

---

## An Overview of Transportation Data

---

### Introduction

Transportation data is an asset to the state of Texas and a critical foundation for all policy research efforts. The data include:

- Crash records detailing incident location and contributing factors.
- Probe speed data to inform congestion management efforts.
- Census data to show population distributions.
- Public opinion data to reflect attitudes and awareness.

The purpose of this brief is to provide an overview of transportation data requirements and current transportation public data sources. The brief concludes with an introduction to emerging trends that suggest opportunities for new data sources that will enhance research activities, including a discussion of Big Data.

### Transportation Data Requirements

Federal and state law and rules require the collection of certain data related to transportation. Proper use of data is ensured through the use of standards, whether imposed structurally through the design of a data program or in a regulatory manner. Researchers conducted a review of Federal and Texas data standards, seeking to understand exactly what exists and at what level of detail, and how the standards help ensure the quality of the data sets in question, as well as credibility and clarity in reporting.

The review included data at both the federal and state levels, and the following elements were identified as essential for maintaining the value of data throughout its lifecycle, from compilation to application in policy studies:

- For data programs:
    - Standards specified through regulation should include proper citation on usage, to track the value of the data in all its applications.
    - Standards specified through compilation (i.e., in the construction of a data archive) should specify structure and content, as well as obtain meta-data on the methods and processes used to create the source data.
  - When reporting data in research, include:
    - Data Source (including sponsor, study area, and collection time period).
-

- 
- Data collection methods.
  - Data processing steps (including rationale for including/excluding cases).
  - Data limitations (known strengths and weaknesses of the data).
  - Metrics and interpretive guidelines.

The Data Subcommittee of the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Planning has developed a set of core data principles, included in **ATTACHMENT 1**. These principles are intended to convey the importance of data in meeting information needs. More importantly, these principles convey the recognition that data is an asset and should be managed accordingly with respect to its availability, reliability, and clarity, and also its compliance with regulations. One benefit to employing such principles is that data is collected once and used to support multiple purposes, and is of the quality necessary to maximize its use in the decision-making process.

Below are examples of requirements specified through Texas regulations and a Federal compilation program.

*Examples of Texas Regulatory Data Requirements*

Senate Bill 279 (83R) requires Texas state agencies to provide the Department of Information Resources (DIR) with a link and description for their open data set(s) to Texas.gov. Specifically, the act calls for all Texas agencies (including TxDOT) to have available via internet link certain data sets:

S.B. No.279, AN ACT  
relating to certain information about high-value data sets provided  
by state agencies to the Department of Information Resources.  
BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF  
TEXAS:  
SECTION 1. Section 2054.1265, Government Code, is amended  
by adding Subsection (f) to read as follows:  
(f) A state agency that posts a high-value data set on the  
Internet website maintained by or for the agency shall provide the  
department with a brief description of the data set and a link to  
the data set. The department shall post the description and link on  
the state electronic Internet portal.  
SECTION 2. This Act takes effect September 1, 2013.<sup>1</sup>

The Texas Department of Transportation (TxDOT) must provide additional reports as directed by the legislature and the Transportation Code:

TITLE 6. ROADWAYS  
SUBTITLE A. TEXAS DEPARTMENT OF  
TRANSPORTATION  
Sec. 201.810. DEPARTMENT INFORMATION CONSOLIDATION.

---

(a) To the extent practicable and to avoid duplication of reporting requirements, the department may combine the reports required under this subchapter with reports required under other provisions of this code.

(b) The department shall develop a central location on the department's Internet website that provides easily accessible and searchable information to the public contained in the reports required under this subchapter and other provisions of this code.

Added by Acts 2011, 82nd Leg., R.S., Ch. 1345, Sec. 24(a), eff. September 1, 2011.

In accordance with Section 201.810, **ATTACHMENT 2** is a consolidated listing of reports produced by TxDOT in compliance with various provisions of the Transportation Code. This table provides the following data attributes as required by Texas State Code: **title, purpose, release year, and document format.**

### *Federal Data Requirements*

The Federal Highway Administration's (FHWA's) Office of Highway Policy Information produces a series of annual reports called the Highway Statistical Series which contains analyzed statistical information on various highway-related topics and issues. Topics include motor fuel, driver licenses, highway user taxation, highway mileage, travel, and highway finance.<sup>2</sup>

FHWA, in consultation with the states, designed a series of **reporting forms** for states to consistently and uniformly account for the collection of transportation data related to highway use and funding. The FHWA uses these state reporting forms to compile statistics. According to the FHWA web site, each state's data is analyzed for completeness, reasonableness, consistency, and compliance with data reporting instructions contained in *A Guide to Reporting Highway Statistics*, which provides guidance and procedures for reporting state motor-fuel, motor-vehicle, driver-license and motor-carrier data, as well as highway finance data of state and local governments.<sup>3</sup> State departments of transportation (DOTs) are asked to obtain and forward the following information:

- Supplemental tabulations concerning motor fuel, motor vehicles, and driver licenses.
- Miscellaneous traffic data.
- State executive budgets.
- Certain published reports.
- State highway and taxation laws.
- Reports of special transportation authorities.

