Traffic Records

A Highway Safety Program Advisory

NOTES AND DISCLAIMERS

NOTE: The terms "Highway Safety Information System" and "Traffic Records System" are interchangeable. This Advisory uses the term, "Traffic Records System" to be consistent not only with its traditional use, but also with references in many of the publications and documents listed at the back of this Advisory, as well as its use in various pieces of legislation.

NOTE: The term “crash” is used in lieu of the term “accident” in this document. Many of the references cited in this document use the term “accident” as do many of the laws defining crashes or accidents at the State level. This advisory recommends that States begin to use the term “crash” and to reflect that change in legislation.

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INTRODUCTION

TRAFFIC RECORDS
A HIGHWAY SAFETY PROGRAM ADVISORY

Each State, in cooperation with its political subdivisions, should establish and implement a complete traffic records program. The statewide program should include, or provide for, information for the entire State. A complete traffic records program is necessary for planning (problem identification), operational management or control, and evaluation of a State's highway safety activities. This type of program is basic to the implementation of all highway safety countermeasures and is the key ingredient to their effective and efficient management.

As stated in the *National Agenda for the Improvement of Highway Safety Information Systems*, a product of the National Safety Council's Traffic Records Committee, "Highway safety information systems provide the information which is critical to the development of policies and programs that maintain the safety and the operation of the nation's roadway transportation network." A Traffic Records System is generally defined as a virtual system of independent real systems, which collectively form the information base for the management of the highway and traffic safety activities of a State and its local subdivisions.

SECTION 1:
TRAFFIC RECORDS SYSTEM INFORMATION COMPONENTS

At the time of passage of the Highway Safety Act of 1966, State central traffic records systems generally contained basic files on crashes, drivers, vehicles, and roadways. Some States added data on highway safety-related education, either as a separate file or as a subset of the Driver File. As highway safety programs matured, many States added Emergency Medical Services (EMS) and Citation/Conviction Files. Additionally, some States and localities also maintain a Safety Management File, which consists of summary information from the central files useful for problem identification and safety planning.

As the capabilities of computer hardware and software systems increased and the availability of powerful systems has expanded to the local level, many States have adopted a more distributed model of data processing. For this reason, the model of a traffic records system needs to incorporate a view of information and information flow, as opposed to focusing on the files in which that information resides. Figure 1 displays this view of distributed data processing in a traffic records system.

Under this more distributed model, it doesn't matter whether data for a given system component are housed in a single file on a single computer or spread throughout the State on multiple local systems. What matters is whether or not the information is available to users, in a form they can use, and that this information is of sufficient quality to support its intended uses. Thus it is important to look at information sources. These information sources have been grouped to form the following major components of a traffic records system (see also Table 1):

- ❑ Crash Information
- ❑ Roadway Information
- ❑ Vehicle Information
- ❑ Driver Information
- ❑ Enforcement/Adjudication Information
- ❑ Injury Surveillance Information

Together, these components should provide information about places, property, and people involved in crashes and about the factors that may have contributed to the events described in the traffic records system. The system should also contain information that may be used in judging the relative magnitude of problems identified through analysis of data in the traffic records system. This should include demographic data (social statistics about the general population such as geographic area of residence, age, gender, ethnicity, etc.) to control for differences in exposure (normalization) and cost data for benefit/cost and cost effectiveness determinations. Performance level data should be included to support countermeasure management.

Further descriptions of these types of information are provided in the following sections.

