates program to reflect legislative changes.

8. **What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

  1. Remedial Programs
  2. Warning Letters
  3. Suspensions

9. **What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

  Plea Barganing of motor vehicle offenses to

  non-point carrying violations.

10. **May we contact you if we have additional questions or need to clarify your responses? If yes, please provide your name, title, organization, phone and/or e-mail address.**

  Yes, Jim O'Donnell, Administrative Analyst I, Motor Vehicle Commission, 225 E. State Street, Trenton, NJ 08666

  609-292-4630

  jim.o'donnell@dot.state.nj.us

11. **Would you like a copy of the results of our study?**

  - Yes
  - No

Name: Dan Allison

Contact Info/Comments:

Jurisdiction Texas

Survey Response:

---

1. **Does your Department have written documentation describing its point and sanctioning system applied to drivers who commit violations? If yes, please provide the information or link in**

the comments area or attach the document at the bottom of the survey.

- Yes
- No

You may view information on our website at www.txdps.state.tx.us or the Texas Transportation Code, chapters 521, 522, 601 and 708.

2. **Does your Department have written documentation describing its driver licensing policies and procedures? If yes, provide information or link in the comments area, or attach the document at the bottom of the survey.**

- Yes
- No

.
You may view a copy of our Administrative Rules at http://info.sos.state.tx.us/pls/pub/readtac$ext.viewtac and the Texas Statutes at http://tlo2.tlc.state.tx.us/statutes/tn.toc.htm

3. **Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

- Yes
- No

You may view a copy of our Driver License and Commercial Driver License Handbooks at www.txdps.state.tx.us_. Driving safety courses are governed under the Texas Education Agency and can be viewed at www.tea.state.tx.us .

4. **Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system? If yes, please provide information or a link to the report in the comments area or attach the document to the bottom of the survey.**

- Yes
- No

5. **Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes? If yes, please provide information or a link in the comments area or attach a document to the bottom of the survey.**

- Yes
- No

6. **Has your Department modified/improved its driver point and sanction system within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

- Yes
- No

The 78th Session of the Texas Legislature passed HB 3588 which created the Driver Responsibility Program (DRP) to be effective September 1, 2003. DRP applies a surcharge to drivers for traffic offenses as well as for serious offense such as Driving While Intoxicated. The surcharge amount ranges from $100 to $2,000 and are to be paid annually for three years.

Another significant change in Texas statute as a result of legislation is stronger enforcement actions against

commercial license drivers. Effective June 2005, commercial licensed drivers are disqualified for a minimum of one year for certain major offenses such as Driving While Intoxicated even if the offense occurred in a non-commercial vehicle.

7. **Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - ○ Yes
   - ○ No

8. **What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

   No statistical research, however three significant programs include the following:

   Medical Advisory Board (MAB)
   A panel of physicians that are appointed by the Texas Department of State Health Services governs the Medical Advisory Board (MAB). A physician from the panel convenes to review possible medical conditions as they relate to the driving ability of reported Texas drivers. Upson receipt of the medical opinion the Department of Public Safety then applies the proper enforcement action to ensure safer highways.

   Administrative License Revocation (ALR)
   This program is the administrative process by which the Department suspends the driver licenses of individuals who are arrested for the offense of driving while intoxicated (DWI). Specifically, an individual may be suspended if he/she either refused to submit to a chemical test or provided a specimen with an alcohol concentration of 0.08 or greater.

   Driver Responsibility Program (DRP)
   See information provided in question #6.

9. **What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

10. **May we contact you if we have additional questions or need to clarify your responses? If yes, please provide your name, title, organization, phone and/or e-mail address.**

    Sherrie Zgabay, Manager, Driver Improvement and Compliance.
    Sherrie.zgabay@txdps.state.tx.us
    (512)424-5001

11. **Would you like a copy of the results of our study?**

    - • Yes
    - ○ No

Name: Wallace Wintle

Contact Info/Comments:

Jurisdiction Utah

Survey Response:

---

1. **Does your Department have written documentation describing its point and sanctioning system**

applied to drivers who commit violations? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.

- Yes
- No

You can find it on our website.

2. **Does your Department have written documentation describing its driver licensing policies and procedures? If yes, provide information or link in the comments area, or attach the document at the bottom of the survey.**

   - Yes
   - No

3. **Does your Department have written documentation describing driver skills and/or safe driving classes that it provides to drivers? If yes, please provide the information or link in the comments area or attach the document at the bottom of the survey.**

   - Yes
   - No

4. **Has your Department conducted or sponsored research addressing the effectiveness of its driver point and sanctioning system? If yes, please provide information or a link to the report in the comments area or attach the document to the bottom of the survey.**

   - Yes
   - No

5. **Has your Department conducted or sponsored research addressing the effectiveness of its driver skills and/or safe driving classes? If yes, please provide information or a link in the comments area or attach a document to the bottom of the survey.**

   - Yes
   - No

6. **Has your Department modified/improved its driver point and sanction system within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - Yes
   - No

7. **Has your Department modified/improved its driver skills and/or safe driving classes within the past ten (10) years? If 'Yes,' why were the modifications/improvements made and please provide a brief description of these changes/improvements.**

   - Yes
   - No

8. **What are the top three practices that your Department considers to be the *most* effective or beneficial in promoting safer driving? Please provide a brief explanation.**

   1. A more strict point system for the beginning driver.

   2. Counseling by a hearing officer.

   3. Sanctions without limited driving attached.

9. What are the top three practices that your Department considers to be the *least* effective or beneficial in promoting safer driving? Please provide a brief explanation.

N/A

10. May we contact you if we have additional questions or need to clarify your responses? If yes, please provide your name, title, organization, phone and/or e-mail address.

11. Would you like a copy of the results of our study?

- ○ Yes
- ● No

Appendix B: Violations: Categories, Codes, and Descriptions

Table B1. Vehicle Violations – License Restriction (Category 1)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
A3742.1	ARD ACC DEATH/INJ NO LIC	ARD ACCIDENTAL DEATH/INJURY NO LIC
A1371	ARD-DRIVE WHILE SUSP/REVO	ARD-DRIVE WHILE SUSP/REVO
A1543	ARD-DRIVE WHILE SUSP/REVO	ARD-DRIVE WHILE SUSP/REVO
A1543A	ARD-DRIVE WHILE SUSP/REVO	ARD-DRIVE WHILE SUSP/REVO
A1606A	ARD-DRVNG CMV WITHOUT CDL	ARD-DRIVING COMMERCIAL MOTOR VEHICLE WITHOUT CDL
A1606C1I	ARD-DRVNG CMV WTH PRV REM	ARD-DRIVING COMMERCIAL MOTOR VEHICLE WTH PRV REM
A1606C12	ARD-DRVNG CMV WTH PRV SUS	ARD-DRIVING COMMERCIAL MOTOR VEHICLE WTH PRV SUS
A1543B	ARD-DRVNG UNDR ALC SUSP	ARD-DRIVING UNDR ALC SUSP
A1606C13	ARD-DRVNG WHL OOSO IN EFF	ARD-DRIVING WHL OOSO IN EFF
A1543B11	ARD-DRVNG WHL SUS-ALC/DRG	ARD-DRIVING WHL SUS-ALC/DRG
A1501A	ARD-OPER MUST BE LICENSED	ARD-OPER MUST BE LICENSED
1503C	CURFEW VIOLATION	CURFEW VIOLATION
1503C1	CURFEW VIOLATION	CURFEW VIOLATION
1503C2	CURFEW VIOLATION	CURFEW VIOLATION
1371	DRIVE WHILE REG.SUSP/REVO	DRIVE WHILE REG.SUSP/REVO
1606A	DRIVING CMV WITHOUT CDL	DRIVING COMMERCIAL MOTOR VEHICLE WITHOUT CDL
1543	DRIVING WHILE SUSP/REVOKE	DRIVING WHILE SUSP/REVOKE
1543A	DRIVING WHILE SUSP/REVOKE	DRIVING WHILE SUSP/REVOKE
1432A	DRIVING WHILE SUSPENDED	DRIVING WHILE SUSPENDED
1543R	DRIVING WHILE UNDER REVOC	DRIVING WHILE UNDER REVOC
1543S	DRIVING WHILE UNDER SUSP	DRIVING WHILE UNDER SUSP
1543X	DRIVING WHILE UNDER SUSP	DRIVING WHILE UNDER SUSP
6246	DRVING W/ SUSP/REVO	DRIVING W/ SUSP/REVO
1606C1	DRVNG CMV WITH PRIV REMOV	DRIVING COMMERCIAL MOTOR VEHICLE WITH PRIV REMOV
1606C1I	DRVNG CMV WITH PRIV REMOV	DRIVING COMMERCIAL MOTOR VEHICLE WITH PRIV REMOV
1606C1II	DRVNG CMV WITH PRIV SUSP	DRIVING COMMERCIAL MOTOR VEHICLE WITH PRIV SUSP
1543B	DRVNG UNDR ALCHOL REL SUS	DRIVING UNDR ALCHOL REL SUS
1543B1.1	DRVNG UNDR SUSP ALC/DRUG	DRIVING UNDR SUSP ALC/DRUG
6247	DRVNG W/ REGIS SUSP/REVO	DRIVING W/ REGIS SUSP/REVO
B21	DRVNG W/LIC BARRED	DRIVING W/LIC BARRED
B22	DRVNG W/LIC CNCLLD	DRIVING W/LIC CNCLLD
B20	DRVNG W/LIC WITHDRWN	DRIVING W/LIC WITHDRWN
B23	DRVNG WHILE LIC DEN	DRIVING WHILE LIC DEN
B24	DRVNG WHILE LIC DISQ	DRIVING WHILE LIC DISQ
B25	DRVNG WHILE LIC REV	DRIVING WHILE LIC REV
B26	DRVNG WHILE LIC SUSP	DRIVING WHILE LIC SUSP
1606C13	DRVNG WHL OOSO IN EFFECT	DRIVING WHL OOSO IN EFFECT
B51	EXPIRED OR NO DL	EXPIRED OR NO DRIVERS LICENSE
606A	LEARNER PERMIT USAGEVIOLT	LEARNER PERMIT USAGEVIOLT

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
1501	NO LICENSE	NO LICENSE
4962	NO TRIP PERMIT	NO TRIP PERMIT
616B	OPER UNDER REVOCATION	OPER UNDER REVOCATION
1501A	OPERATOR MUST BE LICENSED	OPERATOR MUST BE LICENSED
601A	OPERATOR MUST BE LICENSED	OPERATOR MUST BE LICENSED
601B	OPERATOR MUST BE LICENSED	OPERATOR MUST BE LICENSED
6241	TO DISPLAY SUSPENDEDLIC	TO DISPLAY SUSPENDEDLIC
A1512	VIOLATE RESTRICTED LICENS	VIOLATE RESTRICTED LICENS
1512	VIOLATION OF RESTRICTION	VIOLATION OF RESTRICTION
88.3A	FAILURE TO MAINTAIN II	FAILURE TO MAINTAIN II
B91	IMPROP CLASS ON DL	IMPROPER CLASS ON DRIVERS LICENSE
A3808B	ARD-INTERLOCK TAMPERING	ARD-INTERLOCK TAMPERING
A41	DRVR VIOL ING INTRLK	DRVR VIOLATION ING INTRLK
3808B	INTERLOCK TAMPERING	INTERLOCK TAMPERING
7514B	INTERLOCK TAMPERING	INTERLOCK TAMPERING
7514A	NO IGNITION INTERLOCK	NO IGNITION INTERLOCK
9999	1575 WITH NO VIOLATNCODE	1575 WITH NO VIOLATNCODE
3742.1	ACCD INV DEATH/INJ NO LIC	ACCIDENTAL INVOLUNTARY DEATH/INJURY NO LIC
A3808A1	ARD-DRIVING W/O II	ARD-DRIVING W/O II
3808A1	DRIVING W/O II	DRIVING W/O II
3815C4	TREATMENT VIOLATION	TREATMENT VIOLATION
88.4B	UNAUTH REMOVAL OF II	UNAUTH REMOVAL OF II
1554H1	VIOL CONCERNING PL LICENS	VIOLATION CONCERNING PL LICENS
A1553F	VIOLATE OLL	VIOLATE OLL
A1554H1	VIOLATE PROBATIONARYLIC	VIOLATE PROBATIONARYLIC
1553F	VIOLATED OLL	VIOLATED OLL
1571	VIOLS CONCERNING LICENSES	VIOLS CONCERNING LICENSES

Table B2. Vehicle Violations – Failure to Stop / Yield (Category 2)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
A3341A	ARD - FAIL TO STOP AT RR	ARD - FAILURE TO STOP AT RAILROAD
A3342A	ARD - FAIL TO STOP AT RR	ARD - FAILURE TO STOP AT RAILROAD
A3342B	ARD - FAIL TO STOP AT RR	ARD - FAILURE TO STOP AT RAILROAD
A3342E	ARD - FAIL TO STOP AT RR	ARD - FAILURE TO STOP AT RAILROAD
A3742B4	ARD FL TO STOP/CONTRB DTH	ARD FAILURE TO STOP/CONTRB DTH
A1027A	ARD-FAIL TO STOP	ARD-FAILURE TO STOP
1027A	FAIL TO STOP AT ACCIDENT	FAILURE TO STOP AT ACCIDENT
3342A	FAIL TO STOP RR CROSSING	FAILURE TO STOP RAILROAD CROSSING
3342B	FAIL TO STOP RR CROSSING	FAILURE TO STOP RAILROAD CROSSING
3342E	FAIL TO STOP RR CROSSING	FAILURE TO STOP RAILROAD CROSSING
3742B4	FAIL TO STOP/CONTRIBS DTH	FAILURE TO STOP/CONTRIBS DTH
A3344	FAILURE TO STOP	FAILURE TO STOP
1027D	FAILURE TO STOP	FAILURE TO STOP
3344	FAILURE TO STOP	FAILURE TO STOP
P341A	FAILURE TO STOP AT RR	FAILURE TO STOP AT RAILROAD
3341A	FAILURE TO STOP AT RR	FAILURE TO STOP AT RAILROAD
A3302	FAILURE TO YIELD	FAILURE TO YIELD
A3321	FAILURE TO YIELD	FAILURE TO YIELD
A3322	FAILURE TO YIELD	FAILURE TO YIELD
A3323C	FAILURE TO YIELD	FAILURE TO YIELD
A3324	FAILURE TO YIELD	FAILURE TO YIELD
1009A	FAILURE TO YIELD	FAILURE TO YIELD
3302	FAILURE TO YIELD	FAILURE TO YIELD
3321	FAILURE TO YIELD	FAILURE TO YIELD
3322	FAILURE TO YIELD	FAILURE TO YIELD
3323C	FAILURE TO YIELD	FAILURE TO YIELD
3324	FAILURE TO YIELD	FAILURE TO YIELD
A3114A1	FLASHING RED LIGHT VIOL	FLASHING RED LIGHT VIOL
3114A1	FLASHING RED LIGHT VIOL	FLASHING RED LIGHT VIOL
3542	FTY ROW AT CROSSWALK	FAILURE TO YIELD ROW AT CROSSWALK
N21	FTY ROW AT ROTARY	FAILURE TO YIELD ROW AT ROTARY
N22	FTY ROW AT STOP SGN	FAILURE TO YIELD ROW AT STOP SGN
N24	FTY ROW AT TRAF SGNL	FAILURE TO YIELD ROW AT TRAFFIC SGNL
N23	FTY ROW AT TRAFF SGN	FAILURE TO YIELD ROW AT TRAFF SGN
N26	FTY ROW AT YIELD SGN	FAILURE TO YIELD ROW AT YIELD SGN
N05	FTY ROW FUNRL/PARADE	FAILURE TO YIELD ROW FUNRL/PARADE
N09	FTY ROW SCHOOL BUS	FAILURE TO YIELD ROW SCHOOL BUS
N02	FTY ROW TO ANML VEHC	FAILURE TO YIELD ROW TO ANML VEHC
N03	FTY ROW TO CYCLIST	FAILURE TO YIELD ROW TO CYCLIST
N25	FTY ROW UNSGND INTER	FAILURE TO YIELD ROW UNSGND INTER
N30	FTY ROW WARNING DISP	FAILURE TO YIELD ROW WARNING DISP
N31	FTY ROW WHEN TURNING	FAILURE TO YIELD ROW WHEN TURNING
A3325	FTY TO EMERGENCY VEHICLE	FAILURE TO YIELD TO EMERGENCY VEHICLE
3325	FTY TO EMERGENCY VEHICLE	FAILURE TO YIELD TO EMERGENCY VEHICLE

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
A3112A3I	RED LIGHT VIOLATION	RED LIGHT VIOLATION
A3112A32	RED LIGHT VIOLATION	RED LIGHT VIOLATION
3112A3I	RED LIGHT VIOLATION	RED LIGHT VIOLATION
3112A3II	RED LIGHT VIOLATION	RED LIGHT VIOLATION
A3323B	STOP SIGN VIOLATION	STOP SIGN VIOLATION
1016A	STOP SIGN VIOLATION	STOP SIGN VIOLATION
1016B	STOP SIGN VIOLATION	STOP SIGN VIOLATION
3323B	STOP SIGN VIOLATION	STOP SIGN VIOLATION
A3343A	ARD - FAIL TO OBEY AT RR	ARD - FAILURE TO OBEY AT RAILROAD
A3341B1	ARD-CROSSING GATE VIOL	ARD-CROSSING GATE VIOL
A3341B2	ARD-CROSSING GATE VIOL	ARD-CROSSING GATE VIOL
A3343C	ARD-MVNG HVY EQUIP AT RR	ARD-MVNG HVY EQUIPMENT AT RAILROAD
A3343D	ARD-MVNG HVY EQUIP AT RR	ARD-MVNG HVY EQUIPMENT AT RAILROAD
1039B	BLIND PEDESTRIAN	BLIND PEDESTRIAN
3341B	CROSSING GATE VIOLATION	CROSSING GATE VIOLATION
3341B1	CROSSING GATE VIOLATION	CROSSING GATE VIOLATION
3341B2	CROSSING GATE VIOLATION	CROSSING GATE VIOLATION
A3341	FAILURE TO OBEY AT RR	FAILURE TO OBEY AT RAILROAD
3341	FAILURE TO OBEY AT RR	FAILURE TO OBEY AT RAILROAD
3343A	FAILURE TO OBEY AT RR	FAILURE TO OBEY AT RAILROAD
3113	FTO PED CNTL DEVICE	FAILURE TO OBEY PED CNTL DEVICE
3343C	MVNG HVY EQUIP AT RRGC	MVNG HVY EQUIPMENT AT RAILROADGC
3343D	MVNG HVY EQUIP AT RRGC	MVNG HVY EQUIPMENT AT RAILROADGC
A3542A	PEDESTRIAN RIGHT-OF-WAY	PEDESTRIAN RIGHT-OF-WAY
A3547	PEDESTRIAN RIGHT-OF-WAY	PEDESTRIAN RIGHT-OF-WAY
A3549A	PEDESTRIAN RIGHT-OF-WAY	PEDESTRIAN RIGHT-OF-WAY
3542A	PEDESTRIAN RIGHT-OF-WAY	PEDESTRIAN RIGHT-OF-WAY
3547	PEDESTRIAN RIGHT-OF-WAY	PEDESTRIAN RIGHT-OF-WAY
3549A	PEDESTRIAN RIGHT-OF-WAY	PEDESTRIAN RIGHT-OF-WAY
1003	RAILROAD WARNING SIGNALS	RAILROAD WARNING SIGNALS
3342G	REQ UPON APROCHNG TRACKS	REQ UPON APROCHNG TRACKS
1013B	RIGHT OF WAY	RIGHT OF WAY
1013C	RIGHT OF WAY	RIGHT OF WAY
1028A	TRAFFIC LIGHT VIOLATION	TRAFFIC LIGHT VIOLATION
W60	TWO OR MORE RRGC VIOLS	TWO OR MORE RAILROADGC VIOLS
1014A	EXCEPTION TO RIGHT OF WAY	EXCEPTION TO RIGHT OF WAY
1014C	EXCEPTION TO RIGHT OF WAY	EXCEPTION TO RIGHT OF WAY

Table B3. Vehicle Violations – Speeding (Category 3)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
A3362	ARD-EXCEEDING MAX SPEED	ARD-EXCEEDING MAX SPEED
A3365B	ARD-SPEC SPEED LIMITATNS	ARD-SPEC SPEED LIMITATNS
A3365C.1	ARD-SPEEDING IN ACTIVE WZ	ARD-SPEEDING IN ACTIVE WZ
A3365A	ARD-SPEEDING OVER BRIDGE	ARD-SPEEDING OVER BRIDGE
A3365C	ARD-TRK SPEED ON DWNGRDS	ARD-TRK SPEED ON DWNGRDS
1002B1	EXCEEDING MAX SPEED-1002B	EXCEEDING MAX SPEED-1002B
1002B11	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B3	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B4	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B42	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B5	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B6	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B61	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B62	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B64	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B7	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B72	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B8	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B9	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362A	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362B	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362C	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362D	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362E	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362F	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362G	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362H	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362I	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
3362J	EXCEEDING MAXIMUM SPEED	EXCEEDING MAXIMUM SPEED
1002B	EXCEEDING SPEED LIMIT	EXCEEDING SPEED LIMIT
A3364	MINIMUM SPEED	MINIMUM SPEED
3364	MINIMUM SPEED	MINIMUM SPEED
3365B	SPECIAL SPEED LIMITATIONS	SPECIAL SPEED LIMITATIONS
A3327A2	SPEED IN EMERGENCY-AREA	SPEED IN EMERGENCY-AREA
3327A2	SPEED IN EMERGENCY-AREA	SPEED IN EMERGENCY-AREA
1002C	SPEEDING BUS OR TRUCK	SPEEDING BUS OR TRUCK
1002C1	SPEEDING BUS OR TRUCK	SPEEDING BUS OR TRUCK
1002C3	SPEEDING BUS OR TRUCK	SPEEDING BUS OR TRUCK
A3308C.1	SPEEDING DOWNGRADE	SPEEDING DOWNGRADE
3308C.1	SPEEDING DOWNGRADE	SPEEDING DOWNGRADE
3365C.1	SPEEDING IN ACTIVE WZ	SPEEDING IN ACTIVE WZ
1002B2	SPEEDING IN SCHOOL ZONE	SPEEDING IN SCHOOL ZONE
S98	SPEEDING ON FREEWAY	SPEEDING ON FREEWAY
3365A	SPEEDING OVER BRIDGE	SPEEDING OVER BRIDGE

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
S97	SUDDENLY CHNGNG SPD	SUDDENLY CHNGNG SPD
A3361	TOO FAST FOR CONDITIONS	TOO FAST FOR CONDITIONS
1002A	TOO FAST FOR CONDITIONS	TOO FAST FOR CONDITIONS
3361	TOO FAST FOR CONDITIONS	TOO FAST FOR CONDITIONS
3365C	TRUCK SPEED ON DOWNGRADES	TRUCK SPEED ON DOWNGRADES

Table B4. Vehicle Violations – Improper Driving (Category 4)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
W41	ADD MAJOR AFTER REINSTATE	ADD MAJOR AFTER REINSTATE
A3742B2	ARD ACCID SERIOUS INJURY	ARD ACCIDENTAL SERIOUS INJURY
A3742B3	ARD ACCID VICTIM DIES	ARD ACCIDENTAL VICTIM DIES
A3714B	ARD-CARELESS DRIV DEATH	ARD-CARELESS DRIVING DEATH
A3714C	ARD-CARELESS DRIV INJURY	ARD-CARELESS DRIVING INJURY
A1041A	ARD-DRAG RACING	ARD-DRAG RACING
A3309.2	ARD-DSRGRD TRAF LN-3LANE	ARD-DISREGARD TRAFFIC LN-3LANE
A3309.4	ARD-DSRGRD TRAF LN-PROHBT	ARD-DISREGARD TRAFFIC LN-PROHBT
A3309.1	ARD-DSRGRD TRAF LN-SNGLE	ARD-DISREGARD TRAFFIC LN-SNGLE
A3733	ARD-FLEE POLICE OFFICER	ARD-FLEE POLICE OFFICER
A3310	ARD-FOLLOWING TOO CLOSELY	ARD-FOLLOWING TOO CLOSELY
A3732	ARD-HOMICIDE BY VEHICLE	ARD-HOMICIDE BY VEHICLE
A3304	ARD-IMPROPER PASSING	ARD-IMPROPER PASSING
A3305	ARD-IMPROPER PASSING	ARD-IMPROPER PASSING
A3306A1	ARD-IMPROPER PASSING	ARD-IMPROPER PASSING
A3306A2	ARD-IMPROPER PASSING	ARD-IMPROPER PASSING
A3306A3	ARD-IMPROPER PASSING	ARD-IMPROPER PASSING
A3307	ARD-IMPROPER PASSING	ARD-IMPROPER PASSING
A3743	ARD-LEAVING SCENE OFACCD.	ARD-LEAVING SCENE OFACCD.
A3745	ARD-LEAVING SCENE OFACCD.	ARD-LEAVING SCENE OFACCD.
A6245	ARD-OPER WITHOUT CONSENT	ARD-OPER WITHOUT CONSENT
A3367	ARD-RACING ON HIGHWAYS	ARD-RACING ON HIGHWAYS
A3736	ARD-RECKLESS DRIVING	ARD-RECKLESS DRIVING
A3342G	ARD-REQ APRCH TRACKS	ARD-REQ APRCH TRACKS
A3717C	ARD-TRESPASS BY MV	ARD-TRESPASS BY MOVING VEHICLE
A3717D	ARD-TRESPASS BY MV	ARD-TRESPASS BY MOVING VEHICLE
A3503B1	ARD-TRESPASSING	ARD-TRESPASSING
A3714	CARELESS DRIVING	CARELESS DRIVING
A3714A	CARELESS DRIVING	CARELESS DRIVING
M80	CARELESS DRIVING	CARELESS DRIVING
3714	CARELESS DRIVING	CARELESS DRIVING
3714A	CARELESS DRIVING	CARELESS DRIVING
3714B	CARELESS DRIVING DEATH	CARELESS DRIVING DEATH
3714C	CARELESS DRIVING INJURY	CARELESS DRIVING INJURY
3736P	CERTIFIED RECKLESS	CERTIFIED RECKLESS
U09	CMV NEGLIGENT HOMICIDE	COMMERCIAL MOTOR VEHICLE NEGLIGENT HOMICIDE
N80	COASTING	COASTING
3503A1	CRIMINAL TRESPASS	CRIMINAL TRESPASS
4107B	DAM/TAMP VEH EQUIP	DAM/TAMP VEHICLE EQUIP
4523B	DEFECT EXHAUST SYSTEM	DEFECT EXHAUST SYSTEM
4107	DEFECTIVE EQUIP	DEFECTIVE EQUIP
A3309.3	DISREGARD TRAFFIC LANE	DISREGARD TRAFFIC LANE
3309.3	DISREGARD TRAFFIC LANE	DISREGARD TRAFFIC LANE

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
ARD1041	DRAG RACES PROHIBITD1041	DRAG RACES PROHIBITD1041
1041	DRAG RACES PROHIBITED	DRAG RACES PROHIBITED
3309	DRIV ON ROAD LANE FOR TRF	DRIVING ON ROAD LANE FOR TRF
1006	DRIVE ON RIGHT SIDE	DRIVE ON RIGHT SIDE
A3546	DRIVE THROUGH SAFETYZONE	DRIVE THROUGH SAFETYZONE
3546	DRIVE THROUGH SAFETYZONE	DRIVE THROUGH SAFETYZONE
A3311	DRIVING ON DIVIDED HWY	DRIVING ON DIVIDED HWY
3311	DRIVING ON DIVIDED HWY	DRIVING ON DIVIDED HWY
A3301	DRIVING RIGHT SIDE ROAD	DRIVING RIGHT SIDE ROAD
3301	DRIVING RIGHT SIDE ROAD	DRIVING RIGHT SIDE ROAD
A3308B	DRIVING WRONG WAY	DRIVING WRONG WAY
3308B	DRIVING WRONG WAY	DRIVING WRONG WAY
A3308C	DRIVING WRONG WAY ROTARY	DRIVING WRONG WAY ROTARY
3308C	DRIVING WRONG WAY ROTARY	DRIVING WRONG WAY ROTARY
3734P	DRV WITHOUT LIGHTS DLCC	DRIVING WITHOUT LIGHTS DRIVERS LICENSECC
3734N	DRV WITHOUT LIGHTS DLCN	DRIVING WITHOUT LIGHTS DRIVERS LICENSECN
D75	DRVNG PHYS/MNTL DIS	DRIVING PHYS/MNTL DIS
D74	DRVNG WHILE DROWSY	DRIVING WHILE DROWSY
3309.2	DSRGRD TRAF LANE-3 LANE	DISREGARD TRAFFIC LANE-3 LANE
3309.4	DSRGRD TRAF LANE-PROHIBIT	DISREGARD TRAFFIC LANE-PROHIBIT
3309.1	DSRGRD TRAF LANE-SINGLE	DISREGARD TRAFFIC LANE-SINGLE
E70	EQUIP USED IMPRPRLY	EQUIPMENT USED IMPRPRLY
M41	FAIL KEEP PROPER LNE	FAILURE KEEP PROPER LNE
4530B	FAIL PLACE RED FLAGS	FAILURE PLACE RED FLAGS
3709B	FAIL RMVE WSTE FR HWY	FAILURE RMVE WSTE FR HWY
501	FAIL TO MANTAIN SECURITY	FAILURE TO MANTAIN SECURITY
M02	FAIL TO OBEY BARRIER	FAILURE TO OBEY BARRIER
1221D	FAIL TO OBEY POLICE	FAILURE TO OBEY POLICE
A3102	FAILURE TO OBEY	FAILURE TO OBEY
3102	FAILURE TO OBEY	FAILURE TO OBEY
U03	FELONY IN A MV	FELONY IN A MOVING VEHICLE
2901	FELONY IN A MV	FELONY IN A MOVING VEHICLE
3121	FELONY IN A MV	FELONY IN A MOVING VEHICLE
3733P	FLEEING POLICE DLCC	FLEEING POLICE DRIVERS LICENSECC
3733N	FLEEING POLICE DLCN	FLEEING POLICE DRIVERS LICENSECN
3733	FLEEING POLICE OFFICER	FLEEING POLICE OFFICER
M32	FOLLOW EMERGENCY VEH	FOLLOW EMERGENCY VEH
M30	FOLLOWING IMPROPERLY	FOLLOWING IMPROPERLY
1010	FOLLOWING TOO CLOSELY	FOLLOWING TOO CLOSELY
1010A	FOLLOWING TOO CLOSELY	FOLLOWING TOO CLOSELY
1010B	FOLLOWING TOO CLOSELY	FOLLOWING TOO CLOSELY
3310	FOLLOWING TOO CLOSELY	FOLLOWING TOO CLOSELY
M05	FTO LANE MARK/SIGNAL	FAILURE TO OBEY LANE MARK/SIGNAL
M11	FTO RESTRICTED LANE	FAILURE TO OBEY RESTRICTED LANE
M09	FTO RR XNG RESTRICT	FAILURE TO OBEY RAILROAD XNG RESTRICT

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
1602	FTO RULES/REGULATION	FAILURE TO OBEY RULES/REGULATION
E57	FTU SNOW TIRES/CHAIN	FTU SNOW TIRES/CHAIN
N44	GIVING WRONG SIGNAL	GIVING WRONG SIGNAL
3711	HANGING ON VEHICLE	HANGING ON VEHICLE
3732P	HOMICIDE BY VEH DLCC	HOMICIDE BY VEHICLE DRIVERS LICENSECC
3732N	HOMICIDE BY VEH DLCN	HOMICIDE BY VEHICLE DRIVERS LICENSECN
3732	HOMICIDE BY VEHICLE	HOMICIDE BY VEHICLE
U21	ILL OPER EMERG VEH	ILLEGAL OPER EMERG VEH
6126	ILLEGAL TRAF CNTL DEV	ILLEGAL TRAFFIC CNTL DEV
A3702	IMPROPER BACKING	IMPROPER BACKING
3702	IMPROPER BACKING	IMPROPER BACKING
M61	IMPROP LN CTR LINE	IMPROPER LANE CTR LINE
M56	IMPROP LN FIRE HOSE	IMPROPER LANE FIRE HOSE
M62	IMPROP LN IN TURN LN	IMPROPER LANE IN TURN LN
M57	IMPROP LN ONCOM TRAF	IMPROPER LANE ONCOM TRAF
M58	IMPROP LN SHLDR/SW	IMPROPER LANE SHLDR/SW
M60	IMPROP LN SLOW VEH	IMPROPER LANE SLOW VEH
A3522	IMPROP MTRCYCLE RIDE	IMPROPER MTRCYCLE RIDE
3522	IMPROP MTRCYCLE RIDE	IMPROPER MTRCYCLE RIDE
M42	IMPROPER LANE CHANGES	IMPROPER LANE CHANGES
1007	IMPROPER OVERTAKING	IMPROPER OVERTAKING
A3303	IMPROPER PASSING	IMPROPER PASSING
M70	IMPROPER PASSING	IMPROPER PASSING
1008A	IMPROPER PASSING	IMPROPER PASSING
1008B	IMPROPER PASSING	IMPROPER PASSING
1008C	IMPROPER PASSING	IMPROPER PASSING
1008E	IMPROPER PASSING	IMPROPER PASSING
3303	IMPROPER PASSING	IMPROPER PASSING
3304	IMPROPER PASSING	IMPROPER PASSING
3305	IMPROPER PASSING	IMPROPER PASSING
3306A1	IMPROPER PASSING	IMPROPER PASSING
3306A2	IMPROPER PASSING	IMPROPER PASSING
3306A3	IMPROPER PASSING	IMPROPER PASSING
3307	IMPROPER PASSING	IMPROPER PASSING
N83	IMPROPER STARTING	IMPROPER STARTING
A3331	IMPROPER TURN	IMPROPER TURN
N50	IMPROPER TURN	IMPROPER TURN
3331	IMPROPER TURN	IMPROPER TURN
A3332	IMPROPER TURNING AROUND	IMPROPER TURNING AROUND
3332	IMPROPER TURNING AROUND	IMPROPER TURNING AROUND
M55	IMPRP LN ON RAIL TRK	IMPRP LANE ON RAIL TRK
D72	INABLTY TO CTRL VEH	INABLTY TO CTRL VEH
3743	LEAVING SCENE OF ACCIDENT	LEAVING SCENE OF ACCIDENT
3709	LITTERING FROM A MV	LITTERING FROM A MOVING VEHICLE
4523C	MAKING EXCESS NOISE	MAKING EXCESS NOISE
M83	NEGLIGENT DRIVING	NEGLIGENT DRIVING

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
4703	NO EMIS OR VEH INSP	NO EMIS OR VEHICLE INSP
4924	NO WARNG/PRJCTNG LOAD	NO WARNG/PRJCTNG LOAD
3705	OPN VEH DOOR IN MOTION	OPN VEHICLE DOOR IN MOTION
A3304A1	OVERTAKNG VEHCLE ON RIGHT	OVERTAKNG VEHCLE ON RIGHT
3304A1	OVERTAKNG VEHCLE ON RIGHT	OVERTAKNG VEHCLE ON RIGHT
1020A	PARKING ON HIGHWAY	PARKING ON HIGHWAY
M77	PASS INSUF DISTANCE	PASS INSUF DISTANCE
M76	PASS WHR PROHIBITED	PASS WHR PROHIBITED
A3719	PASSENGER IN OPEN TRUCK	PASSENGER IN OPEN TRUCK
3719	PASSENGERS IN OPEN TRUCK	PASSENGERS IN OPEN TRUCK
A3345A	PASSING A SCHOOL BUS	PASSING A SCHOOL BUS
3345A	PASSING A SCHOOL BUS	PASSING A SCHOOL BUS
A3327A1	PASSING IN EMERGENCY-AREA	PASSING IN EMERGENCY-AREA
3327A1	PASSING IN EMERGENCY-AREA	PASSING IN EMERGENCY-AREA
1018	PASSING SCHOOL BUS	PASSING SCHOOL BUS
M74	PASSNG ON HILL/CURVE	PASSNG ON HILL/CURVE
M73	PASSNG ON WRONG SIDE	PASSNG ON WRONG SIDE
D78	PERJURY IN OPER MV	PERJURY IN OPER MOVING VEHICLE
3367	RACING ON HIGHWAYS	RACING ON HIGHWAYS
M43	RAN OFF ROAD	RAN OFF ROAD
1001	RECKLESS DRIVING	RECKLESS DRIVING
10011	RECKLESS DRIVING	RECKLESS DRIVING
1011B	RECKLESS DRIVING	RECKLESS DRIVING
1011D	RECKLESS DRIVING	RECKLESS DRIVING
3714Z	RECKLESS DRIVING	RECKLESS DRIVING
3736	RECKLESS DRIVING	RECKLESS DRIVING
3736N	RECKLESS DRIVING DLCN	RECKLESS DRIVING DRIVERS LICENSECN
4903	SECURING LOADS ON VEH	SECURING LOADS ON VEH
W52	THREE OR MORE OOSO HZ VIO	THREE OR MORE OOSO HAZMAT VIO
W61	THREE OR MORE RRGC VIOLS	THREE OR MORE RAILROADGC VIOLS
W31	THREE STO WITHIN 3 YEARS	THREE STO WITHIN 3 YEARS
A3707	TOO CLOSE EMERG VEH	TOO CLOSE EMERG VEH
3707	TOO CLOSE EMERG VEH	TOO CLOSE EMERG VEH
4905	TOW/PUSH VEH IMPROPER	TOW/PUSH VEHICLE IMPROPER
A3111	TRAFFIC-CNTROL VIOL	TRAFFIC-CNTROL VIOL
3111	TRAFFIC-CNTROL VIOL	TRAFFIC-CNTROL VIOL
3717C	TRESPASS BY MOTOR VEHICLE	TRESPASS BY MOTOR VEHICLE
3717D	TRESPASS BY MOTOR VEHICLE	TRESPASS BY MOTOR VEHICLE
3503B1	TRESPASSING	TRESPASSING
3717	TRESSPASS BY MV	TRESSPASS BY MOVING VEHICLE
W40	TWO OR MORE MAJORS	TWO OR MORE MAJORS
W51	TWO OR MORE OOSO HZ VIOLS	TWO OR MORE OOSO HAZMAT VIOLS
W50	TWO OR MORE OOSO VIOLS	TWO OR MORE OOSO VIOLS
W30	TWO STO WITHIN 3 YEARS	TWO STO WITHIN 3 YEARS
1028B4	U TURN VIOLATION	U TURN VIOLATION

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
4571	UNAUTH USE OF LIGHTSEM	UNAUTH USE OF LIGHTSEM
E23	UNAUTH USE OF RADAR	UNAUTH USE OF RADAR
N84	UNSAFE OPERATION	UNSAFE OPERATION
4103	VEH EQUIP STANDARDS	VEHICLE EQUIPMENT STANDARDS
U06	VEHICULAR ASSAULT	VEHICULAR ASSAULT
M71	VIOL NO PASSING ZONE	VIOLATION NO PASSING ZONE
M72	VIOL OPPOS DIR RESTR	VIOLATION OPPOS DIR RESTR
U31	VIOL RESULTING IN FATALTY	VIOLATION RESULTING IN FATALTY
3742	ACCID INV DEATH OR INJURY	ACCIDENTAL INVOLUNTARY DEATH OR INJURY
3742A	ACCID INV DEATH OR INJURY	ACCIDENTAL INVOLUNTARY DEATH OR INJURY
3742B1	ACCID INV DEATH OR INJURY	ACCIDENTAL INVOLUNTARY DEATH OR INJURY
3742B2	ACCID SERIOUS BDLY INJURY	ACCIDENTAL SERIOUS BODILY INJURY
3742B3	ACCID VICTIM DIES	ACCIDENTAL VICTIM DIES
W01	ACCUM CONVICTIONS	ACCUM CONVICTIONS
2702A1	AGGRAVATED ASSAULT	AGGRAVATED ASSAULT
2702A4	AGGRAVATED ASSAULT	AGGRAVATED ASSAULT
2702A2	AGGRAVATED ASSAULT-POLICE	AGGRAVATED ASSAULT-POLICE
626	ALLOW UNAUTH USE OF VEHIC	ALLOW UNAUTH USE OF VEHIC
A3742	ARD ACC INV DEATH/INJURY	ARD ACCIDENTAL INVOLUNTARY DEATH/INJURY
A3742A	ARD ACC INV DEATH/INJURY	ARD ACCIDENTAL INVOLUNTARY DEATH/INJURY
A3742B1	ARD ACC INV DEATH/INJURY	ARD ACCIDENTAL INVOLUNTARY DEATH/INJURY
A2702A1	ARD-AGGRAVATED ASSAULT	ARD-AGGRAVATED ASSAULT
A2702A2	ARD-AGGRAVATED ASSAULT	ARD-AGGRAVATED ASSAULT
A2702A4	ARD-AGGRAVATED ASSAULT	ARD-AGGRAVATED ASSAULT
A1038	ARD-DRIVE WITHOUT LIGHTS	ARD-DRIVE WITHOUT LIGHTS
A3734	ARD-DRIVE WITHOUT LIGHTS	ARD-DRIVE WITHOUT LIGHTS
A2504	ARD-INVOLUNTARY MANSLGHTR	ARD-INVOLUNTARY MANSLGHTR
A2502	ARD-MURDER	ARD-MURDER
A2705	ARD-RECKLESS ENDANGERMNT	ARD-RECKLESS ENDANGERMNT
A2503	ARD-VOLUNTARY MANSLAUGHTR	ARD-VOLUNTARY MANSLAUGHTR
901	CRIMINAL ATTEMPT	CRIMINAL ATTEMPT
903	CRIMINAL CONSPIRACY	CRIMINAL CONSPIRACY
2501	CRIMINAL HOMICIDE	CRIMINAL HOMICIDE
ARD3304	CRIMINAL MISCHIEF	CRIMINAL MISCHIEF
3304M	CRIMINAL MISCHIEF	CRIMINAL MISCHIEF
1038	DRIVING WITHOUT LIGHTS	DRIVING WITHOUT LIGHTS
3734	DRIVING WITHOUT LIGHTS	DRIVING WITHOUT LIGHTS
3326	DUTY OF DRVR IN CONSTAREA	DUTY OF DRVR IN CONSTAREA
N41	FAIL CANC DIR SIGNAL	FAILURE CANC DIR SIGNAL

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
N42	FAIL SIGNL INTNT PSS	FAILURE SIGNL INTNT PSS
A4302	FAIL TO USE LIGHTS	FAILURE TO USE LIGHTS
4302	FAIL TO USE LIGHTS	FAILURE TO USE LIGHTS
E50	FAIL USE EQUIP AS RQ	FAILURE USE EQUIPMENT AS RQ
4305	FAIL USE HAZ EQUIP	FAILURE USE HAZ EQUIP
U10	FATALTY-NEGLIGNT CMVOPER	FATALTY-NEGLIGNT CMVOPER
A8306	HAZMAT VIOLATION	HAZMAT VIOLATION
8306	HAZMAT VIOLATION	HAZMAT VIOLATION
A4306	IMP HIGH BEAMS	IMPROPER HIGH BEAMS
4306	IMP HIGH BEAMS	IMPROPER HIGH BEAMS
M47	IMPROP LANE BICYCLE	IMPROPER LANE BICYCLE
M44	IMPROP LANE CROSSOVR	IMPROPER LANE CROSSOVR
M45	IMPROP LANE CROSSWLK	IMPROPER LANE CROSSWLK
M46	IMPROP LANE ENT/EXIT	IMPROPER LANE ENT/EXIT
M49	IMPROP LANE HOV RSTR	IMPROPER LANE HOV RSTR
M50	IMPROP LANE LIM ACCS	IMPROPER LANE LIM ACCS
M51	IMPROP LANE MEDIAN	IMPROPER LANE MEDIAN
M48	IMPROP LANE OCCUPIED	IMPROPER LANE OCCUPIED
M40	IMPROP LANE OR LOCAT	IMPROPER LANE OR LOCAT
A3525	IMPROP MTRCYCLE EQUIP	IMPROPER MTRCYCLE EQUIP
3525	IMPROP MTRCYCLE EQUIP	IMPROPER MTRCYCLE EQUIP
A4107B2	IMPROPER EQUIPMENT	IMPROPER EQUIPMENT
4107B2	IMPROPER EQUIPMENT	IMPROPER EQUIPMENT
A4525	IMPROPER TIRES	IMPROPER TIRES
4525	IMPROPER TIRES	IMPROPER TIRES
A3334	IMPROPER TURN SIGNAL	IMPROPER TURN SIGNAL
3334	IMPROPER TURN SIGNAL	IMPROPER TURN SIGNAL
M82	INATTENTIVE DRVG	INATTENTIVE DRVG
2504	INVOLUNTARY MANSLAUGHTER	INVOLUNTARY MANSLAUGHTER
U04	MISDEMEANOR IN A MV	MISDEMEANOR IN A MOVING VEHICLE
2502	MURDER	MURDER
A4502	OPER W/O BRAKES	OPER W/O BRAKES
4502	OPER W/O BRAKES	OPER W/O BRAKES
A4303	OPERAT W/O LIGHTS	OPERAT W/O LIGHTS
4303	OPERAT W/O LIGHTS	OPERAT W/O LIGHTS
1575	PERMITTING VIOLATION	PERMITTING VIOLATION
2705	RECKLESS ENDANGERMENT	RECKLESS ENDANGERMENT
2701	SIMPLE ASSAULT	SIMPLE ASSAULT
3928	UNAUTHORIZED USE OF AUTO	UNAUTHORIZED USE OF AUTO
F66	UNSAFE COND OF VEHCL	UNSAFE COND OF VEHCL
4945	VIO SZ/WGT/PASS LIMIT	VIO SZ/WGT/PASS LIMIT
4923	VIOL SIZE LIMITS	VIOLATION SIZE LIMITS
2503	VOLUNTARY MANSLAUGHTER	VOLUNTARY MANSLAUGHTER
4981	WEIGHT VIOLATION	WEIGHT VIOLATION
A4524	WINDSHIELD OR WIPERS	WINDSHIELD OR WIPERS
4524	WINDSHIELD OR WIPERS	WINDSHIELD OR WIPERS

Table B5. Vehicle Violations – DUI (Category 5)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
A94	ADM PER SE .04 BAC	ADM PER SE .04 BAC
A98	ADM PER SE .08 BAC	ADM PER SE .08 BAC
A90	ADM PER SE .10 BAC	ADM PER SE .10 BAC
3735.1	AGGR ASSAULT BY VEH DUI	AGGRAVATED ASSAULT BY VEHICLE DUI
A3735.1	ARD AGGR ASSLT BY VEH-DUI	ARD AGGRAVATED ASSLT BY VEH-DUI
A3735	ARD HOMICIDE BY VEH-DUI	ARD HOMICIDE BY VEH-DUI
A1037	ARD-DUI	ARD-DUI
A3731	ARD-DUI	ARD-DUI
A3731I	ARD-DUI	ARD-DUI
A3802A2	ARD-DUI BAC .08-<.10	ARD-DUI BAC .08-<.10
A3802B	ARD-DUI BAC .10-<.16	ARD-DUI BAC .10-<.16
A3802C	ARD-DUI BAC .16+	ARD-DUI BAC .16+
A3802F4	ARD-DUI CMV ALC AND DRGS	ARD-DUI COMMERCIAL MOTOR VEHICLE ALC AND DRGS
A3802F1I	ARD-DUI CMV BAC .04+	ARD-DUI COMMERCIAL MOTOR VEHICLE BAC .04+
A3802F3	ARD-DUI CMV DRUGS	ARD-DUI COMMERCIAL MOTOR VEHICLE DRUGS
A3802F2	ARD-DUI CMV INCAP SAFE OP	ARD-DUI COMMERCIAL MOTOR VEHICLE INCAP SAFE OP
A3802F	ARD-DUI CMV OR SCHOOL VEH	ARD-DUI COMMERCIAL MOTOR VEHICLE OR SCHOOL VEH
A3802D	ARD-DUI CONTROLLED SUBST	ARD-DUI CONTROLLED SUBST
A3802A1	ARD-DUI GEN IMPAIRMENT	ARD-DUI GEN IMPAIRMENT
A3802E	ARD-DUI MINOR	ARD-DUI MINOR
A3802F12	ARD-DUI SCH VEH BAC-.02+	ARD-DUI SCH VEHICLE BAC-.02+
P613	CHEMICAL TEST REFUSAL	CHEMICAL TEST REFUSAL
1547	CHEMICAL TEST REFUSAL	CHEMICAL TEST REFUSAL
1613	CHEMICAL TEST REFUSAL	CHEMICAL TEST REFUSAL
6241A	CHEMICAL TEST REFUSAL	CHEMICAL TEST REFUSAL
A26	DRINKING WHILE DRVNG	DRINKING WHILE DRVNG
3731I	DRIV UNDER INFLUENCE-CMV	DRIVING UNDER INFLUENCE-CMV
1037	DRIVING UNDER INFLUENCE	DRIVING UNDER INFLUENCE
3731	DRIVING UNDER INFLUENCE	DRIVING UNDER INFLUENCE
3731P	DRV UNDER INFLUE DLCC	DRIVING UNDER INFLUE DRIVERS LICENSECC
3731N	DRV UNDER INFLUE DLCN	DRIVING UNDER INFLUE DRIVERS LICENSECN
A25	DRVNG WHILE IMPAIRED	DRIVING WHILE IMPAIRED
3802A2	DUI BAC .08-<.10	DUI BAC .08-<.10
3802B	DUI BAC .10-<.16	DUI BAC .10-<.16
3802C	DUI BAC .16+	DUI BAC .16+
3802F	DUI CMV OR SCHOOL VEHICLE	DUI COMMERCIAL MOTOR VEHICLE OR SCHOOL VEHICLE
3802D	DUI CONTROLLED SUBSTANCES	DUI CONTROLLED SUBSTANCES
3802A1	DUI GENERAL IMPAIRMENT	DUI GENERAL IMPAIRMENT
3802E	DUI MINOR	DUI MINOR