Data collected using this process is analyzed and the resulting reports are used to develop highway legislation and to keep Congress and State governments informed. Additionally, the

resulting reports are used in the development of FHWA national tables and other publications, and they aid in highway planning, programming, budgeting, forecasting, and fiscal management. A list of “cross checks” is employed to ensure the information reported is consistent among the various forms. See **ATTACHMENT 3** for an example of FHWA’s provision of federally mandated data and reporting.

## TxDOT OneDOT Data Shop

Various transportation-related data sets TxDOT utilizes in planning and decision-making are found on their web page titled “OneDOT Data Shop.” Figure 1 shows the access page for the OneDOT Data Shop. The site is an example of a state effort to provide inventory information about its public data sets. It provides a set of basic identifying information about each data set, similar to that found in the statutory reports in the previous section. The OneDOT Data Shop website provides:

- Title.
- Description.
- Contact person.
- Source.
- Update frequency.

The screenshot shows the TxDOT OneDOT Data Shop page. The header includes the TxDOT logo and navigation links like 'A - Z Site Index | Contact Us | Español'. A search bar is located in the top right. Below the header, there's a navigation menu with 'Offices' highlighted. The main content area is titled 'OneDOT Data Shop' and includes a breadcrumb trail: 'Home > Inside TxDOT > Offices > Operational Excellence'. The page contains introductory text about the data sets and a table listing specific data sets with columns for Title, Description, OPR, Source, and Updated.

Title	Description	OPR	Source	Updated
24-Month Letting Plan	List of projects indicated by TxDOT that could be available to let in specific time period	FIN P&L/ PMO Contact: Wayne Wells (512) 416-2252 Maureen Wakeland (713) 802-5761	DCIS	Bi-Annually
Airport Capital Program Report	Capital improvements in general aviation airports	AVN Contact: Gina Miller	Project Tracker	Monthly

**Figure 1: Access Page for OneDOT Data Shop. Source: <http://www.txdot.gov/inside-txdot/office/excellence/one-data.html>**

---

TxDOT's Strategic Policy and Performance Management Office oversees the timeliness of the information by updating the website with the latest versions. **ATTACHMENT 4** shows a sample of the files of transportation-related topics available for review and download.

## **Crash Records Information System (CRIS)**

*The following is as an example of how data standards ensure high quality and high value data, highlighting an important data set to many agencies and researchers across Texas and the United States.*

Motor vehicle crash data are some of the more frequently cited statistics, not only in Texas, but throughout the nation. In Texas, the Crash Records Information System (CRIS) is the repository for this data. CRIS is an automated database used to compile and track crash data statewide. In 2007, the 80th Texas Legislature transferred data collection responsibilities from the Texas Department of Public Safety (DPS) to TxDOT.

The TxDOT CRIS Public Interface contains all the data collected from the Texas Peace Officer's Crash Report (CR-3) that may be released to the public as per Texas Transportation Code (TTC) 550.065.<sup>4</sup> All crash records include the CR-3 data and interpreted data fields. Roadway attributes and location-specific data for crashes occurring on the state highway system are also appended to each crash record.<sup>5</sup> As such, TxDOT is responsible for the collection and analysis of traffic crash data including:

- Collecting and maintaining crash reports submitted by law enforcement and drivers.
- Classifying traffic crashes in accordance with national standards.
- Entering the information from each report into CRIS.
- Providing copies of crash reports as requested by the public.<sup>6</sup>

The network for reporting traffic fatalities in Texas is complex, and standards are critical for ensuring the capture of high quality data. Law enforcement officers at the scene gather information about the crash. Other entities must also report in certain circumstances, including a statutory requirement for medical examiners and justices of the peace to report information related to alcohol-involved fatal crashes. This information is important to support consistent reporting and research related to impaired driving across the multiple (13) medical examiner offices; 900 justices of the peace (JPs); and one DPS Crash Records Bureau.