Figure 1: Model of Distributed Data Processing in a Traffic Records System

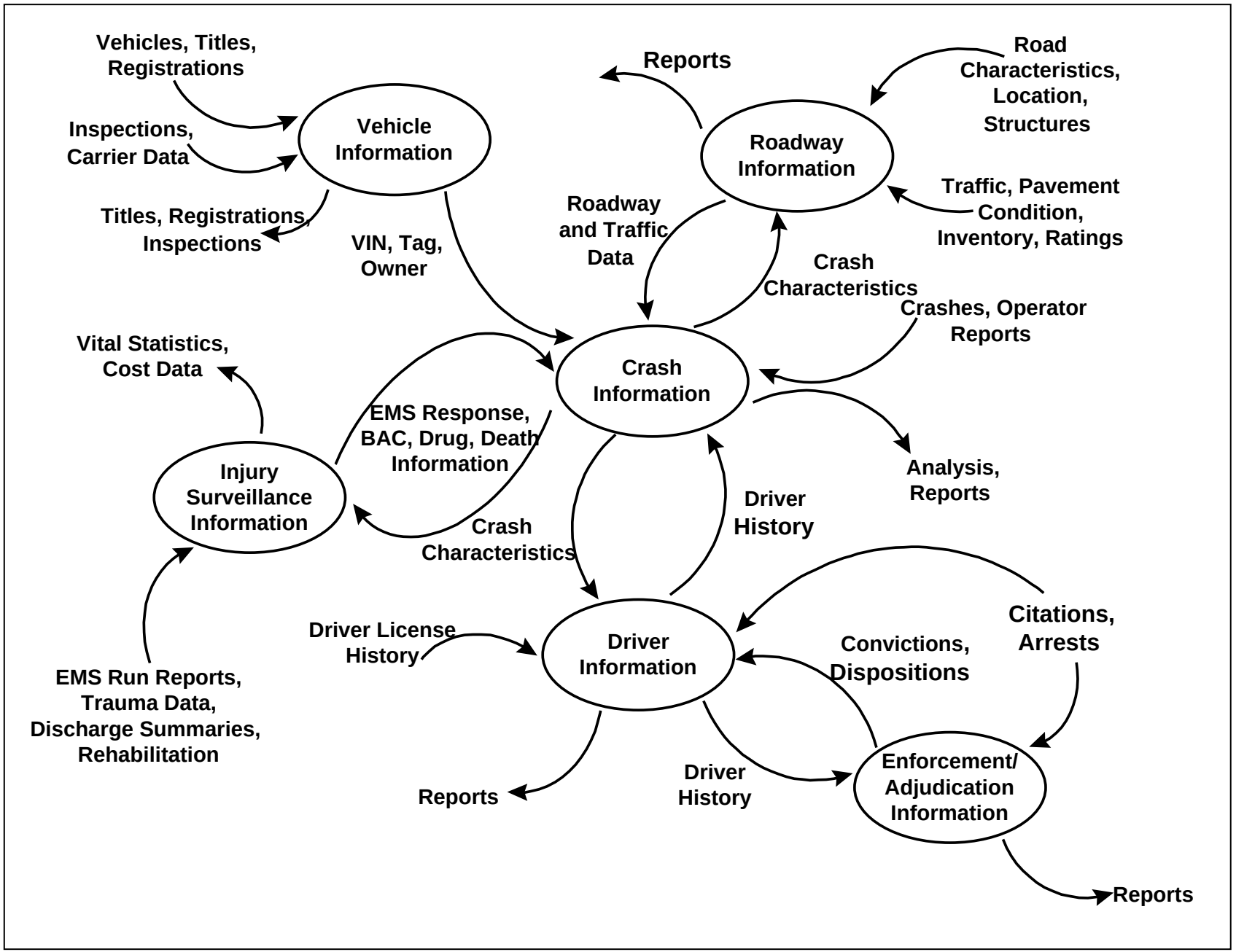

Table 1. Components of a Traffic Records System		
COMPONENTS		EXAMPLES
Crash		• Weather conditions and pavement • Illumination • Time of Day, Day of Week • Avoidance maneuvers • Violation of traffic law (speed, turns, failure to obey, reckless driving) • Number and severity of injuries or level of property damage • Number of vehicles involved • Manner of collision and speed • Object struck • Person type (driver, occupant, pedestrian) • Substance abuse • Safety device use
Injury Surveillance System		• EMS response time for driver/pedestrian/pedacyclist • Hospital assessment of injury severity • Hospital length of stay and cost • Rehabilitation time and cost
Roadway		• Location referencing system • Roadway character (jurisdiction, classification, surface, geometries) • Structures (bridges, tunnels) • Traffic control devices, signs, delineations, and markings • Roadside features (hardware, conditions, bike lanes, sidewalks, land use) • Rail grade crossings • Traffic volume and characteristics
Vehicle	All	• Type and configuration • VIN • Age/model year • Weight • Registration information/Plates • Defects • Owner information • Safety devices (type and condition)
	Commercial	• Carrier information • Hazardous materials/Placards • Inspection/Out of Service Records
Driver		• Age/DOB • Gender and Ethnicity • Experience, driver education • License status • Conviction history
Enforcement/Adjudication		• Citation tracking • Traffic case volume • Conviction • Sentencing • Case tracking