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
A24	DUI OF MEDICATION	DUI OF MEDICATION
3802F4	DUI-CMV ALCOHOL AND DRUGS	DUI-COMMERCIAL MOTOR VEHICLE ALCOHOL AND DRUGS
3802F1I	DUI-CMV BAC .04+	DUI-COMMERCIAL MOTOR VEHICLE BAC .04+
3802F3	DUI-CMV DRUGS	DUI-COMMERCIAL MOTOR VEHICLE DRUGS
3802F2	DUI-CMV INCAP SAFE OPER	DUI-COMMERCIAL MOTOR VEHICLE INCAP SAFE OPER
3802F1II	DUI-SCH VEH BAC .02+	DUI-SCH VEHICLE BAC .02+
3735P	HOM BY VEH-DUI DLCC	HOMICIDE BY VEH-DUI DRIVERS LICENSECC
3735N	HOM BY VEH-DUI DLCN	HOMICIDE BY VEH-DUI DRIVERS LICENSECN
3735	HOMICIDE BY VEHICLE-DUI	HOMICIDE BY VEHICLE-DUI
1547B.1	OTHER CHEM TEST REFUSAL	OTHER CHEM TEST REFUSAL
A61	UA A-P-S DUI => .02	UA A-P-S DUI => .02
A3808A2	ARD-DRVNG WO II-ALC/DRUG	ARD-DRIVING WO II-ALC/DRUG
3808A2	DRIVING W/O II - ALC/DRUG	DRIVING W/O II - ALC/DRUG

Table B6. Vehicle Violations – Failure to Respond (Category 6)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
1533D	FAIL TO RESPOND	FAILURE TO RESPOND
618B6	FAIL TO RESPOND TO CITAT	FAILURE TO RESPOND TO CITAT
1533	FAILURE TO RESPOND	FAILURE TO RESPOND
1533A	FAILURE TO RESPOND	FAILURE TO RESPOND
1745C	DEFAULT IN JUDGMENT PAY	DEFAULT IN JUDGMENT PAY
1775C	DEFAULT IN JUDGMENT PAY	DEFAULT IN JUDGMENT PAY
1533B	ENFORCEMENT AGREEMNT-NRVC	ENFORCEMENT AGREEMNT-NRVC
D45	FAIL APPEAR FOR TRIAL	FAILURE APPEAR FOR TRIAL
D37	FAIL PAY DAMAGES	FAILURE PAY DAMAGES
D56	FAIL TO ANSWER	FAILURE TO ANSWER
D53	FAIL TO PAY FINE/COST	FAILURE TO PAY FINE/COST
1413	NONPAYMENT OF JUDGMENT	NONPAYMENT OF JUDGMENT
1742	NONPAYMENT OF JUDGMENT	NONPAYMENT OF JUDGMENT
1772	NONPAYMENT OF JUDGMENT	NONPAYMENT OF JUDGMENT

Table B7. Vehicle Violations – Other (Category 7)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
3712	ABANDONED VEHICLE	ABANDONED VEHICLE
5107	AID CONSUMATION OF CRIME	AID CONSUMATION OF CRIME
U05	AIDING/ABETING FELON	AIDING/ABETING FELON
7122	ALTERED DOCUMENTS/PLATES	ALTERED DOCUMENTUMENTS/PLATES
A5107	ARD-AIDING CRIME	ARD-AIDING CRIME
A7122	ARD-ALTERED DOCS/PLATES	ARD-ALTERED DOCUMENTS/PLATES
AC3301	ARD-ARSON/RELAT OFFENSES	ARD-ARSON/RELAT OFFENSES
A4701	ARD-BRIBERY	ARD-BRIBERY
A3502	ARD-BURGLARY	ARD-BURGLARY
A4106	ARD-CREDIT CARD FRAUD	ARD-CREDIT CARD FRAUD
A7512A	ARD-CRIM USE-COMM FACILTY	ARD-CRIM USE-COMM FACILTY
A901	ARD-CRIMINAL ATTEMPT	ARD-CRIMINAL ATTEMPT
A903	ARD-CRIMINAL CONSPIRACY	ARD-CRIMINAL CONSPIRACY
A2501	ARD-CRIMINAL HOMICIDE	ARD-CRIMINAL HOMICIDE
A3304M	ARD-CRIMINAL MISCHIEF	ARD-CRIMINAL MISCHIEF
A902	ARD-CRIMINAL SOLICITATION	ARD-CRIMINAL SOLICITATION
A3503A1	ARD-CRIMINAL TRESPASS	ARD-CRIMINAL TRESPASS
A7111	ARD-DEAL IN TITLES/PLATES	ARD-DEAL IN TITLES/PLATES
A5121	ARD-ESCAPE	ARD-ESCAPE
A1027B	ARD-FAIL TO IDENTIFY	ARD-FAILURE TO IDENTIFY
A7121	ARD-FALSE APPLICATION	ARD-FALSE APPLICATION
A6106A	ARD-FIREARM VIOLATION	ARD-FIREARM VIOLATION
A4101	ARD-FORGERY	ARD-FORGERY
A4101A	ARD-FORGERY	ARD-FORGERY
A905	ARD-GRADE OF CIM ATTEMPT	ARD-GRADE OF CIM ATTEMPT
A5105	ARD-HINDER APPREHENSION	ARD-HINDER APPREHENSION
A304	ARD-IGNORANCE OR MISTAKE	ARD-IGNORANCE OR MISTAKE
A4117A	ARD-INSURANCE FRAUD	ARD-INSURANCE FRAUD
A3123	ARD-INVOL DEV SEX INTCRSE	ARD-INVOL DEV SEX INTCRSE
A2901	ARD-KIDNAPPING	ARD-KIDNAPPING
A211A	ARD-MAKE FRAUDULENT DOCS	ARD-MAKE FRAUDULENT DOCUMENTS
A6106	ARD-NO FIREARM IN ANY VEH	ARD-NO FIREARM IN ANY VEH
A3121	ARD-RAPE	ARD-RAPE
A7102B	ARD-REMOVAL OF IDENTIF	ARD-REMOVAL OF IDENTIF
A301	ARD-REQ OF VOLUNTARYACT	ARD-REQ OF VOLUNTARYACT
A5104	ARD-RESISTING ARREST	ARD-RESISTING ARREST
A3701	ARD-ROBBERY	ARD-ROBBERY
A3702A	ARD-ROBBERY OF A MV	ARD-ROBBERY OF A MOVING VEHICLE
A3755	ARD-RPTS/EMERGENCY PERSON	ARD-RPTS/EMERGENCY PERSON
A2701	ARD-SIMPLE ASSAULT	ARD-SIMPLE ASSAULT
A3928	ARD-UNAUTH USE OF AUTO	ARD-UNAUTH USE OF AUTO
A7103B	ARD-VEH WITH FALSE #'S	ARD-VEHICLE WITH FALSE #'S
C3301	ARSON/RELAED OFFENSES	ARSON/RELAED OFFENSES
4701	BRIBERY-OFFICIAL MATTERS	BRIBERY-OFFICIAL MATTERS
3502	BURGLARY	BURGLARY

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
A63103	CARRYING A FALSE ID CARD	CARRYING A FALSE ID CARD
D63103	CARRYING A FALSE ID CARD	CARRYING A FALSE ID CARD
6310	CARRYING A FALSE ID CARD	CARRYING A FALSE ID CARD
63103	CARRYING A FALSE ID CARD	CARRYING A FALSE ID CARD
CERT	CERTIFY OOS CONVICTION	CERTIFY OOS CONVICTION
7512A	CRIMINAL USE-COM FACILITY	CRIMINAL USE-COM FACILITY
902	CRMINAL SOLICITATION	CRMINAL SOLICITATION
7111	DEALING IN TITLES/PLATES	DEALING IN TITLES/PLATES
3744	DUTY TO GIVE INFO/AID	DUTY TO GIVE INFO/AID
4531	EMISSION CONTRL SYS	EMISSION CONTRL SYS
6146	ENFORCEMENT AGREEMENTS	ENFORCEMENT AGREEMENTS
5121	ESCAPE	ESCAPE
1571A3	EXHIBIT ANOTHER DL	EXHIBIT ANOTHER DRIVERS LICENSE
1301	EXPIRED REG OR DOC	EXPIRED REGISTRATION OR DOCUMENT
1301D	EXPIRED REG OR DOC	EXPIRED REGISTRATION OR DOCUMENT
D35	FAIL COMPLY W/FR LAW	FAILURE COMPLY W/FR LAW
D38	FAIL PST SEC/OBT REL	FAILURE PST SEC/OBT REL
A3747	FAIL TO FILE ACCIDENT RPT	FAILURE TO FILE ACCIDENT RPT
3747	FAIL TO FILE ACCIDENT RPT	FAILURE TO FILE ACCIDENT RPT
B14	FAIL TO ID POST ACCD	FAILURE TO ID POST ACCD
1027B	FAIL TO IDENTIFY-ACCIDENT	FAILURE TO IDENTIFY-ACCIDENT
1417	FAIL TO MAINTAIN FR	FAILURE TO MAINTAIN FR
9013	FAIL TO PAY TAX	FAILURE TO PAY TAX
6110	FAIL TO PAY TOLL	FAILURE TO PAY TOLL
A1786C	FAIL TO PROV FIN RESP	FAILURE TO PROV FIN RESP
A1786F	FAIL TO PROV FR DLC P	FAILURE TO PROV FR DRIVERS LICENSEC P
A1786E	FAIL TO PROV FR INS P	FAILURE TO PROV FR INS P
1785	FAIL TO PROVIDE FR-ACCID	FAILURE TO PROVIDE FR-ACCID
1786G	FAIL TO PROVIDE FR-ARS	FAILURE TO PROVIDE FR-ARS
1786F	FAIL TO PROVIDE FR-DLC	FAILURE TO PROVIDE FR-DLC
1786E	FAIL TO PROVIDE FR-INS	FAILURE TO PROVIDE FR-INS
1786C	FAIL TO PROVIDE FR-SAMP	FAILURE TO PROVIDE FR-SAMP
1784	FAIL TO PROVIDE FR-VIOL	FAILURE TO PROVIDE FR-VIOL
7101	FAILED TO GET VIN	FAILED TO GET VIN
1571A4	FAILED TO SUR DOC	FAILED TO SUR DOCUMENT
88.3B	FAILURE TO ADD ADDL VEH	FAILURE TO ADD ADDRIVERS LICENSE VEH
3748	FALSE ACCIDENT REPORT	FALSE ACCIDENT REPORT
7121	FALSE APPLICATION	FALSE APPLICATION
1604D	FALSE REPORT	FALSE REPORT
4730	FALSE VEH INSPEC REPORT	FALSE VEHICLE INSPEC REPORT
A50H	FELONY-MFR/DLVY/POSS	FELONY-MFR/DLVY/POSS
6106A	FIREARM NOT TO BE CARRIED	FIREARM NOT TO BE CARRIED
4101	FORGERY	FORGERY
4101A	FORGERY	FORGERY
B63	FR NOT FILED	FR NOT FILED

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
7124	FRAUD USE OF REG PLT/TTL	FRAUD USE OF REGISTRATION PLT/TTL
905	GRADE OF CRIMINAL ATTEMPT	GRADE OF CRIMINAL ATTEMPT
5105	HINDERING APPREHENSION	HINDERING APPREHENSION
304	IGNORANCE OR MISTAKE	IGNORANCE OR MISTAKE
4117A	INSURANCE FRAUD	INSURANCE FRAUD
3123	INVOL DEV SEX INTERCOURSE	INVOL DEV SEX INTERCOURSE
1571A.1	ISSUING FALSE ID	ISSUING FALSE ID
3745	LEAVING SCENE OF ACCIDENT	LEAVING SCENE OF ACCIDENT
1571A2	LENDING DL TO OTHERS	LENDING DRIVERS LICENSE TO OTHERS
1372	LOAN REG/PLATES	LOAN REG/PLATES
D10	MAKE FALSE ID/DL	MAKE FALSE ID/DL
211A	MAKE FRAUDULENT DOCUMENTS	MAKE FRAUDULENT DOCUMENTUMENTS
CDLMISC	MISC CDLIS CONVICTION	MISC CDLIS CONVICTION
MISSING	MISSING VIOL FROM COURT	MISSING VIOLATION FROM COURT
1332	MISSNG/DEFACE LIC PLT	MISSNG/DEFACE LIC PLT
D02	MSREP OF ID ON DL AP	MSREP OF ID ON DRIVERS LICENSE AP
1513	MUTILATED DL DOC	MUTILATED DRIVERS LICENSE DOCUMENT
1313	MUTILATED VR DOC	MUTILATED VR DOCUMENT
1511	NO DOCS SHOWN	NO DOCUMENTS SHOWN
6106	NO FIREARM IN ANY VEHICLE	NO FIREARM IN ANY VEHICLE
B64	NO INS CERT FILED	NO INS CERT FILED
B65	NO MED CERT/DISB INF	NO MED CERT/DISB INF
1311	NO REGISTRATION SHOWN	NO REGISTRATION SHOWN
4907	NO REQ DOCS SHOWN	NO REQ DOCUMENTS SHOWN
1334	NO SUR OF DOCUMENT	NO SUR OF DOCUMENTUMENT
7132	ODOMETER TAMPERING	ODOMETER TAMPERING
6245	OPERATE WITHOUT CONSENT	OPERATE WITHOUT CONSENT
OOSW	OUT OF STATE WITHDRAWAL	OUT OF STATE WITHDRAWAL
4902	PERJURY	PERJURY
211B	POSSESS FORGING EQUIPMENT	POSSESS FORGING EQUIPMENT
A3353	PROHIBIT SPECIFIC PLACES	PROHIBIT SPECIFIC PLACES
3353	PROHIBIT SPECIFIC PLACES	PROHIBIT SPECIFIC PLACES
7102	REML/FALS OF ID NUM	REML/FALS OF ID NUM
7102B	REMOVAL OF IDENTIFICATION	REMOVAL OF IDENTIFICATION
1604	REQ DOCS NOT FILED	REQ DOCUMENTS NOT FILED
301	REQRMNT OF VOLUNTARYACT	REQRMNT OF VOLUNTARYACT
1216	RESISTING ARREST	RESISTING ARREST
5104	RESISTING ARREST	RESISTING ARREST
1960	RESTORATION CANCELLATION	RESTORATION CANCELLATION
3701	ROBBERY	ROBBERY
3702A	ROBBERY OF A MTR VEHCL	ROBBERY OF A MTR VEHCL
A4581	SEATBELT VIOLATION	SEATBELT VIOLATION
4581	SEATBELT VIOLATION	SEATBELT VIOLATION
4581A3	SEATBELT VIOLATION	SEATBELT VIOLATION
6243	TO DISPLAY ANOTHER'SLIC	TO DISPLAY ANOTHER'SLIC
6242	TO LEND OPERATOR LICENSE	TO LEND OPERATOR LICENSE

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
1111	TRANSFER OF VEHICLE	TRANSFER OF VEHICLE
3921	VEHICLE THEFT	VEHICLE THEFT
7103B	VEHICLES WITH FALSE NUMBS	VEHICLES WITH FALSE NUMBS
6244	REFUSAL TO SURRENDER	REFUSAL TO SURRENDER
A4552	SCHOOL BUS MARKINGS	SCHOOL BUS MARKINGS
4552	SCHOOL BUS MARKINGS	SCHOOL BUS MARKINGS
A3809	POSS OPEN CONTAINER	POSS OPEN CONTAINER
3809	POSS OPEN CONTAINER	POSS OPEN CONTAINER

Table B8. Vehicle Violations – Non-Highway Safety (Category 8)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
13A12X	ACQ/OBT/POSS-CTRL SUB	ACQ/OBT/POSS-CTRL SUB
A13A1	ARD - M/S/P/D ALTERED SUB	ARD - M/S/P/D ALTERED SUB
A3927A	ARD THEFT-REQUIRE	ARD THEFT-REQUIRE
A3903A	ARD-GRADING OF THEFT	ARD-GRADING OF THEFT
A13A14	ARD-IMPRP ADM/DISP PRESCP	ARD-IMPRP ADM/DISP PRESCP
A13A36	ARD-M/D/P DESIGNER DRUG	ARD-M/D/P DESIGNER DRUG
A13A30	ARD-MFR/DLVY/POSS-CTL SUB	ARD-MFR/DLVY/POSS-CTL SUB
A3718	ARD-MINOR ALCOHOL	ARD-MINOR ALCOHOL
A13A12	ARD-POSS BY FRAUD	ARD-POSS BY FRAUD
A13A31	ARD-POSS OF MARIJUANA	ARD-POSS OF MARIJUANA
A13A19	ARD-PURCHASE CTRL SYBS	ARD-PURCHASE CTRL SYBS
A3925	ARD-RECEIVE STOLEN PROP	ARD-RECEIVE STOLEN PROP
A13A10	ARD-RETAIL SALE CTRLSUBS	ARD-RETAIL SALE CTRLSUBS
A3929	ARD-RETAIL THEFT	ARD-RETAIL THEFT
A2706	ARD-TERRORISTIC THREATS	ARD-TERRORISTIC THREATS
A3922	ARD-THEFT BY DECEPTION	ARD-THEFT BY DECEPTION
A3923	ARD-THEFT BY EXTORTION	ARD-THEFT BY EXTORTION
A3926	ARD-THEFT OF SERVICES	ARD-THEFT OF SERVICES
A3921A	ARD-THEFT/UNLAWFUL TAKING	ARD-THEFT/UNLAWFUL TAKING
A3921B	ARD-THEFT/UNLAWFUL TAKING	ARD-THEFT/UNLAWFUL TAKING
A3932A	ARD-THEFT-LEASED PROP	ARD-THEFT-LEASED PROP
A13A16	ARD-UNAUTH POSS-CTRLSUB	ARD-UNAUTH POSS-CTRLSUB
4355	CHILD ENFORCEMENT	CHILD ENFORCEMENT
4355D	CHILD ENFORCEMENT	CHILD ENFORCEMENT
13A12	CONTROL SUBSTANCE OFFENSE	CONTROL SUBSTANCE OFFENSE
13A12A	CONTROL SUBSTANCE OFFENSE	CONTROL SUBSTANCE OFFENSE
13A30	DELIVERY OF CTRL SUB	DELIVERY OF CTRL SUB
13A30A	DELIVERY OF CTRL SUB	DELIVERY OF CTRL SUB
13A30X	DELIVERY OF CTRL SUB	DELIVERY OF CTRL SUB
7112	FALSE REPORT OF THEFT	FALSE REPORT OF THEFT
A50	FELONY-MFR/DLVY/POSS-DRUG	FELONY-MFR/DLVY/POSS-DRUG
3903A	GRADING OF THEFT OFFENSES	GRADING OF THEFT OFFENSES
13A30H	MFR/DELIVERY-CTRL SUBS	MFR/DELIVERY-CTRL SUBS
13A30C	MFR/DLVY/POSS-CRTL SUBS	MFR/DLVY/POSS-CRTL SUBS
13A30M	MFR/DLVY/POSS-CTRL SUBS	MFR/DLVY/POSS-CTRL SUBS
13A36	MFR/DSTR/POSS-DESGN DRUG	MFR/DSTR/POSS-DESGN DRUG
13A36A	MFR/DSTR/POSS-DESGN DRUG	MFR/DSTR/POSS-DESGN DRUG
13A36H	MFR/DSTR/POSS-DESGN DRUG	MFR/DSTR/POSS-DESGN DRUG
13A36X	MFR/DSTR/POSS-DESGN DRUG	MFR/DSTR/POSS-DESGN DRUG
13A1H	MFR/SALE/POSS-ALTED SUB	MFR/SALE/POSS-ALTED SUB
3718	MINOR ALCOHOL OFFENSE	MINOR ALCOHOL OFFENSE
13A12H	POSS BY FRAUD - CTRLSUBS	POSS BY FRAUD - CTRLSUBS
13A12M	POSS BY FRAUD-CTRL SUBS	POSS BY FRAUD-CTRL SUBS
211C	POSSESS/SELL STOLEN DOCS	POSSESS/SELL STOLEN DOCUMENTS
13A16	POSSESSION OF CTRL SUB	POSSESSION OF CTRL SUB

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
13A16A	POSSESSION OF CTRL SUB	POSSESSION OF CTRL SUB
13A16X	POSSESSION OF CTRLS UB	POSSESSION OF CTRLS UB
13A31	POSSESSION OF MARIJUANA	POSSESSION OF MARIJUANA
13A31A	POSSESSION OF MARIJUANA	POSSESSION OF MARIJUANA
13A31H	POSSESSION OF MARIJUANA	POSSESSION OF MARIJUANA
13A31X	POSSESSION OF MARIJUANA	POSSESSION OF MARIJUANA
13A19	PURCHASE-CTRL SUBS	PURCHASE-CTRL SUBS
13A19A	PURCHASE-CTRL SUBS	PURCHASE-CTRL SUBS
3925	RECEIVE STOLEN PROPERTY	RECEIVE STOLEN PROPERTY
13A10	RETAIL SALE-CTRL SUBS	RETAIL SALE-CTRL SUBS
13A10A	RETAIL SALE-CTRL SUBS	RETAIL SALE-CTRL SUBS
3929	RETAIL THEFT	RETAIL THEFT
616A4	REVOCATION-DRUG VIOLATION	REVOCATION-DRUG VIOLATION
2706	TERRORISTIC THREATS	TERRORISTIC THREATS
3922	THEFT BY DECEPTION	THEFT BY DECEPTION
3923	THEFT BY EXTORTION	THEFT BY EXTORTION
3921A	THEFT BY UNLAWFUL TAKING	THEFT BY UNLAWFUL TAKING
3921B	THEFT BY UNLAWFUL TAKING	THEFT BY UNLAWFUL TAKING
3926	THEFT OF SERVICES	THEFT OF SERVICES
3932A	THEFT-LEASED PROP	THEFT-LEASED PROP
3927A	THEFT-REQUIRED DISPOSITN	THEFT-REQUIRED DISPOSITN
1333	TRUANCY VIOL	TRUANCY VIOL
13A16H	UNAUTH POSS OF CTRL SUB	UNAUTH POSS OF CTRL SUB
A6308	UNDERAGE ALCOHOL OFFENSE	UNDERAGE ALCOHOL OFFENSE
D6308	UNDERAGE ALCOHOL OFFENSE	UNDERAGE ALCOHOL OFFENSE
6308	UNDERAGE ALCOHOL OFFENSE	UNDERAGE ALCOHOL OFFENSE
A6307	UNDERAGE ALCOHOL PURCHASE	UNDERAGE ALCOHOL PURCHASE
D6307	UNDERAGE ALCOHOL PURCHASE	UNDERAGE ALCOHOL PURCHASE
6307	UNDERAGE ALCOHOL PURCHASE	UNDERAGE ALCOHOL PURCHASE
807	BURGLERY/SUSP/REVO	BURGLERY/SUSP/REVO
1571A1	VIOLS CONCERNING LICENSES	VIOLS CONCERNING LICENSES
1571A5	VIOLS CONCERNING LICENSES	VIOLS CONCERNING LICENSES
1503C3	JR DRIVER SUSPENSION	JR DRIVER SUSPENSION
1515	FAILED TO CHG ADDRESS	FAILED TO CHG ADDRESS
6310.1	GIVE LIQUOR TO MINOR	GIVE LIQUOR TO MINOR

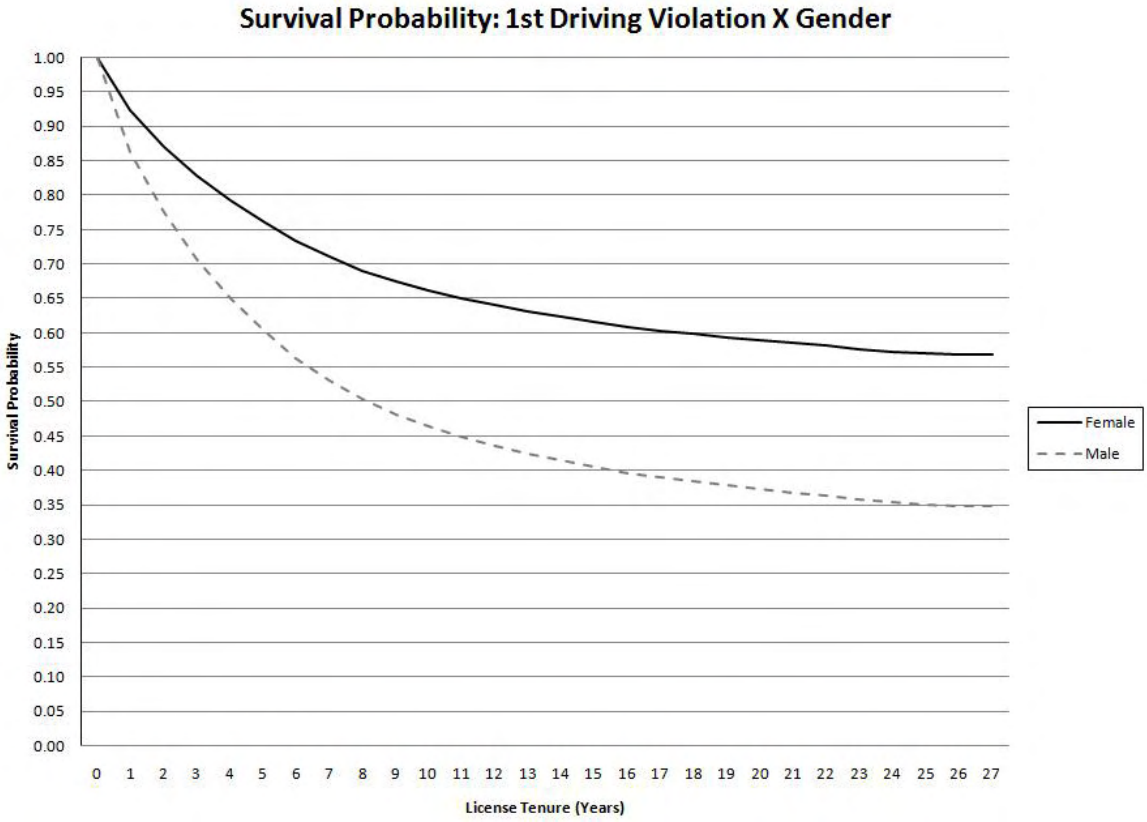
Table B9. Vehicle Violations – Non-Violation (Category 9)

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
15722	CANCEL ALTERED LIC.	CANCEL ALTERED LIC.
15725	CANCEL FRAUDULENT LICENSE	CANCEL FRAUDULENT LICENSE
15729	CANCEL VOL. SURR.	CANCEL VOL. SURR.
1572	CANCELLATION OF LICENSE	CANCELLATION OF LICENSE
15727	CDLIS CANCELLATION	CDLIS CANCELLATION
CDLW	CDLIS SUSPENSION HISTORY	CDLIS SUSPENSION HISTORY
CORTORDR	COURT ORDERED REVOCATION	COURT ORDERED REVOCATION
CORTORDS	COURT ORDERED SUSPENSION	COURT ORDERED SUSPENSION
618F	COURT ORDERED SUSPENSION	COURT ORDERED SUSPENSION
618C	BAD OL CHECK SUSPENSION	BAD OL CHECK SUSPENSION
6041A	LIC ISSUED BEFORE 18BDAY	LIC ISSUED BEFORE 18BDAY
1503A1	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
1503A2	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
1503A3	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
1503A4	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
1503A5	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
1503A6	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
1503A7	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
1503A8	LICENSE NOT TO BE ISSUED	LICENSE NOT TO BE ISSUED
A1501C	LIMIT NUMBER LICENSE	LIMIT NUMBER LICENSE
1501C	LIMIT NUMBER LICENSE	LIMIT NUMBER LICENSE
1519CS	MEDICAL NONCOMPLY SUSP	MEDICAL NONCOMPLY SUSP
1519C	MEDICAL SUSPENSIONS	MEDICAL SUSPENSIONS
604A249	NDR LICENSE CANCELLATION	NDR LICENSE CANCELLATION
1405J	RECIPROCAL JUDGMENT SUSP	RECIPROCAL JUDGMENT SUSP
REINSTSD	REINSTATE APPLD SUSP/DISQ	REINSTATE APPLD SUSP/DISQ
616A2	REVOCATION-FELONY CONVICT	REVOCATION-FELONY CONVICT
618A2	SUSP-MISDEMEANOR CONVICT	SUSP-MISDEMEANOR CONVICT
A1571	VIOL CONCERN LIC	VIOLATION CONCERN LIC
D27	VIOL LIMITED LIC CND	VIOLATION LIMITED LIC CND
W09	FAIL SURR HAZMAT	FAILURE SURAILROAD HAZMAT
13A14	IMPROPR ADM/DISP-PRESCRIP	IMPROPR ADM/DISP-PRESCRIP
13A14A	IMPROPR ADM/DISP-PRESCRIP	IMPROPR ADM/DISP-PRESCRIP
13A14M	IMPROPR ADM/DISP-PRESCRIP	IMPROPR ADM/DISP-PRESCRIP
W20	UNABLE PASS DL TEST	UNABLE PASS DRIVERS LICENSE TEST
15726	BAD CHECK CANCEL	BAD CHECK CANCEL
15728	CANC PROD RECALL-APDEX	CANC PROD RECALL-APDEX
15721	CANCEL DOUBLE NUMBER	CANCEL DOUBLE NUMBER
1572A1II	CANCEL FRAUDULENT CDL APP	CANCEL FRAUDULENT CDRIVERS LICENSE APP
15724	CANCEL VOL. SURR.	CANCEL VOL. SURR.
4106	CREDIT CARD FRAUD	CREDIT CARD FRAUD

Vehicle Violation	Vehicle Violation Decode	Vehicle Violation Expanded
DLCC	DLC CERTIFIED	DLC CERTIFIED
1572A1IV	FAIL TO PAY FEE	FAILURE TO PAY FEE
1507	FAMILY RPT RECOMMEND	FAMILY RPT RECOMMEND
604A7	LICENSE TO PHYSCLY IMPAIR	LICENSE TO PHYSCLY IMPAIR
HIST	MCSIA DRIVER HISTORY	MCSIA DRIVER HISTORY
1519CR	MEDICAL RECALL	MEDICAL RECALL
1505F	MISREP ID/FACT	MISREP ID/FACT
15723	NDR CANCELLATION	NDR CANCELLATION
1519	PHYS/MENTAL DISABILITY	PHYS/MENTAL DISABILITY
W15	PHYSN RPT RECOMMENDED	PHYSN RPT RECOMMENDED
REINSTDQ	REINSTATE APPEALED DQ	REINSTATE APPEALED DQ
REINSTAT	REINSTATED APPEAL	REINSTATED APPEAL
DHW	WITHDRAWAL HISTORY	WITHDRAWAL HISTORY
1507D	WITHDRAWAL OF CONSENT	WITHDRAWAL OF CONSENT
W70	WITHDRWL IMMINENT HAZARD	WITHDRWL IMMINENT HAZARD
W00	WITHDRWL NON ACD VIOL	WITHDRWL NON ACD VIOL

Appendix C:
Survival Probability Graphs and Life Tables

Figure C1.



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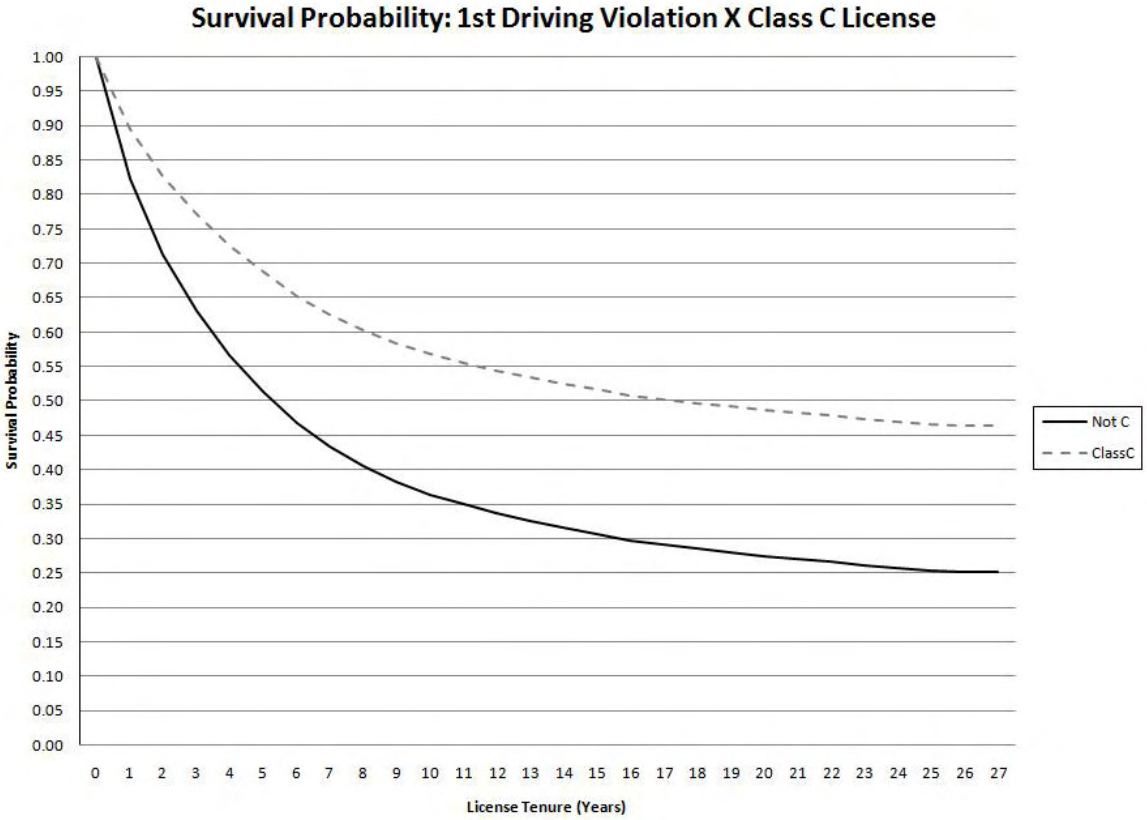

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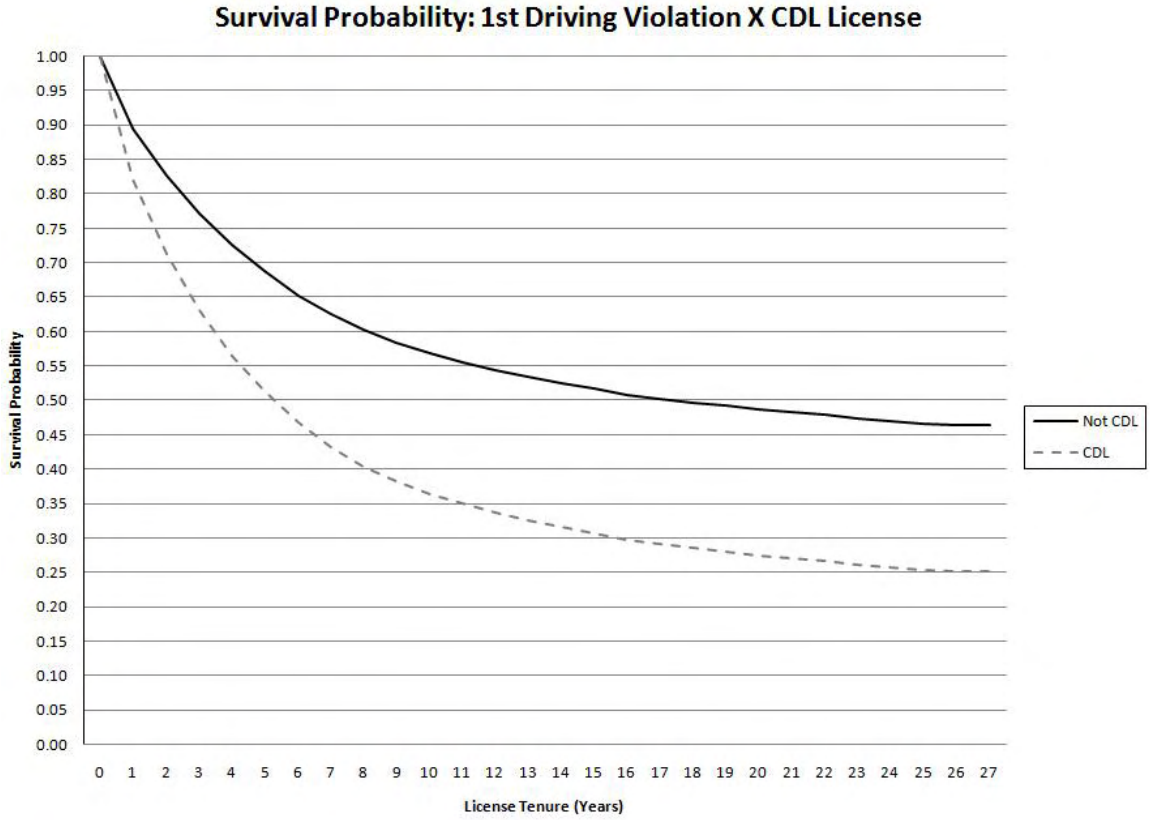

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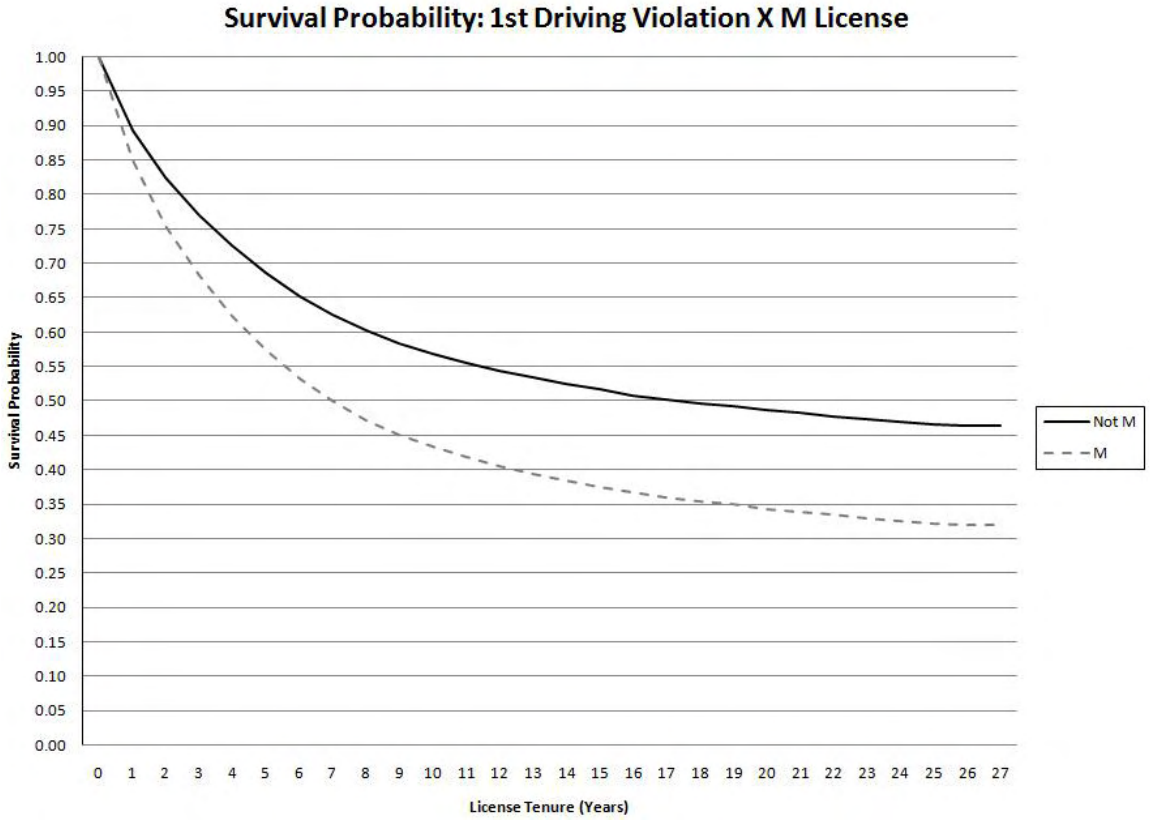

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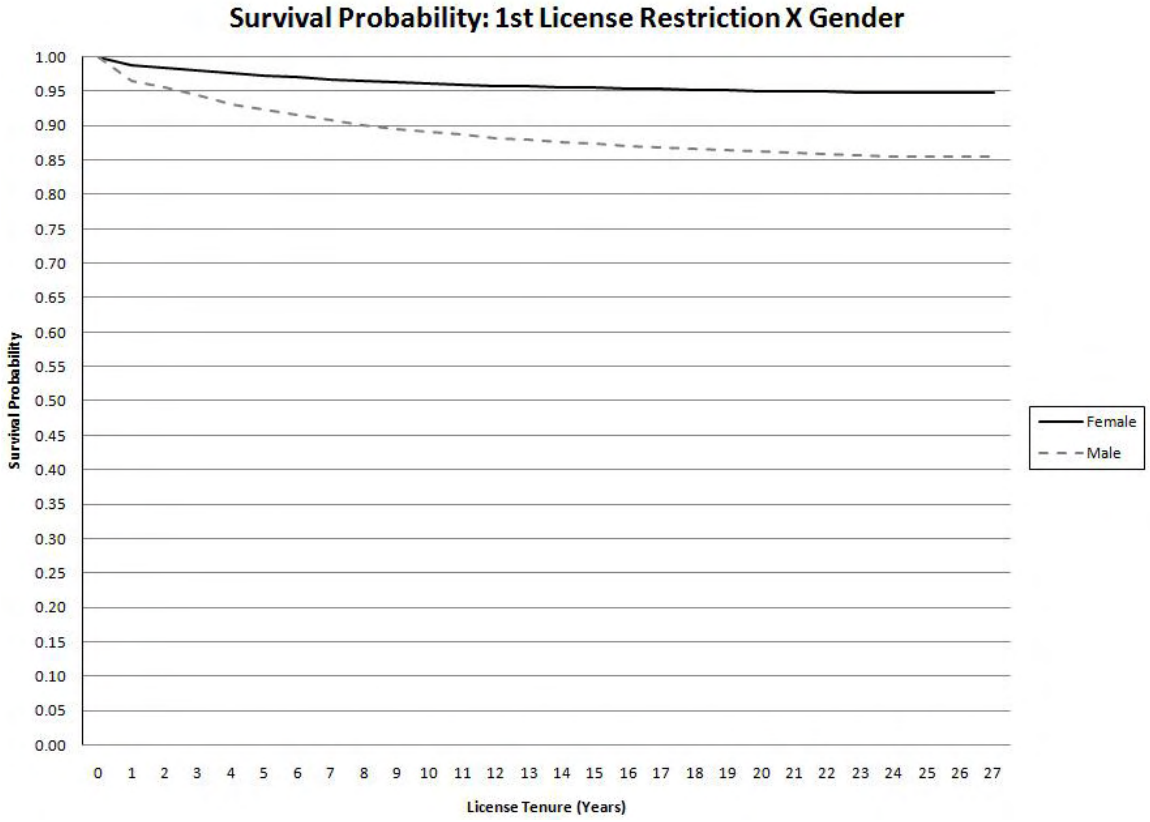

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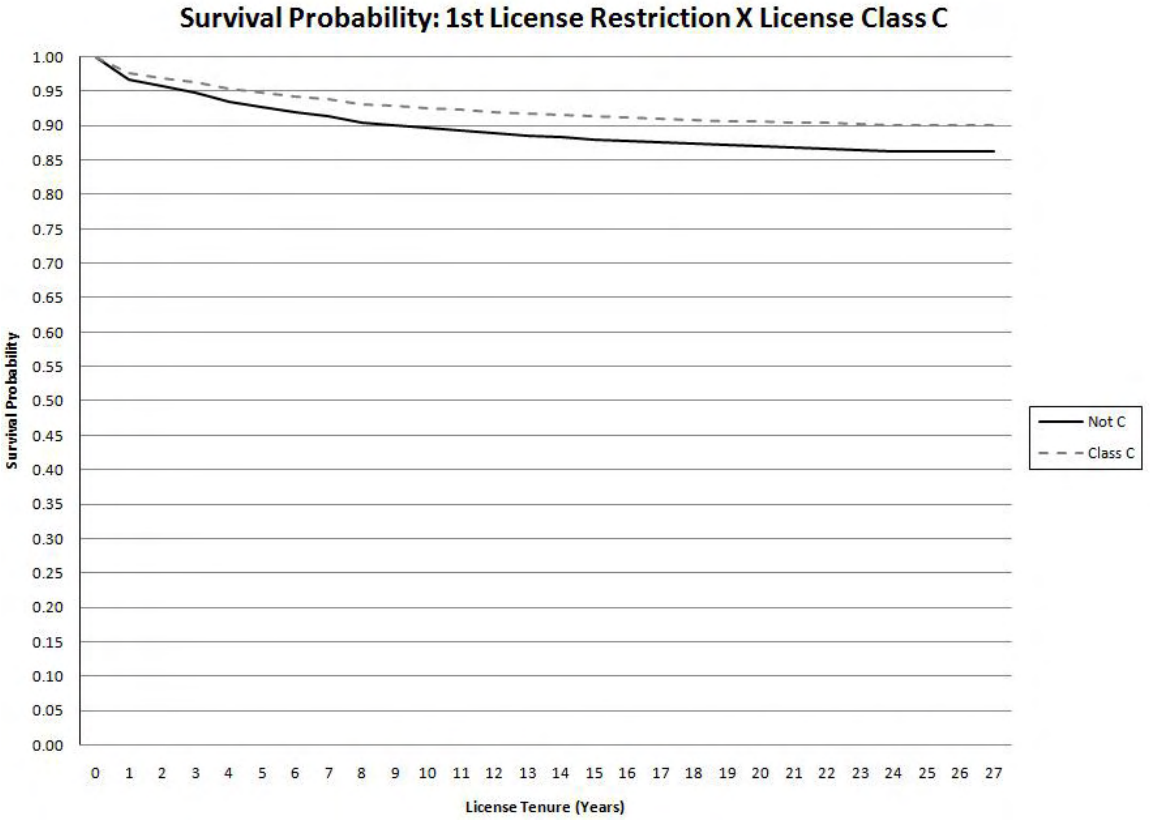

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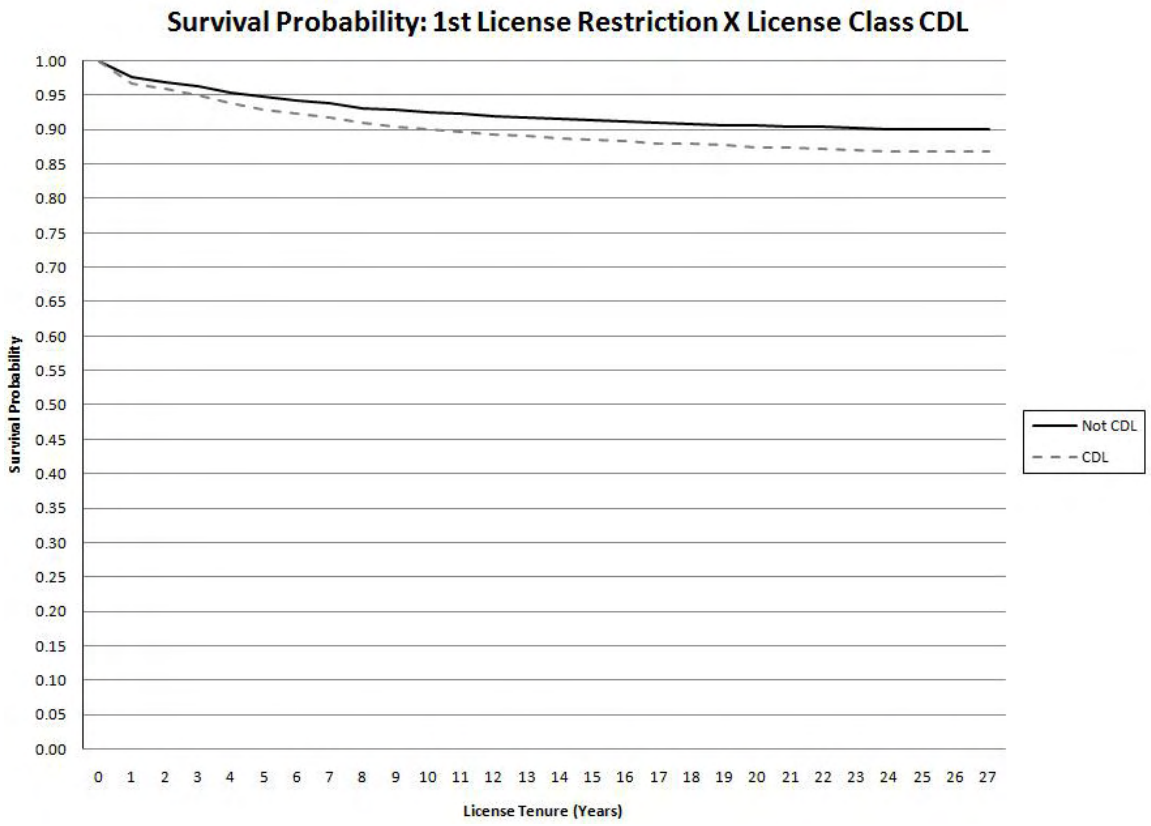