In 2006, the Texas A&M Transportation Institute (TTI) conducted a study on the reporting of crash data by JPs. A survey revealed that 53 percent of JPs were unfamiliar with the reporting requirement, and 28 percent were not aware such laws existed. Additionally, some 62 percent of medical examiner offices failed to comply with the law. The study's results helped inform concerned lawmakers, and House Bill 423—which clarifies reporting responsibilities and

---

requirements—passed the Texas Legislature in June 2007. According to the author of the bill, its purpose was to ensure accurate data for the implementation of necessary life-saving measures.<sup>7</sup>

Since 2007, TxDOT has continued to build and develop CRIS into a comprehensive electronic crash data system.<sup>8</sup> In 2011, TxDOT implemented the Crash Reporting and Analysis for Safer Highways (CRASH)<sup>9</sup> internet application to speed up the transfer of motor vehicle crash data from law enforcement agencies to TxDOT. CRASH collects the Texas Peace Officer's Crash Reports (CR-3) electronically. Use of CRASH allows for faster and more efficient submission of data from the office or a patrol car. Quality of data entry is ensured through CRASH training, which is scheduled as part of the set-up process for each agency.<sup>10</sup> The CRASH system includes the following features:

- Ability to enter crash data over any Internet connection.
- Process supplement reports easily.
- Integrated diagramming tool.
- Auto population of fields.
- Touch screen capability for Toughbooks.
- Use of intersection templates.
- Embedded help.

## **Emerging Data Sources/Big Data**

Technological advances are happening at a rapid pace, generating large amounts of data that appear to have value and a role in understanding the issues that form transportation policy. The purpose of this section is to provide an introduction to Big Data as it pertains to transportation policy, its advantages, and its limitations.

Big Data is a term used to describe data sets so large and complex that they become difficult to process and store using traditional statistical analysis and database software. Data sets of this magnitude and complexity are proliferating in part because data is increasingly being continuously gathered by ubiquitous information-sensing mobile devices, GPS devices, remote sensing technologies, software logs, cameras, microphones, radio-frequency identification readers, and wireless sensor networks. Examples of Big Data sources in transportation research include probe data, GPS data, Bluetooth sensors, mobile devices, and cameras.

Big Data is not notable for its size per se, but rather because of its relational nature to other data. Due to advances in storage capacity and analytics that have allowed researchers to mine and aggregate data to degrees that were not previously possible, Big Data is fundamentally networked. Its value comes from the patterns that can be derived by making connections between

---

pieces of data, about an individual unit, about units in relation to others, or about groups of units.<sup>11</sup> With the application of the right analytical tools, researchers can use this inherent relational nature to find unexpected connections and correlations, which can help to make much more accurate predictions about the future. One Big Data application in Texas is the use of probe data to understand congestion. Private sector data providers compile cell phone and in-vehicle GPS data to describe traffic patterns across time and geography. The individual unit of data here is the vehicles documented on a roadway segment. Combined, these allow the comparison of traffic patterns on that corridor to those of other corridors, and further aggregation provides understanding about congestion across different groups of roadways.

### *Relation to Specific Policy Topic Areas*

Big Data is applicable to all transportation policy topic areas, but it is uniquely linked to the *technology* policy area. The advancement of information-sensing and wireless technologies has opened up a flood of new data sources. Understanding and accessing these technologies is a major focus of research.

Big Data and technology are also integral to understanding the emerging trends in *congestion*. Current research in Intelligent Transportation Systems is working towards the development of environments that support the collection, management, integration, and application of new data sources originating from connected travelers, connected vehicles, and the infrastructure itself. In the near future, active acquisition and systematic provision of this integrated, multi-source data will enable enhanced operational practices and transform future surface transportation systems management. The real-time acquisition of data, such as vehicle and truck status, infrastructure status, weather, and transit data, will enable coordinated real-time deployment of dynamic traffic management strategies, such as transit signal priority, route guidance, signal phase and timing adjustments, travel information, and variable speed limits.<sup>12</sup> In order to support such a dynamic traffic management program, FHWA is considering the replacement of traditional static databases of well-organized research with a cloud-based Research Data Exchange (RDE) concept that supports real-time feeds and facilitates stakeholder interaction.

In the realm of *public engagement*, the development and expansion of social media and integrated social networks presents a new source of Big Data that can be used in research. Historically, it has been a major challenge to elicit high levels of public participation or feedback in the planning process. Social media outlets represent one tool that can supplement traditional public outreach methods and offer access to a huge and relatively untapped collection of information. Social networks provide another way to access public opinion; they allow public agencies to present information, elicit input from the public, and actively involve citizens in a planning process with the potential to reach not only a broader audience, but new audiences. While micro-participation can provide nearly real-time access to public opinion, researchers point out that analysis techniques are undeveloped and labor-intensive, and the most effective use of the resulting data is still unclear.<sup>13</sup>

---

The emergence of Big Data sources is an overarching theme for *transportation data*. Combining multiple data sources from disparate realms leads to innovative insights. For example, researchers participating in a recent challenge led by the Big Data Initiative at the MIT Computer Science and Artificial Intelligence Lab are drawing on data sets as varied as transit ridership, local events, social media, weather records, and more than 2.3 million taxi rides in order to develop new tools to predict demand for taxis in downtown Boston.<sup>14</sup> The connections and correlations discovered from this aggregation of previously disparate types of data can point out potential policy solutions that can have wide-ranging effects across multiple types of problems.