Section 1-A: Crash Information

The Crash Component documents the time, location, environment, and characteristics (sequence of events, rollover, etc.) of a crash. Through links to the crash-involved segments of Roadway, Vehicle, and Driver Information, the Crash Component identifies the roadways, vehicles, and people (drivers, occupants, pedestrians) involved in the crash and documents the consequences of the crash (fatalities, injuries, property damage, and violations charged). In addition to providing information on a particular crash, the Crash Component supports analysis of crashes in general and crashes within specific categories defined by: person characteristics (e.g., age or gender), location characteristics (e.g., roadway type or specific intersections), vehicle characteristics (e.g., condition and legal status), and the interaction of various components (e.g., time of day, day of week, weather, driver actions, pedestrian actions, etc.).

The Crash Component of the Traffic Records System should contain some basic information about every reportable motor vehicle crash on any public roadway in the State. Details of various data elements to be collected are described in a number of publications. The Model Minimum Uniform Crash Criteria (MMUCC) provides a guideline for a suggested minimum set of data elements to be collected for each crash. Additional information should be collected (as necessary) for crashes involving an injury or fatality to meet the requirements for tracking and analysis for the State and other systems (e.g., the Fatality Analysis Reporting System [FARS], General Estimates System [GES]).

Section 1-B: Roadway Information

Roadway information includes roadway location, identification, and classification, as well as a description of a road's total physical characteristics and usage, which are tied to a location reference system. Linked safety and roadway information are valuable components in support of a State's construction and maintenance program development.

Roadway information should be available for all public roads in the State whether under State or local jurisdiction. A location reference system should be used to link the various components of roadway information as well as other information sources (e.g., Crash/Environment information, EMS records) for analytical purposes.

Section 1-C: Vehicle Information

Vehicle information includes information on the identification and ownership of vehicles registered in the State. Data should be available regarding vehicle make, model, year of manufacture, body type, and miles traveled in order to produce the information needed to support analysis of vehicle-related factors which may contribute to a State's crash experience. Such analyses would be necessarily restricted to crashes involving in-state registered vehicles only.

This information should also be available for commercial vehicles and carriers which may be registered in other States, but which are licensed to use the public roadways in the State.

Section 1-D: Driver Information

Driver information includes information about the State's population of licensed drivers. It should include: personal identification, driver license number, type of license, license status, driver restrictions, convictions for traffic violations, crash history, driver improvement or control actions, and driver education data.

Driver information should also be maintained to accommodate information obtained through interaction with the National Driver Register (NDR) and the Commercial Driver License Information System (CDLIS) to enable the State to maintain complete driving histories and to prevent drivers from circumventing driver control actions and obtaining multiple licenses.

Section 1-E: Enforcement/Adjudication Information

Information should be available which identifies arrest and conviction activity of the State, including information which tracks a citation from the time of its distribution to an enforcement jurisdiction, through its issuance to an offender, and its disposition by a court. Information should be available to identify the type of violation, location, date and time, the enforcement agency, court of jurisdiction, and final disposition. Similar information for warnings and other motor vehicle incidents that would reflect enforcement activity are also useful for highway safety purposes.

This information is useful in determining the level of enforcement activity in the State, for accounting and controlling for citation forms, and for monitoring court activity regarding the disposition of traffic cases.

Section 1-F: Injury Surveillance System Information

With the growing interest in injury control programs within the traffic safety, public health, and enforcement communities, there are a number of local, State, and federal initiatives which drive the development of Injury Surveillance Systems (ISS). These systems typically incorporate pre-hospital (EMS), emergency department (ED), hospital admission/discharge, trauma registry, and long term rehabilitation databases to track injury causes, magnitude, costs, and outcomes. Often, these systems rely upon other components of the traffic records system to provide information on injury mechanisms or events (e.g., traffic crash reports).