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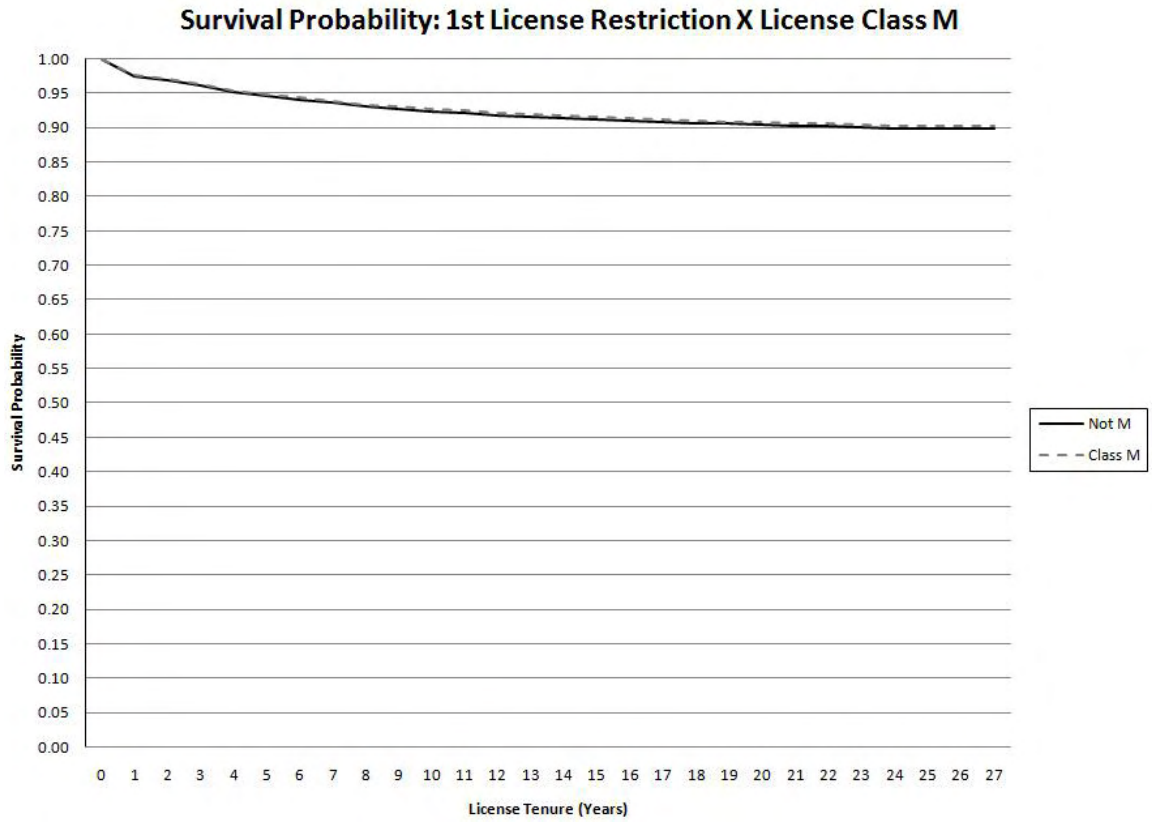

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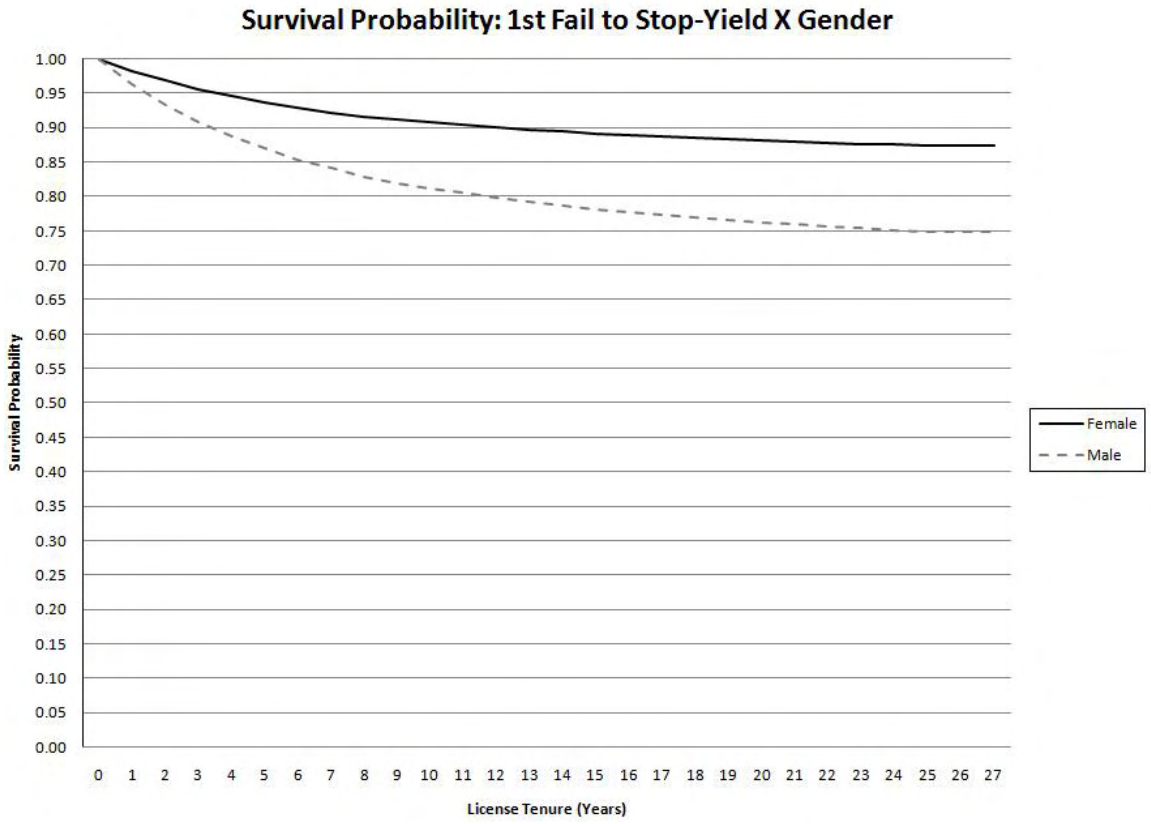

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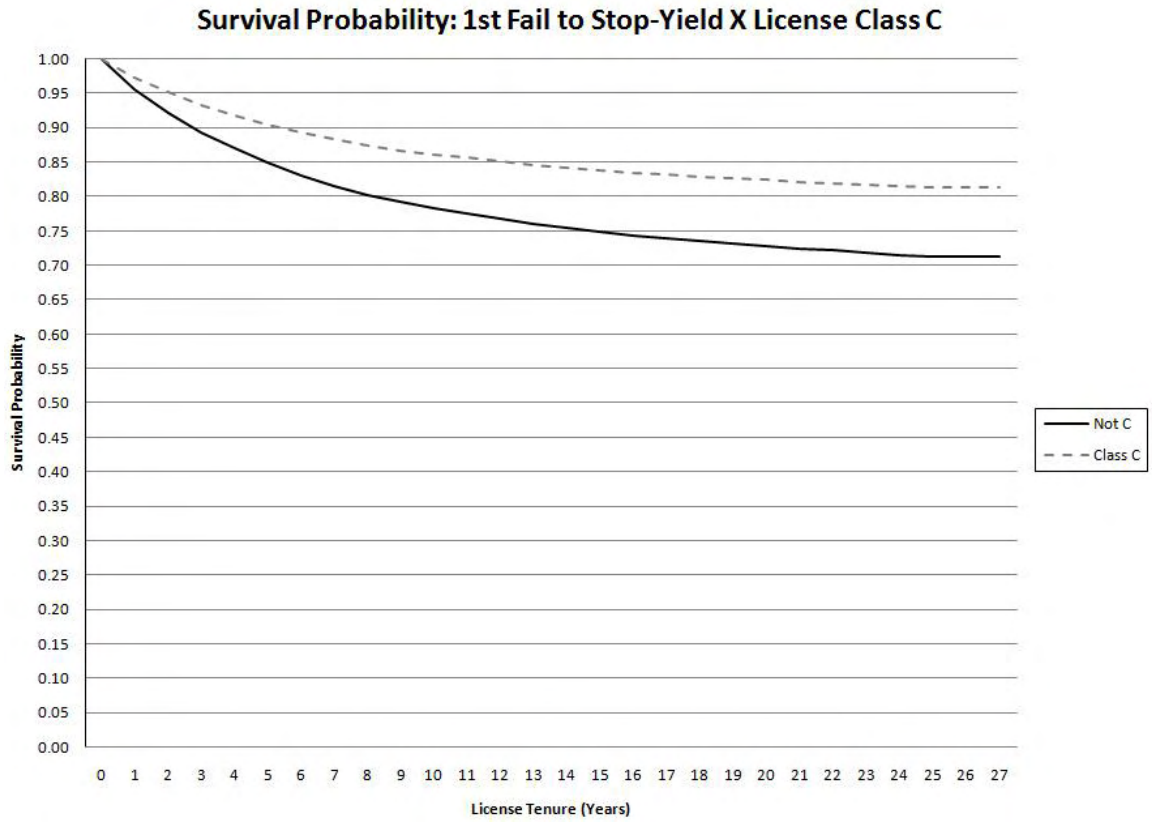

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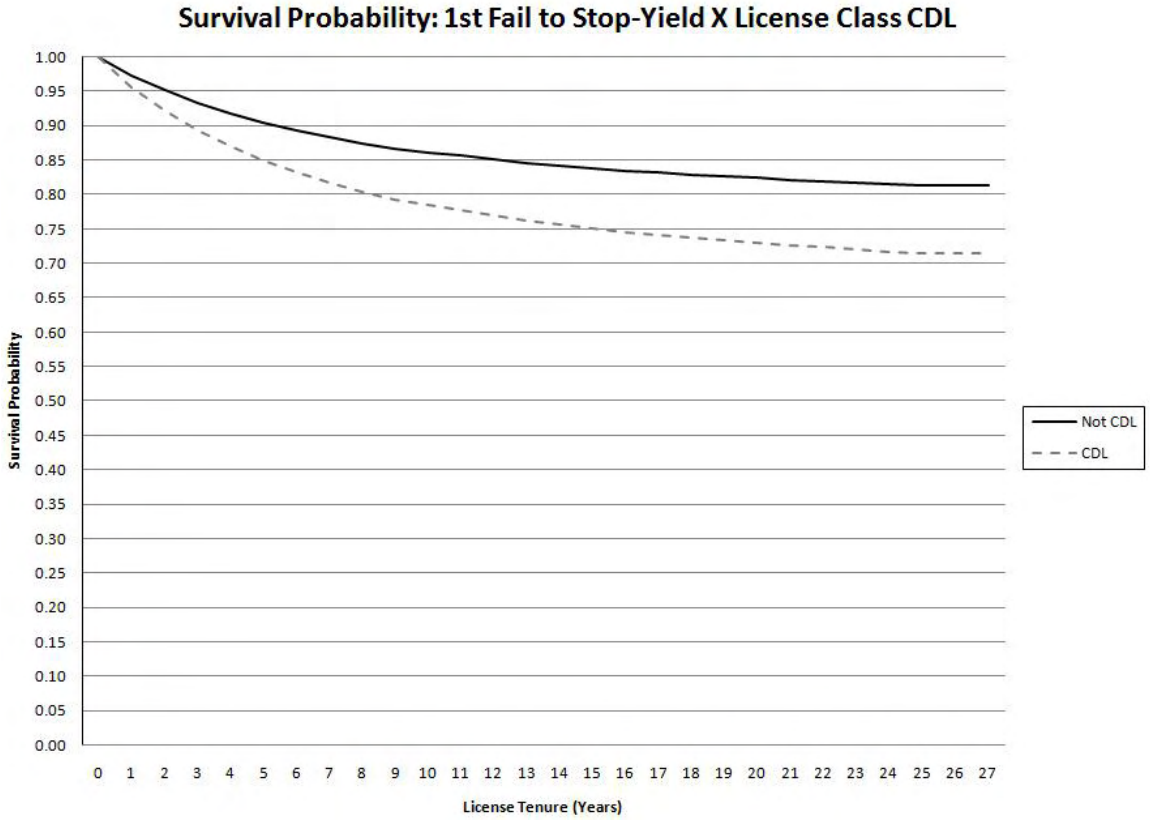

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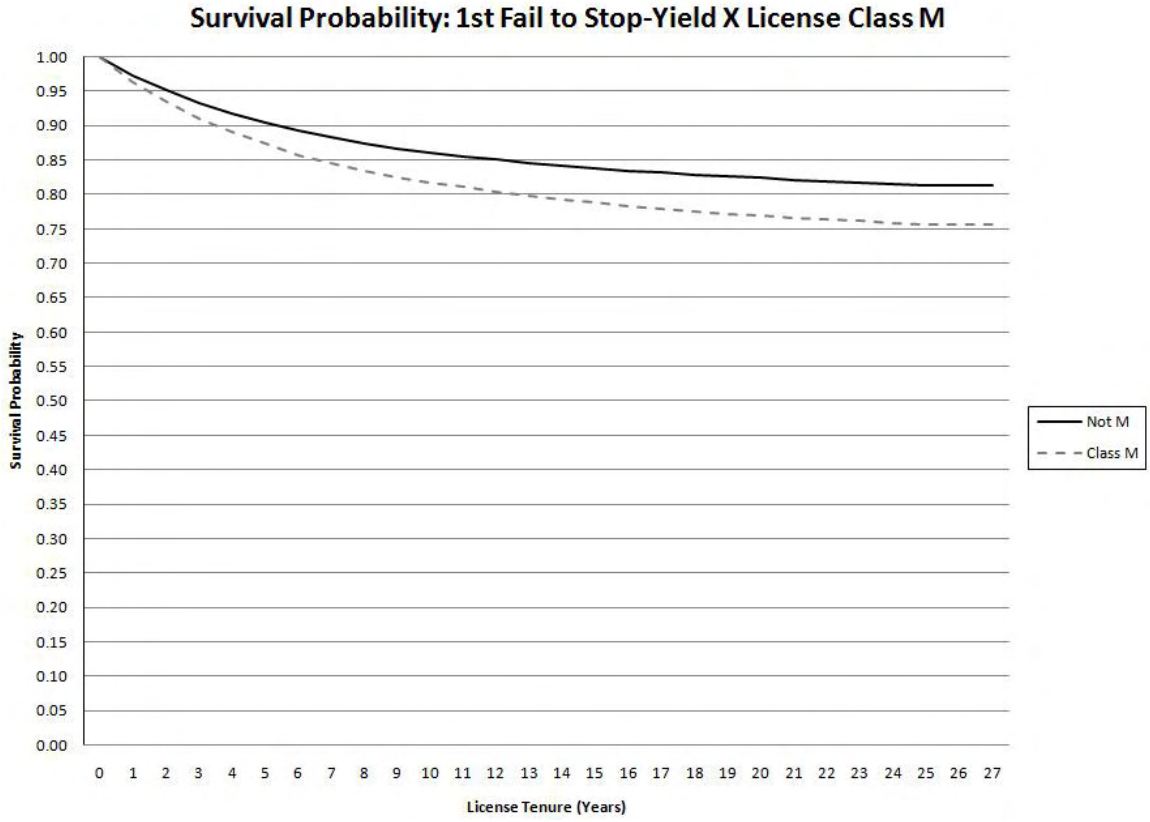

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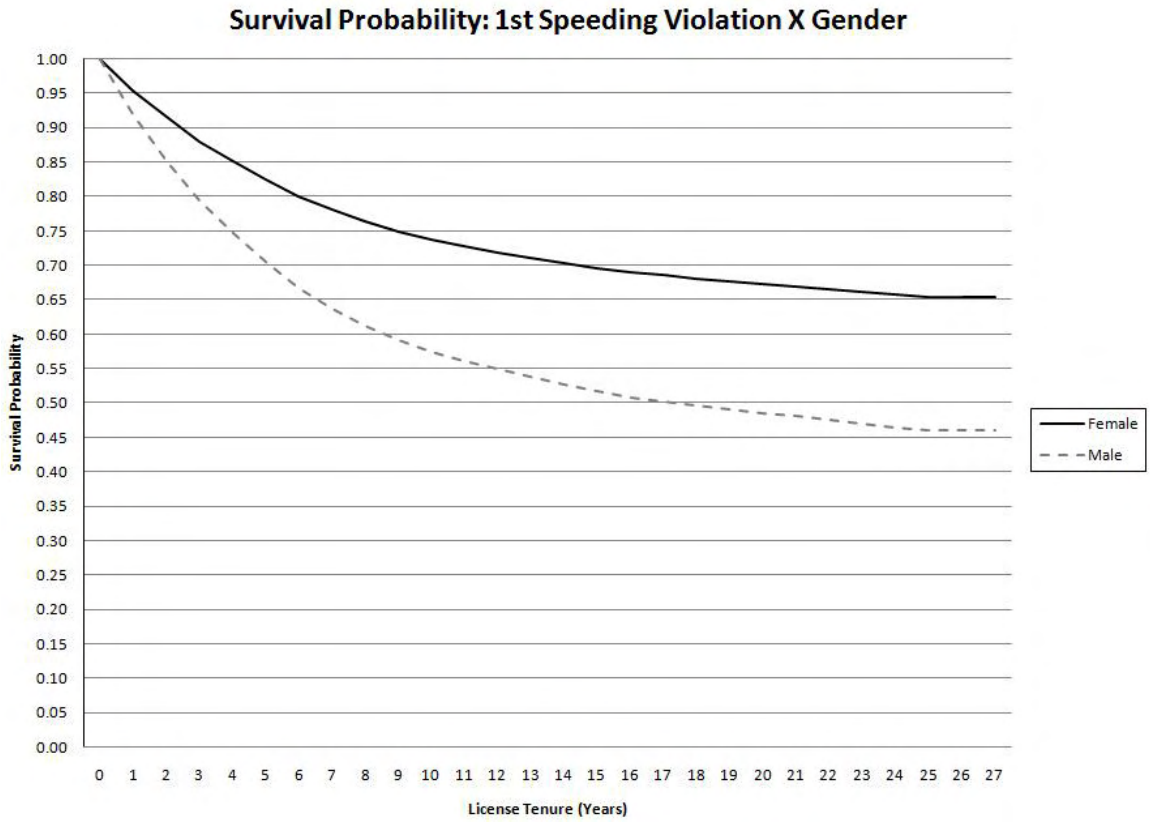

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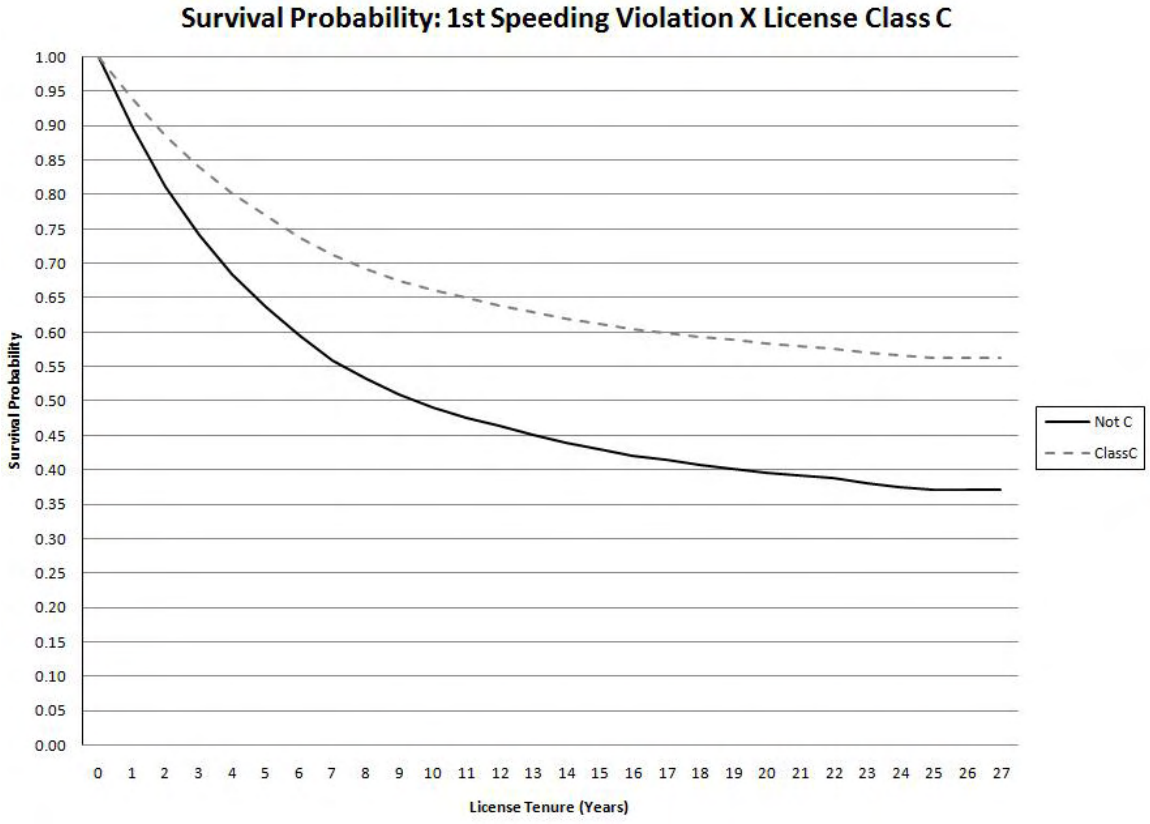

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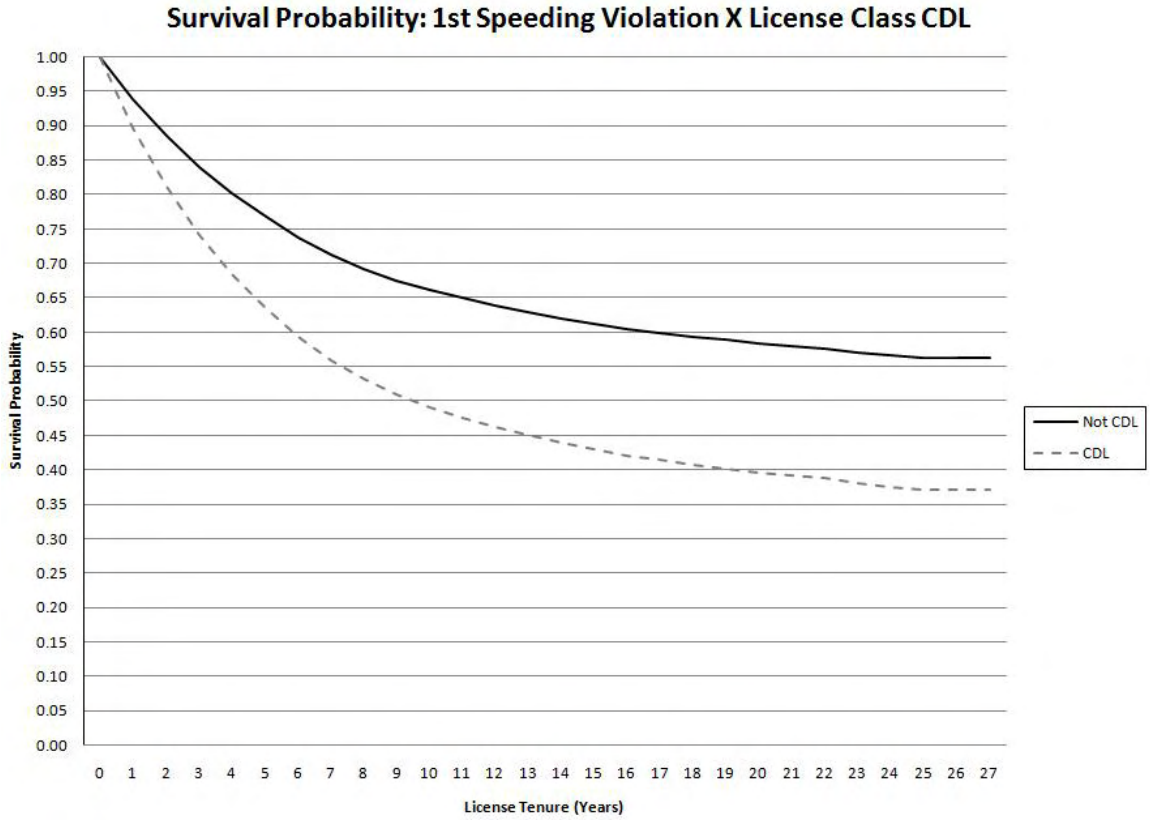

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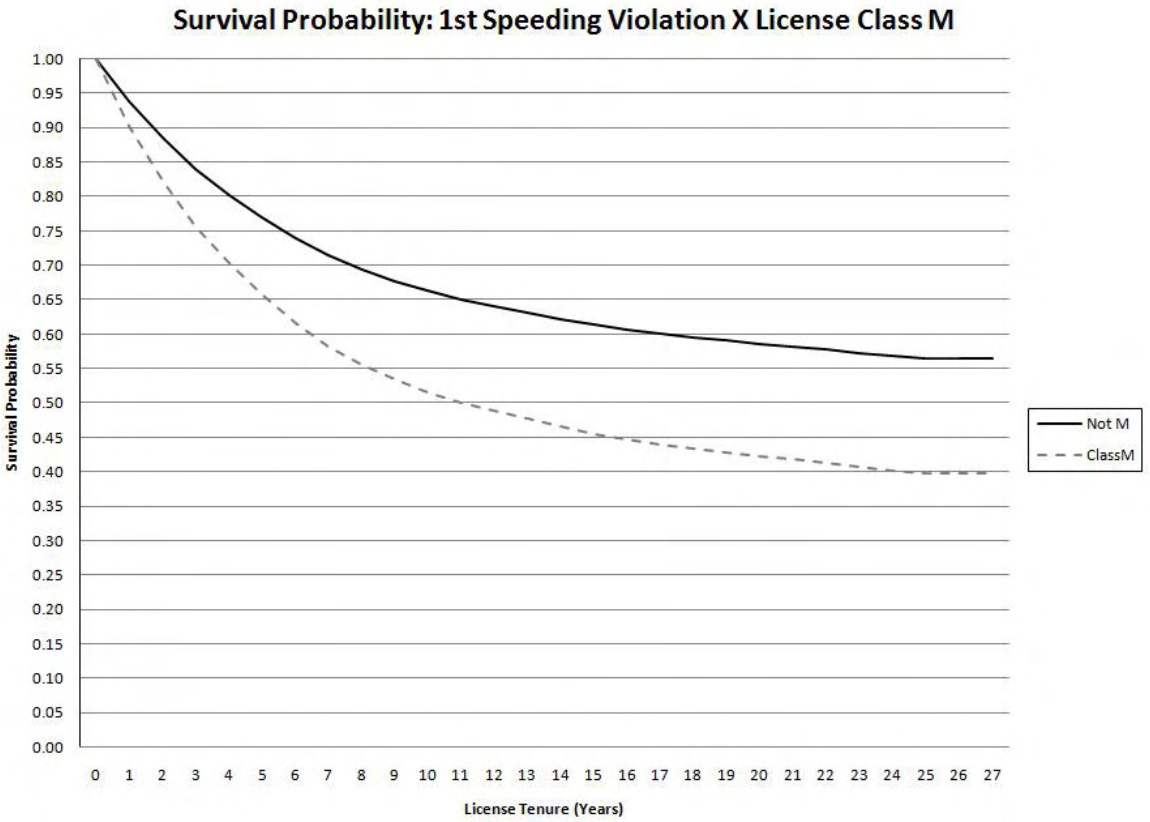

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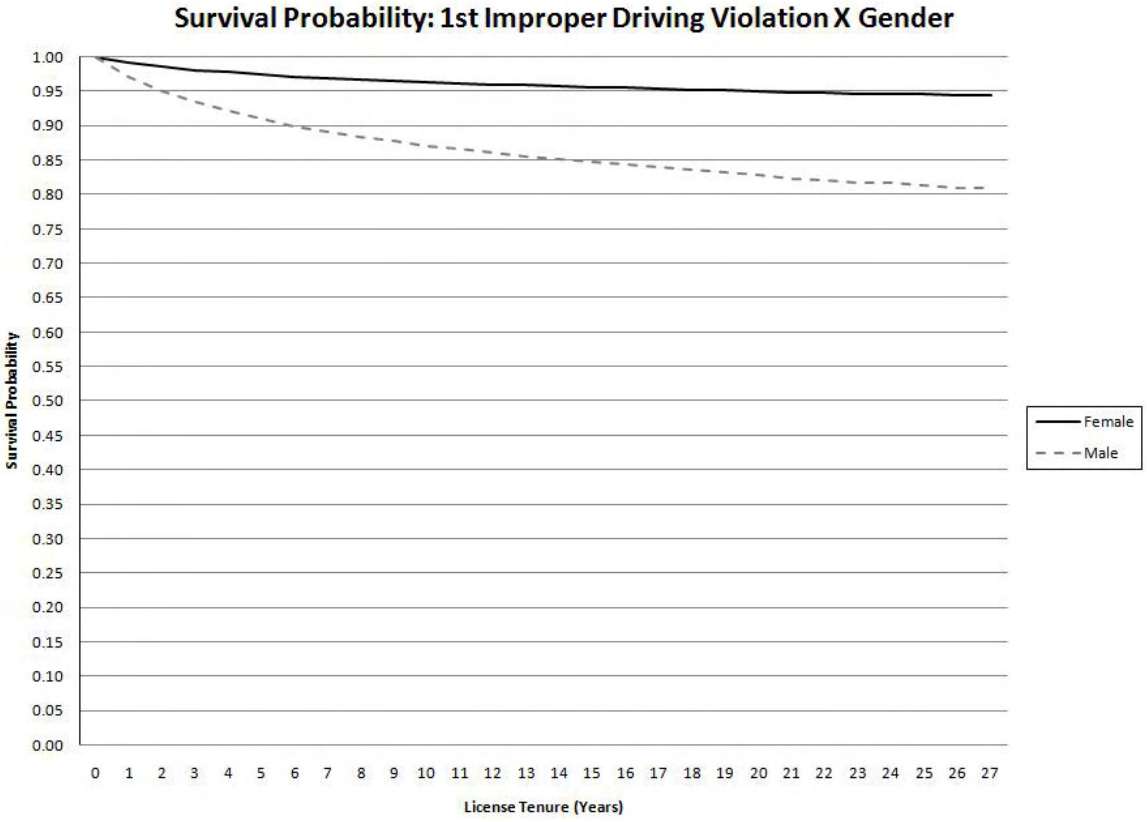

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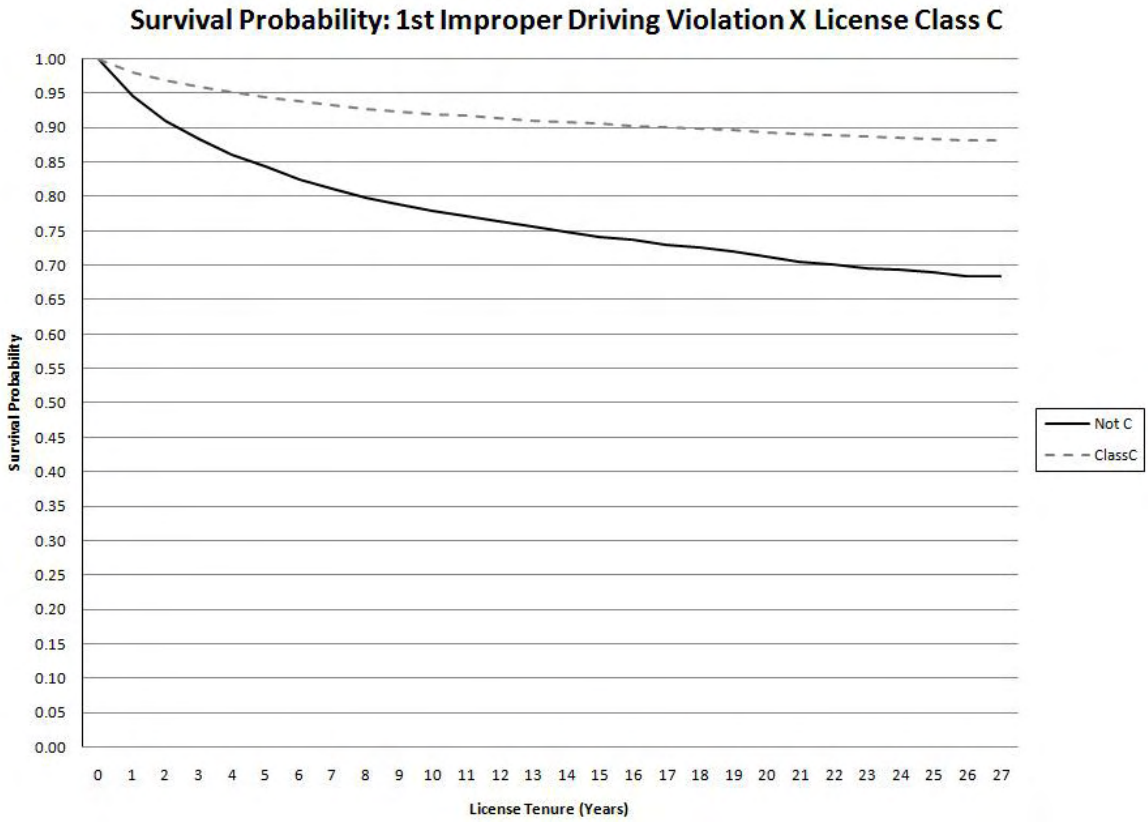

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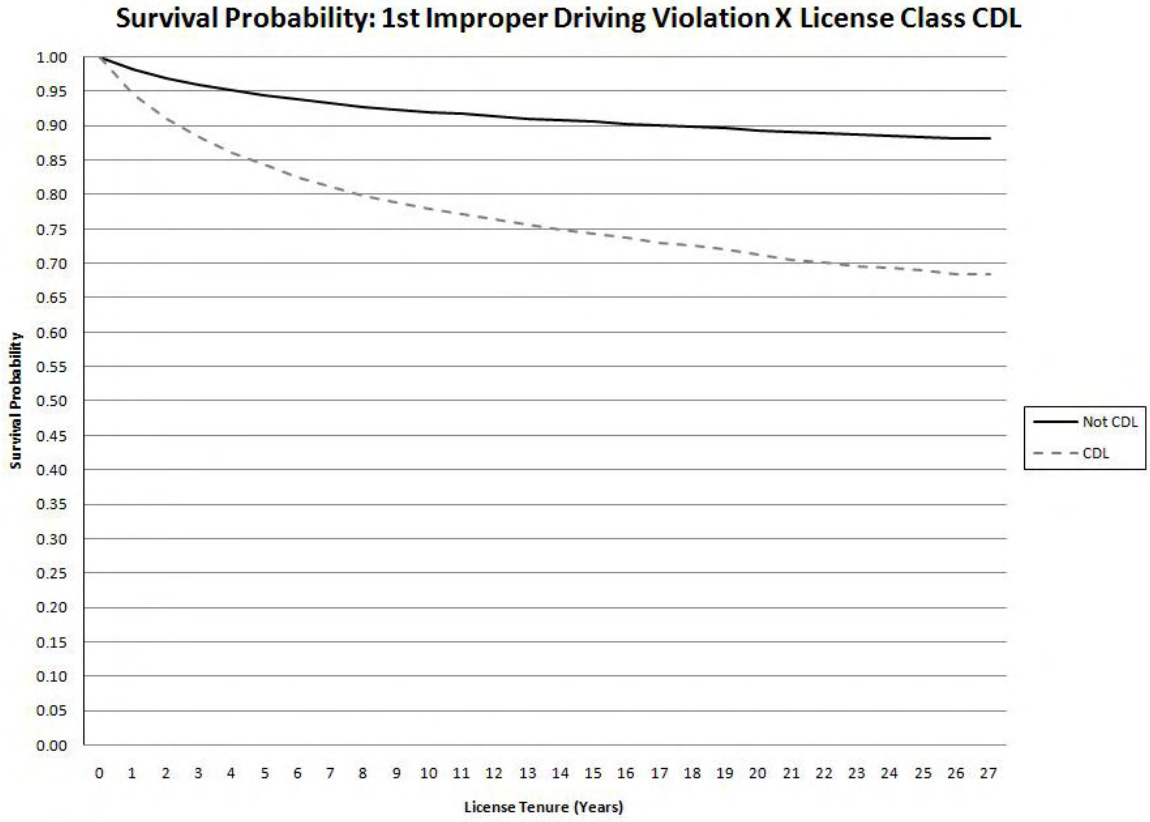

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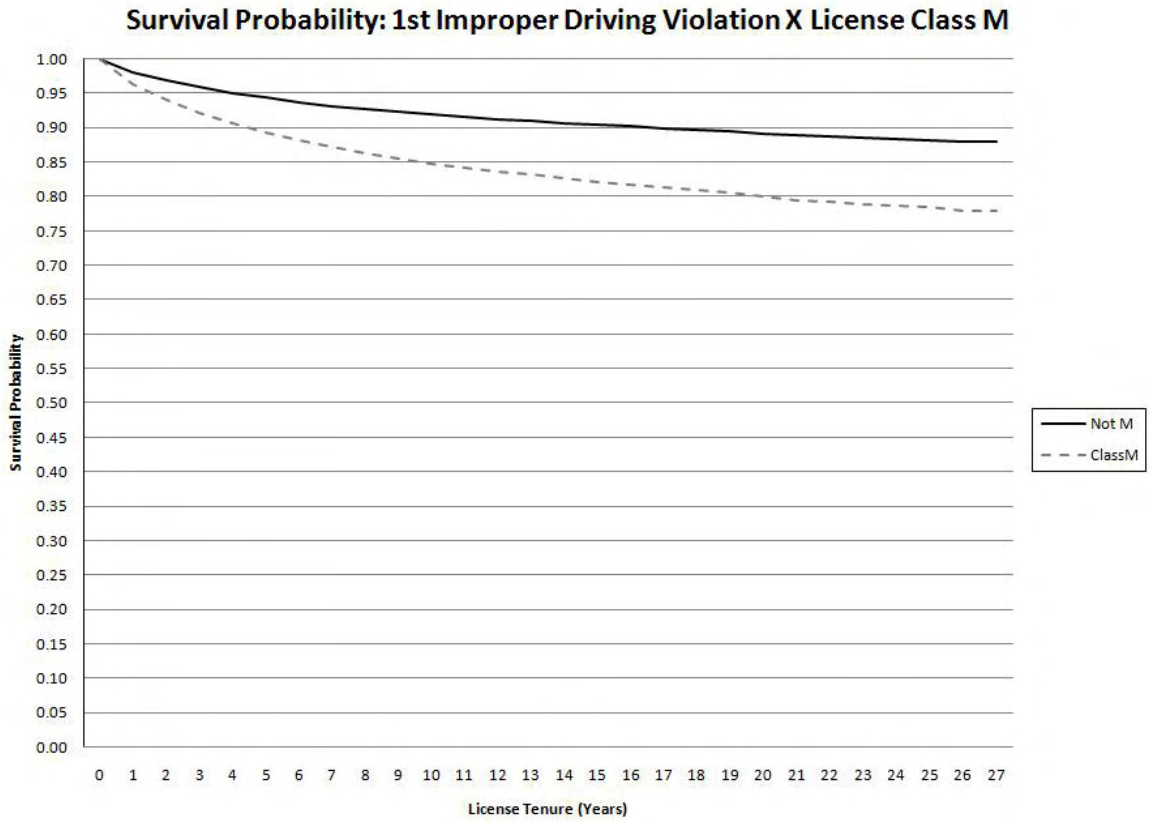

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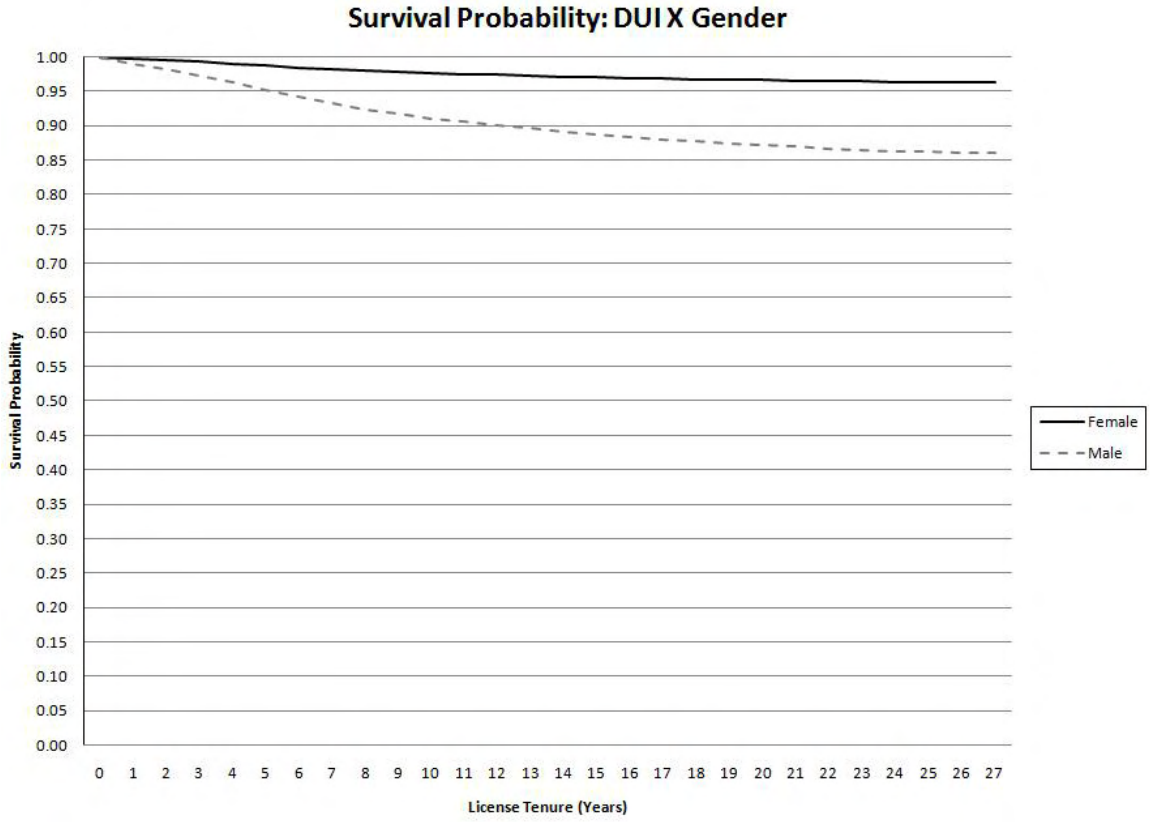

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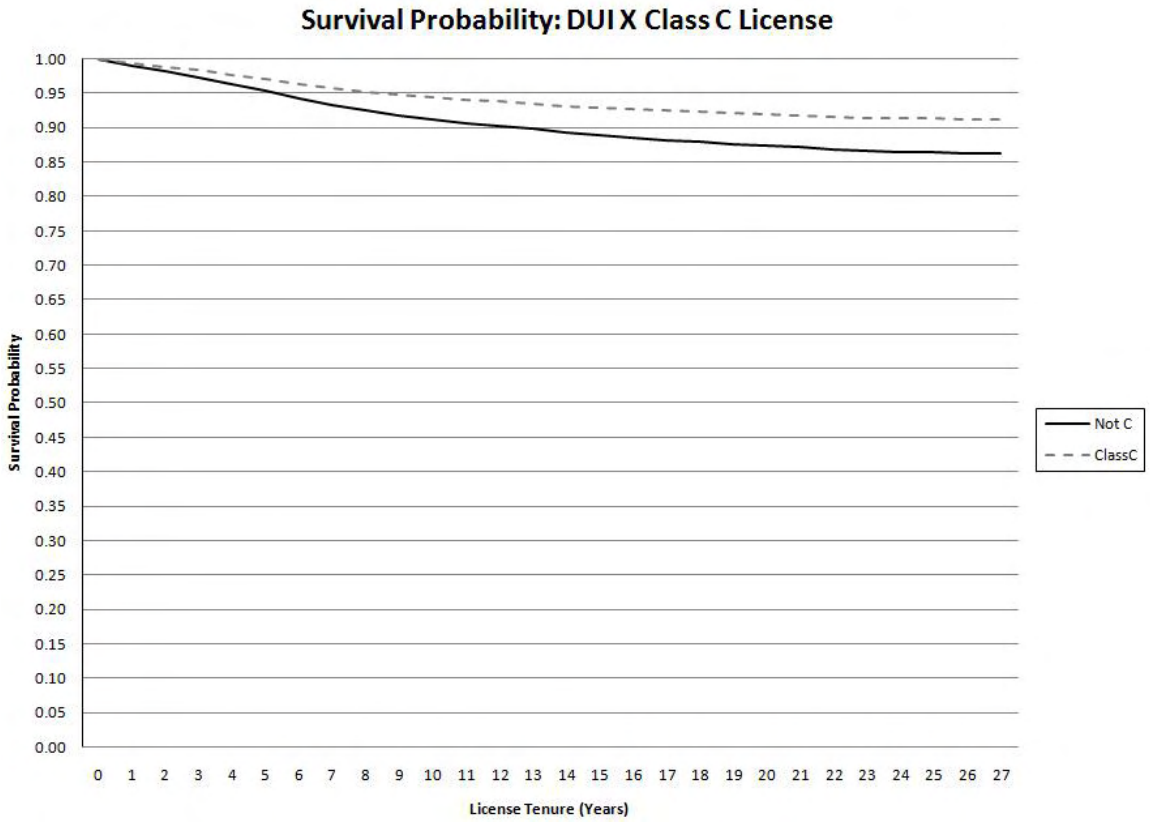

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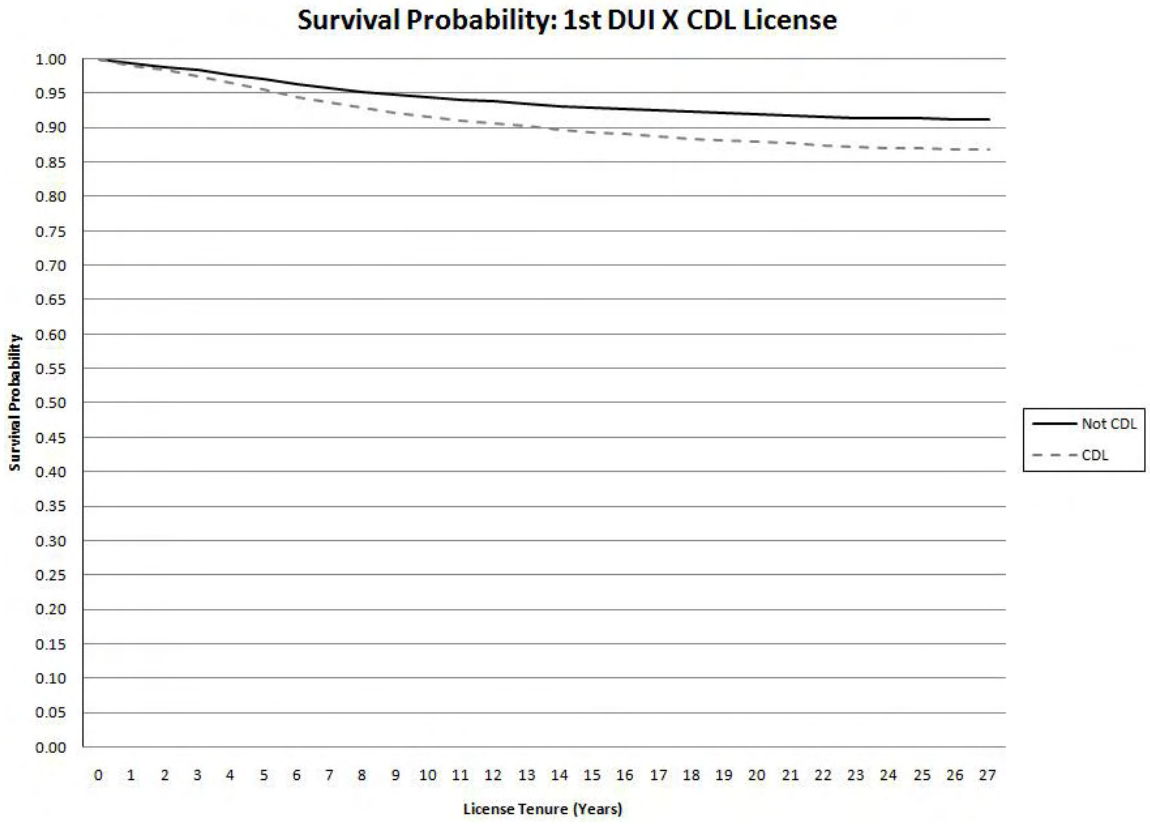

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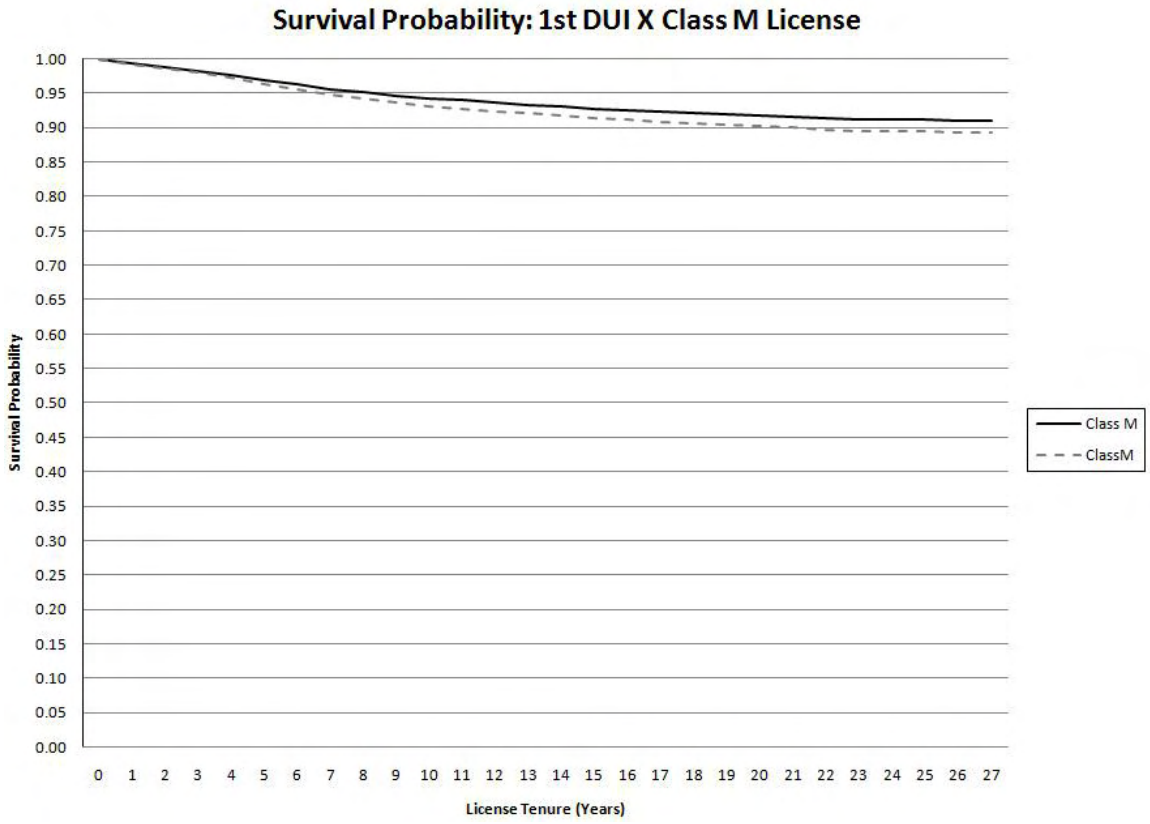