Anticipating and understanding Big Data is not only a necessity for innovative solutions to policy problems, but it can also bring about the more efficient allocation of public funds. Passive data collection from probes, GPS, Bluetooth sensors, mobile devices, and cameras can replace traditional travel survey methods, reducing public agency costs. Similarly, insights gained about travel behavior from Big Data sources can enable the more effective use of public funds. For example, analysis of the detailed travel behavior information gathered from GPS and mobile devices can serve to better prioritize traffic management projects.

### *Big Data Limitations*

While policy makers should be aware of the opportunities presented by Big Data, it should not be mistaken as a replacement for more traditional research activities. Big Data does not equal *whole* data. For example, TxDOT conducts travel surveys that rely on random samples to document detailed travel patterns of households within a region, including time of day of travel, travel mode, trip purpose, and the demographic characteristics of who makes those trips. These travel surveys are used to create snapshots of daily travel that are used in developing traffic forecasts to guide investment decisions. These are relatively small samples of households (1,500–2,000 households on average).

In comparison, Big Data (in the form of traffic probe data) is available from private data providers who collect cell phone data traces from certain carriers and combine that with in-vehicle GPS data from other data sources to provide billions of records for travel along a specific corridor. This data is anonymized, so demographic characteristics are unknown, as are trip purpose and travel mode. So this Big Data provides millions of pieces of data obtained from certain carriers and vehicle manufacturers to provide information about a corridor that is used for congestion management, while travel survey data provides a random sample (statistically valid) of travel across the entire region for general planning purposes. The two sources of data complement each other to support transportation planning efforts, and each on its own is limited with respect to answering specific questions.

The potential data explosion due to these new forms of data will likely over-burden the conventional computational and storage systems of many agencies. The capture, transmission, cleaning, and storage of large volumes of data must be handled through innovative means to avoid incurring substantial costs. One potential tool for handling a large increase in electronic information is cloud computing. The availability of cloud computing resources opens up

---

possibilities for more users to transition to purchasing access to computing power and storage space as a service instead of maintaining it themselves. This way, providers are responsible for the performance, reliability, and scalability of the computing environment, while users can concentrate on data analysis and production.<sup>15</sup> The Federal Highway Administration is currently developing a cloud-based Research Data Exchange (RDE) concept that supports real-time data feeds from multiple, heterogeneous sources and facilitates stakeholder interaction. Other researchers have developed systems for managing heterogeneous, distributed sensor networks in which storage and computing are combined into one platform.

Big Data is also of limited use to organizations that do not possess the advanced analytic capabilities necessary to properly interpret it. Real-time processing systems similar to the Regional Transportation Commission of Southern Nevada's Freeway Adherence System for Transportation (FAST) dashboard are successful responses to this need. Hurdles related to data formats and frequency already exist with current data. The magnitude of Big Data sources may exacerbate this problem.

---

## Attachment 1: AASHTO Standing Committee on Planning Core Data Principles (as of June 30, 2014)

---

The Data Subcommittee of the AASHTO Standing Committee on Planning developed the following Core Data Principles. The intention is to connect these core data principles to regulations where applicable and to serve as a standard across the transportation data community.

### Core Data Principles

Principle 1 - VALUABLE: **Data is an asset**—Data is a core business asset that has value and is managed accordingly.

Principle 2 - AVAILABLE: **Data is open, accessible, transparent and shared**—Access to data is critical to performing duties and functions, data must be open and usable for diverse applications and open to all.

Principle 3 - RELIABLE: **Data quality and extent is fit for a variety of applications**—Data quality is acceptable and meets the needs for which it is intended.

Principle 4 - AUTHORIZED: **Data is secure and compliant with regulations**—Data is trustworthy and is safeguarded from unauthorized access, whether malicious, fraudulent or erroneous.

Principle 5 CLEAR: **There is a common vocabulary and data definition**—Data dictionaries are developed and metadata established to maximize consistency and transparency of data across systems.

Principle 6 - EFFICIENT: **Data is not duplicated** —Data is collected once and used many times for many purposes.

Principle 7 - ACCOUNTABLE: **Decisions maximize the benefit of data**—Timely, relevant, high quality data are essential to maximize the utility of data for decision making.

The following are supporting discussions for each principle.

### Principle 1: **Data is an Asset**

- Rationale— Data is a core industry asset that has measureable value and is managed accordingly. Accurate, timely data is critical to accurate, timely decisions. Transportation agencies already manage many of their physical assets: roads, bridges, signs, lights, etc. Data is no different and must be treated like other physical assets. Data is the foundation of our decision-making, so we must also carefully manage and maintain data to ensure that we know what we have and where it is, can rely upon its accuracy, and can obtain it when and where we need it. Where possible, data should be archived to maintain historical records.
- Implications— Treating Data as the asset that it is saves money, effort and resources. When data is appropriately handled, it can have a long life with many uses beyond its original one, and serve projects as yet unplanned.