This system should allow the documentation of information which tracks magnitude, severity, and types of injuries sustained by persons in motor-vehicle related crashes. Although traffic crashes cause only a portion of the injuries within any population, they often represent one of the more significant causes of injuries in terms of frequency and cost to the community. The ISS should support integration of the ISS data with police reported traffic crashes. The EMS run reports, crash reports, and roadway attributes are the first critical steps in the identification of a community's injury problem, and in turn, the identification of cost-effective countermeasures which can positively impact both the traffic safety and health communities.

The use of these data should be supported through the provision of technical resources to analyze and interpret these data in terms of both the traditional traffic safety data relationships and the specific data relationships unique to the health care community. In turn, the use of the ISS should be integrated into the injury control programs within traffic safety, and other safety-related programs at the State and local levels.

Section 1-G: Other Information

The Traffic Records System should acknowledge the importance of, and incorporate where feasible, other types of information from the state and local level which will be useful in the identification of traffic safety problems and the evaluation of countermeasures. These supporting components may include:

- ❑ Geographic Information Systems (GIS) and Global Positioning System (GPS) data.
- ❑ Insurance data (carrier, policy number, expiration date, claims cost).
- ❑ Safety Program Evaluation data.
- ❑ Data specifically required by State or Federal programs (e.g., the Transportation Equity Act for the 21st Century [TEA-21]).
- ❑ Demographic data (data on the State's population including gender, age, rural/urban residence, ethnicity) sufficient to be used in normalizing crash data to the State's general population.
- ❑ Behavioral data (e.g., occupant protection usage).
- ❑ Attitude/perception/knowledge data (e.g., telephone surveys, focus groups).
- ❑ Economic loss data (e.g., medical, insurance cost, workers' compensation, lost productivity).
- ❑ Inventory - Each State should have in place procedures that result in the compilation of an inventory of State and local information sources. This inventory should include information on the source, ownership (contact agency/person), quality, and availability of these data from each information source.
- ❑ Performance data - Performance level data, as part of a traffic records system, are those measures relating to an ongoing or proposed countermeasure that addresses a crash problem. They can include number and types of citations and convictions, number or percent of drivers and occupants using occupant protection, average Blood Alcohol Concentration (BAC) levels, average speeds, percent of injured receiving EMS response, recidivism rates for past offenders/crash-involved drivers, highway countermeasures (e.g., breakaway signs), etc.

- Cost data - Cost data consist of dollar amounts spent on countermeasure programs, together with the costs of fatalities, injuries, and property damage crashes. The National Highway Traffic Safety Administration (NHTSA), the National Safety Council (NSC), and other national and State agencies have published cost data for use by the States. NHTSA has also made easy-to-use cost modeling software available. In addition, specific local costs can be accumulated through injury surveillance systems or other means of collecting treatment costs and outcomes.

- ITS data – Intelligent Transportation Systems (ITS) is becoming of major importance in traffic safety and traffic mobility. ITS also has an enormous potential for capturing traffic safety data. The first area where ITS can facilitate the capture of traffic safety data is documenting crash events. This can be accomplished through video monitoring systems where data are archived. The archived data can be reviewed to ascertain where a crash report was completed on the date and at the time of the observed crash. The archived data can also be used to corroborate data contained in a crash report such as date, time, crash location, vehicle type(s), and time of arrival of emergency vehicle(s).

  ITS can also be used to record normalizing data such as vehicle counts (ADT, AADT) by vehicle type, by location, time of day, and day of week. Normalizing data is needed for data analysis where comparisons are made across time and across geographical locations.

SECTION 2:
INFORMATION QUALITY

A State's traffic records information should be of an acceptable level of quality to be useful and should be maintained in a form that is readily accessible to users throughout the State. The quality of information in a State's traffic records system is determined by the following characteristics:

- ❑ Timeliness
- ❑ Consistency
- ❑ Completeness
- ❑ Accuracy
- ❑ Accessibility
- ❑ Data integration with other information

The definition of each of these attributes and their relative significance may vary for each information area (crash, roadway, etc.). For example, while a high degree of timeliness may be crucial for entry of actions in a driver history database, it may not be as significant for certain roadway related data. Also, while the various information sources may exist separately, these sources should be easily tied together. System and data integration can eliminate the need to duplicate data, and can reduce reducing data collection, entry, and storage costs.