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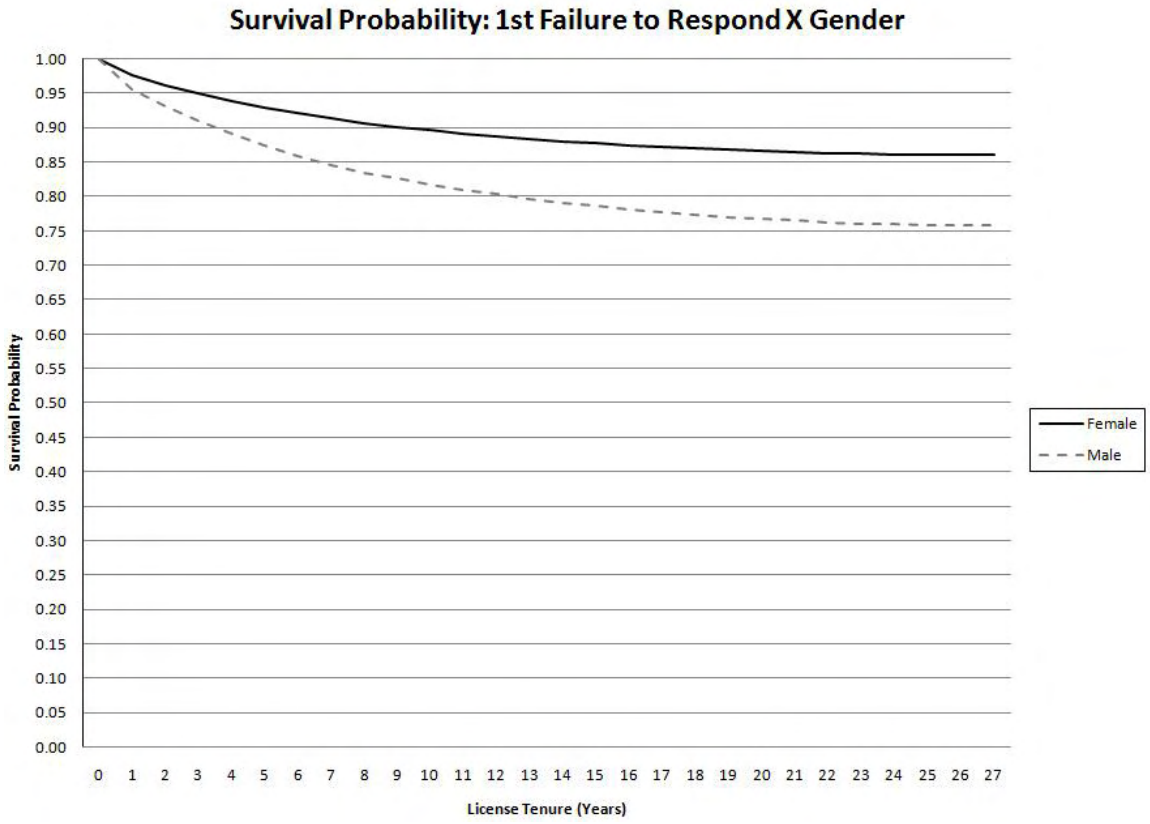

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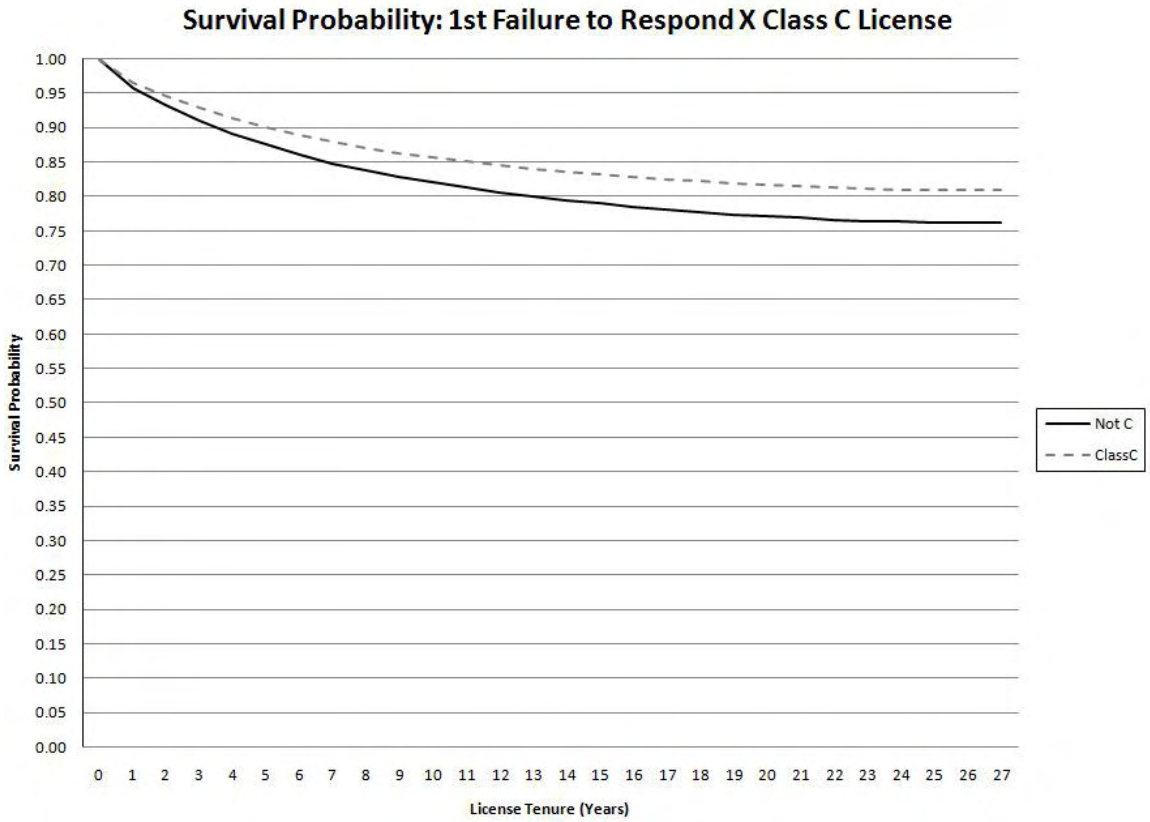

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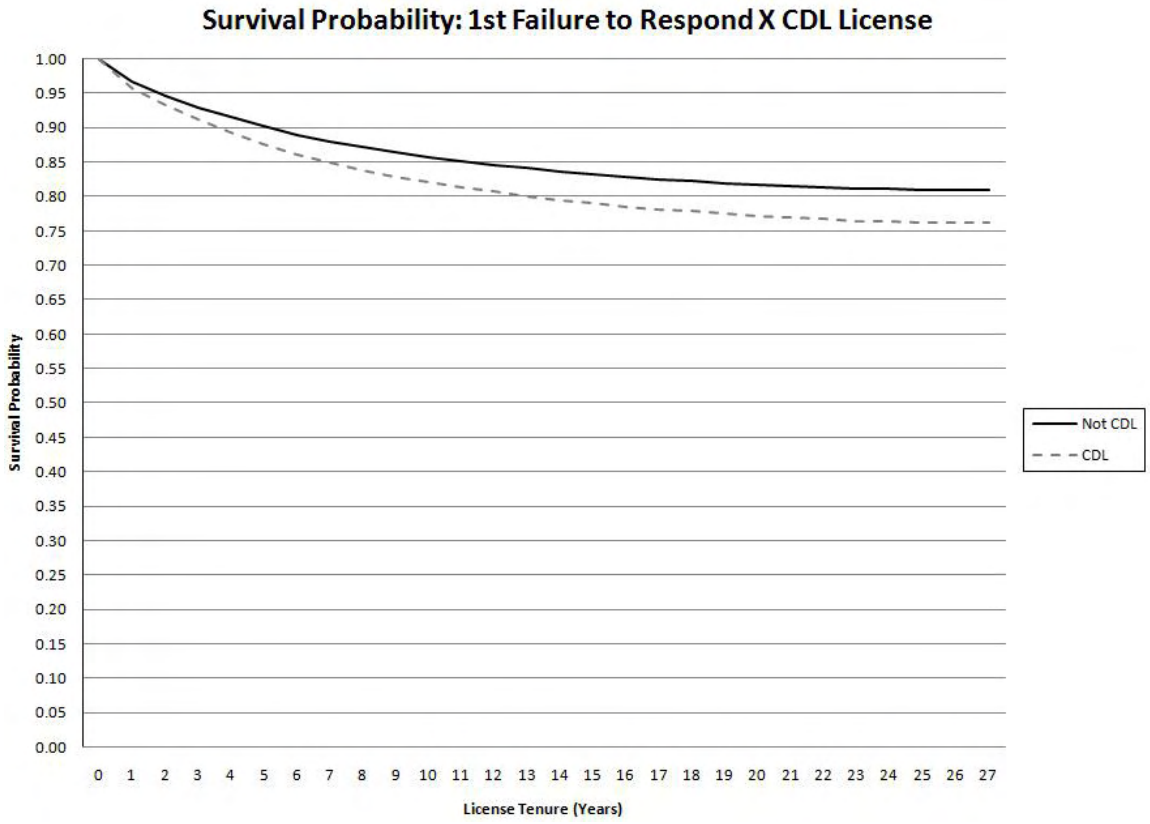

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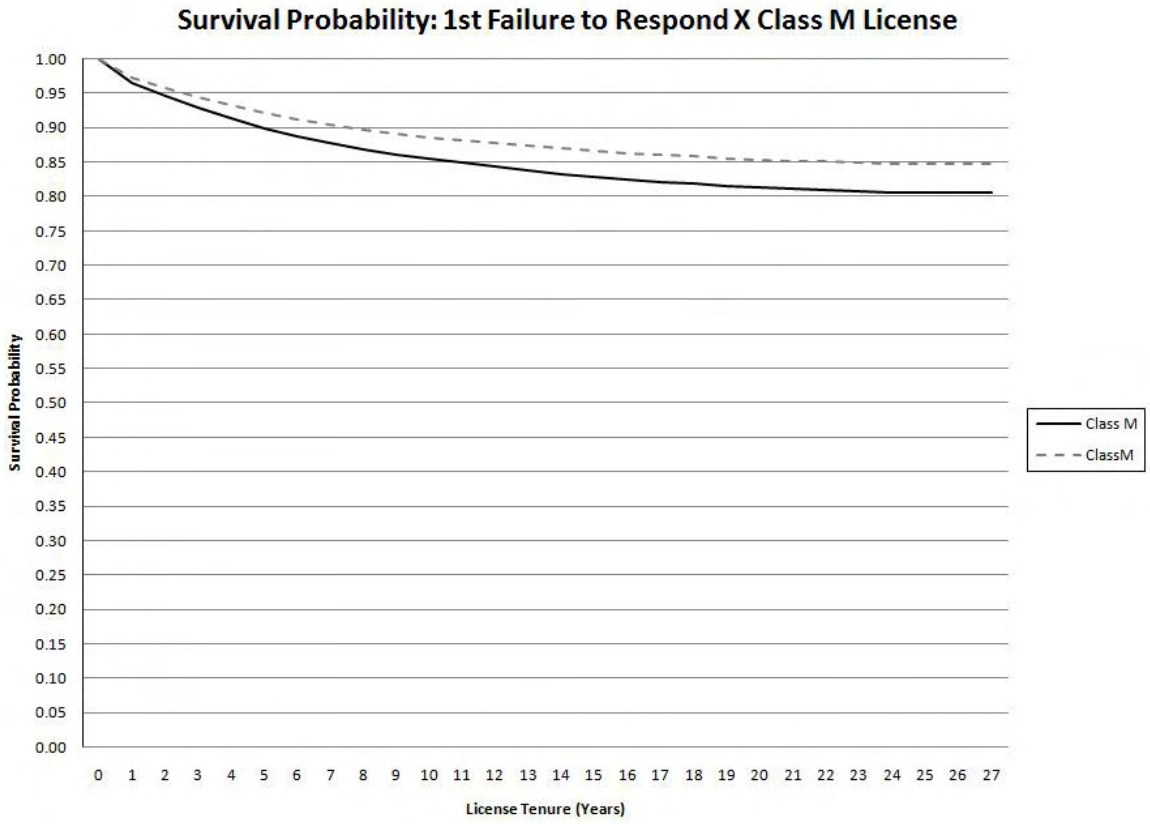

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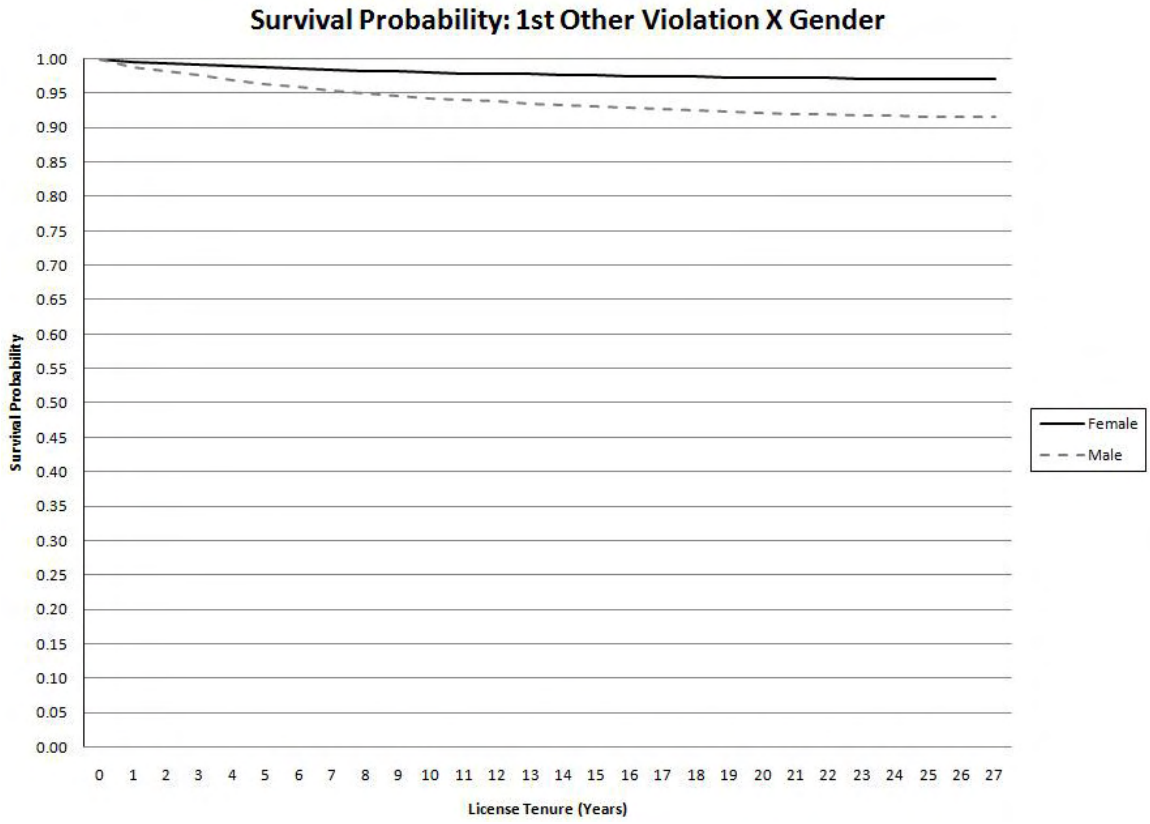

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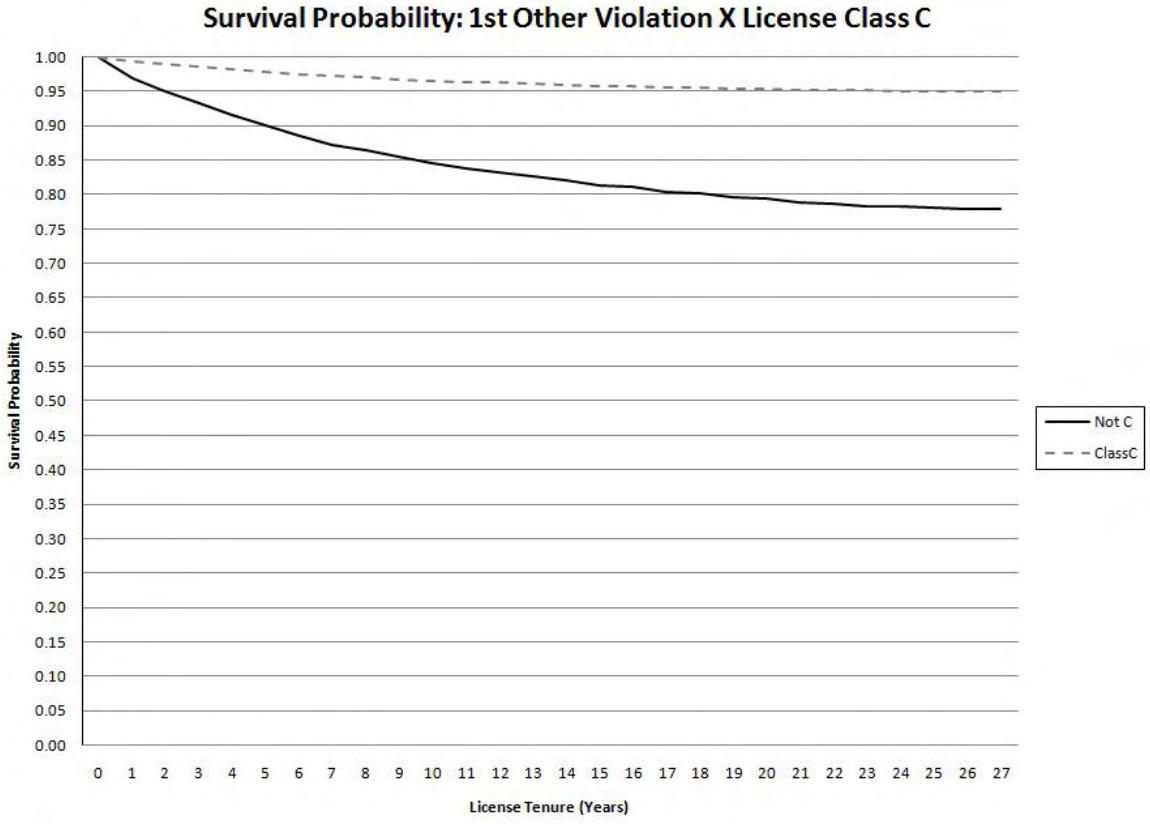

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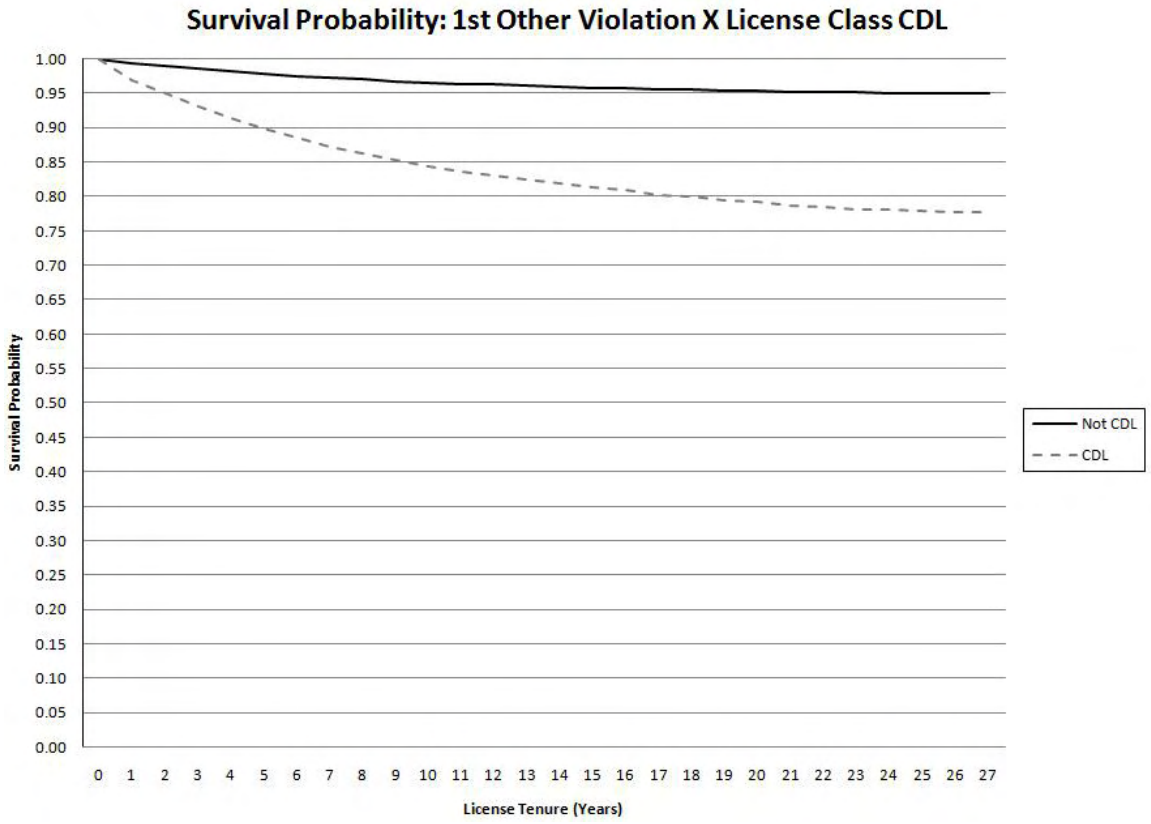

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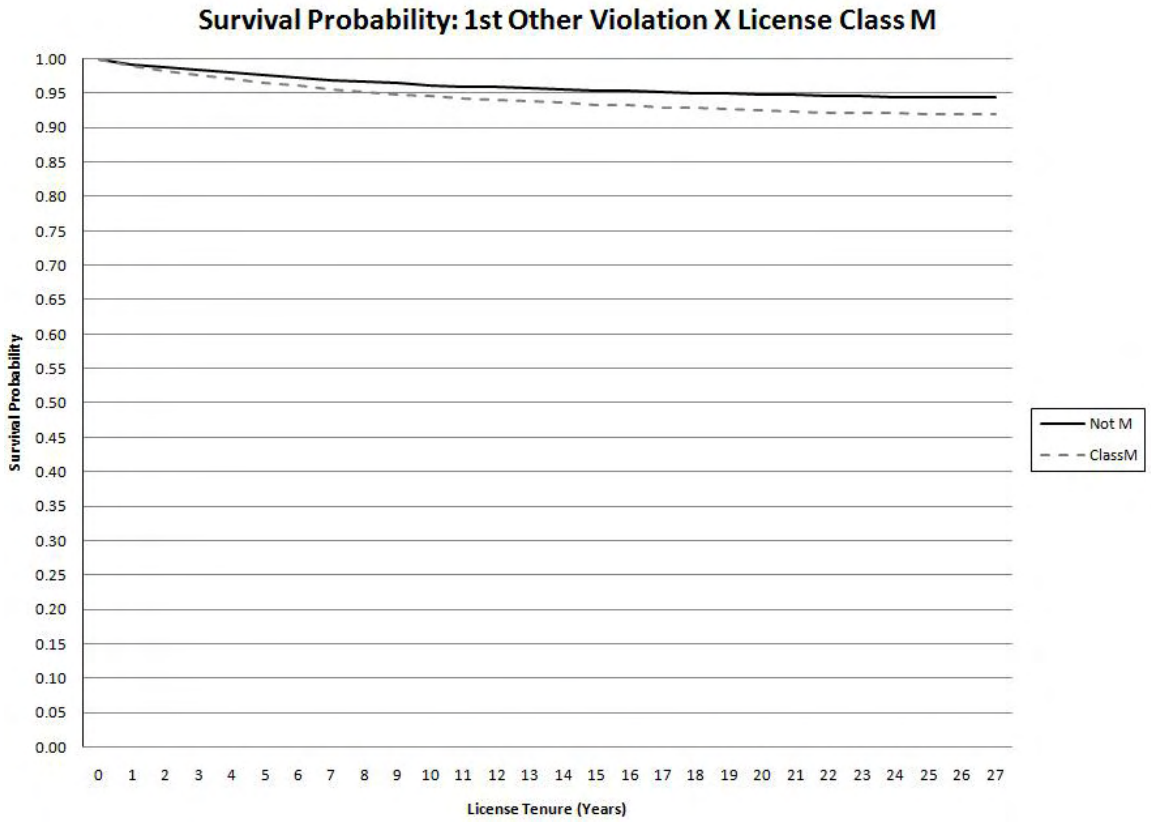

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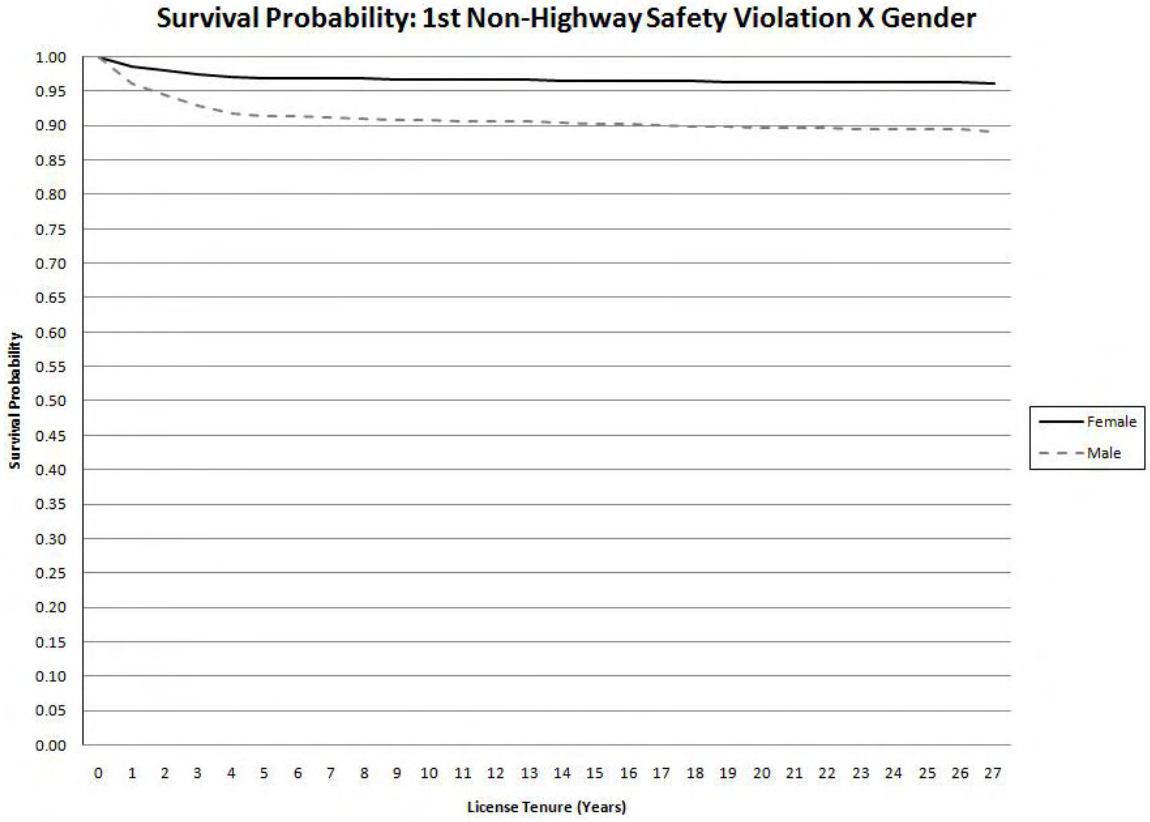

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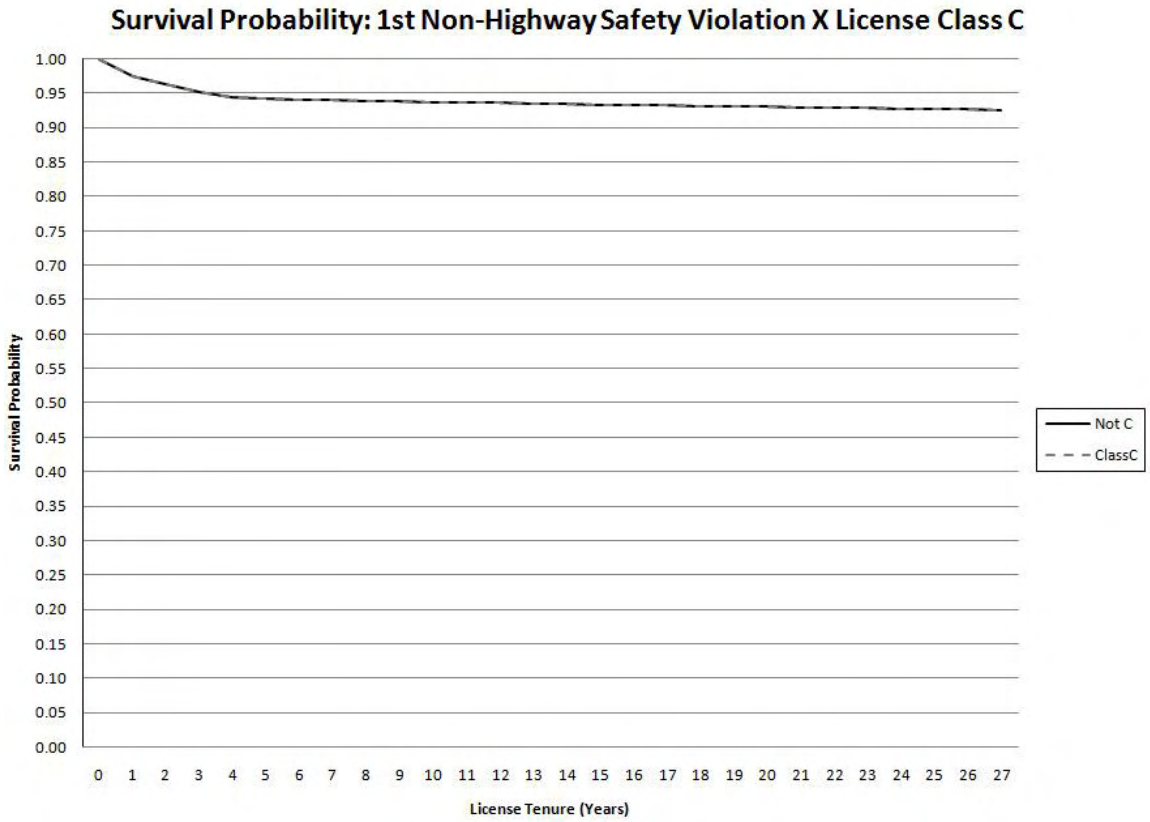

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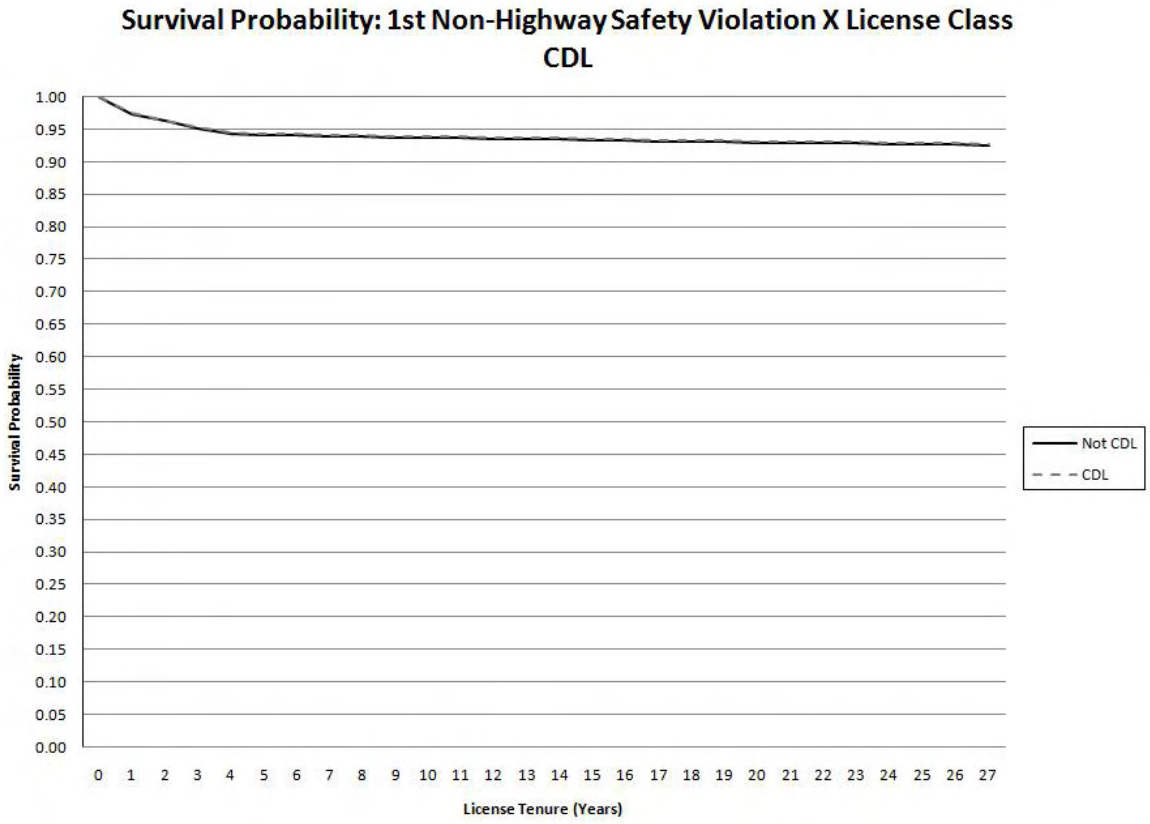

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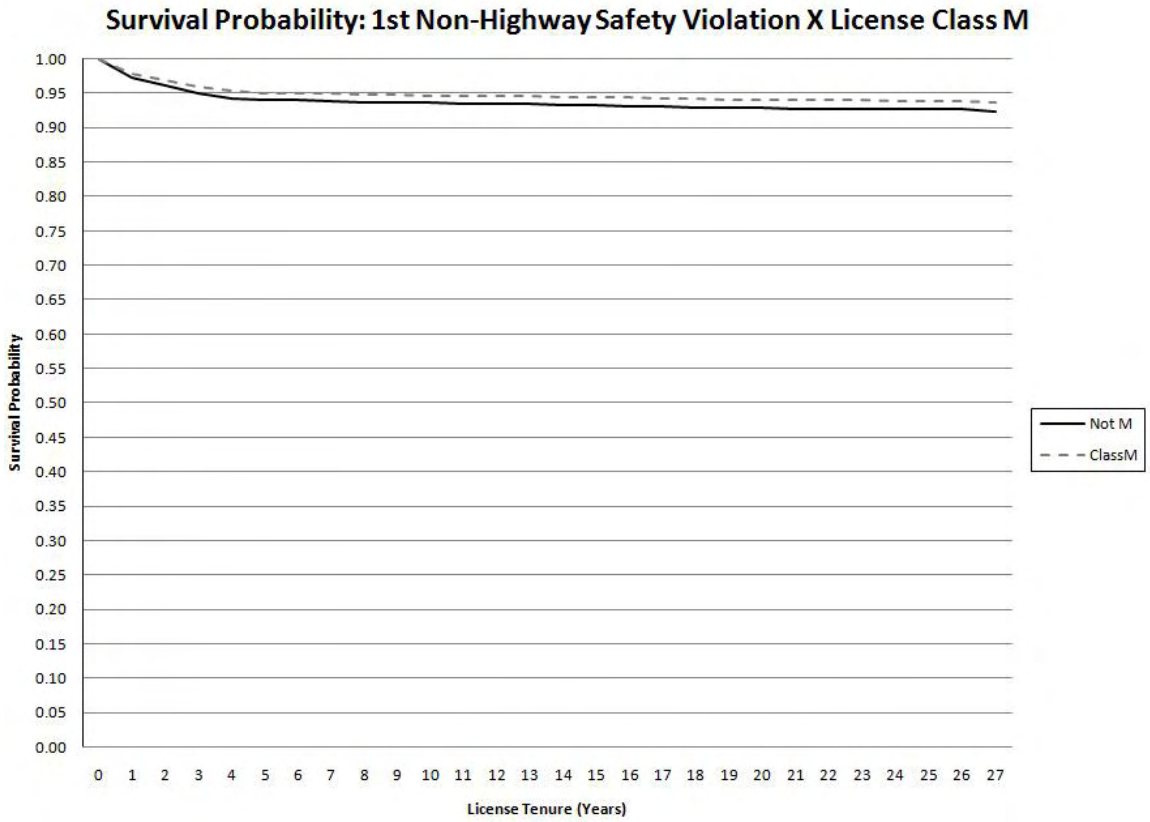

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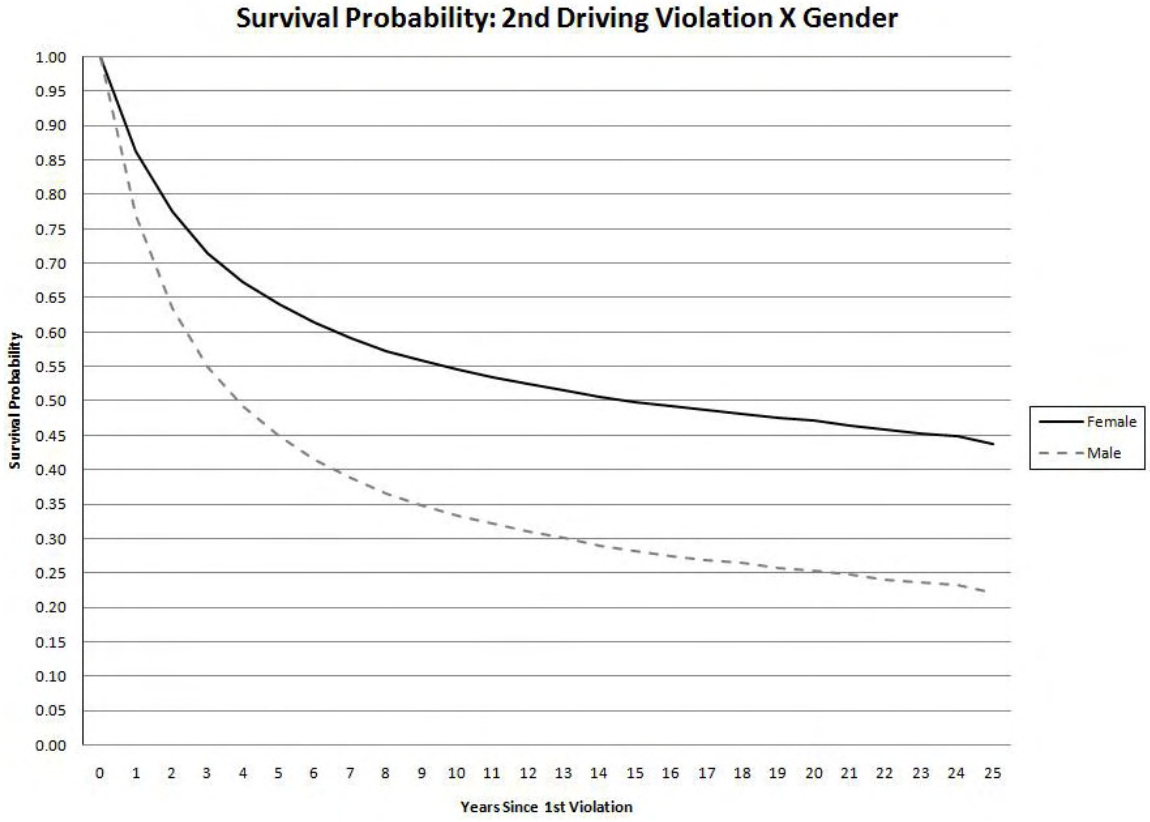

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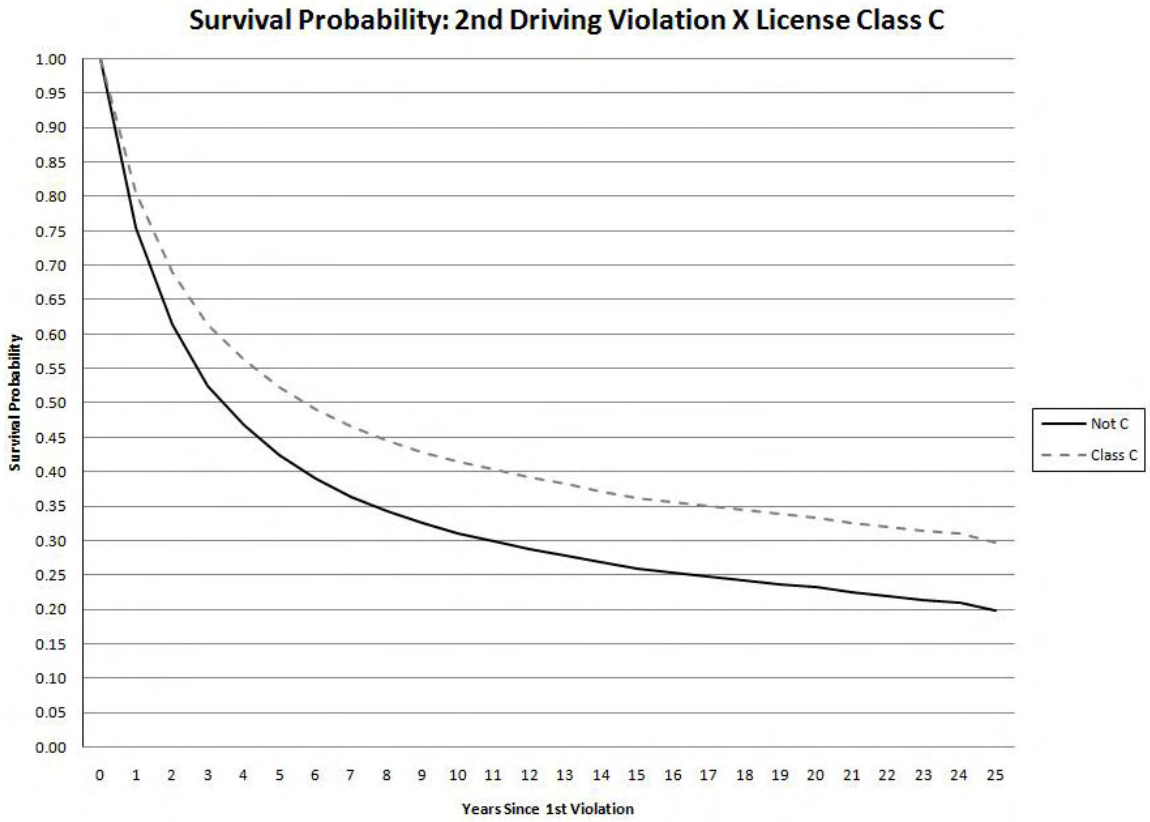

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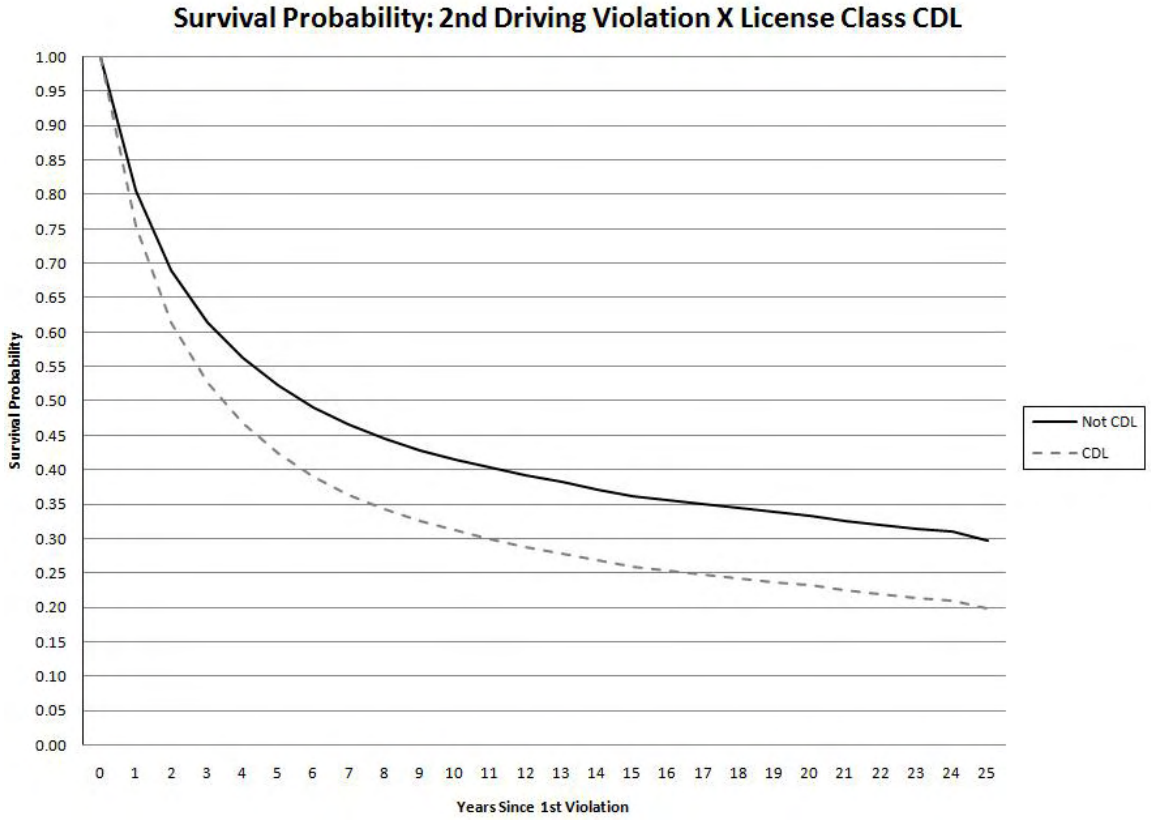

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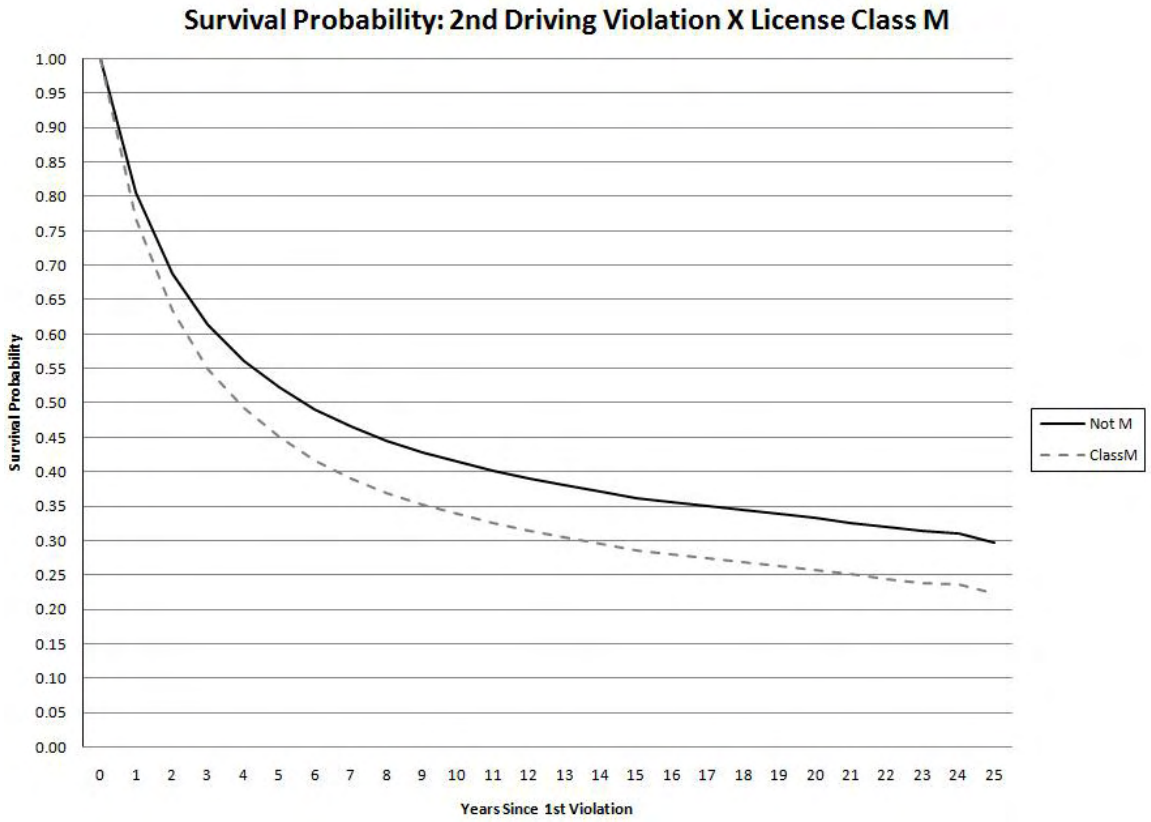