---

## Principle 2: **Data is open, accessible, transparent, and shared**

- **Rationale**—The value of data is increased when it can be used with other data and in a variety of applications. Users must have access to the data critical to their duties and functions. Wide access to data leads to efficiency and effectiveness in decision-making, and affords timely responses to information requests. Using data must be considered from an enterprise perspective (across the organizations or across multiple organizations) to allow access by a wide variety of users. Transportation agencies at all levels of government (federal to state to local) hold a wealth of diverse data sets, but it is often stored in different databases that are incompatible with each other or difficult to find. Timely access to accurate data is essential to improving the quality and efficiency of decision-making. It is less costly to maintain timely, accurate data and then share it, than it is to maintain duplicative data in multiple locations or processes. Shared data will result in improved decisions since we will rely on fewer sources of more accurate and timely managed data for decision-making. Sharing is also necessary to triangulate on subjects that may not be measured directly, and allows for serendipity. Insights often come from bringing fresh eyes to data. As transportation organizations work with more stakeholders and external partners, it is essential that data be shared. Making data electronically available will result in increased efficiency when existing data entities can be re-used. It is more effective to de-protect transportation data than it is to over-protect.
- **Implications**— Agencies are increasingly under an informal mandate to “do more with less.” Sharing data is a key step in executing this mandate. Accessible data will ultimately reduce burden on staff time as data becomes more accessible.

## Principle 3: **Data quality is fit for purpose**

- **Rationale**— Data quality is acceptable and meets the need for which it is intended. Data that is collected, produced, and reported must be fit for purpose. That is, of sufficient accuracy and integrity proportional to its use and cost of collection and maintenance. Data is used in all areas of the transportation decision-making process from planning to design to operations to performance management. Furthermore, it is increasingly being used externally by citizens and customers to inform their personal decisions, and by stakeholders to assess the aggregate performance of a transportation organization. Significant human and system resources are consumed in the collection, manipulation and dissemination of data whether of high quality or not, so it is essential that the most effective use of public funds is achieved through appropriately directed attention to data quality and the procedures to realize quality. Additionally, data must be archived appropriately to preserve both its usefulness and the historical record. When possible, data should be spatially oriented. Data quality increases as the application of the data increases. Data that has spatial orientation or attribution can easily be used in GIS systems. When data assets can be analyzed in a spatial context, not only can a greater

---

analysis be completed in terms of geographic context, but also the data and any analysis results can be more easily communicated via mapping and other formats more applicable to public understanding.

- Implications— When data is fit for purpose, appropriate cost decisions are made in its collection and use. In cases where a rough sketch is appropriate, appropriate data collection and use may follow. Where large programs, investments, or systems are being developed and vetted, those data must be fit for that purpose. Data precision is matched to the task at hand.

**Principle 4: Data is secure and compliant with regulations**

- Rationale— Data is trustworthy and is safeguarded from unauthorized access, whether malicious, fraudulent or erroneous. Open sharing of information and the release of information via relevant agreement must be balanced against the need to restrict the availability of classified, proprietary, and sensitive information.
- Implications— When data is secure and appropriately regulated, there is greater trust and confidence in its use.

**Principle 5: There is a common vocabulary and data definition**

- Rational— Both unstructured and structured data must have a common definition to enable sharing of data. However, data must not be compromised below the use of its original purpose. Commonality may take the form of relations, bridges and crosswalks between definitions.
- Implications— A common vocabulary will facilitate communications, enable dialogue to be effective, and facilitate interoperability of systems; however, utility must not be compromised.

**Principle 6: Data is not duplicated**

- Rationale— Development of information services should be made available to multiple users and stakeholders and is preferred over the development of information and data silos which are only used for a single purpose or user.
- Implications— Duplicative capability is expensive and propagates conflicting data. It also goes against a policy of sustainability in the use of data and the infrastructure resources required to maintain the data, such as computer servers and data warehouses.

**Principle 7: Decisions maximize the benefit of data**

- Rationale— The purpose of data collection is to help support the decision-making process. Users of the data, as well as information derived from the data, are the key stakeholders in the data collection and analysis process. The data is being collected to address a certain policy goal or objective. In order to ensure information management is aligned with the purpose, users must be involved in the different aspects of the

---

information environment. The decision makers, managers, and the technical staff responsible for developing and sustaining the information environment need to come together as a team to jointly define the goals and objectives of the data collection processes.

- Implications— Resources are limited. Maximizing existing resources is essential.