2-A: Crash Information Quality

- ❑ Timeliness – The information should be available within a time frame to be currently meaningful for effective analysis of the State's crash experience, preferably within 90 days of a crash.

- ❑ Consistency – The information should be consistent with nationally accepted and published guidelines and standards, for example:

  - Model Minimum Uniform Crash Criteria (MMUCC).
  - Manual on Classification of Motor Vehicle Traffic Accidents, 6th Edition, ANSI D16.1-1996.
  - Data Element Dictionary for Traffic Records Systems, ANSI D20.1, 1993.
  - EMS Data Dictionary (Uniform Pre-Hospital Emergency Medical Services Data Conference).

  The information should be consistent among reporting jurisdictions; i.e., the same reporting threshold should be used by all jurisdictions and the same set of core data elements should be reported by all jurisdictions.

Should it become necessary to change or modify a data element or to change the values of data elements, this should be clearly documented. Frequently, data element values are expanded to provide greater detail than previously (e.g., trucks involved in crashes were previously coded as light or heavy; the new values are changed to "under 10,000 pounds, 10,001 – 20,000 pounds, greater than 20,000 pounds).

- Completeness – The information should be complete in terms of:

  - All reportable crashes throughout the State are available for analysis.
  - All variables on the individual crash records are completed as appropriate.

- Accuracy – The State should employ quality control methods to ensure accurate and reliable information to describe individual crashes (e.g., validity and consistency checks in the data capture and data entry processes, feedback to jurisdictions submitting inaccurate reports) and the State crash experience in the aggregate (e.g., edit checks to determine if specific data variables or categories are possibly under or over reported such as putting all unknown crash times into a specific category rather than using imputation methods).

- Accessibility – The information should be readily and easily accessible to the principal users of these databases containing the crash information for both direct (automated) access and periodic outputs (standard reports) from the system.

- Data Integration – Crash information should be capable of linkage with other information sources through the use of common identifiers where possible and permitted by law. Where common file identifiers or linking variables are not available, some consideration should be given to file linkage using probabilistic linkage methods.

2-B: Roadway Information Quality

- Timeliness – The information should be updated as required to produce valid analysis. This implies that changes on the roadway (e.g., construction, sign improvements) should be available for analysis as soon as the project is completed.

- Consistency – The same data elements should be collected over time and for various classes of roadways. Should it become necessary to change or modify a data element or to change the values of data elements, this should be clearly documented.

- Completeness – The information should be complete in terms of the miles of roadway, the trafficway characteristics, the highway structures, traffic volumes, traffic control devices, speeds, signs, etc.

- Accuracy – The State should employ methods for collecting and maintaining roadway data that produces accurate data and should make use of current technologies designed for these purposes.

- Accessibility – The information should be readily and easily accessible to the principal users of these databases containing the roadway information for both direct (automated) access and periodic outputs (standard reports) from the files.

- Data Integration – In order to develop viable traffic safety policies and programs, the roadway information must be linked to other information files through common identifiers such as location reference point. Integration should also be supported between State and local systems.

2-C: Vehicle Information Quality

- Timeliness – The information should be updated at least annually.

- Consistency – The same data elements should be collected over time and they should be consistent with the data elements contained in the other components of the traffic records system. Should it become necessary to change or modify a data element or to change the values of data elements, this should be clearly documented.

- Completeness – The information should be complete in terms of the vehicle ownership, registration, type, VIN, etc. Information on vehicle miles traveled (VMT) by type or class of vehicle should be available. For commercial vehicles, completeness also involves collection and availability of standard data elements (such as the NGA elements, a set of data developed and recommended by the National Governors' Association for collection of data from crashes involving commercial vehicles).