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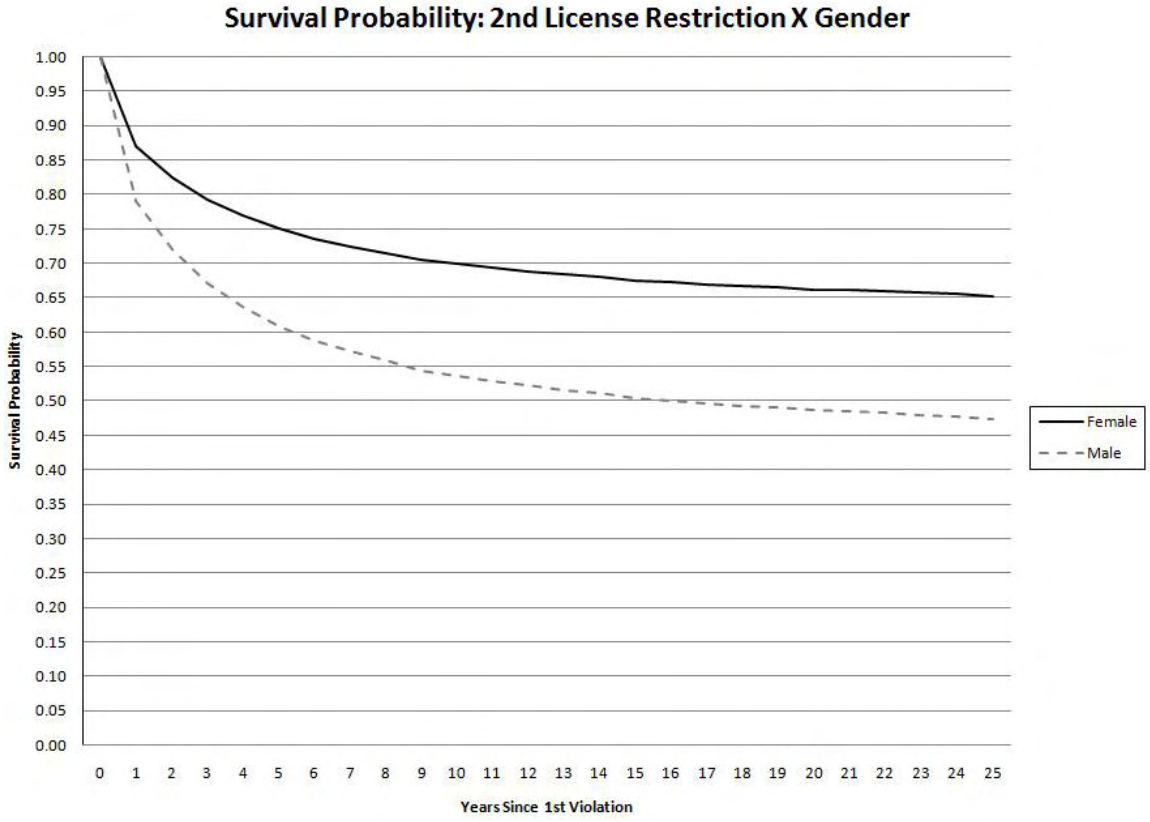

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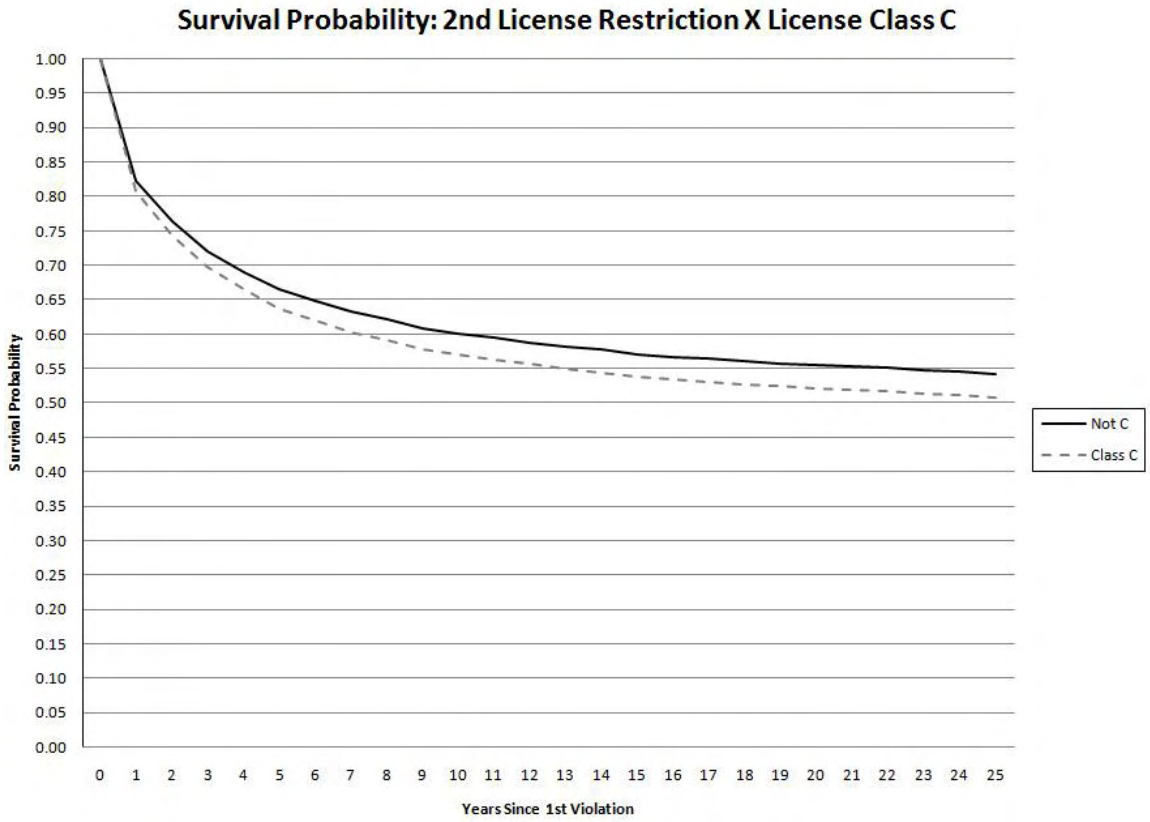

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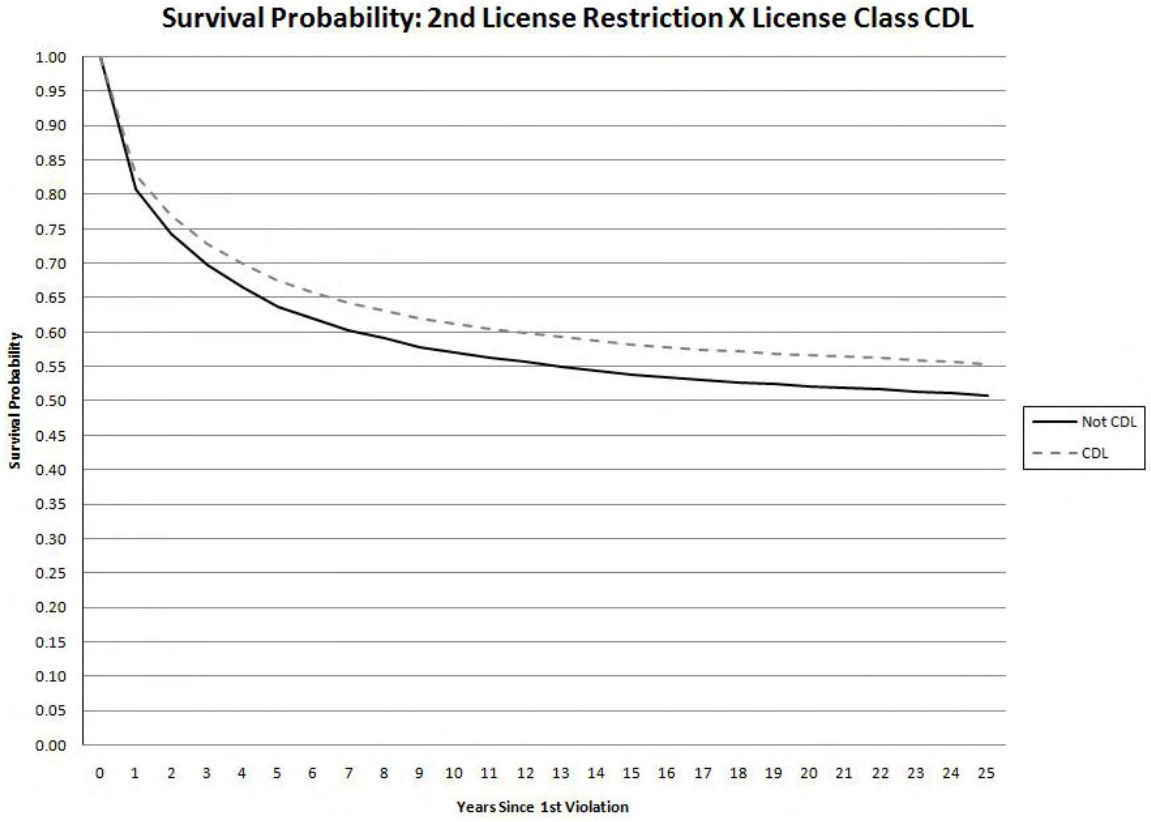

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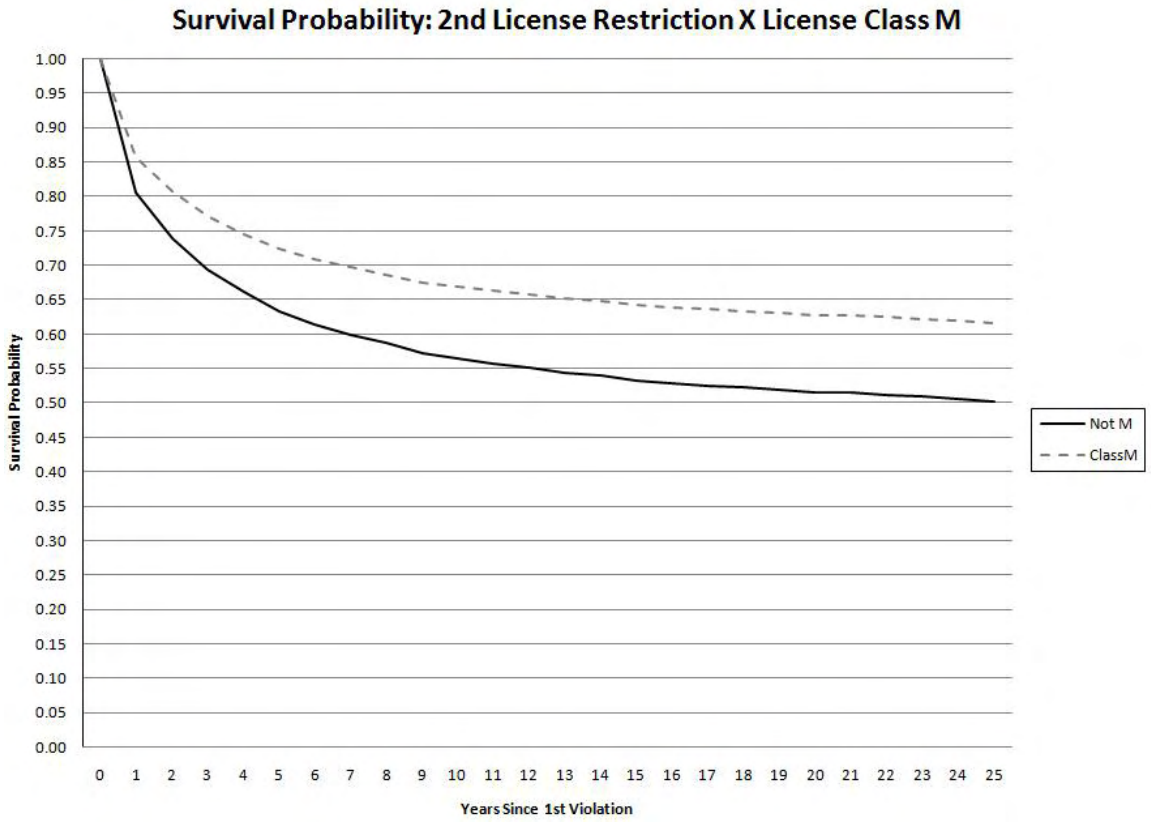

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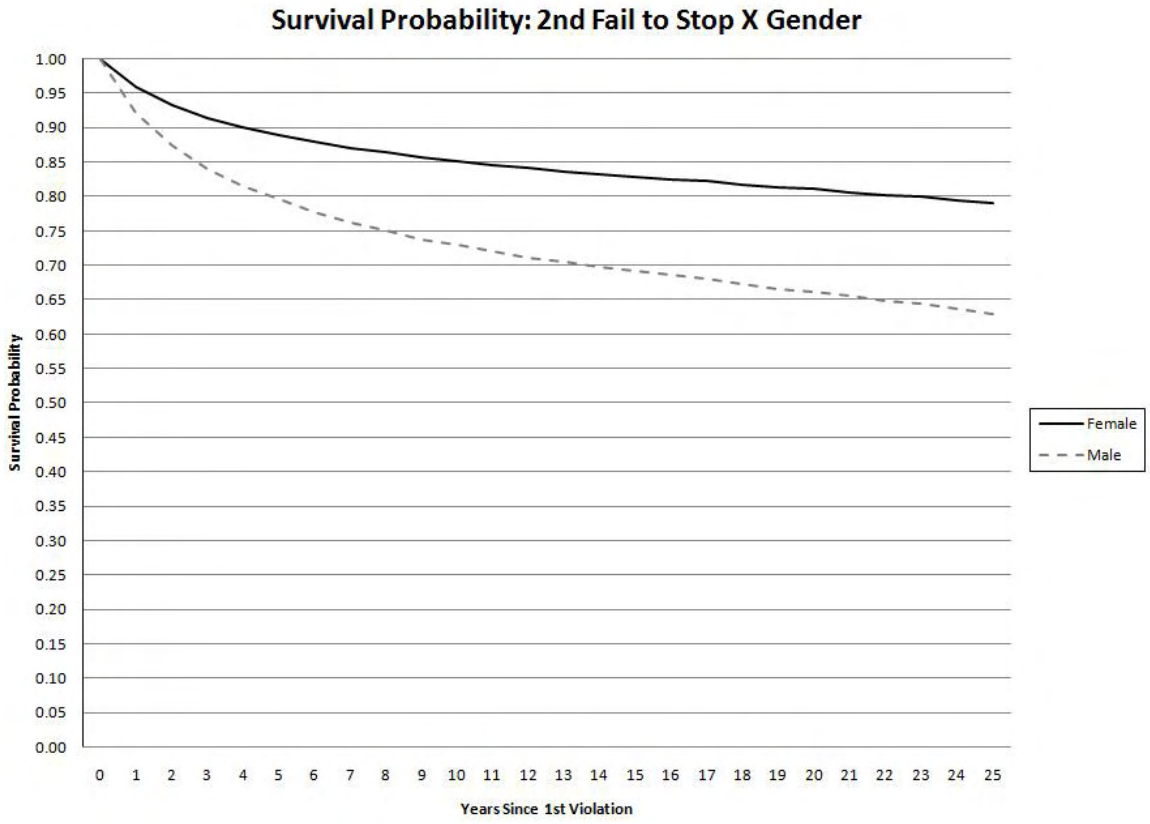

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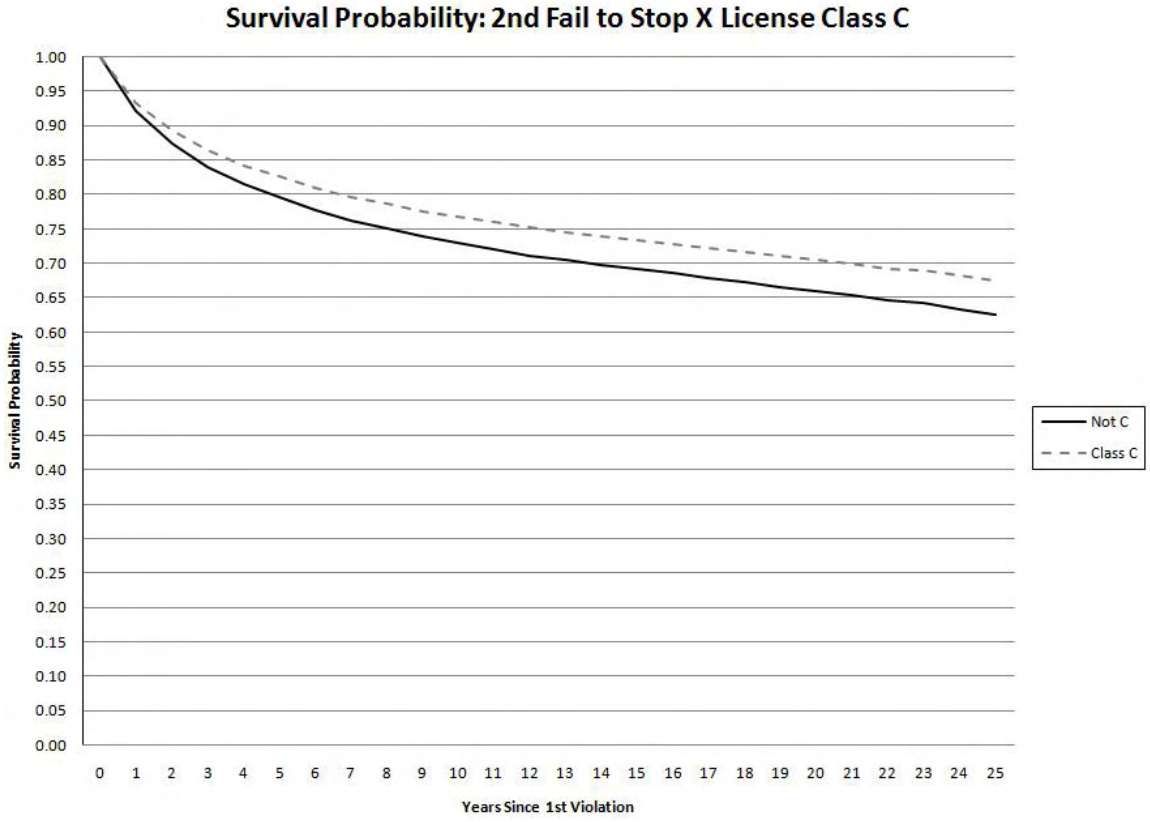

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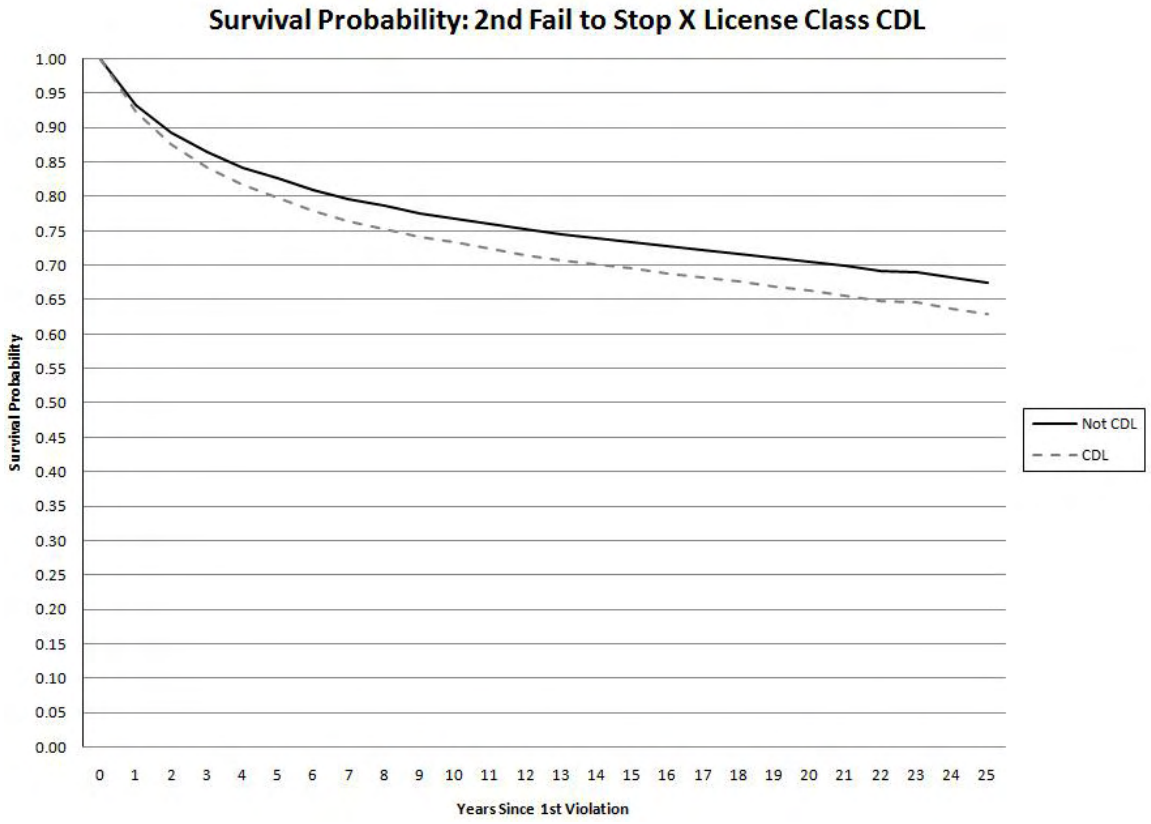

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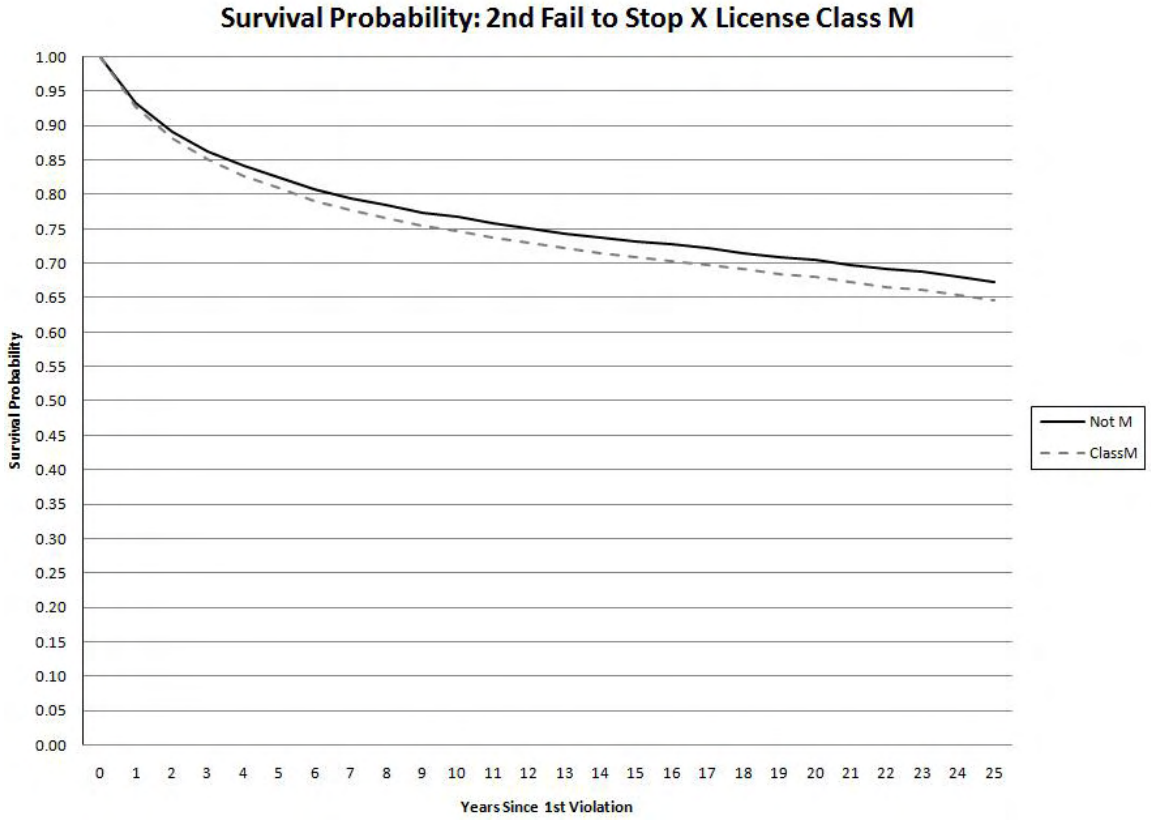

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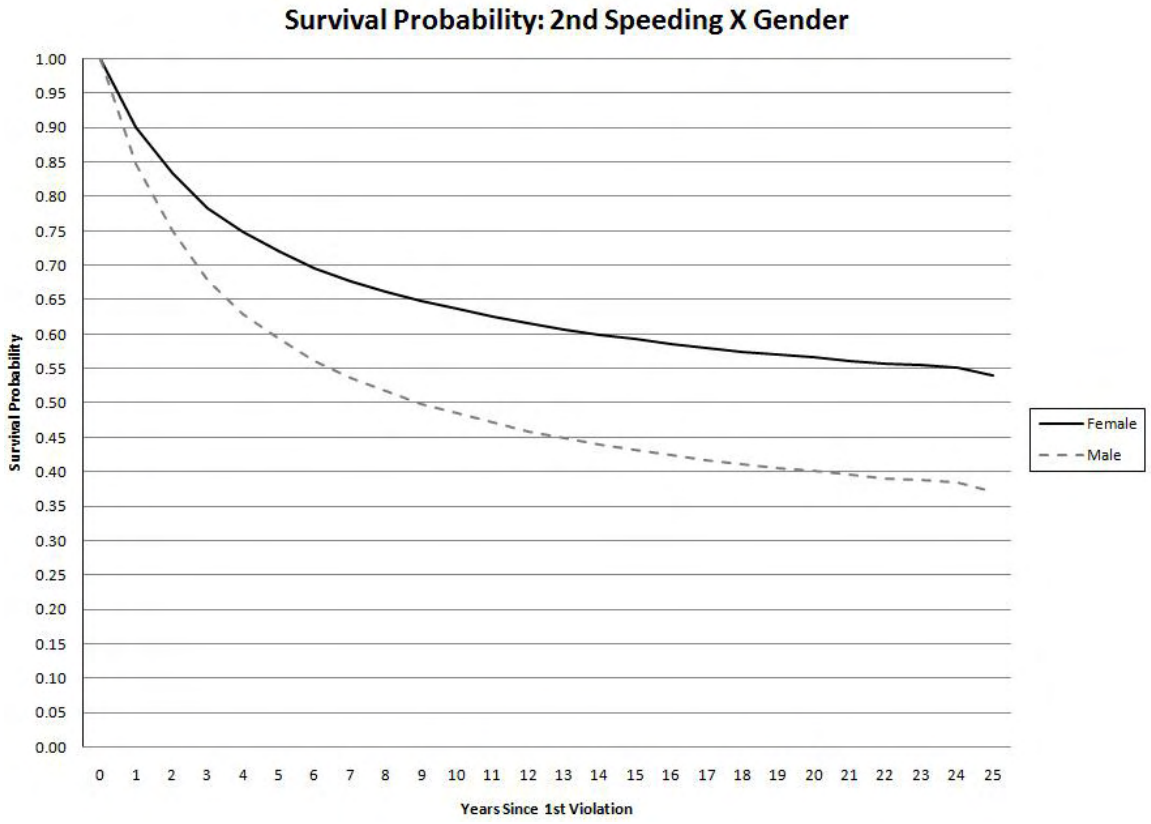

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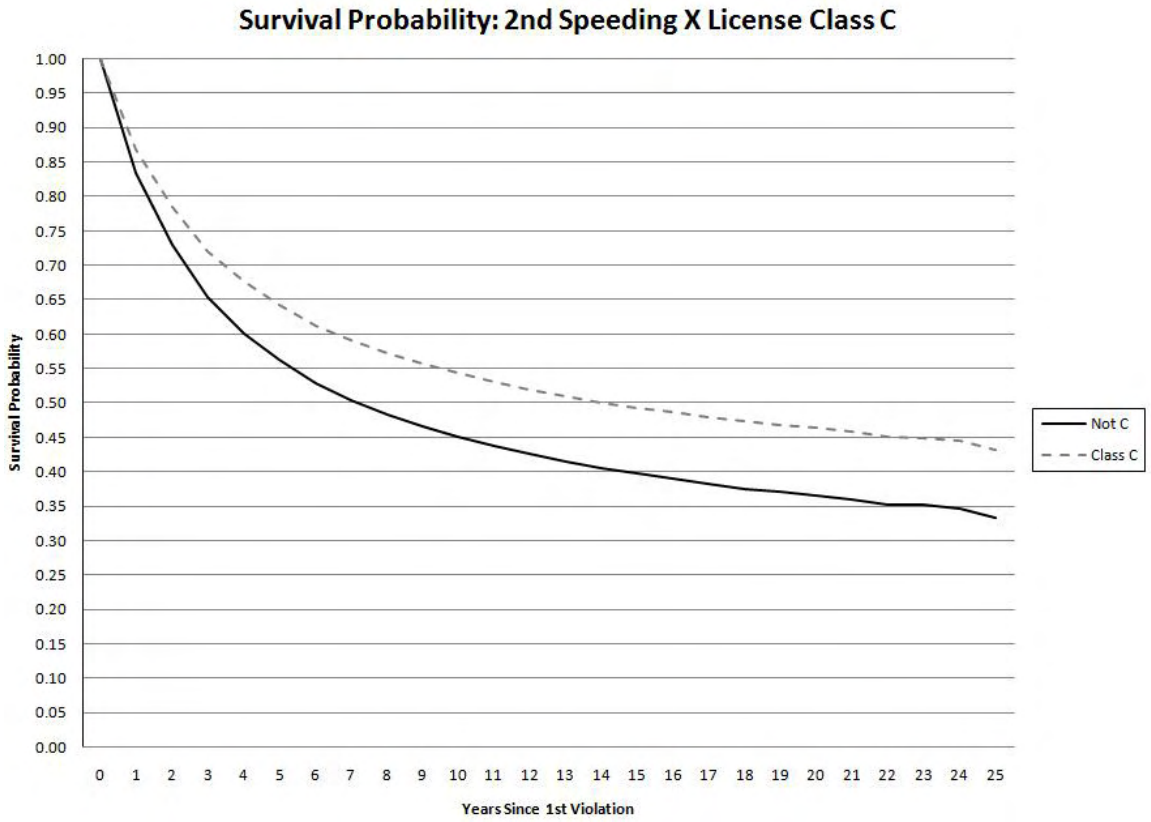

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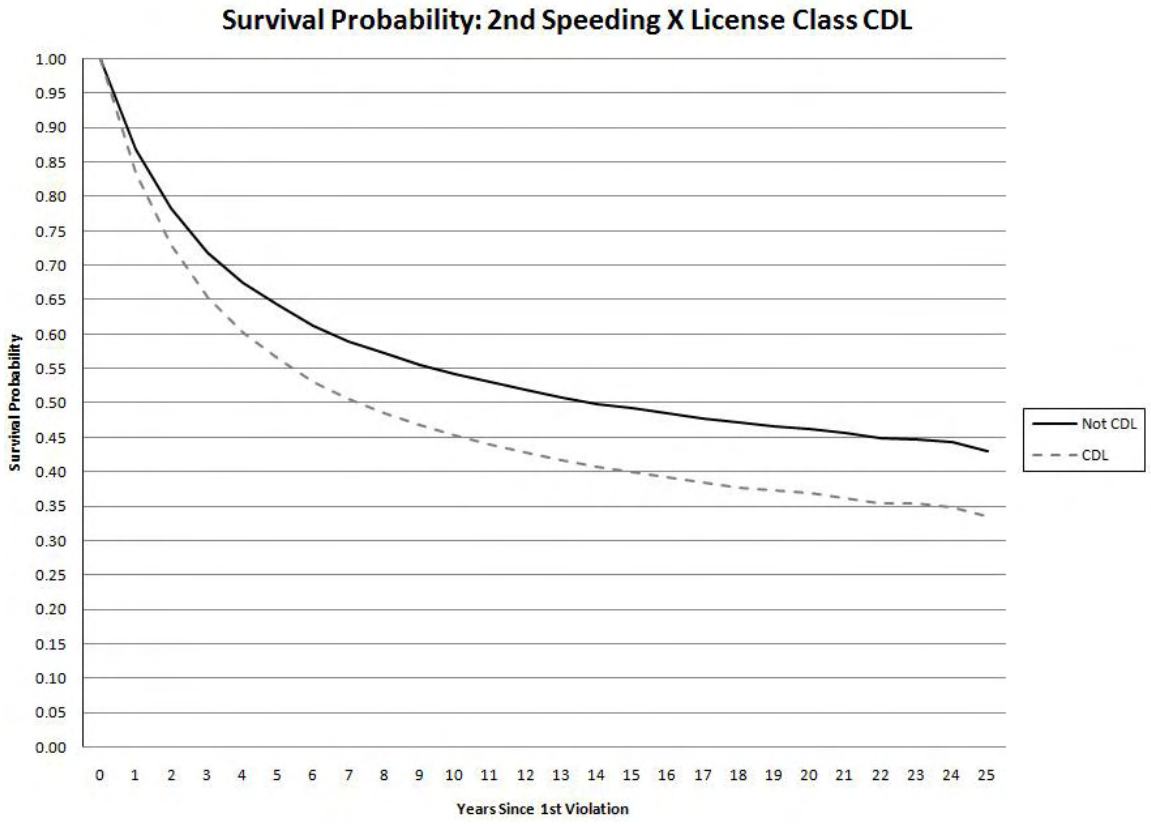

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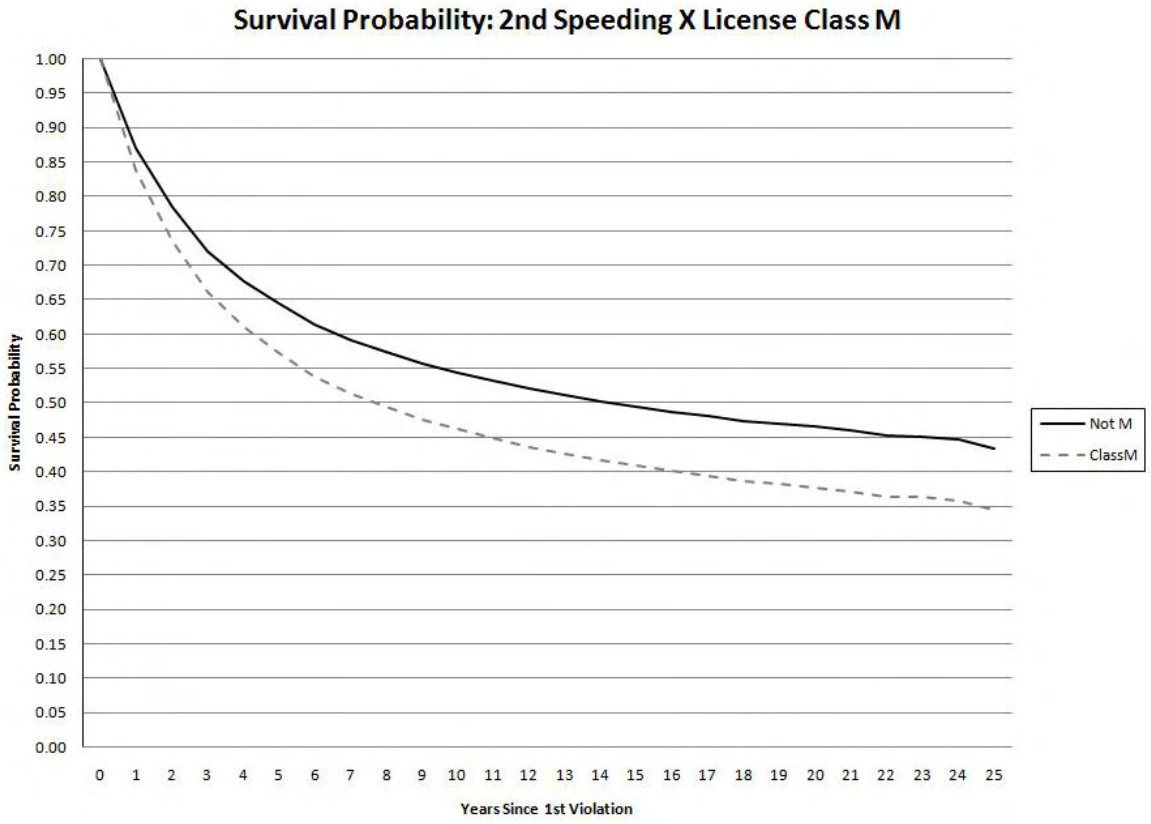

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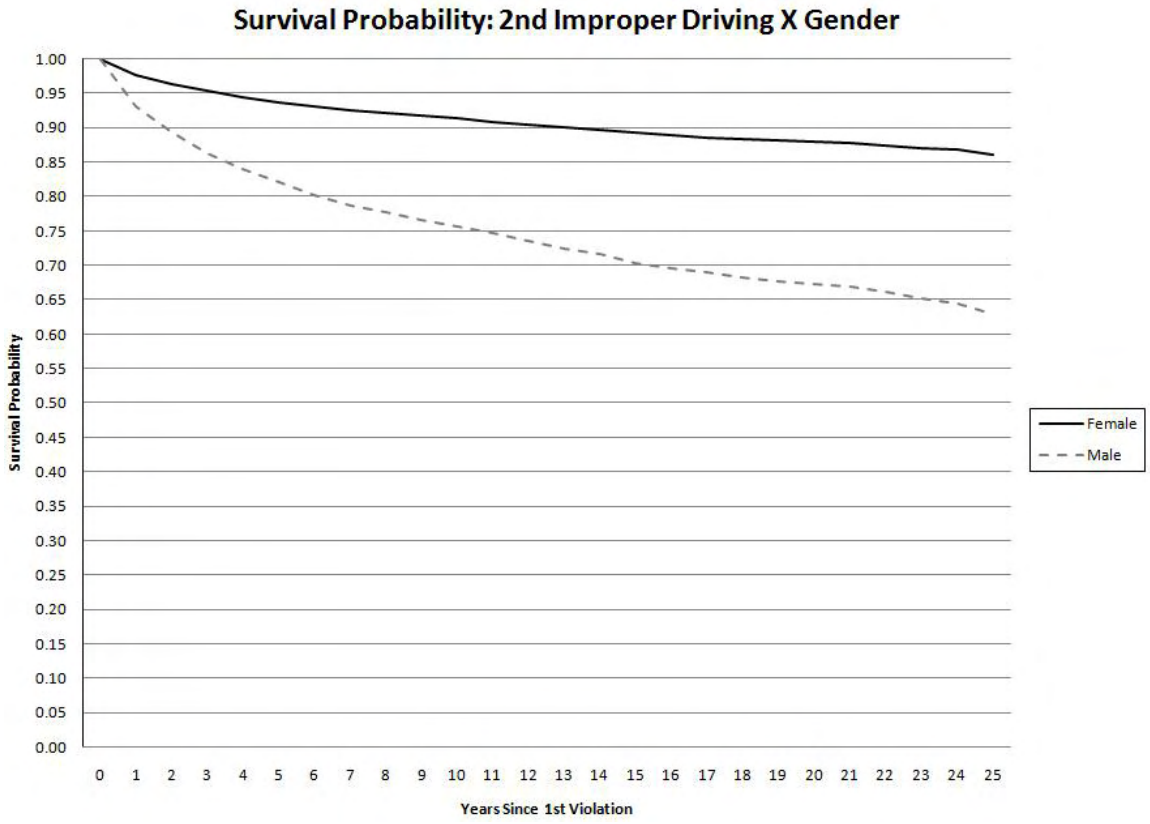

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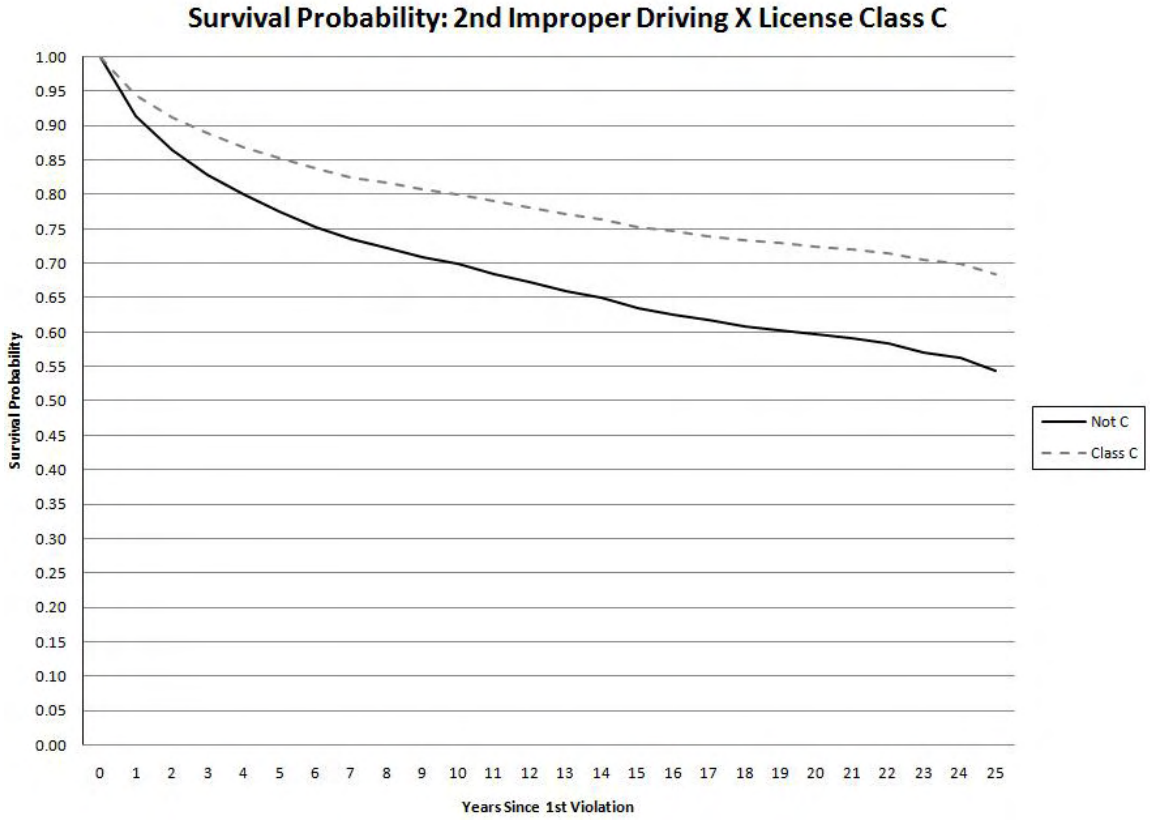

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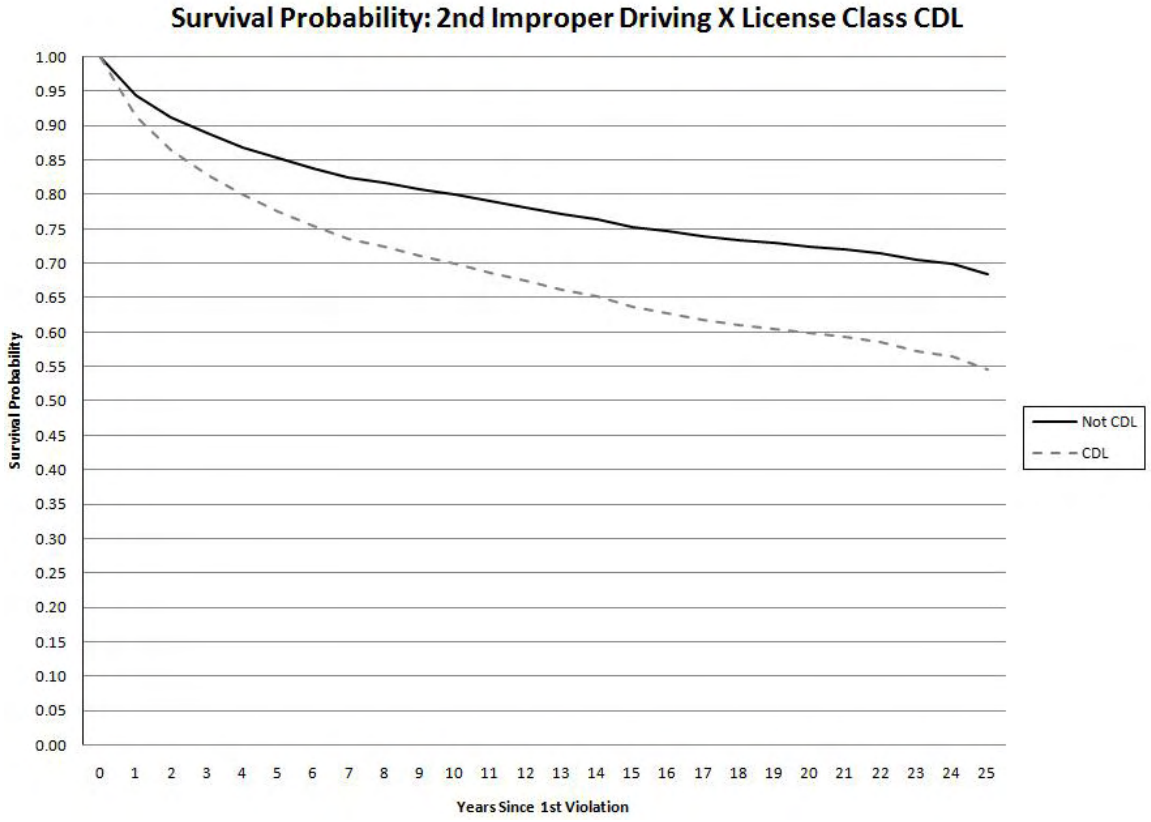

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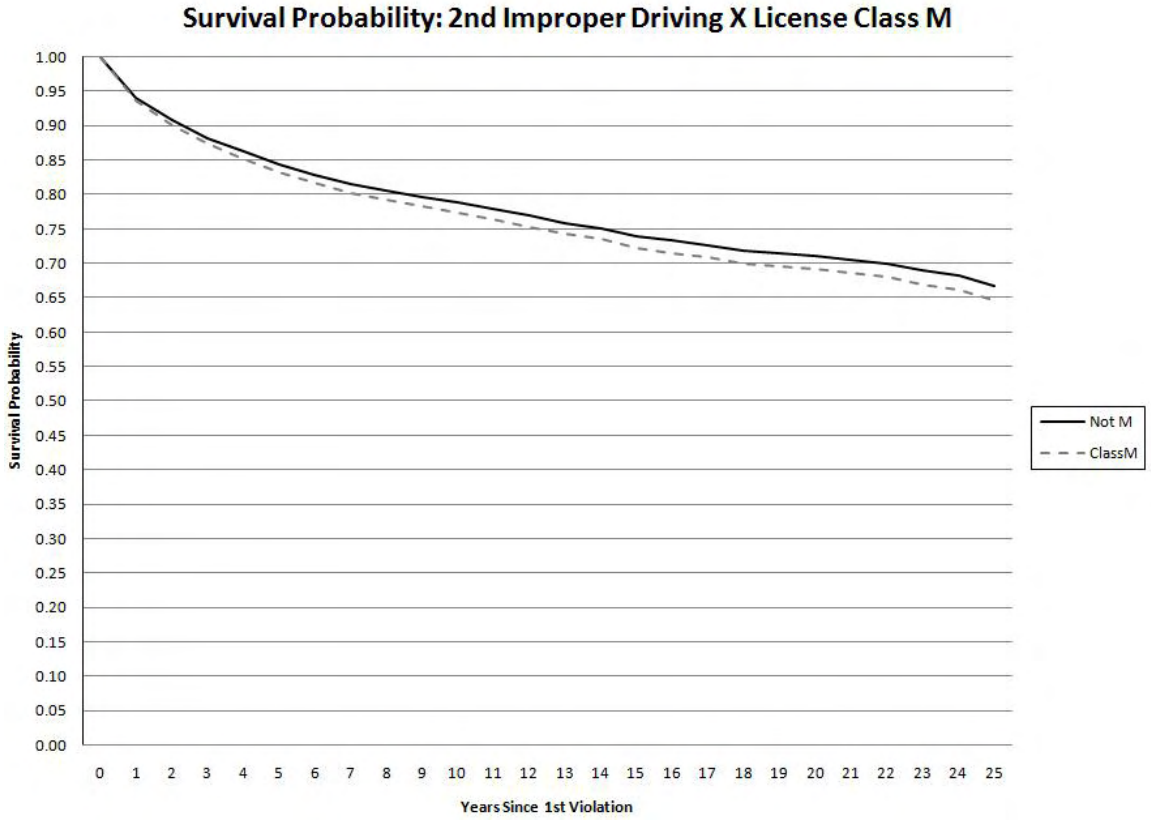