## Attachment 2: TxDOT Reports

Transportation Code Provision	Title and Purpose	Report Date	Format
§51.007	<b>Gulf Intracoastal Waterway Report</b> Evaluates impact of Gulf Intracoastal Waterway on state; may include legislative recommendations.	2012	
§55.008	<b>Port Capital Program</b> Describes goals and objectives of department's Port Authority Advisory Committee concerning development of port facilities and state's intermodal transportation system.	2013–2014	
§201.107	<b>Annual Financial Report</b> A complete and detailed written report accounting for all funds received and disbursed by the department during the preceding fiscal year.	2011	
§201.108	<b>Department Audits</b> Annual and periodic audits conducted by the department's Audit Division or contract auditors.	2011	
§201.114	<b>Border Trade Advisory Committee Report</b> International trade and transportation planning; post-2010 reports to include maritime ports.	2010	
§201.207	<b>Cross-Border Transportation and Infrastructure Report</b> Summary of information obtained in meetings between department staff and their counterparts in the United Mexican States about issues relating to truck inspections and transportation and associated infrastructure.	2006	
§201.402	<b>Equal Employment Opportunity (EEO) Policy Statement</b> Ensures TxDOT adheres to EEO policies and procedures.	2011	
§201.456 (b)	<b>Report on the Effectiveness of the Compliance Program</b> Complies with TxDOT's sunset legislation, Senate bill 1420. Senate bill 1420 requires the Office of Compliance and Ethics to submit a report to the Legislature that demonstrated the effectiveness of the program.	12/2012	
§201.601	<b>Statewide Transportation Plan</b> The 'Statewide Long-Range Transportation Plan 2035' serves as the state's 24-year "blueprint" for the planning process. Updated at least every four years, it guides collaborative efforts between TxDOT, local and regional decision-makers, and other transportation stakeholders.	2011	
§201.601(e)	<b>Annual SLRTP Progress Report</b> Annual analysis of department's progress in attaining long-term goals in Statewide Long-Range Transportation Plan.	Pending	
§201.6011	<b>International Trade Corridor Plan</b> Report on implementation of department's international trade corridor plan.	2010	
§201.6013	<b>State Rail Plan</b> Long-term plan for statewide passenger rail system. Includes description of existing and proposed passenger rail systems, status of systems under construction, analysis of potential interconnectivity difficulties, ridership projections for proposed projects, and statistics for existing systems.	2010	
§201.608	<b>International Trade Traffic Projects</b> Report on ability of state highway system to handle projected international trade traffic over next five years.	2010	
§201.616	<b>Transportation Program Expenditures</b> Provides expenditure information on Unified Transportation Program	2013	

	(UTP), turnpikes, bonds, Regional Mobility Authorities (RMAs), and certain rail facilities.		
§201.762	<b>Environmental Review Process Reports</b> Documents implementation of streamlined environmental review process, including status report for preceding 12-month period.	12/2011	
§201.805(a)	<b>DISCOS (Statistical Comparison of Districts)</b> Provides a broad range of transportation-related statistics calculated on a per-capita basis for each of the state's 254 counties and 25 TxDOT districts.	2010	
§201.805(c)	<b>Status of Texas Mobility Fund</b> Provides amount of money in Texas Mobility Fund by source and amount of money received by department itemized by source of funds vs. appropriated funds.	2011	
§201.805(d)	<b>Outside Consultant List</b> List of TxDOT's contracts with Public Relations firms.	2010	
§201.806(a)(2)	<b>Texas Motor Vehicle Crash Statistics</b> Statistical information about the number, cause, and location of crashes, including information about number of accidents involving injury to, death of, or property damage to bicyclists or pedestrians. Provides electronic access to data.	2009	
§201.806(a)(3)	<b>Crash Data Abstract</b> Abstract includes statistical information and relevant conclusions as well as recommendations and findings to decrease crashes and improve safety. (See also: "Texas Motor Vehicle Crash Statistics")	2011– 2012	
§201.807(b)	<b>Project Information Reporting System</b> Contains information about each department project, including: project status; each source of funding; benchmarks for evaluating progress; timelines for completion; list of department employees responsible for project with contact information; and results of annual review.	2011	
§201.808	<b>Expenditure Priorities Reporting System</b> Includes reports that evaluate effectiveness of TxDOT's expenditures on transportation projects to achieve certain transportation goals.	2012	
§201.809	<b>Statewide Transportation Report</b> Includes information about progress toward each long-term transportation goal identified in statewide transportation plan; status of individual projects identified as major priorities; summary of number of statewide project implementation benchmarks completed; and information about accuracy of previous department financial forecasts.	2012	
§201.811	<b>Public Involvement Policy</b> Policy targets different groups and individuals; encourages continuous contact between TxDOT and outside persons throughout the transportation decision-making process.	2011	
§201.991 and 201.992	<b>Unified Transportation Program and Annual Update</b> Unified Transportation Program covering a period of 10 years to guide development of transportation projects and authorize their construction. Identifies target funding levels and lists all projects that the department intends to develop or begin construction of during program period.	2012	
§201.993	<b>Annual Funding and Cash Flow Forecast</b> Forecast of all funds TxDOT expects to receive, including funds from this state and the federal government used to guide planning for the Unified Transportation Program.	2011	
§201.998	<b>Department Work Program</b>	Pending	