- Accuracy – The State should employ methods for collecting and maintaining vehicle data that produces accurate data and should make use of current technologies designed for these purposes. This includes the use of bar-coded vehicle registration forms that allow scanning of vehicle registration information directly onto appropriate forms (citation, crash, other forms).

- Accessibility – The information should be readily and easily accessible to the principal users of these databases containing the vehicle information for both direct (automated) access and periodic outputs (standard reports) from the system consistent with State confidentiality requirements.

- Data Integration – Vehicle information should be capable of linkage with other information sources and use common identifiers (e.g., VIN, Crash Reports Number, etc.) where possible and permitted by law.

2-D: Driver Information Quality

- Timeliness – Routine license issuance information should be updated at least weekly. Adverse actions (license suspension, traffic conviction) should be posted daily.

- ❑ Consistency – Information maintained on the State's Driver File should be compatible for exchange with other driver-related systems such as the National Driver Register (NDR), the Commercial Driver License Information System (CDLIS), and other applications for interstate exchange of driver records, especially those facilitated via the American Association of Motor Vehicle Administrators Telecommunications Network (AAMVANet).

- ❑ Completeness – The information should be complete in terms of data elements (e.g., unique personal identifiers and descriptive data such as name, date of birth, gender) and complete in terms of all prior driving history, especially adverse actions received from other States either while licensed elsewhere or while driving in other States.

- ❑ Accuracy – The State should employ methods for collecting and maintaining driver information that makes use of current technologies (e.g., magnetic-stripe, bar-codes, smart-cards).

- ❑ Accessibility – The information should be readily and easily accessible to the principal users of these databases, including driver licensing personnel, law enforcement officers, the courts, and for general use in highway safety analysis. The information should be available electronically for individual record access, and technology should be available to support automated downloading of summary data sets for analytical purposes, provided that appropriate safeguards are in place to protect individual confidentiality within the guidelines established by the State.

- ❑ Data Integration – Driver information should be capable of linkage with other information sources and use common identifiers (e.g., driver license number, citation number, crash report number) where possible and permitted by law. Updates of driver information from courts should be accomplished through linkages, preferably electronic, to the driver history data.

Section 2-E: Enforcement/Adjudication Information Quality

- ❑ Timeliness - Information from an issued citation should be recorded on a statewide citation file as soon as the citation is filed in the court of jurisdiction. Information regarding the disposition of a citation should be entered on the citation file, as well as on the driver history record, immediately after adjudication by the courts.

- ❑ Consistency - All jurisdictions should use a uniform traffic citation form, and the information should be uniformly reported throughout all enforcement jurisdictions.

- ❑ Completeness - All citations issued should be recorded in a statewide citation file with all variables on the form completed including the violation type; the issuing enforcement agency; violation location; a cross reference to a crash report, if applicable; and BAC, where applicable, etc. All dispositions from all courts should be forwarded for entry on the driver history record.

- Accuracy - The State should employ quality control methods to ensure accurate and reliable information is reported on the citation form and updated on the citation and driver history files. The use of mag-stripe, bar-code, smart-card scanner technology to directly input driver information onto the citation form is encouraged.

- Accessibility - The information should be readily and easily accessible to the principal users, particularly:

  - driver control personnel -- to take timely license sanction actions when appropriate.
  - law enforcement personnel -- for operational analysis and allocation of resources.
  - agencies with administrative oversight responsibilities related to the courts under its jurisdiction.
  - court officials -- to assess traffic case adjudication workload and activity.

- Data Integration - Citation information should be capable of linkage with other information sources, such as the crash and driver history data, and use common identifiers (e.g., crash report number, driver license number) where possible and permitted by law.

2-F: Injury Surveillance Systems Information Quality

- Timeliness - Ideally, the medical data on an injury should be available within an Injury Surveillance System (ISS) in the same time frame as data about the crash is available elsewhere within the traffic records system. However, the medical record on the individual may be incomplete initially because local protocols dictate that the medical record is only placed in the ISS when the patient leaves the health care system (e.g., discharged). Every effort should be made to integrate the ISS record with the crash data as soon as the medical records become available.