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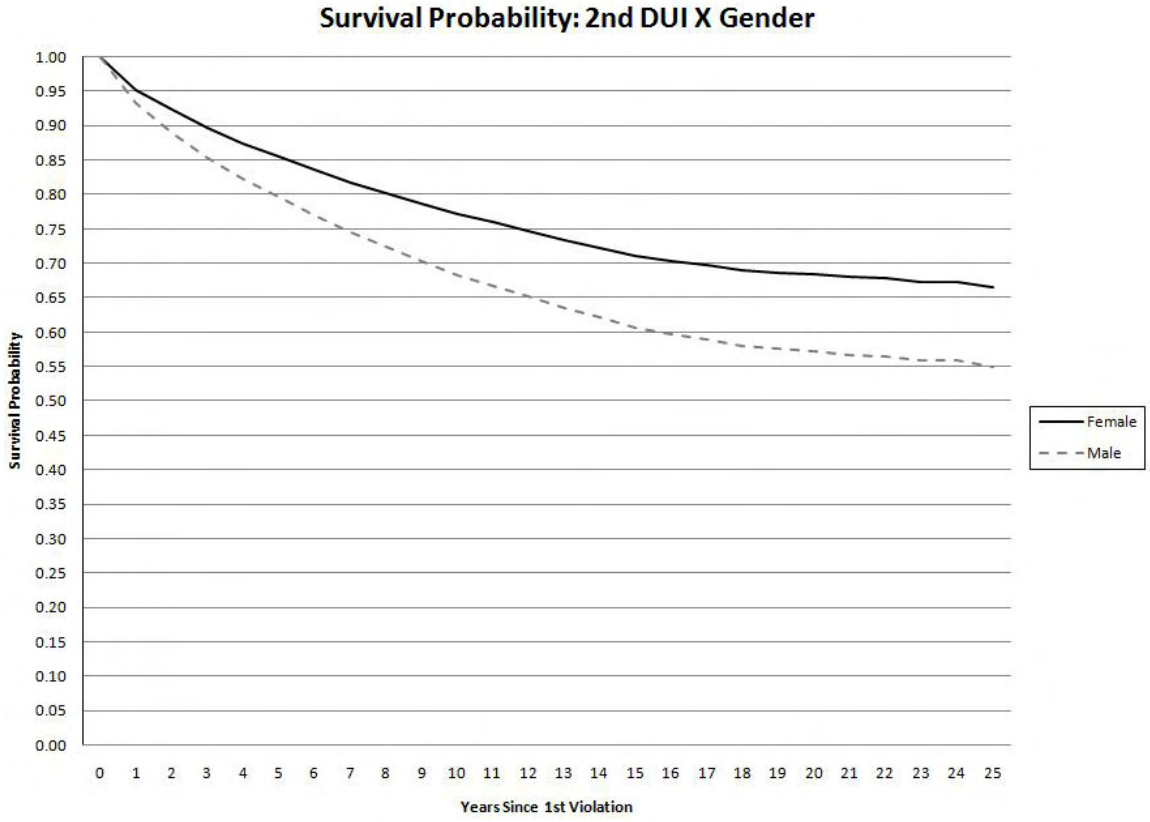

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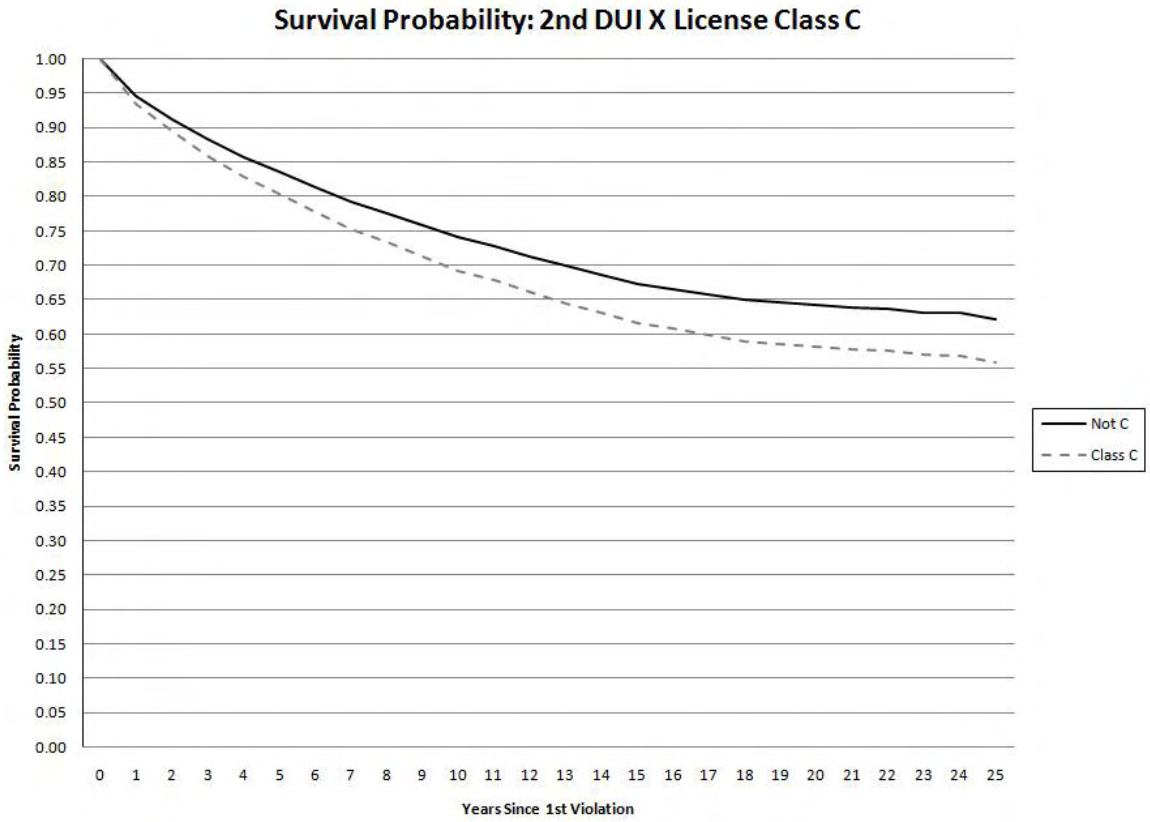

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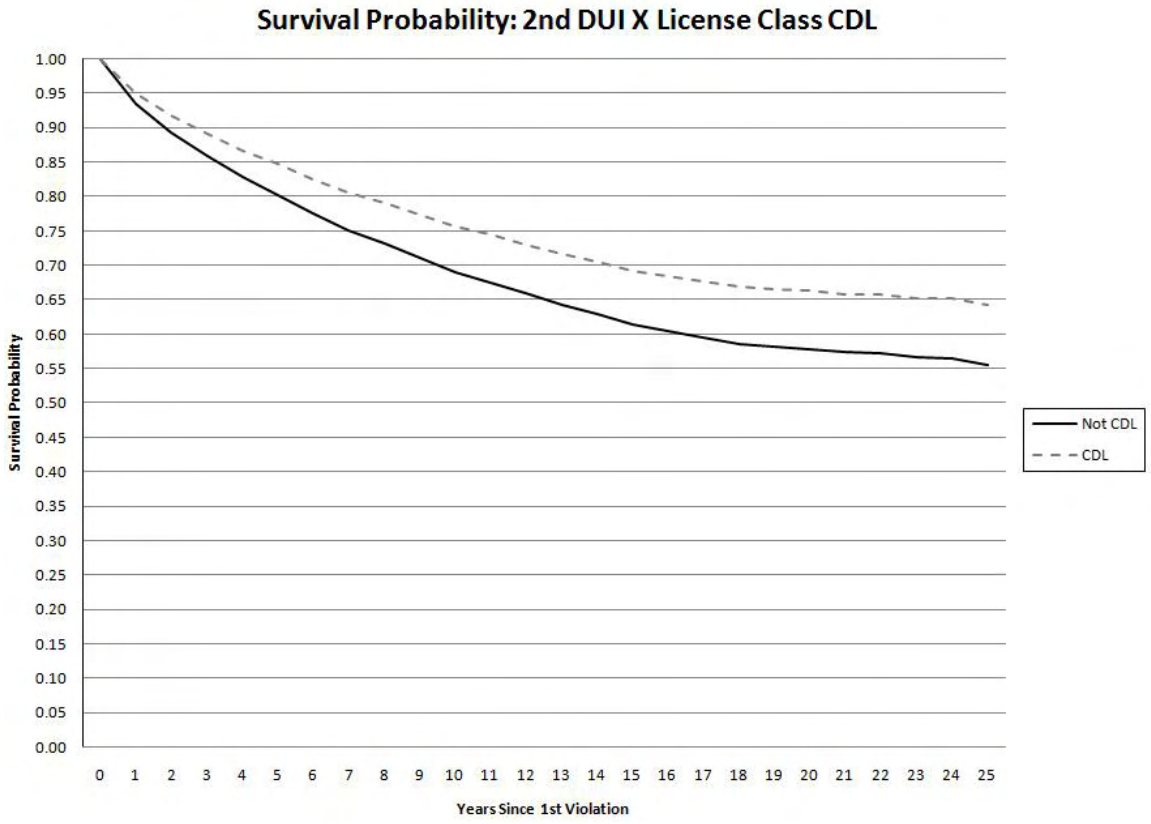

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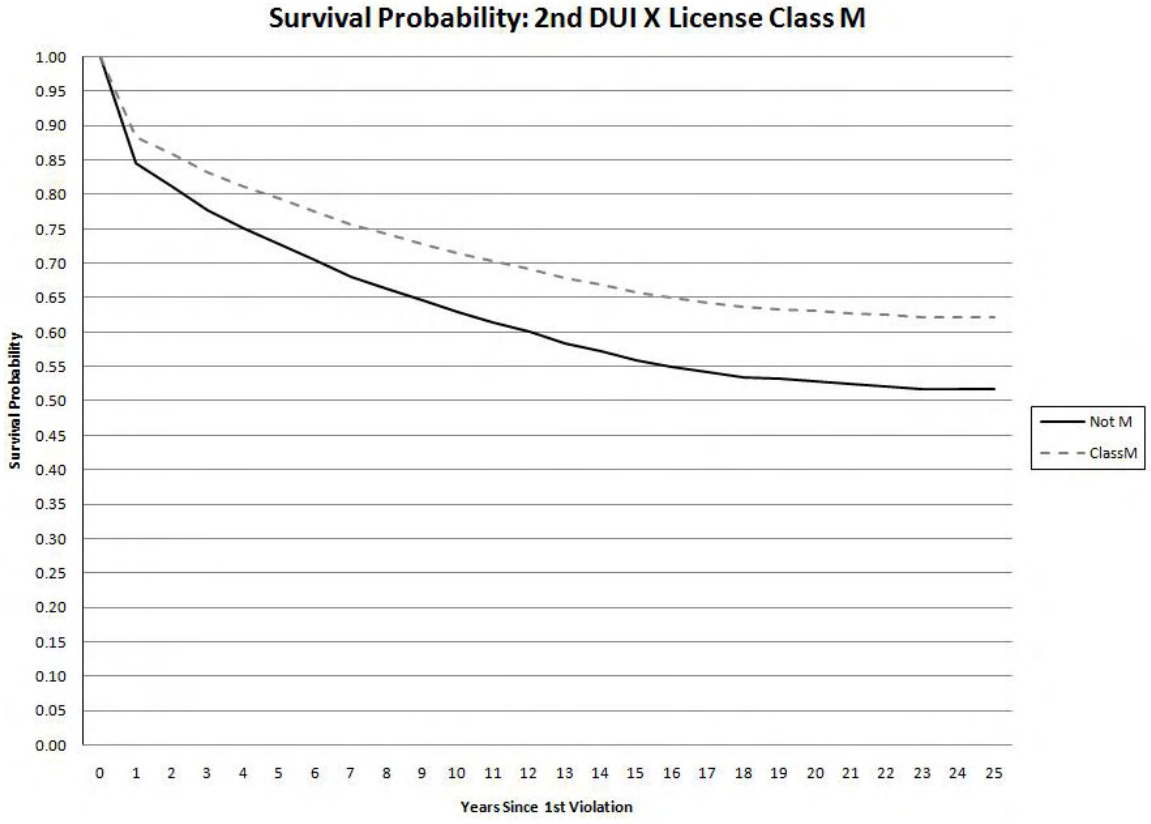

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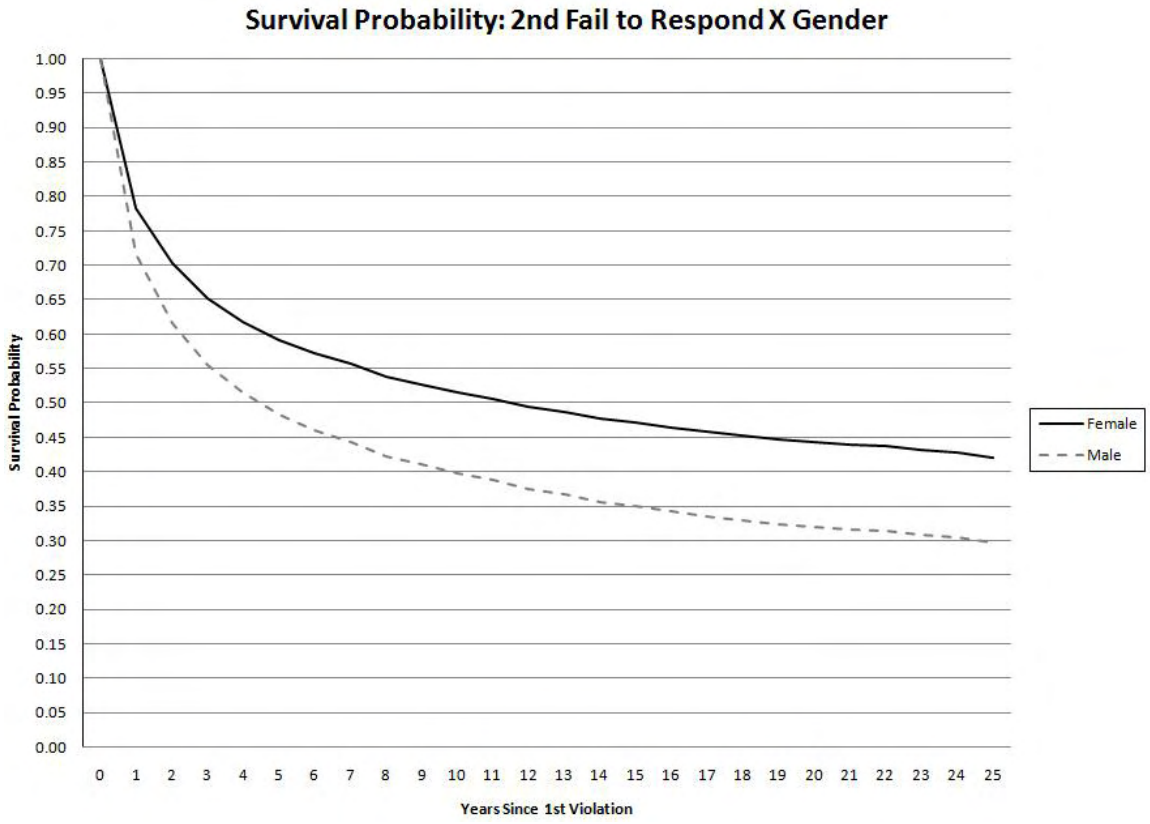

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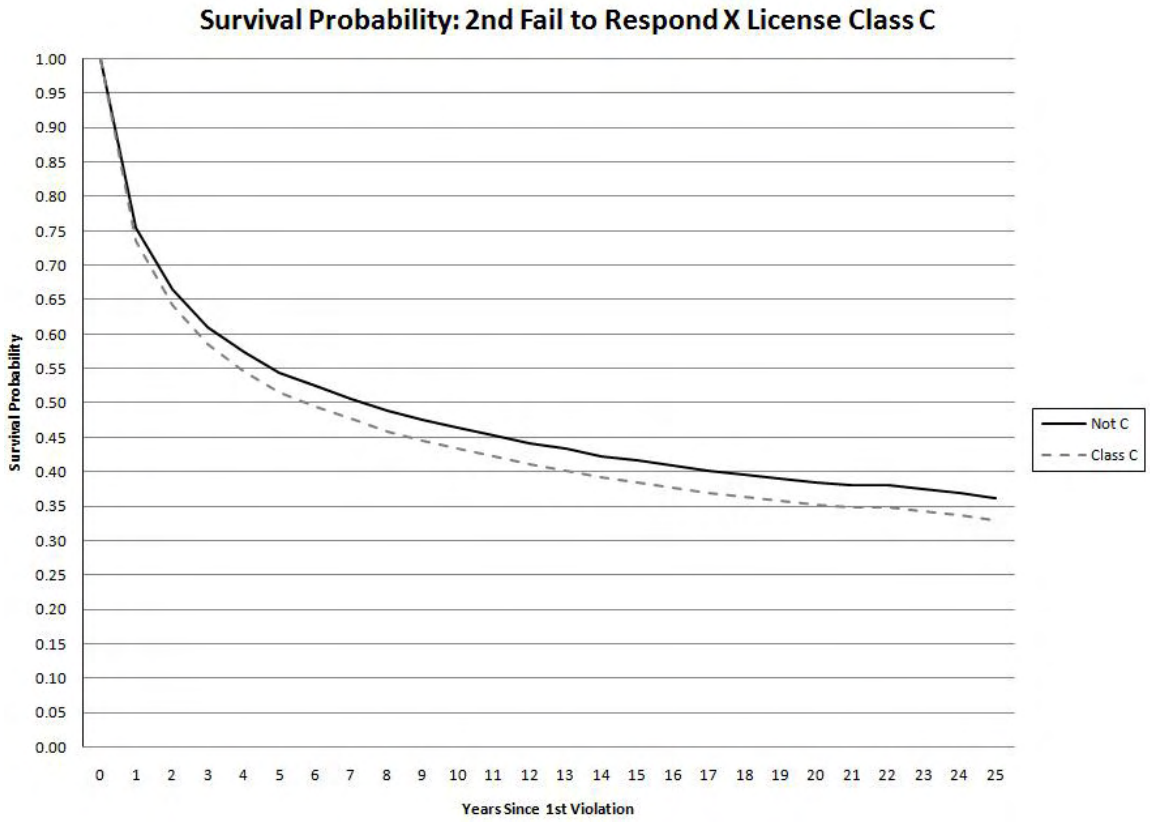

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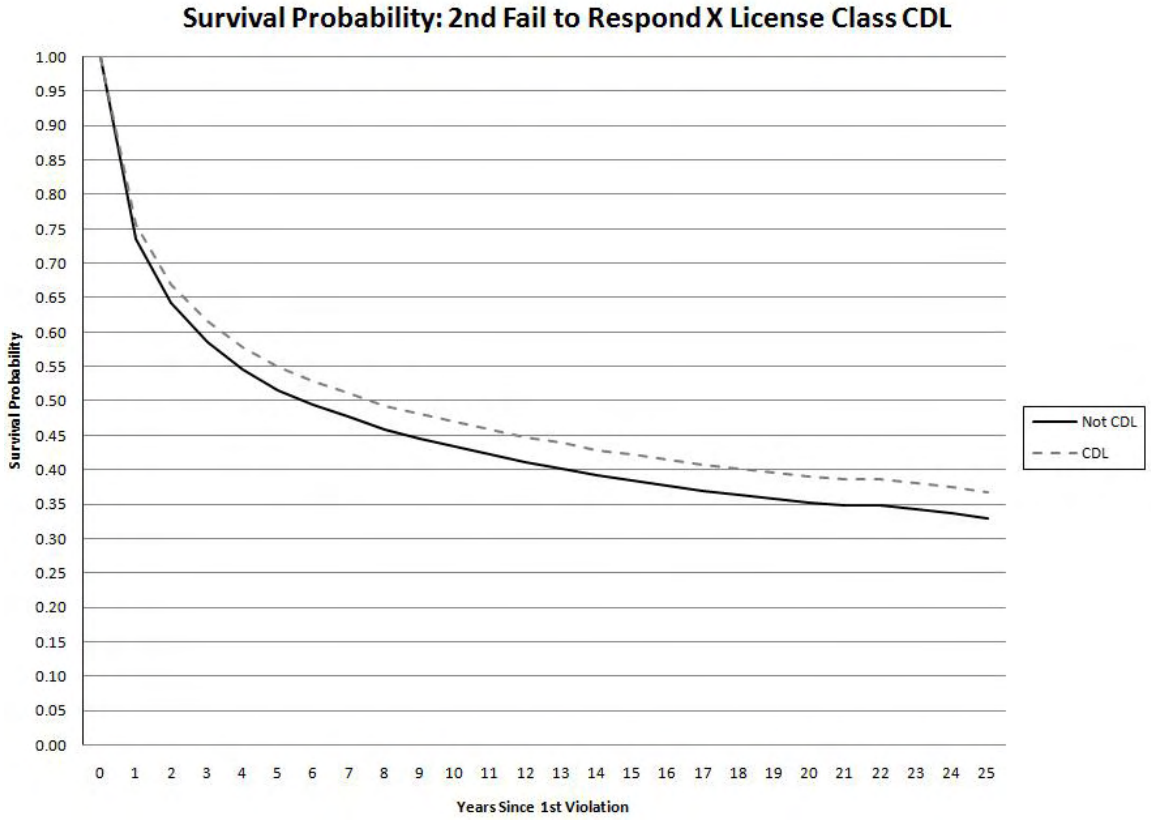

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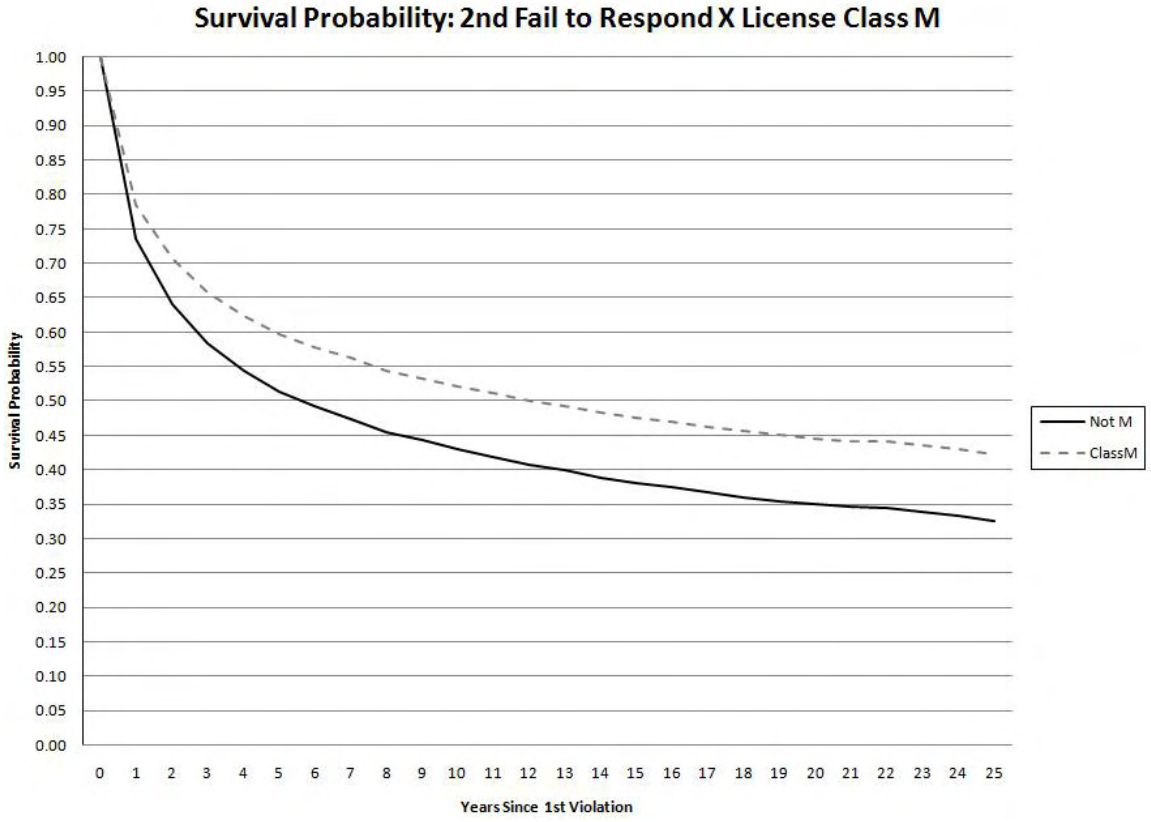

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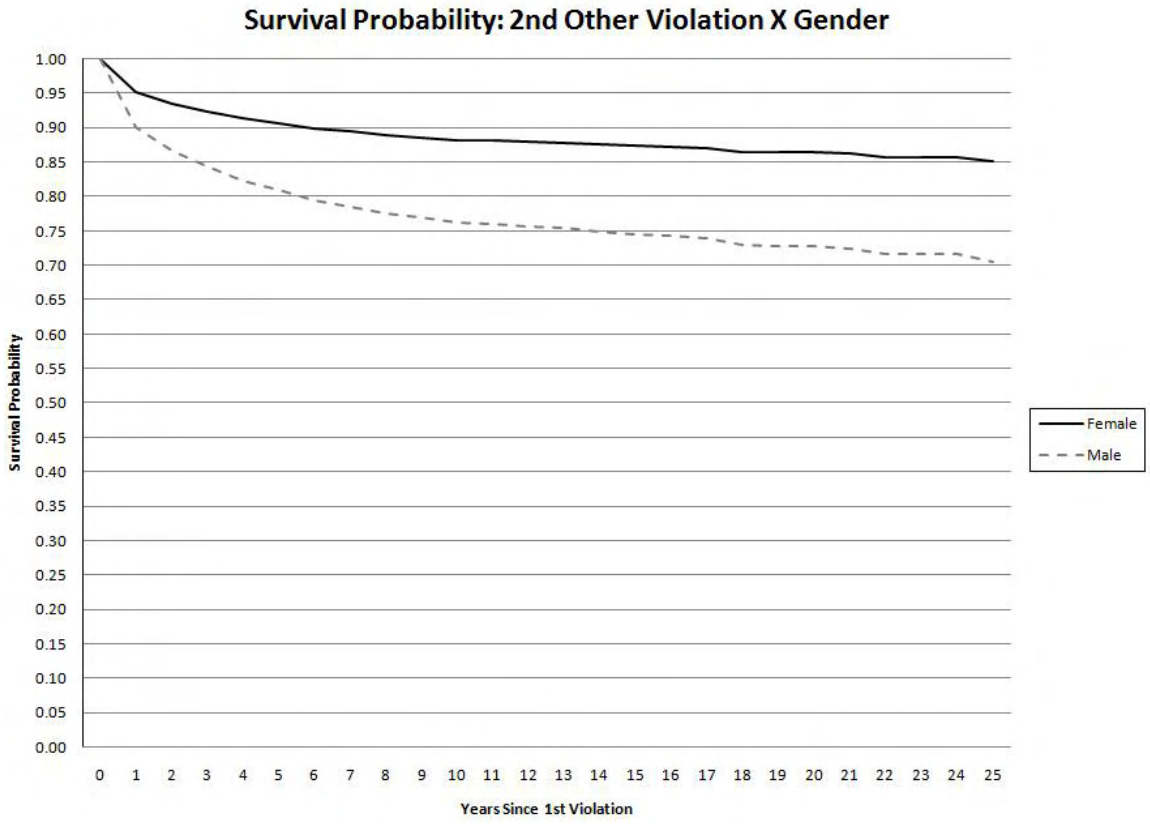

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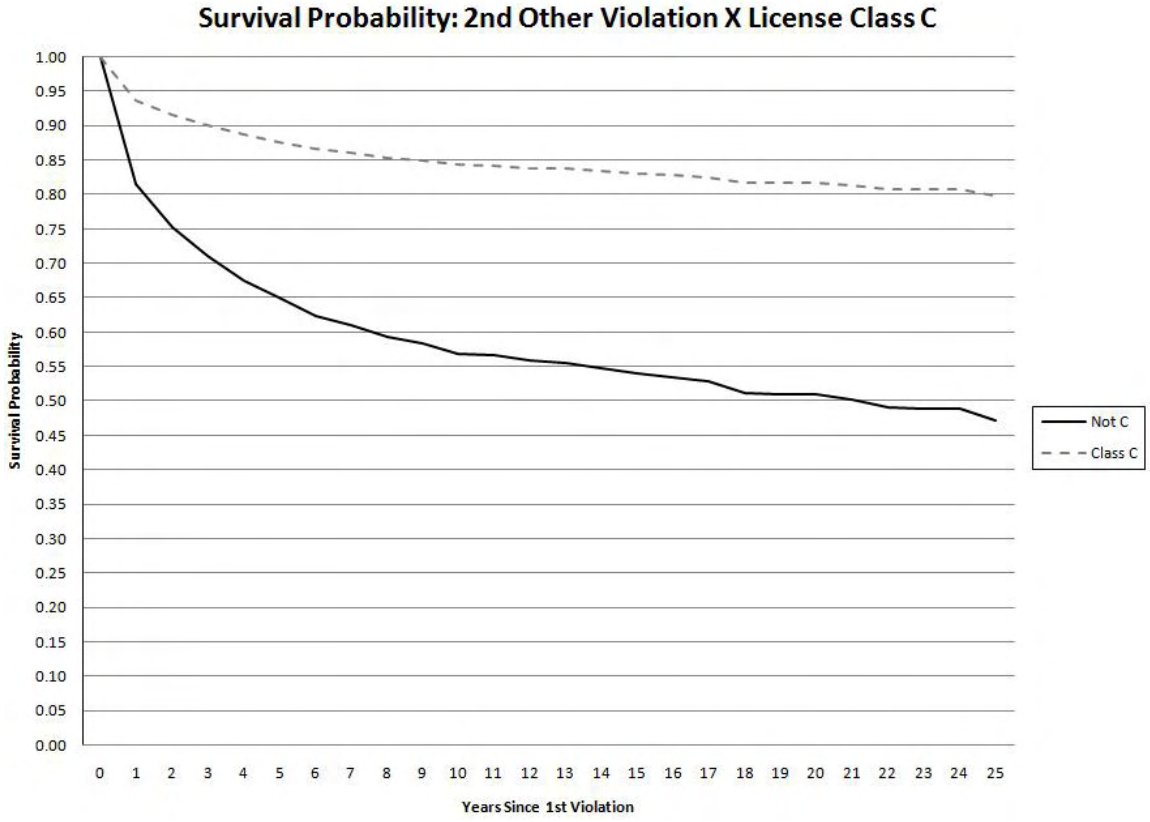

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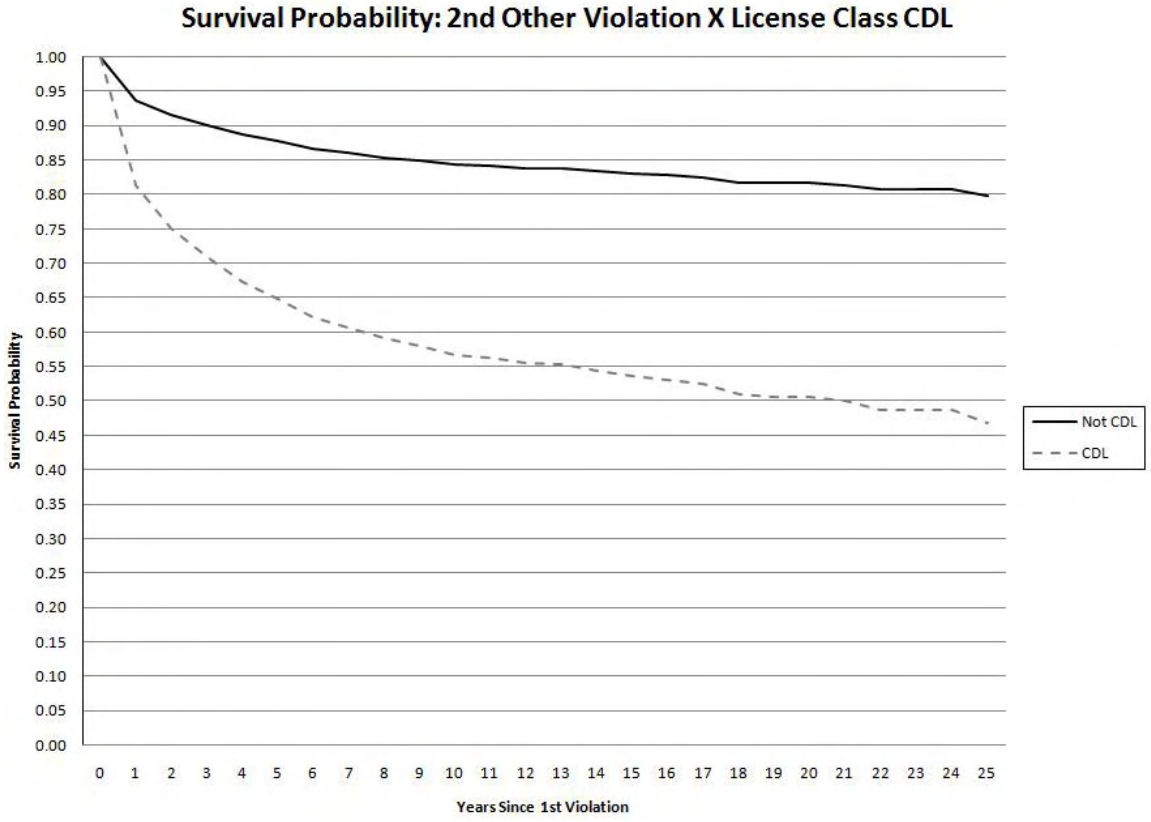

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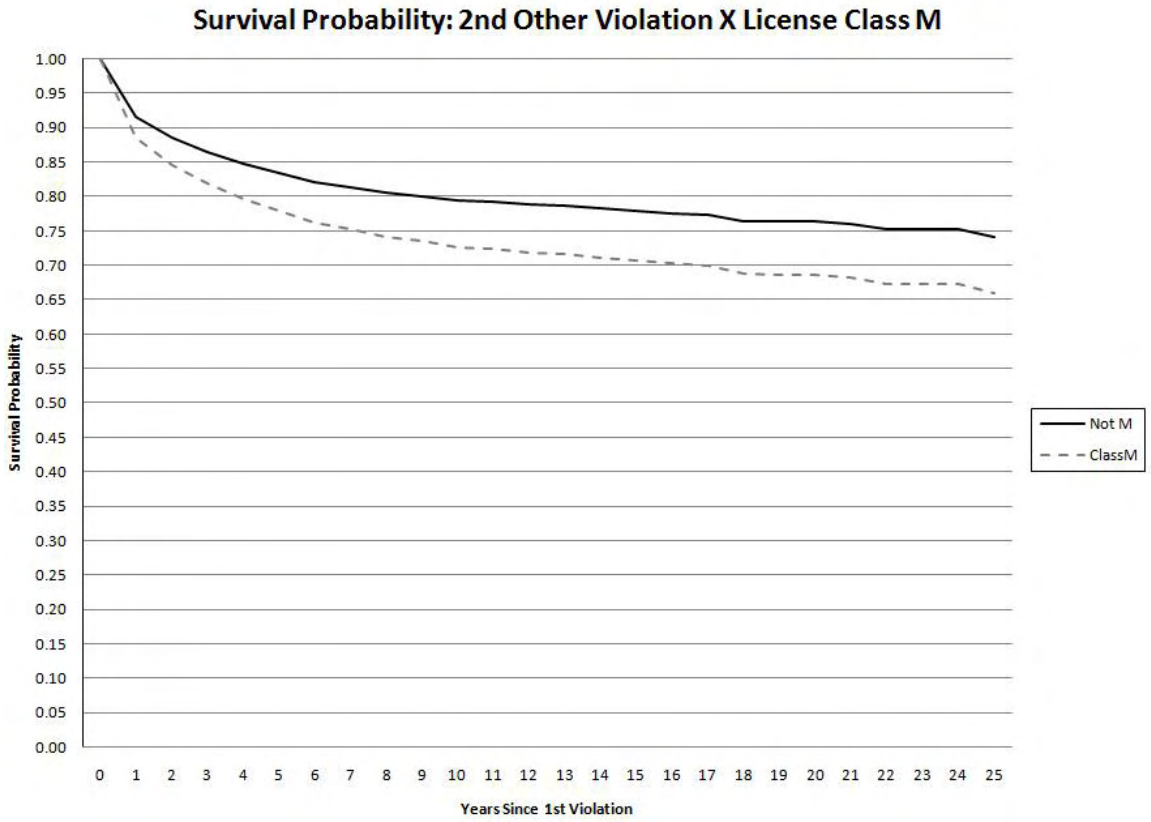

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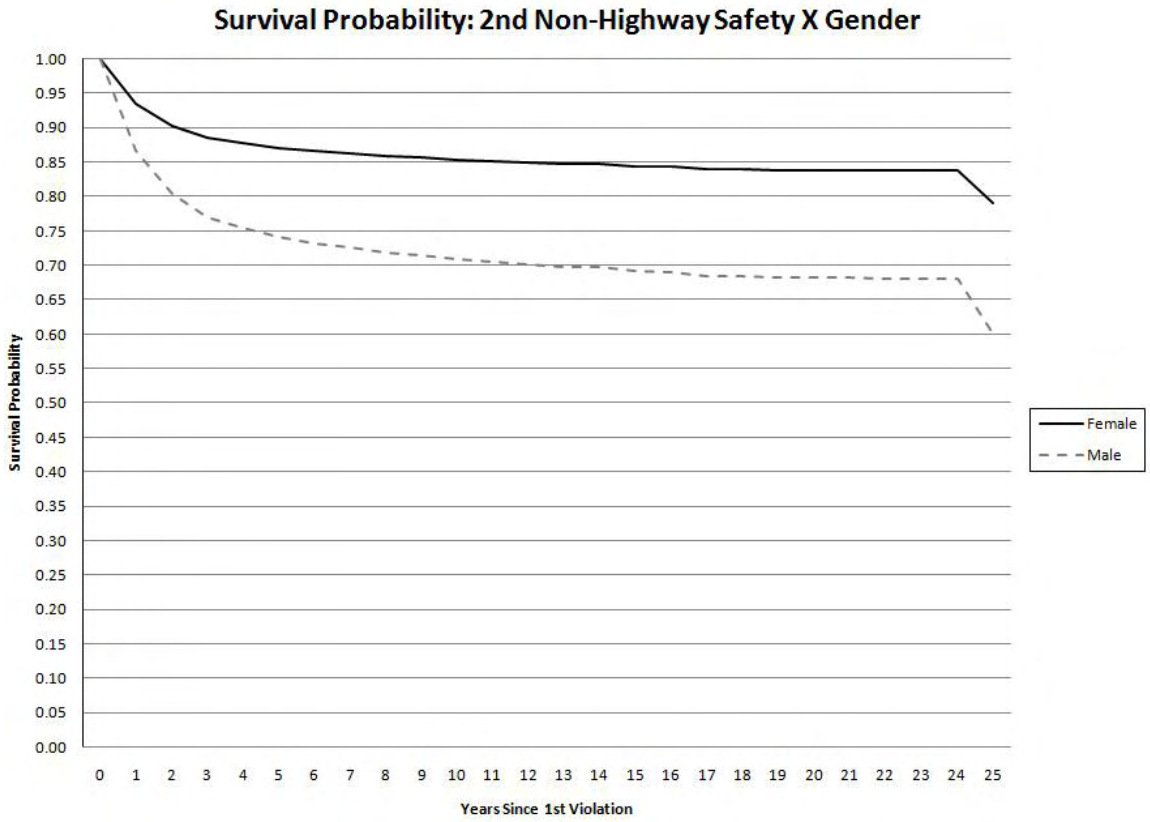

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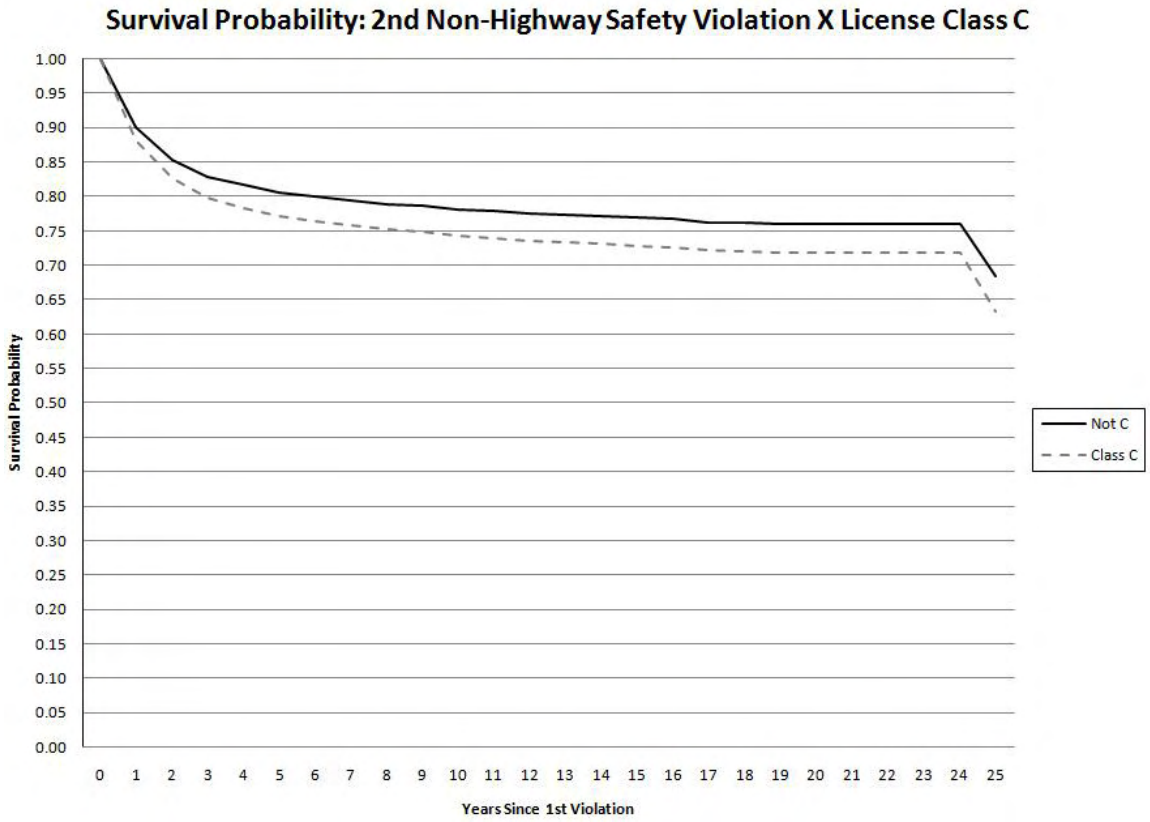

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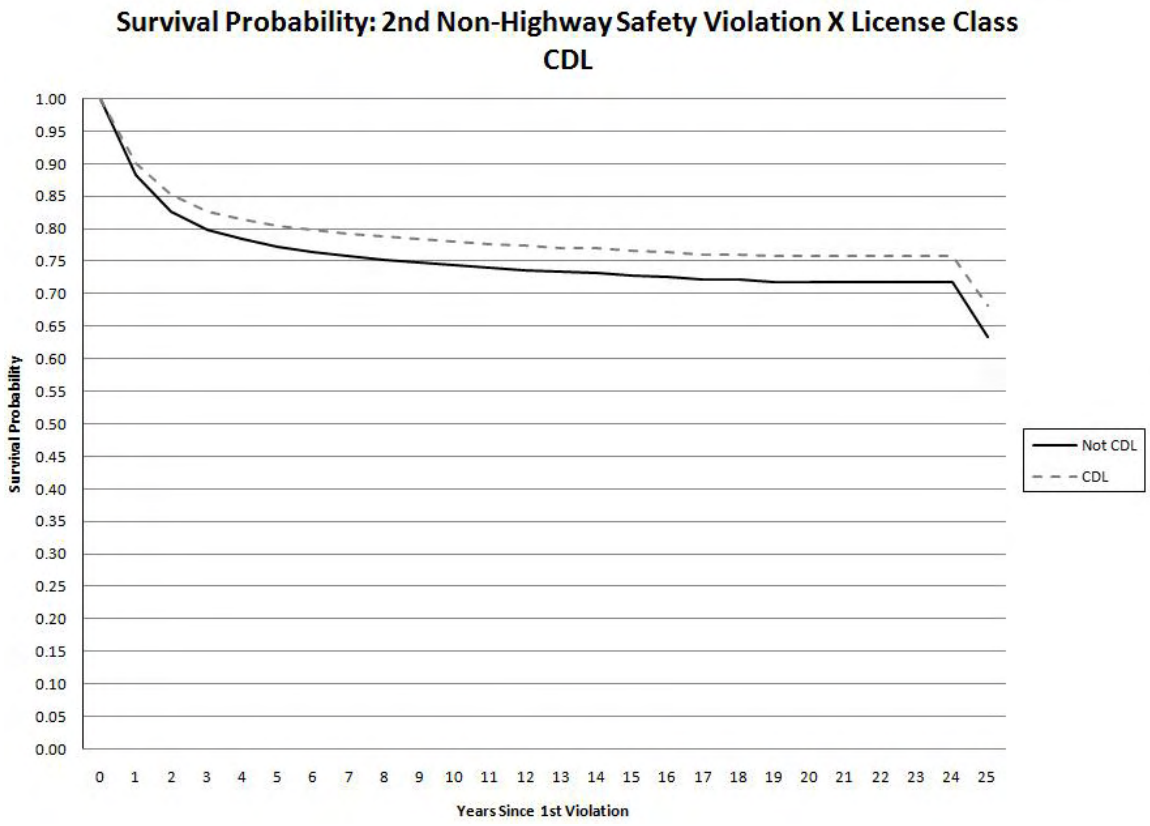

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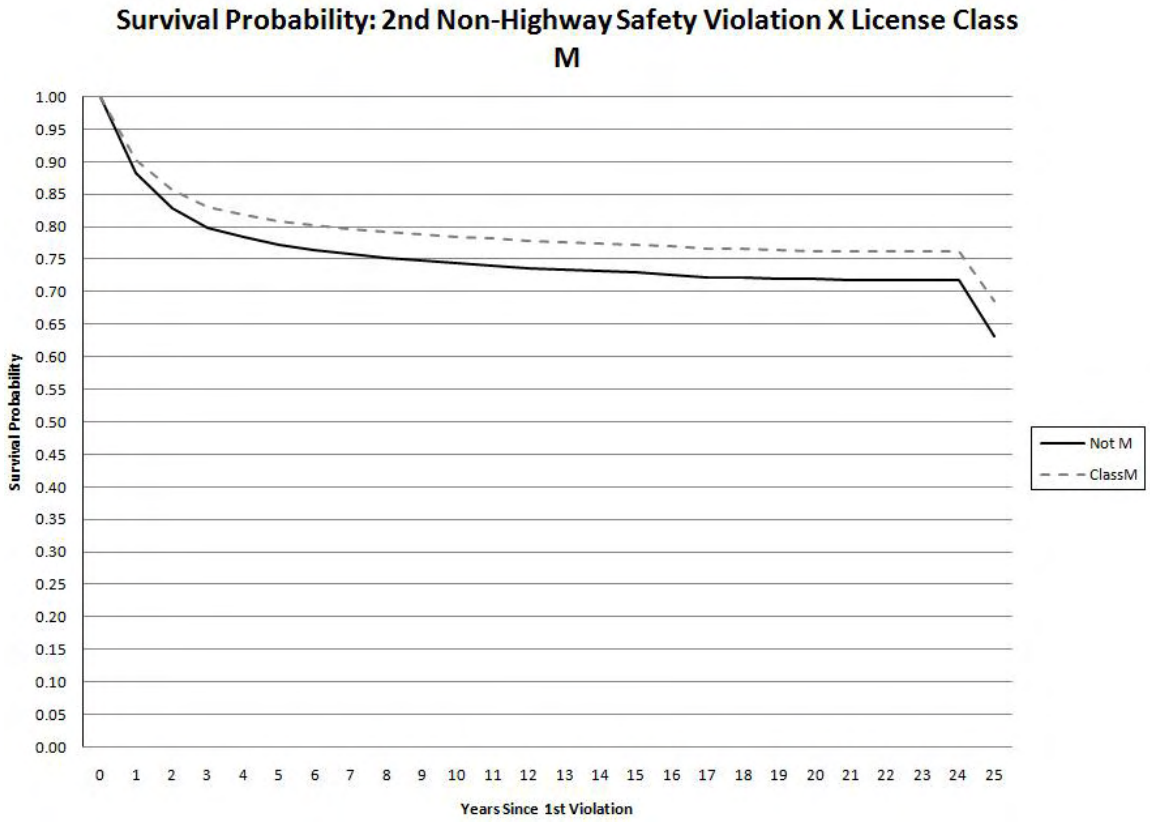

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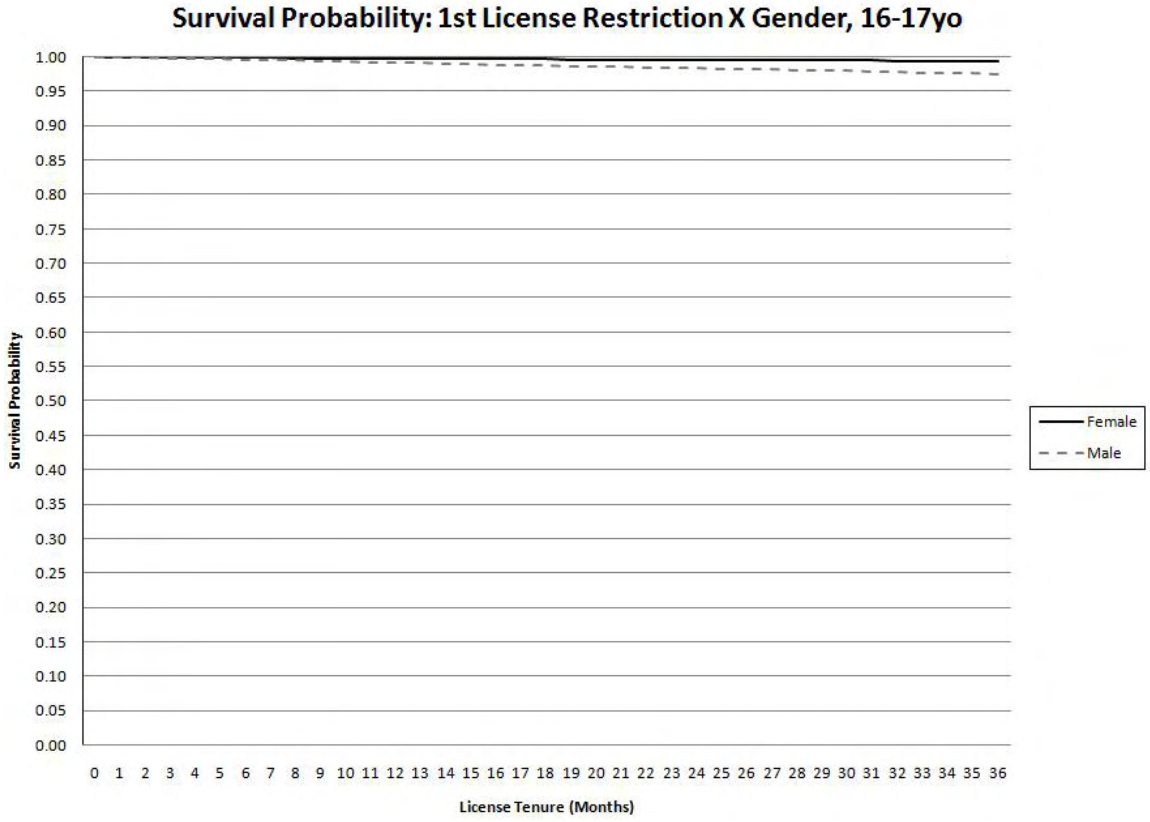