	Consistently-formatted work program for each of TxDOT's 25 districts based on Unified Transportation Program. Covers four-year period and contains all projects that the district proposes to implement during that period. Includes progress report on major transportation projects and other district projects.		
§222.053(e)	<b>Economically Disadvantaged County Program</b> Report on program that enables the Texas Transportation Commission to adjust the minimum local matching funds requirement for certain transportation projects after evaluating the local government's effort and ability to meet the requirement.	2011	
§223.042(f)	<b>Highway Maintenance Contracting</b> Details of TxDOT's highway maintenance privatization contracts awarded during previous fiscal year.	08/2011	
§455.001 (4)	<b>Comprehensive Master Plan for Public Transportation</b> (The department currently helps local public transportation agencies develop public transportation plans on a regional basis. Currently, copies of the various regional plans are not posted on the TxDOT website but are available at the accompanying link to the Regional Service Planning website.)	2006	
§456.008	<b>Texas Transit Statistics</b> Report on performance of public transportation providers receiving any state or federal funding.	2009	
§707.004	<b>Red Light Cameras - Annual Data Reports</b> Annual compilation of reports from local authorities that operate camera systems. Includes number and type of traffic accidents at camera-monitored intersections.	2010	

Source: TxDOT website, page titled, "Statutory Reports." Located at <http://www.txdot.gov/government/legislative/state-affairs/reports.html>.

# Attachment 3: FHWA Office of Policy – Highway Statistics Series

The screenshot shows a web browser window displaying the FHWA Office of Policy Information Highway Statistics Series website. The address bar shows the URL: <https://www.fhwa.dot.gov/policyinformation/statistics.cfm>. The page has a blue header with the title "Office of Highway Policy Information Highway Statistics Series". Below the header, there are several sections:

- Introduction:** "The Highway Statistics Series consists of annual reports containing analyzed statistical information on motor fuel, motor vehicle registrations, driver licenses, highway user taxation, highway mileage, travel, and highway finance. These information are presented in tables as well as selected charts. It has been published annually since 1945." An "eSubscribe" button is also present.
- How Statistics are Compiled:** "Most highway data are submitted by the States directly to FHWA. Each State's data is analyzed for completeness, reasonableness, consistency, and compliance with data reporting instructions contained in 'A Guide to Reporting Highway Statistics'. While the Office of Highway Policy Information of FHWA is responsible for preparation of this publication, a number of the statistical summaries are prepared by other units within the FHWA."
- Federal Legislation:** "Federal legislation and policy has required this data from the States for FHWA to assess the health of the highway system for Congress, and other interested entities including a host of other users such as State and local governments, the private sector, the media, and the general public."
- Publications:** A section titled "Highway Statistics Series Publications" with a search dropdown menu set to "Highway Statistics 2012" and a "Go" button. Below this is a graphic for "HIGHWAY STATISTICS" and a list of links: "Guide to Reporting Highway Statistics", "HPMS Field Manual", "Traffic Monitoring Guide", and "Public Roads: What's in the Numbers – article".

The footer of the page contains links for "Privacy Policy", "Freedom of Information Act (FOIA)", "Accessibility", "Web Policies & Notices", "No Fear Act", and "Report Waste, Fraud and Abuse". The browser's taskbar at the bottom shows various application icons.

Source: <https://www.fhwa.dot.gov/policyinformation/statistics.cfm>

## Attachment 4: Sample of OneDOT Files Available for Download

Title	Description	Contact	Source	Updated
Airport Capital Program Report	Capital improvements in general aviation airports	AVN Contact: Greg Miller (512) 417-4525	<a href="#">Project Tracker</a>	Monthly
Bridge Status Report	Percentage of state bridges in a given condition	BRG Contact: Kelly Breazeale (512) 416-2278	<a href="#">Percent of Bridges in Good or Better (Sufficient) Condition Statewide</a>	Bridge Status Report
Construction Index / Rate of Inflation	A weighted index of the cost of highway construction components	CST Contact: Mason Adam (512) 416-3470	<a href="#">Highway Cost Index</a>	Monthly
Disadvantaged Business Enterprise (DBE) Activity	Report on DBE activity by TxDOT furnished to FHWA	OCR Contact: Eli Lopez (512) 486-5511	<a href="#">Semi-Annual Report of DBE Awards &amp; Commitments</a>	Semi-Annually
TxDOT Expenditures by Category (Graphic Report)	Annual summary of use of funds	FIN Contact: Mary Meyland (512) 416-2260	<a href="#">TxDOT Strategic Plan (Page 12)</a>	Annually
Federal Rate of Return	Determine the expected ROR on federal motor fuels taxes collected from TX to assist in managing the State HWY Fund cash flow and project planning	FIN Contact: Trey Lusk (512) 486-5587	<a href="#">FHWA Highway Statistics (HDF Report)</a>	Annually
TxDOT Performance	Multiple measures of TxDOT performance as related to strategic goals	SPPM		Annually
TxDOT Toll Road Revenue and Expenditure Rpt.	Financial data on TxDOT toll roads	TTA		Annually
Transportation Project Status	On-time and on-budget statistics	PMO Contact: Maureen Wakeland (713) 802-5761	<a href="#">Project Tracker</a>	Monthly
Texas Transportation System Attributes	Various measures of the transportation system	TTP	<a href="#">Pocket Facts</a>	Annually
Transportation System Operations	AADT highway, ridership rail, transit, aviation, ferry	TTP	<a href="#">Pocket Facts</a>	Annually