- Consistency - The reporting of EMS run data, hospital ED and admission data, trauma registry data, and long term health care data should be consistent with statewide formats which should follow national standards such as ICD-9-CM, as published by the Centers for Disease Control (CDC), the use of Injury Severity Scale standards, etc.

- Completeness - Although a trauma registry based ISS can provide a valuable source of ISS information, it cannot provide a complete picture of the injuries within a community or State. Where possible, the ISS should represent a consensus of all injuries that occur within the community. The ISS should, where feasible, be maintained at a State level but, at a minimum, should be maintained at the local level.

- Accuracy - The State should provide local heath care providers with training and support in the accurate coding of injuries and should foster the proper use of the resulting ISS data through education of data users in proper interpretation of these data.

- Accessibility - Recognizing the issues of patient and institutional confidentiality, there should be mechanisms in place to balance the demands for data accessibility from end

users and the requirements of State and local privacy rules. At a minimum, the traffic safety and injury control communities should be able to access these data in summarized reports designed to address specific needs, including injury type and severity cost data. Ideally, the system should support the creation of "sanitized" extracts of the ISS data for use in research, problem identification, and program evaluation efforts.

- Data Integration - The true power of the ISS is recognized when the ISS data are integrated with other traffic records system data such as traffic crash, roadway, and crime data, as well as internally between EMS runs, hospital/ED admission data and discharge data. The ISS should be implemented in a fashion that supports this integration in as efficient a manner as possible. Often GIS systems provide the ideal platform for linkage and interpretation of the ISS and traditional traffic records system data. The use of common identifiers whenever possible within the traditional traffic records system and ISS data systems will facilitate this integration effort.

SECTION 3:
USES OF A TRAFFIC RECORD SYSTEM

The purpose of a State's traffic records system is to establish a base of information and data that is available and useful to its customers. This includes operational personnel, program managers, program analysts, researchers, policy makers, and the public. To be of optimal value, the system should provide for the efficient flow of data to support a broad range of traffic safety and other activities. The traffic records system should support the data needs of users at all levels of government (State and local), as well as the private and the public sectors. The information requirements of this broad and diverse group are driven by both the need for operational data, as well as the need for data for planning and evaluation purposes. Examples of the uses of traffic records system data are provided in the following sections.

3-A: Program Management and Evaluation

Fiscal limitations make it imperative that existing resources (time, staff, funding) be used efficiently. Traffic safety programs at all levels of government should be accountable for demonstrating the impact of their safety countermeasures. This places demands on the traffic records system for information to monitor progress and to evaluate the impact of countermeasure programs and activities (e.g., changes in alcohol-related injuries as a result of an enforcement project, monitoring of construction zone crashes during a project, etc.).

3-B: Research and Program Development

Data-driven planning decisions within the highway and traffic safety communities necessitates identification of trends and baseline measures. In order to identify safety problems and trends, the traffic records system should provide comparable data, over time, that can be easily linked and analyzed, and that allows for easy access of the data by a wide range of users (e.g., State Traffic Safety Offices for development of the highway safety plan, local law enforcement agencies for force deployment purposes, etc.).

3-C: Policy Development

Informed decision making to support highway and traffic safety policy decisions is only possible with timely, accurate, complete and accessible information. Traffic records systems data should also be available for responding to legislative and executive inquires and requests.

3-D: Private Sector and Public Requests

The traffic records system, through a combination of information sources, technical staff, and public records access policies, should be capable of producing scheduled and ad hoc reports. The media, advocacy groups, safety organizations, the general public, and internal (State and local) users have requirements for regular reporting as well as for unanticipated ad hoc reports and data extracts. There should be a procedure in place for establishing what data can be made

available to public and private sector users consistent with the laws protecting individual privacy and proprietary information.

SECTION 4:
MANAGEMENT INITIATIVES

The development and management of traffic safety programs should be a systematic process with the goal of reducing the number and severity of traffic crashes. This process should ensure that all opportunities to improve highway safety are identified, considered, and implemented. All implemented highway safety activities should be evaluated. The evaluation results should be used to improve and facilitate the selection and implementation of the most efficient and effective highway safety strategies and programs. This process can be achieved through the following initiatives.