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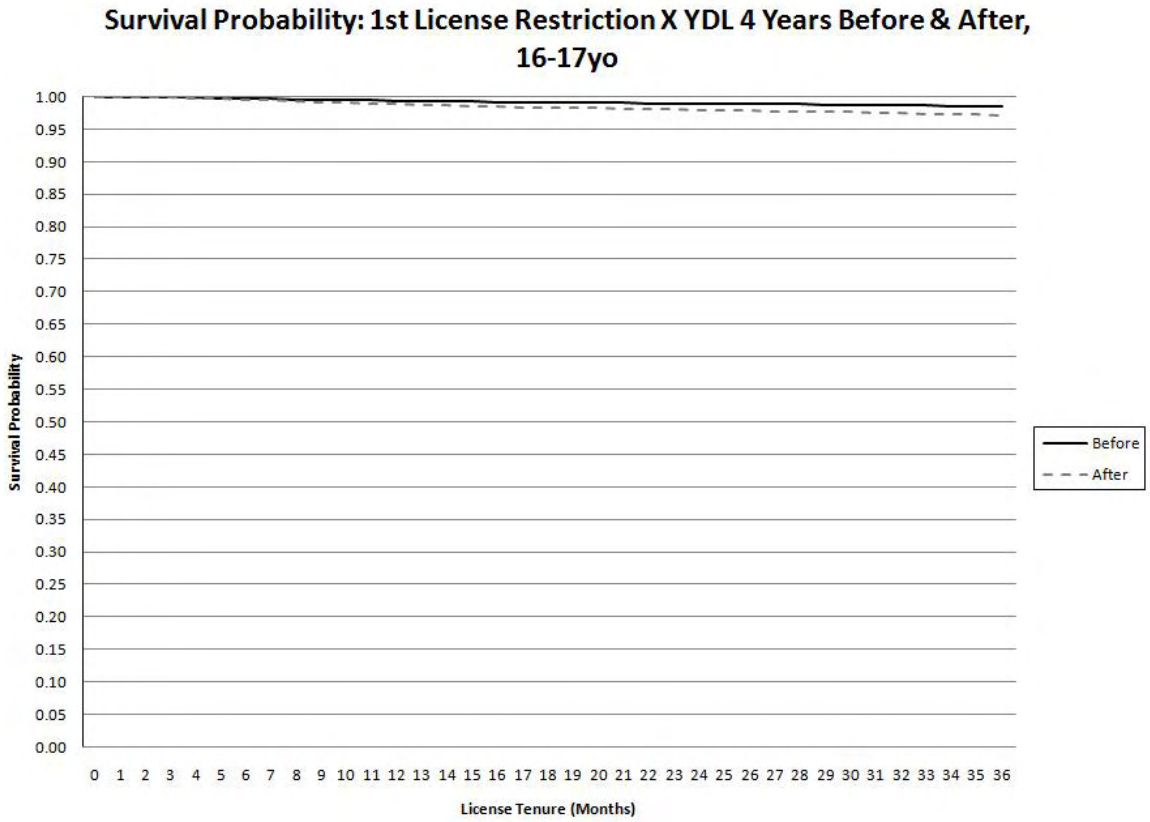

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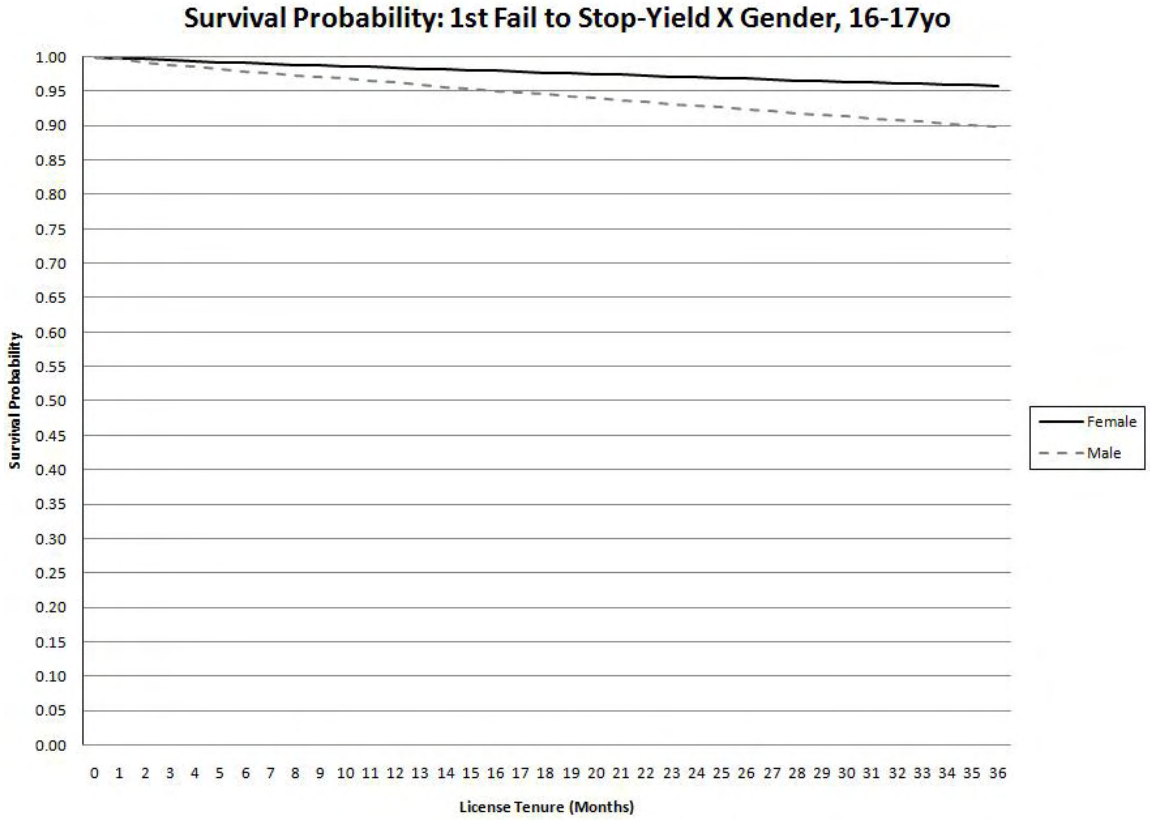

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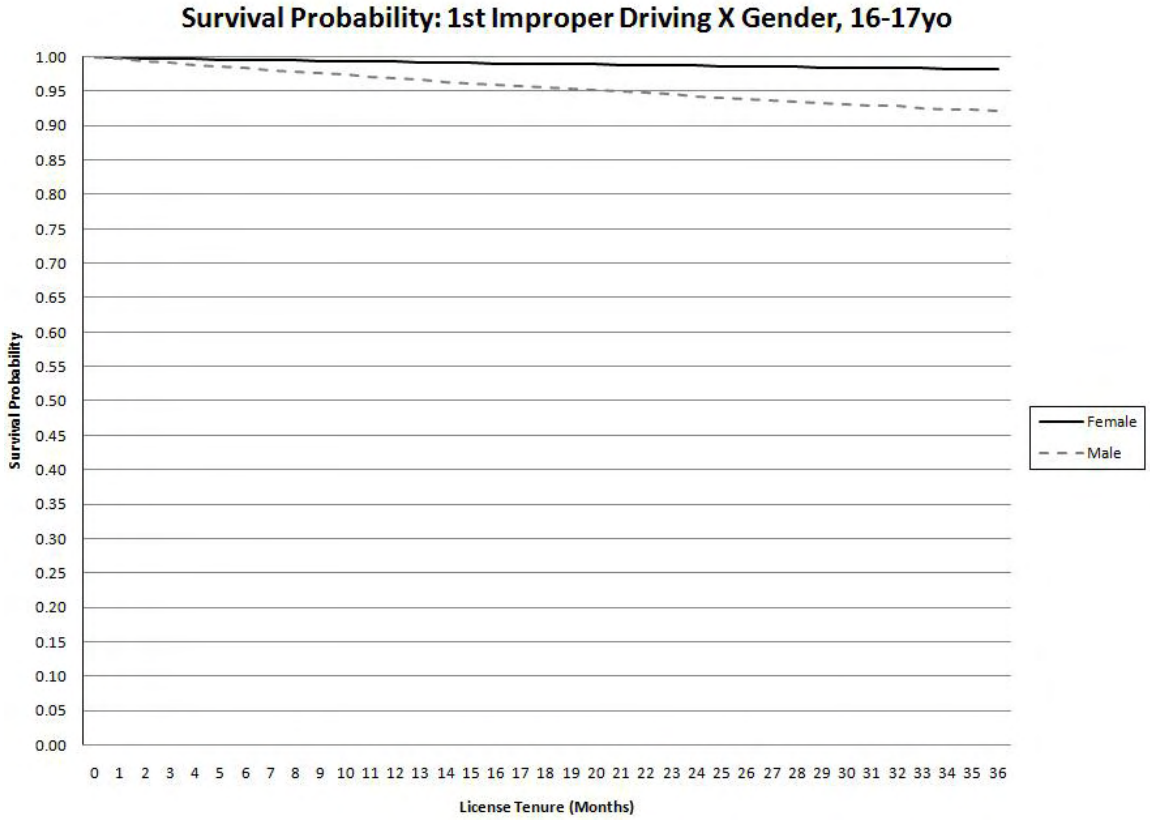

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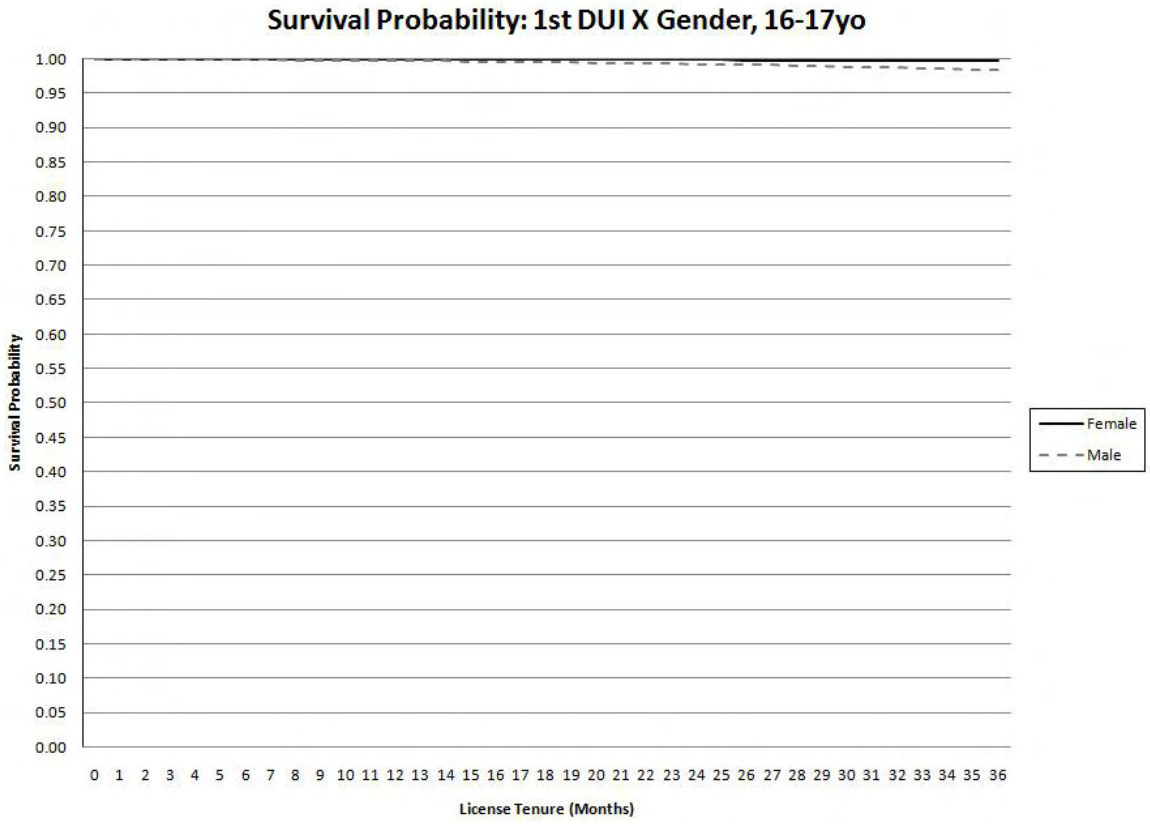

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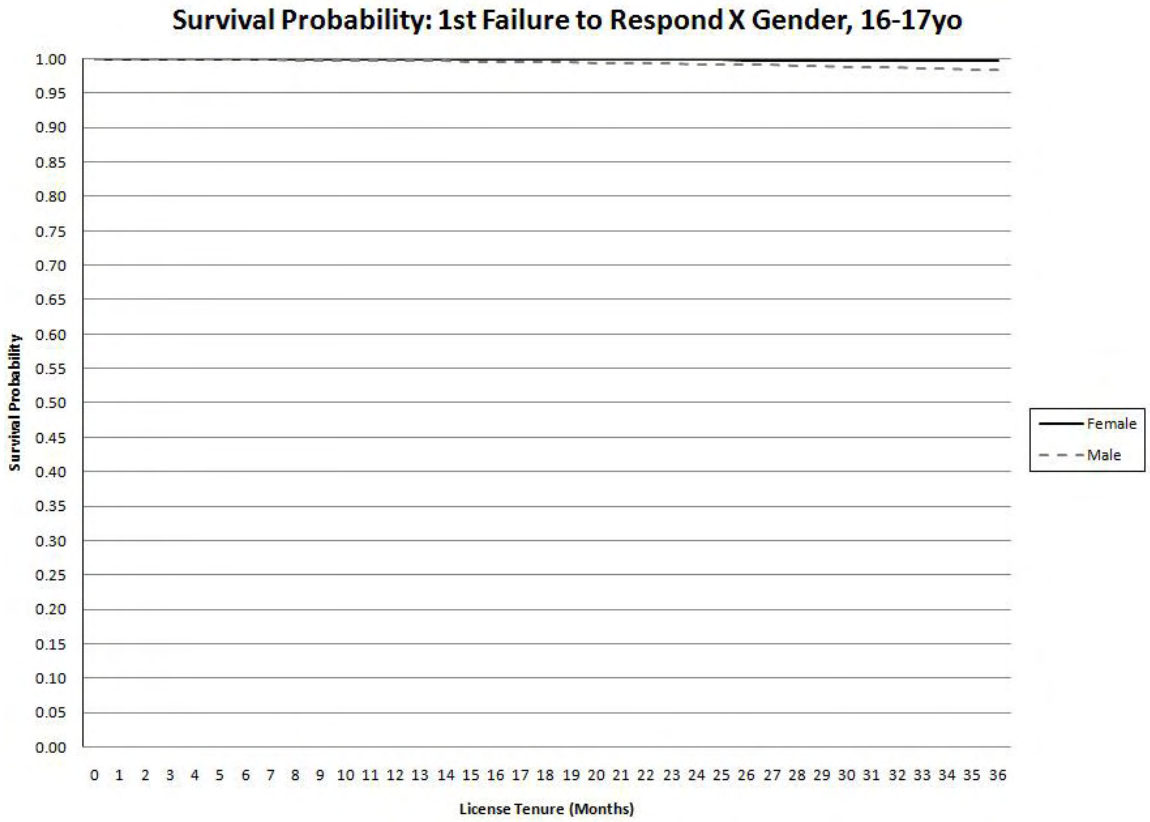

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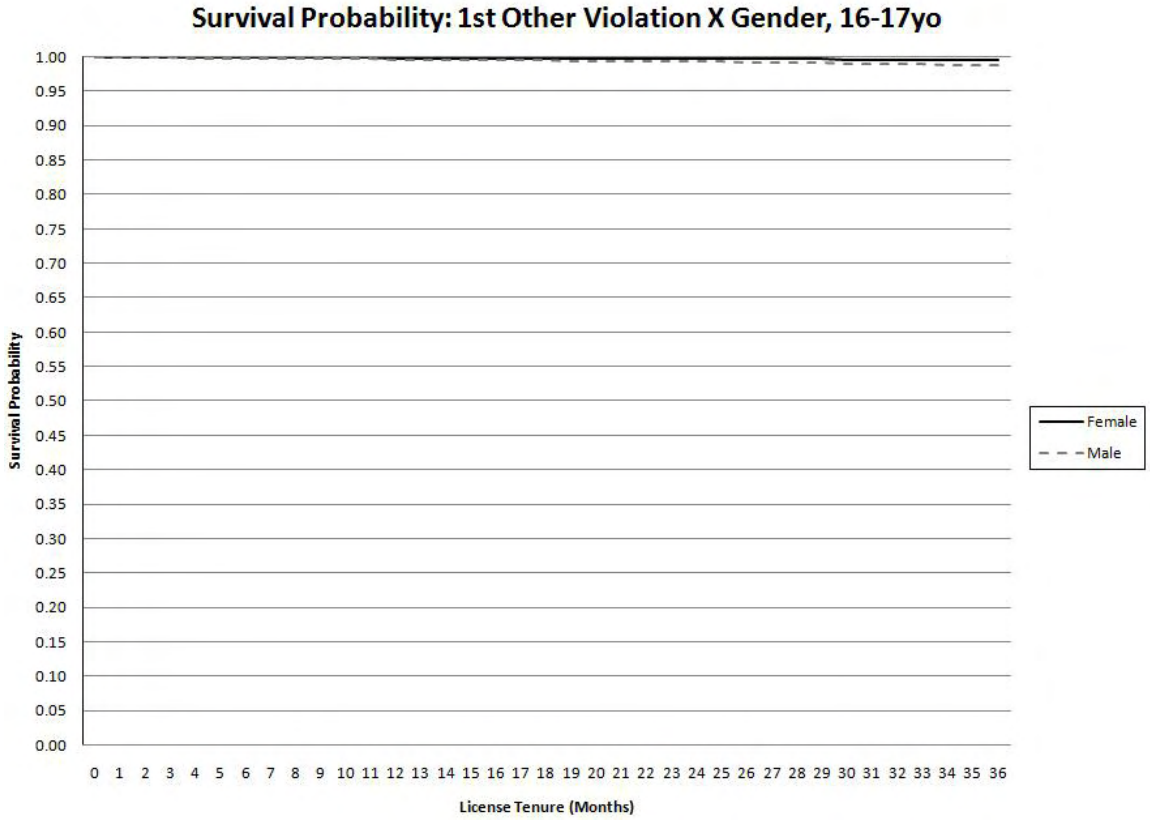

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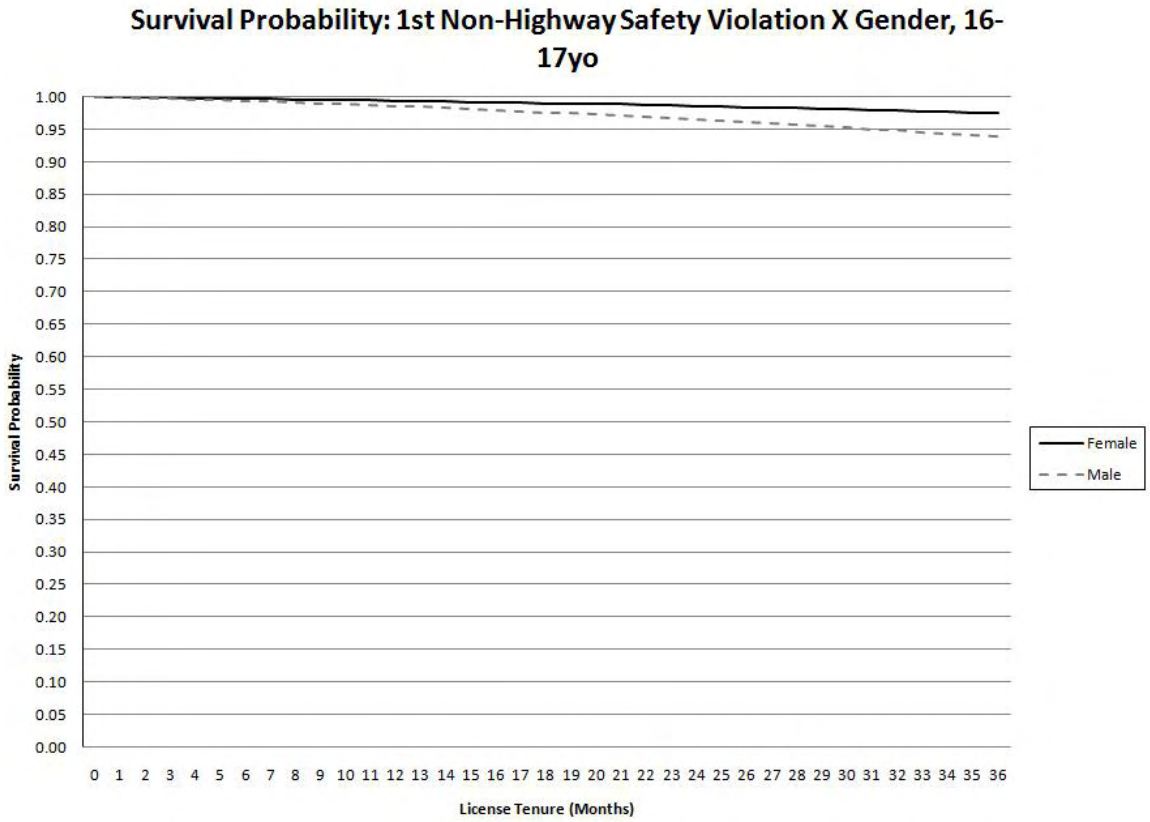


Figure C81.

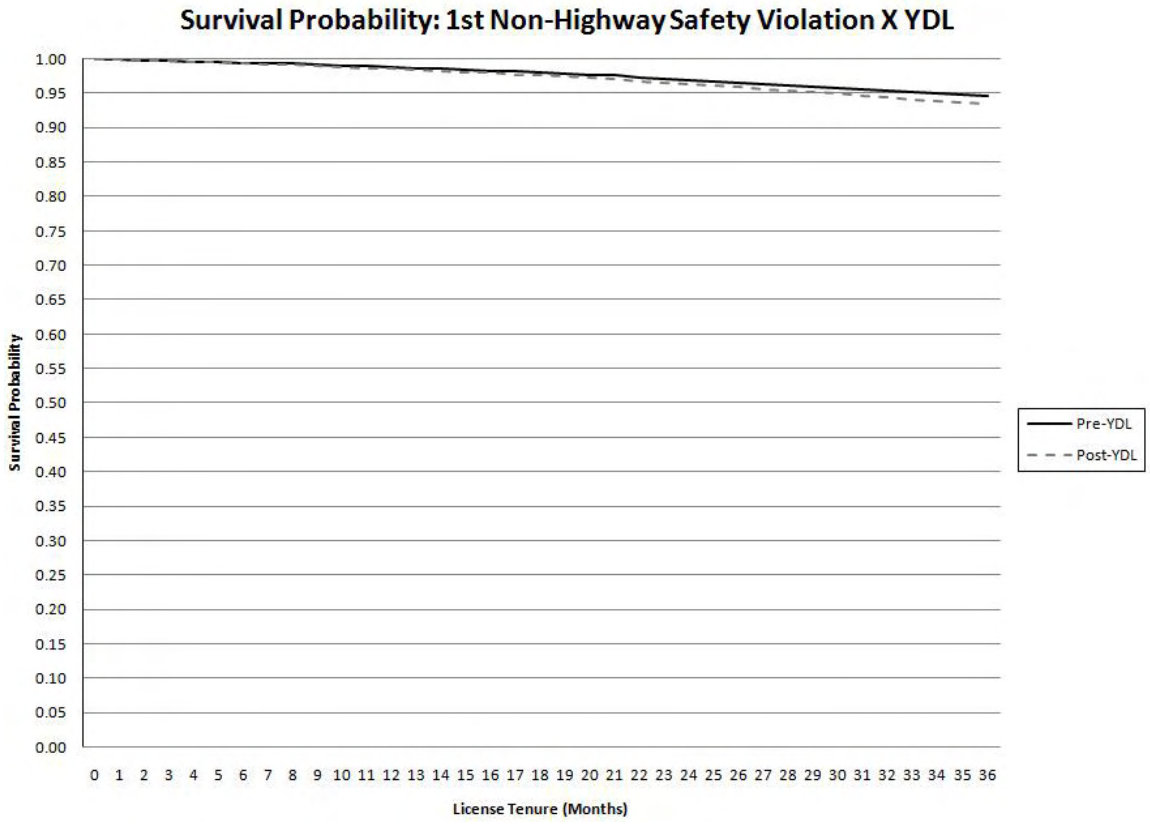

Survival Probability: 1st Non-Highway Safety Violation X YDL
Survival Probability
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
License Tenure (Months)
Pre-YDL
Post-YDL

Table C1. Life Table: First Driving Violation after Licensure, Female Drivers

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	34,828	0	34,828	2,211	0.063483	0.936517	0.936517
2	32,617	1,292	31,325	1,608	0.051333	0.948667	0.888443
3	29,717	1,227	28,490	1,347	0.04728	0.95272	0.846437
4	27,143	1,343	25,800	1,176	0.045581	0.954419	0.807855
5	24,624	1,484	23,140	954	0.041227	0.958773	0.77455
6	22,186	1,356	20,830	857	0.041143	0.958857	0.742683
7	19,973	1,235	18,738	619	0.033034	0.966966	0.718149
8	18,119	1,013	17,106	552	0.032269	0.967731	0.694974
9	16,554	1,141	15,413	404	0.026212	0.973788	0.676758
10	15,009	1,135	13,874	316	0.022776	0.977224	0.661344
11	13,558	1,123	12,435	248	0.019944	0.980056	0.648154
12	12,187	1,114	11,073	193	0.01743	0.98257	0.636857
13	10,880	888	9,992	182	0.018215	0.981785	0.625257
14	9,810	805	9,005	142	0.015769	0.984231	0.615397
15	8,863	848	8,015	111	0.013849	0.986151	0.606875
16	7,904	771	7,133	110	0.015421	0.984579	0.597516
17	7,023	770	6,253	81	0.012954	0.987046	0.589776
18	6,172	565	5,607	68	0.012128	0.987872	0.582623
19	5,539	588	4,951	48	0.009695	0.990305	0.576975
20	4,903	644	4,259	45	0.010566	0.989434	0.570878
21	4,214	606	3,608	37	0.010255	0.989745	0.565024
22	3,571	607	2,964	22	0.007422	0.992578	0.56083
23	2,942	651	2,291	21	0.009166	0.990834	0.555689
24	2,270	624	1,646	17	0.010328	0.989672	0.54995
25	1,629	605	1,024	8	0.007813	0.992188	0.545654
26	1,016	527	489	0	0	1	0.545654
27	489	421	68	0	0	1	0.545654

Note. See Table 2 of the report, Any Driving Violation.

Explanation of Life Table Columns:

Year = number of years since a driver's license was issued ("license tenure")
Number Entering = number of drivers at each interval who are still driving and who have not yet committed a violation
Number Censored = number of drivers whose license tenure ends during an interval and who must be dropped from further consideration
Number at Risk = Number Entering – Number Censored (indicates true number of drivers who are at risk of a violation at each interval)
Number Committing Violation = number of drivers who commit a violation during an interval
Proportion Committing Violation = Number Committing Violation / Number at Risk (indicates within-interval violation rate)
Proportion Surviving Violation-Free = 1 – (Number Committing Violation / Number at Risk) (indicates within-interval *survival* rate)
Cumulative Proportion Surviving = the percentage of drivers who remain violation-free through the end of each interval

Table C2. Life Table: First Driving Violation after Licensure, Male Drivers

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	37,207	0	37,207	5,539	0.14887	0.85113	0.85113
2	31,668	1,228	30,440	3,215	0.105618	0.894382	0.761236
3	27,225	1,246	25,979	2,374	0.091382	0.908618	0.691673
4	23,605	1,220	22,385	1,722	0.076927	0.923073	0.638465
5	20,663	1,231	19,432	1,336	0.068753	0.931247	0.594569
6	18,096	1,086	17,010	1,117	0.065667	0.934333	0.555525
7	15,893	1,093	14,800	804	0.054324	0.945676	0.525347
8	13,996	868	13,128	584	0.044485	0.955515	0.501977
9	12,544	903	11,641	461	0.039601	0.960399	0.482098
10	11,180	918	10,262	337	0.03284	0.96716	0.466266
11	9,925	806	9,119	231	0.025332	0.974668	0.454454
12	8,888	771	8,117	208	0.025625	0.974375	0.442809
13	7,909	675	7,234	157	0.021703	0.978297	0.433199
14	7,077	630	6,447	118	0.018303	0.981697	0.42527
15	6,329	600	5,729	112	0.01955	0.98045	0.416956
16	5,617	525	5,092	89	0.017478	0.982522	0.409668
17	5,003	561	4,442	49	0.011031	0.988969	0.405149
18	4,393	402	3,991	48	0.012027	0.987973	0.400276
19	3,943	435	3,508	30	0.008552	0.991448	0.396853
20	3,478	441	3,037	38	0.012512	0.987488	0.391888
21	2,999	422	2,577	18	0.006985	0.993015	0.38915
22	2,559	397	2,162	25	0.011563	0.988437	0.38465
23	2,137	408	1,729	21	0.012146	0.987854	0.379979
24	1,708	441	1,267	12	0.009471	0.990529	0.37638
25	1,255	440	815	4	0.004908	0.995092	0.374532
26	811	398	413	3	0.007264	0.992736	0.371812
27	410	335	75	0	0	1	0.371812

Note. See Table 2 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C3. Life Table: First Driving Violation after Licensure, Drivers with Class C Licenses

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	69,631	0	69,631	7,296	0.104781	0.895219	0.895219
2	62,335	2,520	59,815	4,544	0.075968	0.924032	0.827211
3	55,271	2,463	52,808	3,538	0.066997	0.933003	0.77179
4	49,270	2,546	46,724	2,755	0.058963	0.941037	0.726283
5	43,969	2,686	41,283	2,187	0.052976	0.947024	0.687808
6	39,096	2,416	36,680	1,887	0.051445	0.948555	0.652423
7	34,793	2,292	32,501	1,355	0.041691	0.958309	0.625223
8	31,146	1,849	29,297	1,080	0.036864	0.963136	0.602175
9	28,217	2,016	26,201	823	0.031411	0.968589	0.58326
10	25,378	2,011	23,367	614	0.026276	0.973724	0.567934
11	22,753	1,893	20,860	455	0.021812	0.978188	0.555546
12	20,405	1,859	18,546	365	0.019681	0.980319	0.544613
13	18,181	1,519	16,662	319	0.019145	0.980855	0.534186
14	16,343	1,401	14,942	246	0.016464	0.983536	0.525391
15	14,696	1,417	13,279	210	0.015814	0.984186	0.517083
16	13,069	1,262	11,807	190	0.016092	0.983908	0.508762
17	11,617	1,300	10,317	125	0.012116	0.987884	0.502598
18	10,192	940	9,252	108	0.011673	0.988327	0.496731
19	9,144	995	8,149	72	0.008835	0.991165	0.492342
20	8,077	1,047	7,030	75	0.010669	0.989331	0.487089
21	6,955	1,001	5,954	53	0.008902	0.991098	0.482753
22	5,901	972	4,929	38	0.007709	0.992291	0.479032
23	4,891	1,033	3,858	36	0.009331	0.990669	0.474562
24	3,822	1,029	2,793	26	0.009309	0.990691	0.470144
25	2,767	1,005	1,762	9	0.005108	0.994892	0.467742
26	1,753	881	872	3	0.00344	0.99656	0.466133
27	869	735	134	0	0	1	0.466133

Note. See Table 2 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C4. Life Table: First Driving Violation after Licensure, Drivers with CDL Licenses

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	2,365	0	2,365	450	0.190275	0.809725	0.809725
2	1,915	0	1,915	272	0.142037	0.857963	0.694715
3	1,643	8	1,635	181	0.110703	0.889297	0.617807
4	1,454	17	1,437	140	0.097425	0.902575	0.557617
5	1,297	28	1,269	101	0.07959	0.92041	0.513236
6	1,168	26	1,142	86	0.075306	0.924694	0.474586
7	1,056	36	1,020	66	0.064706	0.935294	0.443878
8	954	32	922	55	0.059653	0.940347	0.417399
9	867	28	839	42	0.05006	0.94994	0.396504
10	797	39	758	39	0.051451	0.948549	0.376104
11	719	36	683	24	0.035139	0.964861	0.362888
12	659	26	633	36	0.056872	0.943128	0.34225
13	597	44	553	20	0.036166	0.963834	0.329872
14	533	34	499	14	0.028056	0.971944	0.320617
15	485	29	456	13	0.028509	0.971491	0.311476
16	443	33	410	9	0.021951	0.978049	0.304639
17	401	31	370	5	0.013514	0.986486	0.300522
18	365	27	338	8	0.023669	0.976331	0.293409
19	330	27	303	6	0.019802	0.980198	0.287599
20	297	37	260	8	0.030769	0.969231	0.27875
21	252	25	227	2	0.008811	0.991189	0.276294
22	225	31	194	9	0.046392	0.953608	0.263476
23	185	26	159	6	0.037736	0.962264	0.253534
24	153	35	118	3	0.025424	0.974576	0.247088
25	115	39	76	3	0.039474	0.960526	0.237335
26	73	44	29	0	0	1	0.237335
27	29	20	9	0	0	1	0.237335

Note. See Table 2 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C5. Life Table: First Driving Violation after Licensure, Drivers with Class M Licenses

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	3,364	0	3,364	469	0.139417	0.860583	0.860583
2	2,895	4	2,891	344	0.11899	0.88101	0.758182
3	2,547	7	2,540	242	0.095276	0.904724	0.685946
4	2,298	34	2,264	173	0.076413	0.923587	0.63353
5	2,091	63	2,028	153	0.075444	0.924556	0.585734
6	1,875	48	1,827	152	0.083196	0.916804	0.537003
7	1,675	50	1,625	104	0.064	0.936	0.502635
8	1,521	44	1,477	97	0.065674	0.934326	0.469625
9	1,380	69	1,311	54	0.04119	0.95881	0.450281
10	1,257	66	1,191	54	0.04534	0.95466	0.429866
11	1,137	46	1,091	37	0.033914	0.966086	0.415287
12	1,054	69	985	41	0.041624	0.958376	0.398001
13	944	52	892	25	0.028027	0.971973	0.386846
14	867	53	814	16	0.019656	0.980344	0.379243
15	798	60	738	15	0.020325	0.979675	0.371534
16	723	50	673	10	0.014859	0.985141	0.366014
17	663	57	606	11	0.018152	0.981848	0.35937
18	595	42	553	11	0.019892	0.980108	0.352222
19	542	40	502	7	0.013944	0.986056	0.34731
20	495	42	453	3	0.006623	0.993377	0.34501
21	450	44	406	5	0.012315	0.987685	0.340761
22	401	42	359	7	0.019499	0.980501	0.334117
23	352	55	297	4	0.013468	0.986532	0.329617
24	293	67	226	6	0.026549	0.973451	0.320866
25	220	63	157	1	0.006369	0.993631	0.318822
26	156	81	75	3	0.04	0.96	0.306069
27	72	56	16	0	0	1	0.306069

Note. See Table 2 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C6. Distribution of Second Violations over 25 Years of Licensure for 14,859 Female Drivers

Year	Number Entering	Number Censored	Number at Risk	Number Receiving Violation	Proportion Receiving Violation (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	14,859	0	14,859	1,846	0.124234	0.875766	0.875766
2	13,013	576	12,437	1,159	0.09319	0.90681	0.794153
3	11,278	623	10,655	835	0.078367	0.921633	0.731918
4	9,820	598	9,222	578	0.062676	0.937324	0.686044
5	8,644	572	8,072	437	0.054138	0.945862	0.648903
6	7,635	568	7,067	327	0.046271	0.953729	0.618877
7	6,740	526	6,214	264	0.042485	0.957515	0.592585
8	5,950	552	5,398	187	0.034642	0.965358	0.572056
9	5,211	507	4,704	134	0.028486	0.971514	0.55576
10	4,570	516	4,054	111	0.02738	0.97262	0.540543
11	3,943	420	3,523	102	0.028953	0.971047	0.524893
12	3,421	356	3,065	73	0.023817	0.976183	0.512392
13	2,992	318	2,674	57	0.021316	0.978684	0.501469
14	2,617	380	2,237	46	0.020563	0.979437	0.491157
15	2,191	302	1,889	37	0.019587	0.980413	0.481537
16	1,852	360	1,492	18	0.012064	0.987936	0.475728
17	1,474	331	1,143	18	0.015748	0.984252	0.468236
18	1,125	311	814	12	0.014742	0.985258	0.461333
19	802	268	534	9	0.016854	0.983146	0.453558
20	525	235	290	5	0.017241	0.982759	0.445738
21	285	106	179	5	0.027933	0.972067	0.433287
22	174	61	113	2	0.017699	0.982301	0.425618
23	111	34	77	0	0	1	0.425618
24	77	24	53	0	0	1	0.425618
25	53	16	37	1	0.027027	0.972973	0.414115

Note. See Table 4 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C7. Distribution of Second Violations over 25 Years of Licensure for 27,934 Male Drivers

Year	Number Entering	Number Censored	Number at Risk	Number Receiving Violation	Proportion Receiving Violation (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	27,934	0	27,934	6,646	0.237918	0.762082	0.762082
2	21,288	606	20,682	3,723	0.180012	0.819988	0.624898
3	16,959	799	16,160	2,164	0.133911	0.866089	0.541218
4	13,996	738	13,258	1,355	0.102202	0.897798	0.485904
5	11,903	681	11,222	940	0.083764	0.916236	0.445203
6	10,282	665	9,617	703	0.0731	0.9269	0.412658
7	8,914	639	8,275	506	0.061148	0.938852	0.387425
8	7,769	551	7,218	393	0.054447	0.945553	0.366331
9	6,825	516	6,309	282	0.044698	0.955302	0.349957
10	6,027	529	5,498	204	0.037104	0.962896	0.336972
11	5,294	473	4,821	153	0.031736	0.968264	0.326278
12	4,668	427	4,241	138	0.032539	0.967461	0.315661
13	4,103	393	3,710	102	0.027493	0.972507	0.306982
14	3,608	478	3,130	102	0.032588	0.967412	0.296978
15	3,028	397	2,631	78	0.029647	0.970353	0.288174
16	2,553	384	2,169	43	0.019825	0.980175	0.282461
17	2,126	408	1,718	31	0.018044	0.981956	0.277364
18	1,687	369	1,318	24	0.018209	0.981791	0.272313
19	1,294	344	950	17	0.017895	0.982105	0.26744
20	933	257	676	10	0.014793	0.985207	0.263484
21	666	153	513	11	0.021442	0.978558	0.257835
22	502	118	384	9	0.023438	0.976563	0.251792
23	375	102	273	6	0.021978	0.978022	0.246258
24	267	84	183	3	0.016393	0.983607	0.242221
25	180	62	118	4	0.033898	0.966102	0.23401

Note. See Table 4 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C8. Life Table: Second Violations over 25 Years after First Violations (Categories 1-5), License Class C Drivers

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	39,715	0	39,715	7,728	0.194586	0.805414	0.805414
2	31,987	1,139	30,848	4,468	0.144839	0.855161	0.688758
3	26,380	1,352	25,028	2,759	0.110237	0.889763	0.612832
4	22,269	1,311	20,958	1,768	0.084359	0.915641	0.561134
5	19,190	1,212	17,978	1,272	0.070753	0.929247	0.521432
6	16,706	1,198	15,508	929	0.059905	0.940095	0.490196
7	14,579	1,124	13,455	700	0.052025	0.947975	0.464693
8	12,755	1,066	11,689	522	0.044657	0.955343	0.443941
9	11,167	975	10,192	385	0.037775	0.962225	0.427171
10	9,807	987	8,820	268	0.030385	0.969615	0.414192
11	8,552	850	7,702	225	0.029213	0.970787	0.402092
12	7,477	744	6,733	185	0.027477	0.972523	0.391044
13	6,548	676	5,872	133	0.02265	0.97735	0.382187
14	5,739	803	4,936	128	0.025932	0.974068	0.372276
15	4,808	654	4,154	101	0.024314	0.975686	0.363224
16	4,053	693	3,360	51	0.015179	0.984821	0.357711
17	3,309	698	2,611	43	0.016469	0.983531	0.35182
18	2,568	633	1,935	32	0.016537	0.983463	0.346002
19	1,903	567	1,336	22	0.016467	0.983533	0.340304
20	1,314	457	857	13	0.015169	0.984831	0.335142
21	844	240	604	12	0.019868	0.980132	0.328483
22	592	166	426	9	0.021127	0.978873	0.321544
23	417	114	303	5	0.016502	0.983498	0.316238
24	298	94	204	3	0.014706	0.985294	0.311587
25	201	68	133	3	0.022556	0.977444	0.304559

Note. See Table 4 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C9. Life Table: Second Violations over 25 Years after First Violations (Categories 1-5), License Class CDL Drivers

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	3,028	0	3,028	742	0.245046	0.754954	0.754954
2	2,286	44	2,242	403	0.17975	0.82025	0.619251
3	1,839	69	1,770	238	0.134463	0.865537	0.535984
4	1,532	25	1,507	163	0.108162	0.891838	0.478011
5	1,344	40	1,304	105	0.080521	0.919479	0.439521
6	1,199	35	1,164	100	0.085911	0.914089	0.401761
7	1,064	41	1,023	70	0.068426	0.931574	0.37427
8	953	37	916	58	0.063319	0.936681	0.350572
9	858	48	810	31	0.038272	0.961728	0.337155
10	779	58	721	47	0.065187	0.934813	0.315177
11	674	42	632	30	0.047468	0.952532	0.300216
12	602	39	563	26	0.046181	0.953819	0.286352
13	537	35	502	26	0.051793	0.948207	0.271521
14	476	55	421	20	0.047506	0.952494	0.258622
15	401	45	356	14	0.039326	0.960674	0.248451
16	342	51	291	10	0.034364	0.965636	0.239913
17	281	40	241	6	0.024896	0.975104	0.233941
18	235	45	190	4	0.021053	0.978947	0.229015
19	186	45	141	4	0.028369	0.971631	0.222519
20	137	35	102	2	0.019608	0.980392	0.218155
21	100	18	82	4	0.04878	0.95122	0.207514
22	78	13	65	2	0.030769	0.969231	0.201129
23	63	19	44	1	0.022727	0.977273	0.196558
24	43	12	31	0	0	1	0.196558
25	31	9	22	2	0.090909	0.909091	0.178689

Note. See Table 4 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Table C10. Life Table: Second Violations over 25 Years after First Violations (Categories 1-5), License Class M Drivers

Year	Number Entering	Number Censored	Number at Risk	Number Violating	Proportion Violating (Hazard Rate)	Proportion Surviving Violation-Free	Cumulative Proportion Surviving (Survival Function)
1	3,853	0	3,853	895	0.232287	0.767713	0.767713
2	2,958	34	2,924	522	0.178523	0.821477	0.630659
3	2,402	57	2,345	321	0.136887	0.863113	0.54433
4	2,024	57	1,967	169	0.085918	0.914082	0.497563
5	1,798	58	1,740	155	0.08908	0.91092	0.45324
6	1,585	48	1,537	115	0.074821	0.925179	0.419328
7	1,422	58	1,364	83	0.06085	0.93915	0.393811
8	1,281	52	1,229	72	0.058584	0.941416	0.37074
9	1,157	59	1,098	48	0.043716	0.956284	0.354533
10	1,050	49	1,001	42	0.041958	0.958042	0.339658
11	959	60	899	31	0.034483	0.965517	0.327945
12	868	56	812	36	0.044335	0.955665	0.313406
13	776	53	723	24	0.033195	0.966805	0.303002
14	699	70	629	25	0.039746	0.960254	0.290959
15	604	56	548	18	0.032847	0.967153	0.281402
16	530	62	468	12	0.025641	0.974359	0.274187
17	456	76	380	10	0.026316	0.973684	0.266971
18	370	61	309	3	0.009709	0.990291	0.264379
19	306	66	240	6	0.025	0.975	0.25777
20	234	62	172	3	0.017442	0.982558	0.253274
21	169	43	126	2	0.015873	0.984127	0.249254
22	124	23	101	1	0.009901	0.990099	0.246786
23	100	28	72	0	0	1	0.246786
24	72	24	48	1	0.020833	0.979167	0.241644
25	47	18	29	0	0	1	0.241644

Note. See Table 4 of the report, Any Driving Violation. See Table C1 note for column descriptions.

Appendix D:
Supporting Materials for Recommendations

A4. Special Point Examination

Suggested changes to the Driver's Handbook:

- Above the first paragraph on p. 4, add a heading, Special Point Examination (same level as previous heading). After the first paragraph, add an example such as:

  Special Point Examination
  Whenever points are added to your driving record, … will remove 3 points from your record each year. (existing text)

  Consider this example:

  > For five years Mary followed all the safe driving rules and always obeyed the speed limit. But, one day Mary ran a red light. PennDOT assigned three points to her driving record. Five months later, Mary coasted past a stop sign and failed to come to a complete stop. The three points she earned for this violation brought her total to six points, and she received a notification letter from PennDOT ordering her to take a Special Point Examination. Mary scheduled her Exam on a Monday, which meant that she had to take a day off work.

  If Mary drove more carefully and committed no further violations, twelve months after her red light violation her point total would have returned to zero. Instead, Mary committed another violation and, like 8.2% of Pennsylvania drivers, she was required to pass a Special Point Examination or risk losing her driving privilege.

- Between the first and second paragraphs on p. 4, add:

  Departmental Hearing
  The second time the total number of points on your record adds up to 6 or more, you are required to attend a Departmental Hearing. The result of this hearing will be a suspension of your driving privilege, a special on-road driving examination, or no action. Consider this example:

  > John was required to pass a Special Point Examination because, having been convicted of two speeding violations within 10 months, his point total added up to 7. Upon passing the Special Point Exam his point total was reduced to 5. Six months later, however, John was convicted of another speeding violation. This brought his point total to 8, and he received a notification letter from PennDOT ordering him to attend a Departmental Hearing on a Wednesday morning. John took a half-day off work to attend. As a result of this hearing, John received a 15 day suspension of his license.

  The third time the total number of points on your record adds up to 6 or more, you are required to attend a Departmental Hearing. The result of this hearing will very likely be a 30 day license suspension. Consider this example:

  > After attending a Departmental Hearing and serving a 15 day license suspension, John drove violation-free for 20 months. Twelve months after his last violation, his point total was reduced by 3, from 8 to 5. However, 23 months after the previous violation John

was running late for work, and he committed yet another speeding violation. His point total increased from 5 to 8, and he received another letter from PennDOT ordering him to attend a Departmental Hearing on a Tuesday afternoon. John took a half-day off work to attend. As a result of this hearing, John received a 30 day license suspension.

If John paid closer attention to his speed and was careful not to exceed posted speed limits, he would not have been required to attend these hearings, he would not have had to miss work, he would not have suffered the penalties of license suspensions. John should realize that with three speeding violations in less than three years, he must change his driving habits or he risks incurring even greater penalties, up to and possibly including permanent revocation of his license. With this record it is likely that John speeds often. If speeding is just a bad habit, he needs to break it. If John speeds because he is always running late for appointments, he needs to work on better time management skills. Unless John improves, it is likely that he will be one of the 24% of drivers who pass a Special Point Examination and return for a Departmental Hearing within 12 months because of another violation.

- Add a heading and an example to the existing second paragraph on p. 4:

<u>Violations Incurring Automatic Suspensions</u>
If your driving record shows 6 or more….

- Failure to stop for a school bus with flashing red lights (existing text)

Consider these examples:

Five months after John's third speeding violation, he was convicted of improper passing in a no-passing zone. His point total increased from 8 to 11. He received a letter from PennDOT notifying him that his license was suspended. Because this was his third suspension, he was suspended for 15 days per point, or 165 days (15 days x 11 points).

Eric had a violation-free Pennsylvania driver's license for seven years. One afternoon he was hurrying to a doctor's appointment when an approaching school bus began signaling that it was about to stop. He accelerated before the bus began flashing its red stop lights. This was a bad decision, as he drove past the bus just as it came to a stop and began flashing its red lights. A police officer parked a short distance away observed this, gave chase, and charged him with failing to stop for a school bus. Eric received a letter from PennDOT notifying him that his driving record showed 5 points and his license was suspended for 60 days.

John and Eric appear to have similar issues. They do not allow themselves enough time to get where they are going without speeding. Upon encountering inevitable obstructions along the way, they make rash decisions to get around obstacles in an unsafe manner. And they suffer serious consequences for their actions.

- Likewise for the remainder of the Driver's Handbook, add examples linking bad driving to points and sanctions, along with guidance for safer driving.

C1. Letters to Violators

As examples for revisions to letters to motorists, we provide the elements to be included in some of these letters.