Source: Texas Department of Transportation. "OneDOT Data Shop." Accessed December 4, 2013.  
<http://www.txdot.gov/inside-txdot/office/excellence/one-data.html>

---

## References

---

- 1 Texas Senate Bill 279.  
<http://www.legis.state.tx.us/tlodocs/83R/billtext/pdf/SB00279F.pdf#navpanes=0> Accessed December 13, 2013.
- 2 *Highway Statistics Series*. USDOT. Federal Highway Administration. Office of Highway Policy Information. <http://www.fhwa.dot.gov/policyinformation/statistics.cfm> Accessed December 10, 2013.
- 3 *A Guide to Reporting Highway Statistics*. USDOT. Federal Highway Administration. Office of Highway Policy Information. <http://www.fhwa.dot.gov/policyinformation/statistics.cfm> Accessed December 10, 2013.
- 4 *CRIS Automated Interface Guide –Register Users, Create Interface Request, Reset Password*. Texas Department of Transportation, June 27, 2013. [http://ftp.dot.state.tx.us/pub/txdot-info/trf/crash\\_statistics/automated/cris-guide.pdf](http://ftp.dot.state.tx.us/pub/txdot-info/trf/crash_statistics/automated/cris-guide.pdf) Accessed December 2, 2013.
- 5 *CRIS Automated Interface Guide –Register Users, Create Interface Request, Reset Password*.
- 6 “Crash Reports and Records.” *Safety and Laws*. Texas Department of Transportation. Accessed December 2, 2013, <http://www.txdot.gov/driver/laws/crash-reports.html>
- 7 “Legislature Clarifies Reporting Requirements for Fatal Crashes,” *Texas Transportation Researcher*, 43(3), September 2007. Accessed December 2, 2013.  
<http://tti.tamu.edu/2007/09/01/legislature-clarifies-reporting-requirements-for-fatal-crashes/>
- 8 “TxDOT launches new web application to streamline crash data reporting,” October 18, 2011. PanolaWatchman.com, [http://www.news-journal.com/panola/news/txdot-launches-new-web-application-to-streamline-crash-data-reporting/article\\_93a91ed6-4fff-5758-8e98-5de97ad6fe28.html](http://www.news-journal.com/panola/news/txdot-launches-new-web-application-to-streamline-crash-data-reporting/article_93a91ed6-4fff-5758-8e98-5de97ad6fe28.html). Accessed on December 2, 2013.
- 9 Texas Department of Transportation. “CRASH.” *Enforcement*. Accessed December 2, 2013, accessed <http://www.txdot.gov/government/enforcement/crash-system.html>
- 10 Texas Department of Transportation. “CRASH.” *Enforcement*. Accessed December 2, 2013, accessed <http://www.txdot.gov/government/enforcement/crash-system.html>
- 11 Boyd, D., & Crawford, K. (2012). “Critical questions for big data: Provocations for a cultural, technological, and scholarly phenomenon.” *Information, Communication & Society*, 15(5), 662-679.
- 12 ITS Research Fact Sheets. FHWA. (2013). Retrieved from [http://www.its.dot.gov/factsheets/realtime\\_dcm\\_factsheet.htm](http://www.its.dot.gov/factsheets/realtime_dcm_factsheet.htm). Accessed December 2, 2013

---

13 Evans-Cowley, J. S., & Griffin, G. (2012). "Microparticipation with Social Media for Community Engagement in Transportation Planning." *Transportation Research Record*, Vol. 2307, December 2012, pp. 90-98.

14 Abazorius, Abby. "MIT Big Data Initiative launches transportation challenge, privacy working group." *MIT News*. November 12, 2013. Retrieved from <http://web.mit.edu/newsoffice/2013/mit-big-data-initiative-launches-transportation-challenge-privacy-working-group-at-white-house-event.html>. Accessed December 2, 2013

15 Lei, H., Xing, T., Taylor, J. D., & Zhou, X. (2012). "Monitoring Travel Time Reliability from the Cloud." *Transportation Research Record: Journal of the Transportation Research Board*, 2291(1), 35-43.