4-A: Coordination

There should be a statewide traffic records coordinating committee (STRCC) with representation of the interests from all levels of public and private sector traffic safety stakeholders, as well as from the various disciplines that have a need for traffic safety information. The committee should be formed within State policy and legal guidelines and institutionalized and empowered with the responsibility (through formal agreements) to recommend traffic records system policy and procedures. The State should provide a mechanism to ensure support for the administration and continuance of the coordinating committee, as well as provide technical guidelines for operating the STRCC. A correctly constituted and empowered STRCC should be responsible for the oversight and completion of a number of tasks. These include: establishing requirements for file structure and data integration; assessing system capabilities and resources; establishing goals for improving the traffic records system; evaluating traffic records system components on a periodic basis; developing cooperation and support from stakeholders; and ensuring that timely, accurate and complete data are available to all appropriate users.

4-B: Strategic Planning

The traffic records system should be operated in a fashion that supports the traffic safety planning process. The planning process should be driven by a traffic records system strategic plan that helps State and local data owners identify and support their overall traffic safety program needs. This plan should address activities such as:

- ❑ The continuous review and assessment of the application of new technology in all data operational phases (i.e., data collection, linkage, processing, retrieval, and analysis). The strategic plan should address the adoption and integration of new technology as this facilitates improving traffic records system components.

- ❑ Promotion of local data systems that are responsive to the needs of local stakeholders.

- ❑ Identification and promotion of integration among State and local data systems to eliminate duplication of data and help assure timely, accurate and complete traffic safety information.

- ❑ Data integration to provide linked data between components of the traffic records system (e.g., Crash Outcome Data Evaluation System [CODES]).

- ❑ Coordination of the federal systems (e.g., FARS, NDR, CDLIS) with the State records systems.

- ❑ Recognition and incorporation, where feasible, of uniform data elements and definitions and design standards in accordance with national standards and guidelines (e.g., MMUCC, ANSI-D20.1, ANSI-D16.1, NGA, EMS Data Dictionary, etc.).

- ❑ Changing State and federal data requirements (e.g., those associated with the commercial driver's license program).

- ❑ Capture of program baseline, performance, and evaluation data in response to changing traffic safety program initiatives.

- ❑ Establishing and updating countermeasure activities (e.g., crash reduction factors used in project selection and evaluation).

The strategic plan should be endorsed by, and continually updated through the activities of the statewide traffic records coordinating committee.

4-C: Training and Staff Capabilities

Throughout the data gathering, interpretation, and dissemination process, there is a continuing need for training and technical support. A training needs analysis should be conducted for those highway safety professionals involved in program development, management, and evaluation. Training should be provided to fulfill the needs identified in this analysis. There should also be an ongoing outreach program for users of traffic safety program information to assure that all users are aware of what data are available and how the data can be used for their traffic safety information requirements.

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GLOSSARY OF TERMS AND ACRONYMS

AAMVANet	American Association of Motor Vehicle Administrators Telecommunications Network
ADT	Average Daily Traffic
AADT	Annual Average Daily Traffic
ANSI	American National Standards Institute
ANSI D16.1	Manual on Classification of Motor Vehicle Traffic Accidents
ANSI D20.1	Data Element Dictionary for Traffic Record Systems
BAC	Blood Alcohol Concentration
CCSRS	Comprehensive Computerized Safety Record-keeping System
CDC	Centers for Disease Control
CDLIS	Commercial Driver License Information System
CODES	Crash Outcome Data Evaluation System
ED	Emergency Department
EMS	Emergency Medical Services
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GIS	Geographic Information Systems
GPS	Global Positioning System
ICD-9-CM	International Classification of Diseases, Volume 9, Clinical Modification
ISS	Injury Surveillance Systems
MMUCC	Model Minimum Uniform Crash Criteria
NDR	National Driver Register
NGA	National Governors' Association
NHTSA	National Highway Traffic Safety Administration
NSC	National Safety Council
STRCC	Statewide Traffic Records Coordinating Committee
TEA-21	Transportation Equity Act for the 21st Century
TRB	Transportation Research Board
VIN	Vehicle Identification Number

VMT	Vehicle Miles Traveled