General Violation

- Addresses and violation information as currently provided
- Subject line with "X points added to driver record for total of Y points as of {effective date}" or some similarly clear result of the consequence of the violation.
- Salutation
- Description and/or explanation of the violation with details as appropriate
- Description of what sanction is imposed and why; reference to enclosed list of violations to date as listed in the driving record for motorists having more than one violation; reference to the enclosed *Pennsylvania Point System Fact Sheet.*
- Information describing what this means to the motorist – e.g., points will remain on driving record and removed via driving violation-free at 3 points per year. Using the history of the driver warn of consequences experienced by other drivers in this same situation, e.g. young male driver with a second violation. Where possible, most effective would be to key the violation committed to the violations analyzed in the study, failure to stop, speeding, etc. Include percentage of drivers who continue to be violation free and the risk of committing another violation and what would result – special point exam, speed hearing, potential loss of license.
- What to do next – in general these letters do not require a response. An encouragement to drive safely or review the driver manual on the topic of the violation is appropriate. (Site web address for the manual.)
- Recap where to find the *Pennsylvania Point System Fact Sheet* and Driver Manual on the PennDOT website.

Hearing Notification

- Addresses and violation information as currently provided
- Subject line with "PennDOT hearing required" or some similarly clear result of the consequence of the violation.
- Salutation
- Description and/or explanation of the violation with details as appropriate
- Description of what sanction is imposed and why; examples of letters for hearings did not include why a hearing was mandated, only that a certain point amount was reached and a hearing is required. Include, for example, this is the second time the driver reached 6 points or the speeding was 31 mph or more over the posted speed limit, which mandates the hearing Include reference to enclosed list of violations to date as listed in the driving record and reference to the enclosed *Pennsylvania Point System Fact Sheet*.
- Information describing what this means to the motorist – e.g., points will remain on driving record and removed via driving violation free at 3 points per year. Using the history of the driver, warn of consequences experienced by other

drivers in this same situation, e.g. speeding violation prediction, key the violation committed to the speeding violations analyzed in the study. Include percentage of drivers who continue to be violation free and the risk of committing another violation and what would result – special point exam, higher level speed hearing, loss of driving privilege.

- What to do next – As briefly included in current letters, describe the process that a letter will be sent directing the motorist to attend a special hearing. Include approximately when to expect the letter and a reference to PennDOT website that would contain information about hearings. Clearly state the consequences of not responding, scheduling, or attending the hearing. For example, excessive speed hearing failure to attend the hearing results in a 60 day suspension, in addition to any sanction imposed for the violation. Bold this statement to make it stand out. Include an encouragement to drive safely or review the driver manual on the topic of the violation. (Cite web address for the manual.)
- Recap where to find the *Pennsylvania Point System Fact Sheet*, hearing information, and Driver Manual on the PennDOT website.

Similarly for the 11 Point Notification, Suspension Notification, and Failure to Respond letters, organize the letters in the 5-step order as above using the subject line, which would express the specific result "License suspension of 60 days effective 3/09/2008, 12:01 a.m."

These letters also show a need for:

- Additional general reorganization
- Addition of the full title of the DL16LC form, Acknowledgement/Suspension/ Revocation/Disqualification/Cancellation and where to get it (where at PennDOT or the web address reference)
- Clarity in wording for the use of "sanction" when a motorist will need to know it means "suspension," definition of "driver's license products" – can be done in the existing wording
- Additional wording describing the referral to State Police consequences Section 1571 – actually meaning fines or imprisonment.
- Better explanation of the concept of "credit toward serving" or "credit" for doing some action

As with other letters, include a list of the motorist's violations and the *Pennsylvania Point System Fact Sheet* and where to find it on the PennDOT website. If the motorist does not respond or comply with the letter, the future consequences for these violations are currently included. Additional information can be inserted from the conclusions of the study regarding the potential risk for further suspensions if driving behavior does not change, and the consequence of another similar violation.

As with all letters it is important to include references to material that will help increase the knowledge of the motorist about the points system and for gaining a better understanding of driving skills.

For the Failure to Respond letters it will be important to check each version to assure there is wording to describe how to get "back on track." The wording would be included in step 4, "what the motorist needs to do next and what happens if motorist does not comply." While the wording of the letter says what the motorist is to do, it will be important to stress that failure to respond leads to multiple serious sanctions that most probably will jeopardize driving privileges.

Young Driver Violation (driver and driver's parent(s)) letters can benefit as well from the above described format, points information enclosure, and PennDOT website references. Furthermore, additional information from the study about the patterns of violations of young drivers should be included. Wording that identifies that the information is about young drivers in Pennsylvania and describes the likelihood of the next violation for the percentage of young drivers will be important additions. Expansion on what is coming next, special point exam, hearing, suspension, if driving behavior does not improve will also be valuable.

Special Point Examination letter:

Special Point Exam Notification Letter PennDOT letterhead, quality paper, official appearing document, seal/logo

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
Bureau of Driver Licensing
Harrisburg, PA 17123
Mail Date: October 10, 2007

Address and Case Information as is currently included

Subject: Passing of Special Point Examination Required by November 10, 2007

Salutation:

You violated Section 3362 of the Pennsylvania Vehicle Code dealing with exceeding maximum speed limits on 9/22/2007 and were convicted on 10/02/2007 for driving at a speed of 30 mph over the 50 mph posted speed limit.

The conviction of this violation adds 5 points to your driving record and brings your total points to 8. Enclosed with this letter is a copy of your driving record which lists your convictions to date. Because your total number of points is 6 or greater, **you are required to take and pass a special written examination within thirty (30) days of the mail date of this letter or your license will be suspended.** For your reference a description of the Pennsylvania Points System is enclosed explaining your point accumulation. [cite web address]

You must pass this **Special Point Examination** within the 30 day timeframe. After passing the examination two (2) points will be removed from your record if you pass within the 30 days. If you do not pass the examination on your first try, you make take it again, but not on the same day. [Include here if there is any limit of number of times one can try.] **NOTE: Time extensions are not granted.** A more complete explanation of the special point examination requirement plus a study guide is included in the Driver's Handbook which accompanies this letter.

This examination may be taken by appointment only. When you are ready to take the examination you can schedule it via the Internet at www.state.pa.us, PA Keyword: "Drivers Test." If you do not have access to the Internet, you can schedule a special point examination by calling 1-800-423-5542.

To be admitted to take the examination, you must show this letter and your valid driver's license or other acceptable identification as described in the Driver's Handbook. If you show up at your examination location without these items or at a different time than your appointment, you will not be admitted to take the examination.

It is a violation of the Vehicle Code for you to appear at your special point examination and to show another person's license or for someone else to appear showing your license. In either case, both you and the other person will be prosecuted by the Pennsylvania State Police. If your license is currently suspended, this letter does *not* authorize you to drive to or from the examination location.

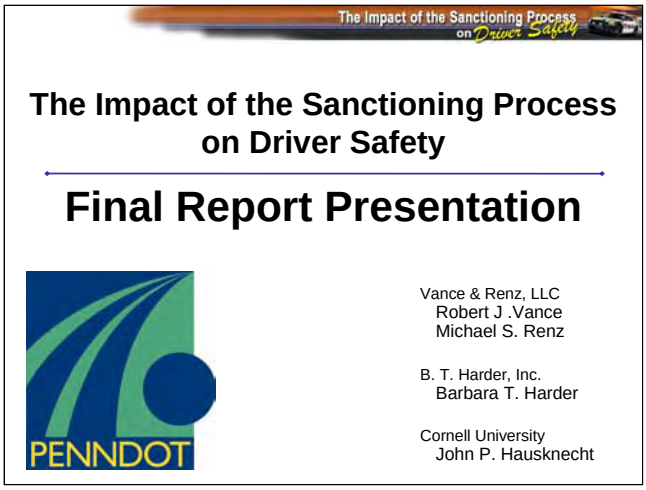
If you do not comply with this letter or fail to respond to it, your license will be suspended indefinitely until you make arrangements to take and pass the examination. When you make arrangements to take the examination, you will be required to return to PennDOT any current driver's license, learner's permit, and/or temporary driver's license (camera card), and will be assessed a $25 restoration fee when you pass the examination.

You may get a Spanish version of the Driver's Handbook by calling 1-800-932-4600.

Include the standard closing and telephone numbers.

Add internet web references for each item
Pennsylvania Points System
Driver's Handbook
Driver's Manual as reference

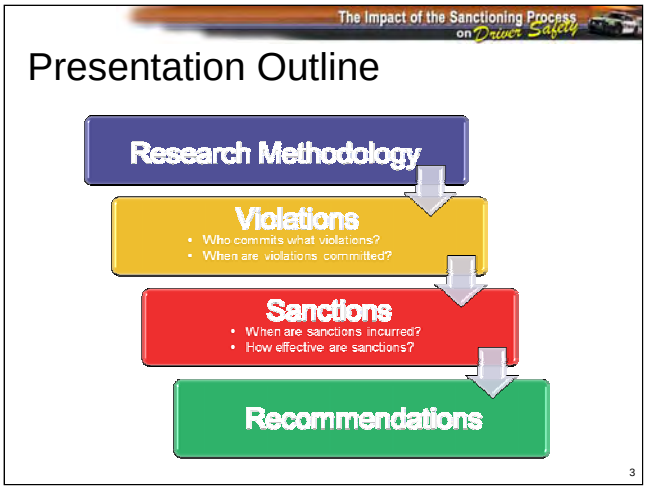
Appendix E:
Final Report Powerpoint with Briefing Notes



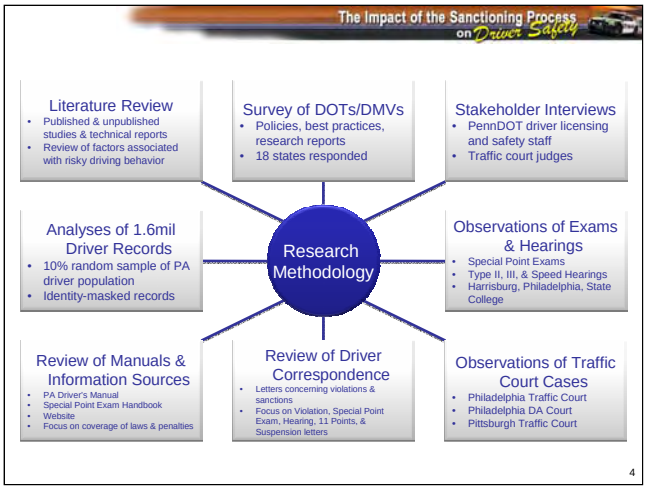
Under contract to the Pennsylvania Department of Transportation, Bureau of Driver Licensing. Technical Advisor: Scott Shenk, Manager, Driver Safety Division.

Objectives

- To characterize the sample and describe violation patterns among drivers
- To determine whether Special Point Exams, Hearings, and Suspensions are effective
- To provide evidence-based recommendations for sanction process improvements



This PowerPoint presentation is designed in sections to facilitate presentation to a variety of audiences. Click on the section hyperlinks on this slide to jump to that section. Or, continue advancing to step through the entire presentation.



Literature Review: 239 studies summarized on topics such as licensing practices, effects of sanctions on driver behavior, effectiveness of driver training, and attitudes toward safe driving.

States that responded to survey: AR, CA, GA, ID, IA, KY, MD, MN, NJ, NV, OH, OR, SC, TN, TX, UT, WA, WV

PennDOT stakeholders interviewed: Janet Dolan, Scott Shenk, Diana Henning, Anne Titler, Brenda Collins, Melanie Sterline, Vita Youch, Harold Cramer, Jim Nolan, Mike Vitti, Tom Ozechoski

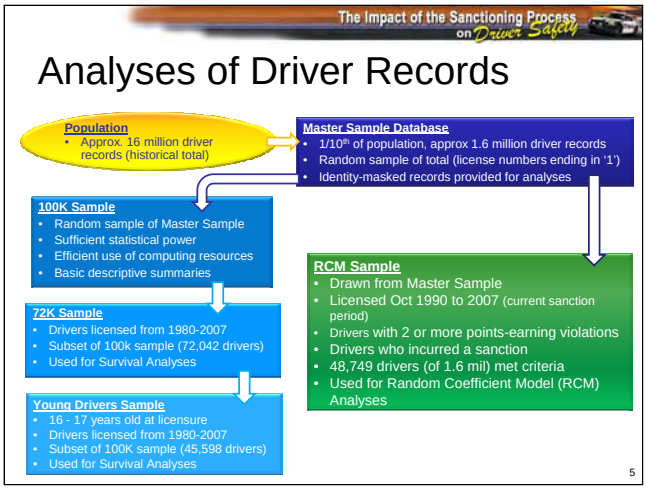
Special Point Exams and Hearings (Type II, III, Speed, Young Driver) observed in State College on 12/20/2007, Philadelphia on 1/9/2008, and Harrisburg on 12/10/2007 and 1/25/2008.

Philadelphia Traffic and DA Courts were observed on 3/28/2008. Pittsburgh Traffic Court was observed on 5/5/2008. Many cases for each court were observed. Judges Tynes and Green of Philadelphia and Judge Ravenstahl of Pittsburgh were interviewed. Discussions were also held with Judge Deangelo and Deputy Court Administrator DeEmilio of Philadelphia and Pittsburgh Municipal Court Supervisor Jerry Cavalovitch.

14 types of driver correspondence were reviewed; the 6 types for which the researchers offered specific suggestions were notifications of violations, Special Point Exams, Hearings, 11-Points, Suspensions, and Failure to Respond.

Manuals and other information sources produced by PennDOT were reviewed primarily with respect to information concerning violations, points, and sanctions, and a driver's responsibilities for responding to communications from PennDOT about these issues.

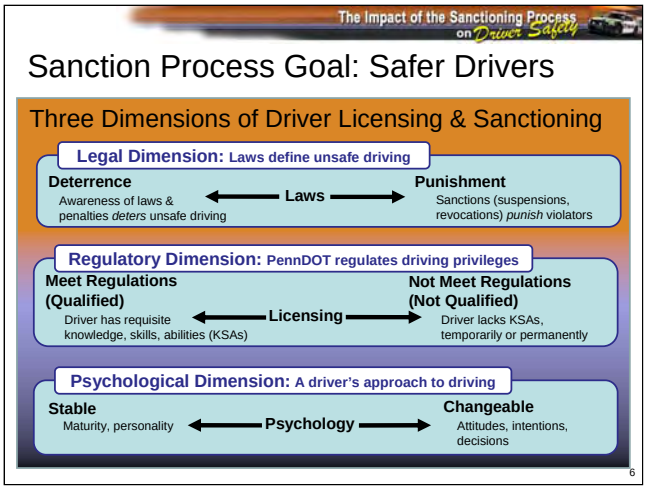
Driver Records: see next slide for more information.



A series of analyses of driver records were performed. Each analysis addressed a specific research question and posed its own data requirements. Each analysis required a data set containing data extracted from the Master Sample Database of approximately 1.6 million driving records that was provided to the researchers by PennDOT. This slide summarizes the samples that were created.

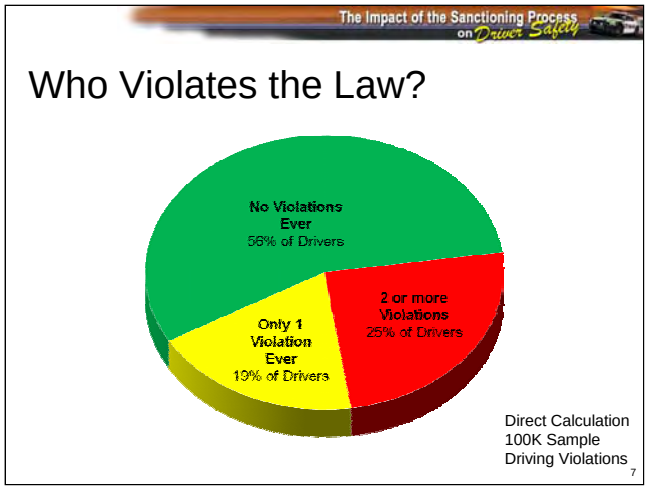
Processing of driver records to create data files suitable for analyses proved to be a difficult and time-consuming task due to the complexities inherent in the PennDOT driver records system. Because these records extend to the beginning of driver licensing in the last century, successive legacy database systems for storing records created intricacies of data coding, formatting, and storage that impact today's users.

The complexities of this very large database mean that: (1) it can be "cut" many ways to answer specific research questions; (2) most research questions are deceptively simple – e.g., What proportion of drivers have committed only 1 violation? – because you quickly encounter the "when" question in trying to answer it [In their first year of licensure? In their first 10 years of licensure? Ever?]; (3) we analyzed a number of related questions to determine whether they pointed to a consistent set of answers – they did.



These dimensions are useful in thinking about the big picture. There are laws that define safe and unsafe driving and that impose penalties for violations. PennDOT administers the driver licensing and sanctioning processes. Drivers operate in the context of laws and regulations; they approach the driving task with varying degrees of maturity, knowledge, awareness, skill, and intentions.

Unsafe drivers can be dealt with by new laws and/or stricter enforcement of existing laws. PennDOT can seek to improve driving behavior through driver education and testing, through initiatives that specifically target problem drivers, etc. A given initiative can relate to several elements of this model simultaneously: for example, a new law can have both deterrence and punishment value, and an educational campaign for that law can increase drivers' awareness and encourage better driving decisions.



Using the 100K random sample, this chart shows percentages of drivers with 0, 1, or 2 or more driving violations.

Driving violation categories are: (1) Speeding, (2) Failure to Stop (at stop sign or light) or Yield, (3) Improper Driving (such as careless driving, improper passing), (4) License Restriction (such as driving without a license, driving while suspended), (5) DUI.

Direct calculation is a simple calculation of frequencies. Direct calculation contrasts with survival analysis estimation, explained on slide 15, that takes into account driving exposure when estimating percentages.

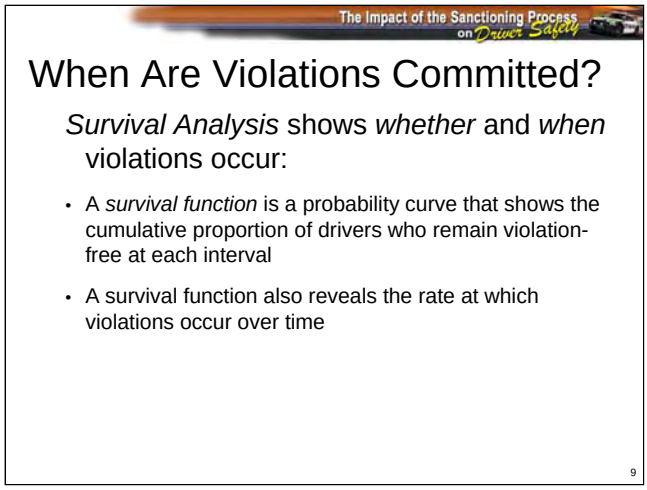
Most drivers are convicted of 0 or only 1 driving violation. There is a distinction between committing a violation and being convicted of it. Only convictions are reported in the driving records -- there is no way to know how many drivers commit violations for which they are not apprehended, charged, or convicted. With this caveat, for simplicity's sake we generally refer to "violations committed" rather than "violations of which drivers are convicted."

Here we encounter the "when" question again. Calculation of the proportions of drivers who committed 0, 1, or 2+ violations directly from the database does not consider that some drivers have been driving for many years, and others for very few. So direct calculation answers that question thusly: "Given the data, what are the proportions?" The answer given in this chart is a legitimate question derived directly from the data. But it is true that the longer drivers drive, the more opportunities they have to commit violations. We return to this question in Slide 15, where we have another answer derived from analyses that adjust for opportunity to violate (or exposure).

Using the 100K random sample, these pie charts present proportions of violations by violation categories for drivers with only 1 violation, and for drivers with 2 or more violations. Also shown are gender breakdowns.

Driving violation categories are: (1) Speeding, (2) Failure to Stop (at stop sign or light) or Yield, (3) Improper Driving (such as careless driving, improper passing), (4) License Restriction (such as driving without a license, driving while suspended), (5) DUI.

Of the 19% of drivers with only 1 violation ever, 10% are males and 9% are females. Of the 25% of drivers with 2 or more violations, 18% are males and 7% are females. Males are convicted of a greater proportion of driving violations than females, and this difference increases as the number of violations increases.



A survival analysis is used to test whether and when an event occurs, where the event (such as a first driving violation) can occur at different times for different drivers, or not at all. So named because it was originally developed for use in medical research (where the event of interest is death), survival analysis properly accounts for cases who "survive" event-free to the end of the study period, and it allows for differing amounts of study time across cases (i.e., drivers with 5, 10 and 20 years of licensure can be included in the same analysis).

Other characteristics of survival analysis:

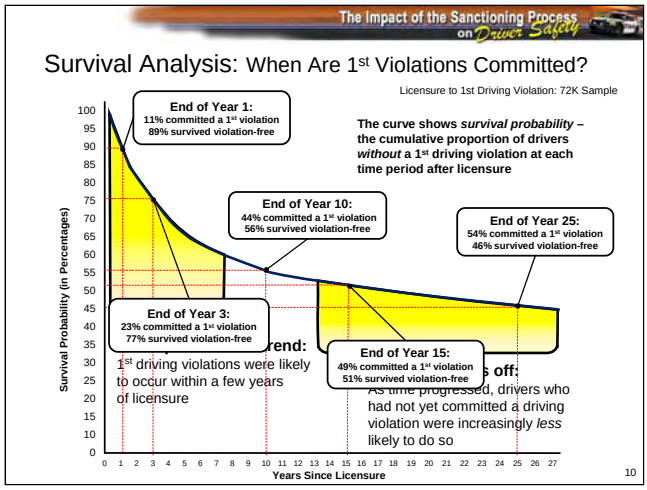
An event can occur only once for each driver, such as a first driving violation after licensure.

At each time interval (e.g., year since licensure), a hazard rate is calculated as the number of drivers who committed a first driving violation divided by the number at risk (drivers who have not yet committed a first violation).

A survival function (shown in slides 10-14) is a probability curve that shows the cumulative proportion of drivers who remained violation-free at each interval.

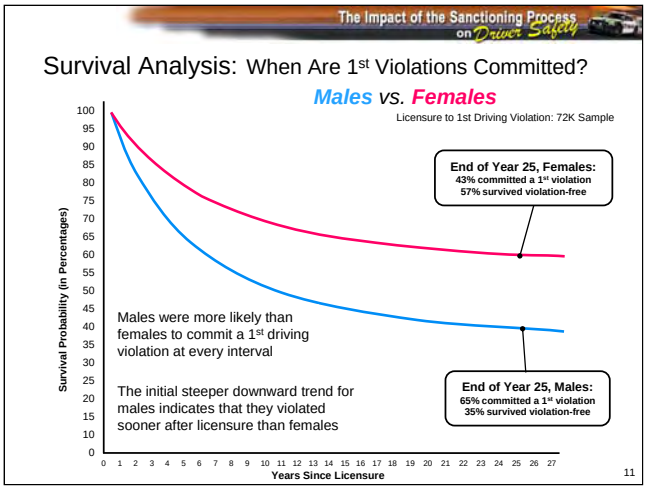
A survival function reveals both the rate at which violations occurred and the proportion of drivers who remained violation-free.

A survival graph is usually accompanied by a Life Table that summarizes the analysis in much greater detail. Life tables are included in the final project report.

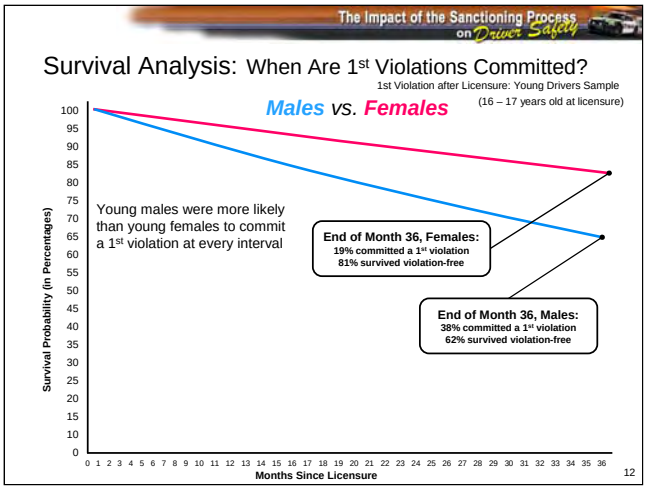


Using the 72K Sample (drivers licensed since 1980), survival from licensure (beginning of time) to first driving violation (event) is shown. Actual total number of drivers included in this analysis was 72,035 drivers.

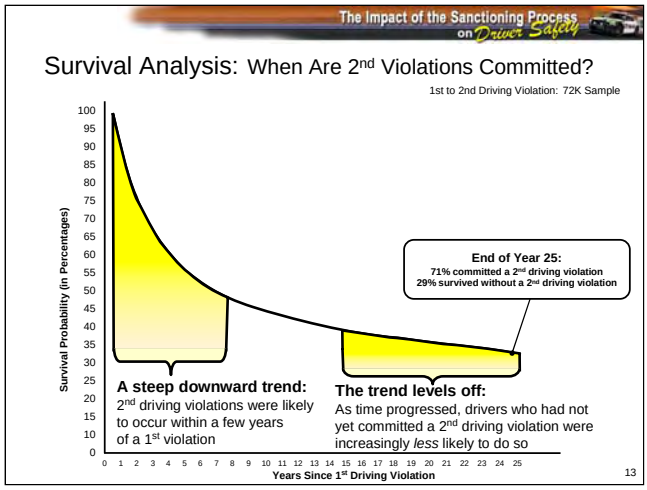
Driving violation categories are: (1) Speeding, (2) Failure to Stop (at stop sign or light) or Yield, (3) Improper Driving (such as careless driving, improper passing), (4) License Restriction (such as driving without a license, driving while suspended), (5) DUI. The event analyzed was a first violation classified in any of these categories. Other details of the analysis are summarized in the chart.



See notes to slide 10. The sample includes 34,828 females and 37,207 males.

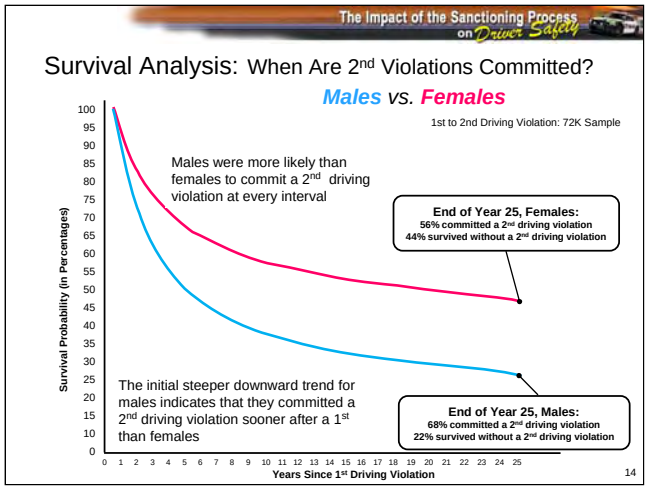


Young drivers sample, 16-17 years old at time of licensure. The sample includes 21,160 females and 24,427 males. Time to first violation after licensure, in months.

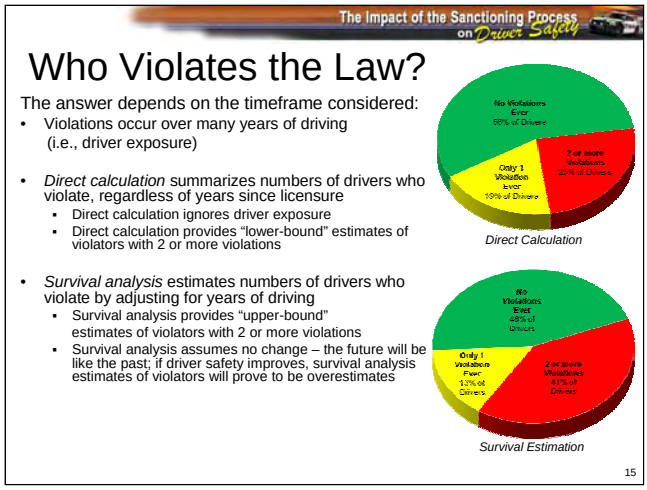


Using the 72K Sample (drivers licensed since 1980), survival from time of first driving violation (beginning of time) to second driving violation (event) is shown. Actual total number of drivers included in this analysis was 42,793 drivers.

Driving violation categories are: (1) Speeding, (2) Failure to Stop (at stop sign or light) or Yield, (3) Improper Driving (such as careless driving, improper passing), (4) License Restriction (such as driving without a license, driving while suspended), (5) DUI. The event analyzed was a second violation classified in any of these categories. Other details of the analysis are summarized in the chart.



See notes to slide 13. The sample includes 14,859 females and 27,934 males.



Direct calculation is a simple calculation of frequencies. Some drivers included in the analysis have 20 or more years of driving exposure, others have 5 or fewer years of exposure. Direct calculation does not take years of driving into account.

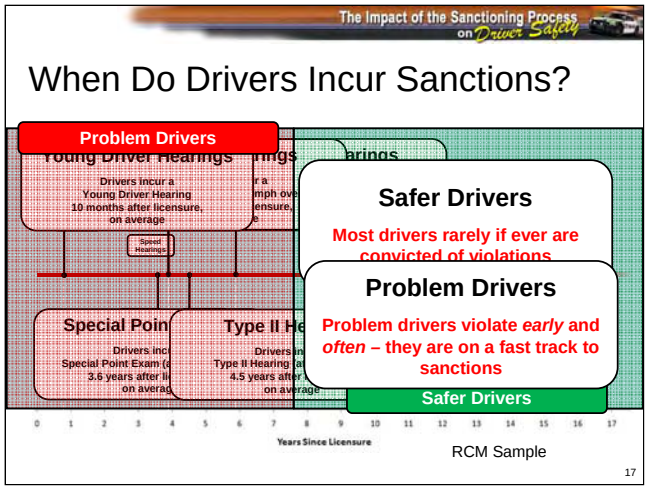
Direct calculation contrasts with survival analysis estimation, which takes into account driving exposure when estimating percentages. Survival analysis estimates how many violations drivers would commit if they were all observed for the same number of years of driving (a maximum of 27 years for these analyses). Because many drivers included in the direct calculations have not been driving long enough to have been convicted of violations that they will eventually commit, we consider the survival estimates to be better estimates than direct calculations. However, survival analysis assumes that nothing will change as drivers continue to drive into the future. If efforts to improve driver safety through more effective sanctions are successful, survival estimates should prove to be overestimates. In recognition of this possibility, we characterize direct calculations as providing "lower bound estimates" and survival analyses as providing "upper bound estimates."

Note that although survival analysis accounts for driver exposure measured by years since licensure, it does not account for other aspects of exposure such as number of miles driven per year.

Conclusions:

Sample Characteristics and Violation Patterns

- 1st driving violations are likely to occur within a few years of licensure
- 2nd driving violations are likely to occur within a few years of 1st violations
- Males, especially young males, are more likely to violate than females
- A minority of drivers are problem drivers (2+ violations)
  - They violate early and often after licensure
  - Many are on a fast track to sanctions
- Most drivers are safer, committing only 0 or 1 violations in their driving careers
  - They are law abiding
  - For them, sanctions are effective deterrents



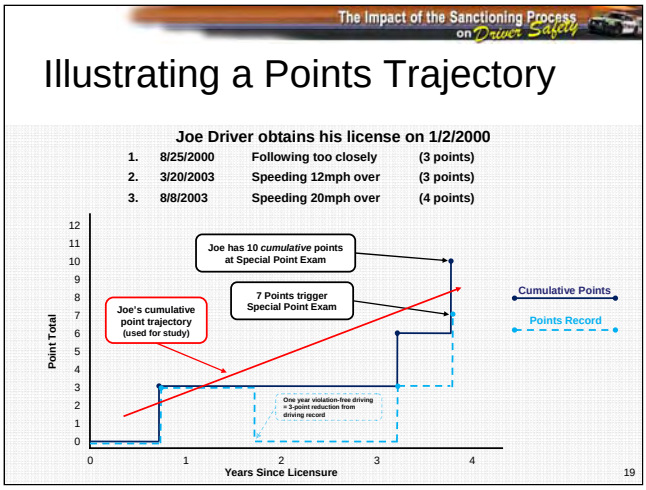
We believe that is helpful to distinguish “problem drivers,” those with multiple violations and sanctions, from the majority of drivers with few if any violations, whom we label “safer drivers.”

Are Sanctions Effective?

If sanctions are effective:

- A driver should commit fewer violations and accumulate fewer points *after* a sanction than *before*
- The slope of a *best fit* line drawn through points accumulated over time should change at the time of a sanction
- A sanction should “break the trend” in violations and points

Joe Driver’s history of violations illustrates these concepts

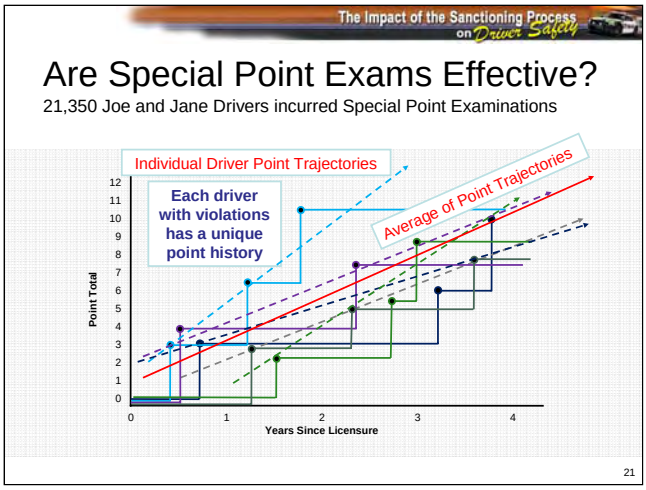


Random Coefficient Modeling (RCM) analyses, used to test the effectiveness of sanctions such as hearings and suspensions, are summarized in slides 20-28. Cumulative point totals of drivers with multiple points-earning violations were analyzed. This slide illustrates the ideas of cumulative points and cumulative point trajectories, and distinguishes these from the point record totals with which PennDOT staff may be more familiar.

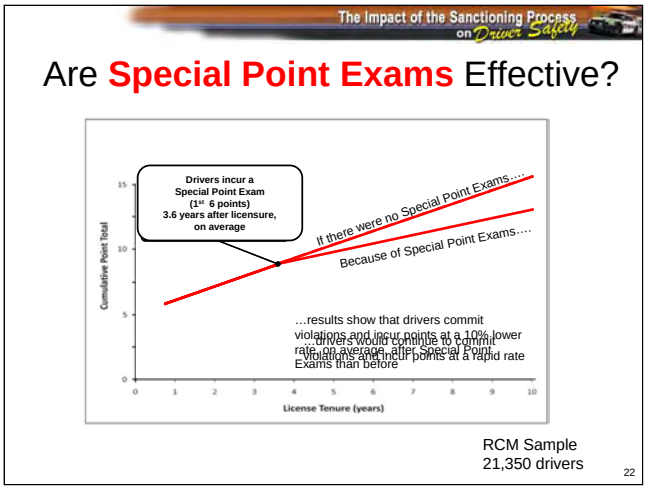
Data Analysis Strategy

We tested sanction effectiveness with *Random Coefficient Modeling (RCM)*

- RCM tests whether drivers' cumulative point trajectories decline after a sanction
- *Cumulative* points are modeled, *not* driver record points (i.e., with 3-point reductions after 12 violation-free months)

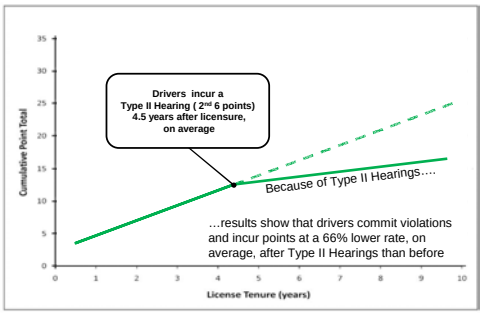


This slide further illustrates the idea of cumulative point histories and cumulative point trajectories of individual drivers, which are the basis of Random Coefficient Modeling (RCM) analyses. It further shows conceptually how an average point trajectory is determined. Average point trajectories are shown in slides 22-27.



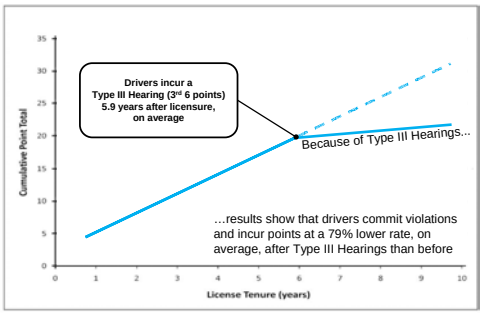
This slide illustrates dynamically and conceptually what an RCM analysis tests – the effect of a Special Point Exam on the changes in drivers' point trajectories from before to after a sanction. Slides 23-27 show RMC results for other types of sanctions, although they do not illustrate the same dynamic unfolding as used in this slide. Only first instances of this and other sanctions were included in these analyses.

Are **Type II Hearings** Effective?

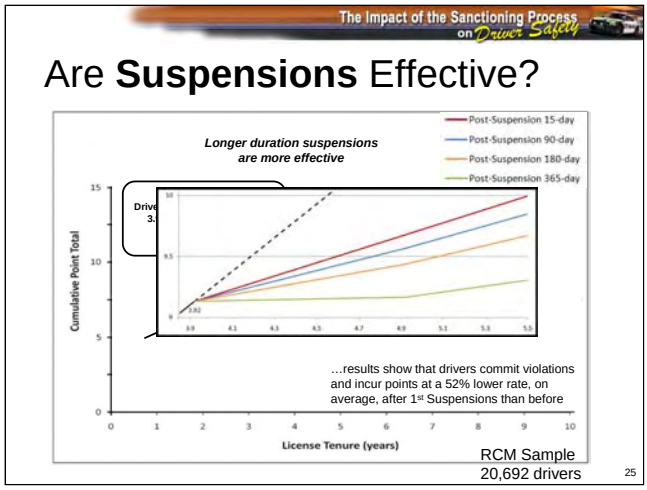


RCM Sample
5,423 drivers

Are Type III Hearings Effective?

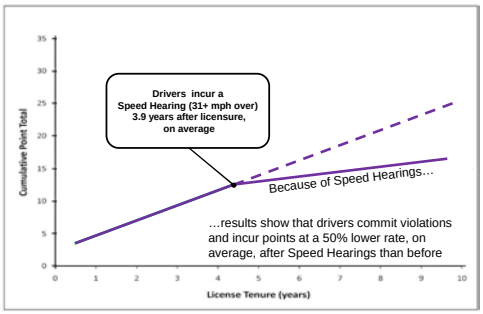


RCM Sample
1,281 drivers



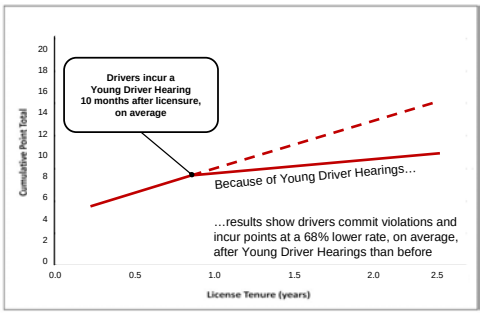
The close-up of effects of suspension durations in this slide shows that point trajectories of drivers who receive 365-day suspensions are flat during their suspension periods. Drivers who commit violations while suspended incur additional suspensions, not points.

Are **Speed Hearings** Effective?

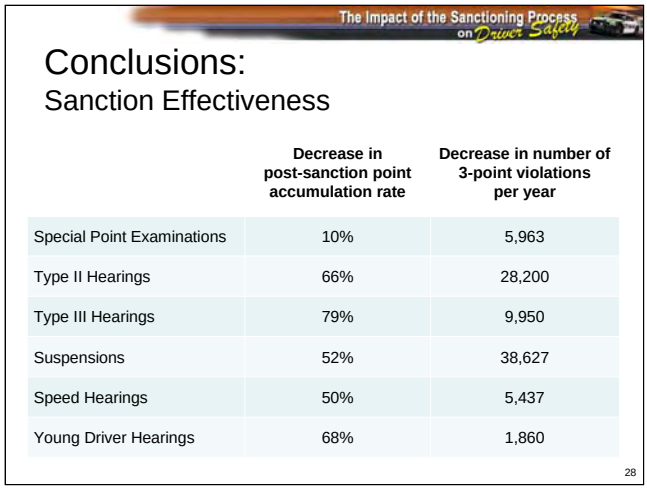


RCM Sample
2,265 drivers

Are **Young Driver Hearings** Effective?



RCM Sample
246 drivers



This slide summarizes the findings of Random Coefficient Model analyses of Pennsylvania driver records. All types of sanctions are effective, although their effectiveness varies considerably. Note that Special Point Exams, Type II Hearings, and Type III Hearings are sequential, applied to successively smaller samples of drivers. Projected decreases in numbers of 3-point violations per year due to sanctions take into account the numbers of drivers who incur each type of sanction per year.

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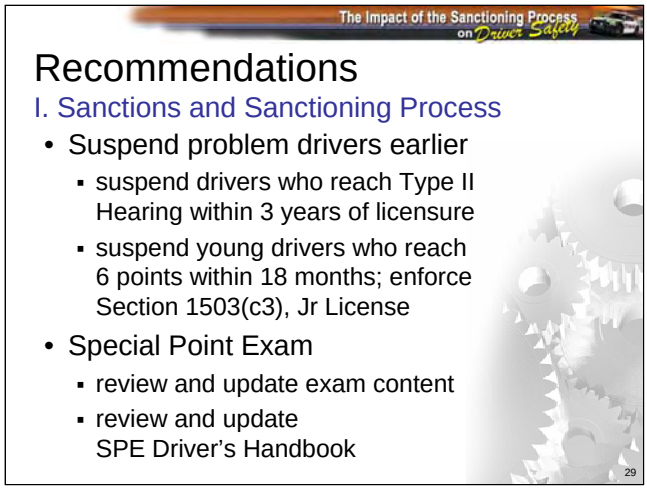
Under contract to the Pennsylvania Department of Transportation, Bureau of Driver Licensing.

Technical Advisor: Scott Shenk, Manager, Driver Safety Division.

Project Manager: Marie Stokes, Research Division, Bureau of Planning and Research.

April 7, 2008

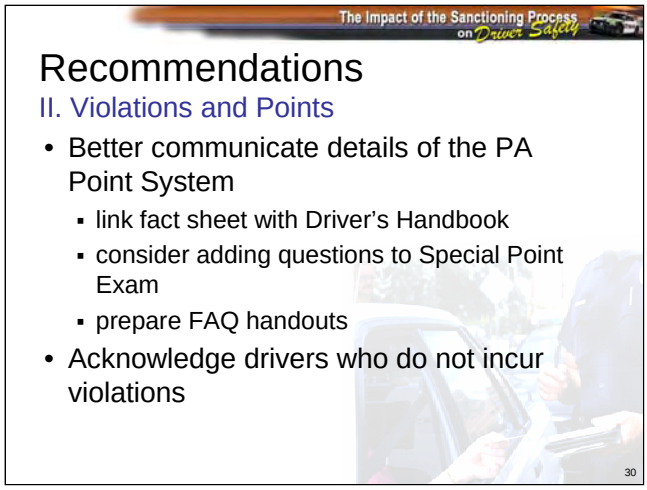


These recommendations are based on findings summarized throughout this presentation, particularly slides 17, 22, 23, 27, and 28. Problem drivers tend to commit violations early and often after licensure. Those who incur a Type II Hearing (2nd time at 6 points) within three years after licensure should be suspended for 30 days. Results show that hearings and suspensions are very effective. The sooner they are administered to drivers who are on the fast track to sanctions, the more likely it will be that those drivers will improve their driving habits and avoid future violations and sanctions.

The same logic applies to suspending young drivers who reach 6 points within 18 months. Young drivers respond to hearings, and young drivers on a fast track to sanctions should be dealt with sooner rather than later.

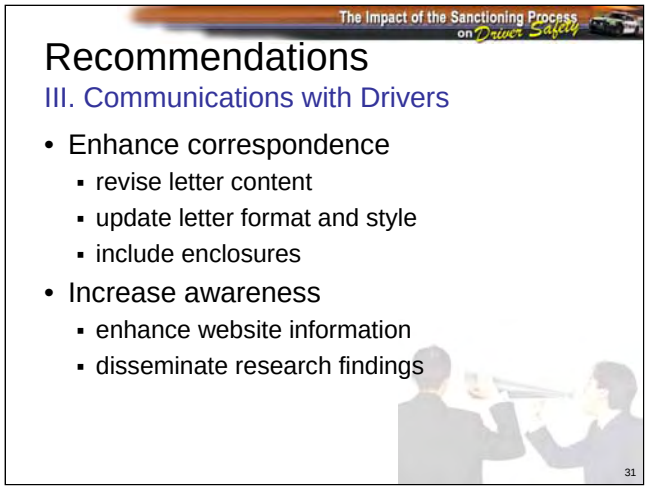
We believe that many drivers get into trouble because they do not understand how accumulation of points incurs sanctions. They do not understand that failure to respond to PennDOT communications and failure to comply with suspensions leads to more suspensions, and so on. Including this information in the Special Point Exam Driver's Handbook, and testing drivers on this material, will yield better informed drivers who will make safer driving decisions.

We also recommend that drivers who reach 6 points within their first 18 months of licensure should incur a Special Point Exam and a Hearing (on the same day) that results in a 30-day suspension.



We believe that many drivers get into trouble because they do not understand how accumulation of points incurs sanctions. They do not understand that failure to respond and failure to comply with suspensions leads to more suspensions, and so on. These recommendations are based on our discussions with PennDOT stakeholders and traffic court judges, and on our observations of Special Point Exams and Hearings. Including this information in the Special Point Exam Driver's Handbook and other documents such as Frequently Asked Questions About Driving Privileges (to be developed), and testing drivers on this material, will yield better informed drivers who will make safer driving decisions.

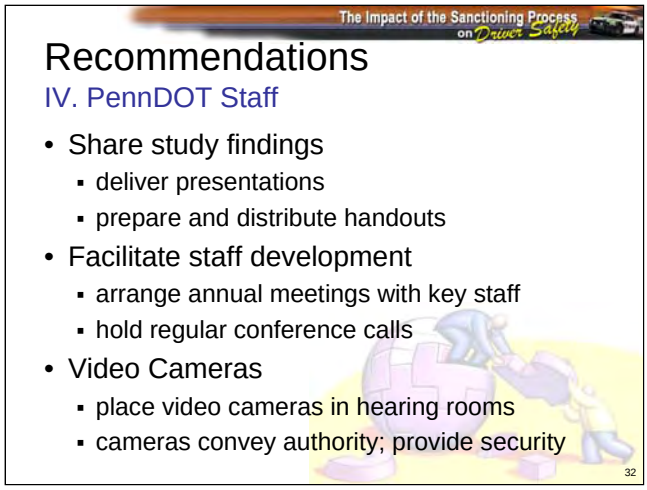
Drivers who remain conviction-free at the time of license renewal could be congratulated for their accomplishment in their renewal notification letter and encouraged to keep it up by continuing to drive safely.



Most drivers appear to be only somewhat familiar with Pennsylvania's points and sanction process. They probably don't know how many points are assigned for violations, and lack specific understanding that some violations trigger hearings and/or suspensions, that accumulation of points leads to various sanctions, and so on. A goal of these recommendations is to increase driver awareness of the sanction process, thereby enhancing its deterrence value. The expectation is that informed drivers will make better choices in their driving behavior, leading ultimately to safer driving habits.

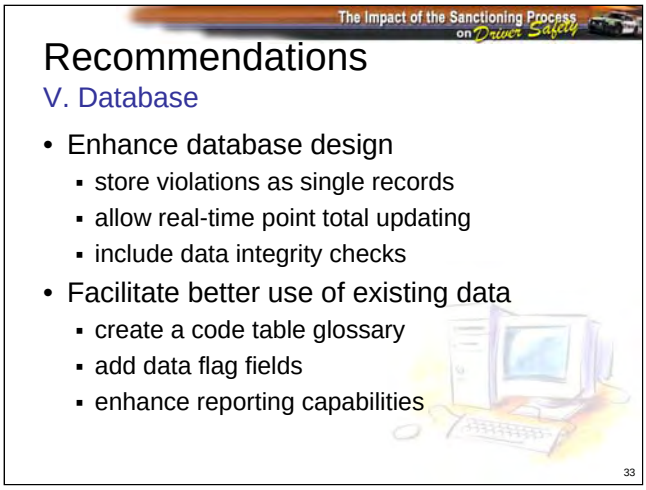
These recommendations address specific communications with drivers in the form of correspondence from PennDOT concerning violations and sanctions. Letters to drivers should be more clearly and plainly written, so that the central messages stand out. The letters should be written, formatted, and printed to convey a stronger impression of authority, and should clearly state the consequences of failing to respond or comply.

Drivers should also be made aware of the importance of safe driving and the consequences of violations by sharing the results of this study. In particular, problem drivers who appear to habitually ignore the rules of the road should understand that violations quickly lead to sanctions, and that sanctions can compound to become very long duration suspensions and even permanent revocation of driving privileges if a driver does not reform his or her unsafe driving habits.



PennDOT staff who administer the sanctioning process, particularly those who interact with drivers, should be aware of the results of this study. It documents the effectiveness of their efforts, and with a better understanding of the relative effectiveness of various sanctions, could help them make sanctions even more effective. Their input concerning how to implement recommendations will be essential.

Although at least one of the hearing rooms we visited has a video camera, it is not obvious. Video cameras convey authority and provide security. Drivers who attend Special Point Exams and Hearings should be more aware of this.



Processing of driver records to create data files suitable for analyses proved to be a difficult and time-consuming task due to the complexities inherent in the PennDOT driver records system. Because these records extend to the beginning of driver licensing in the last century, successive legacy database systems for storing records created intricacies of data coding, formatting, and storage that impact today's users.

These recommendations are intended to help with the design of the new driver records data system *(.centric)* currently being developed.

We began this project with an extensive review of relevant literature and a survey of the state DOTs/DMVs. We found no other studies comparable to this one in scope or sophistication of analyses of driver records. We believe that other agencies who are responsible for safe driving practices should be aware of our findings. Listed on this slide are some of the ways this study can be shared with a national and international audience.

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