

IDOT Grant Summary

Traffic Intelligence Officer



INTEL

Summary

- 70,000 Salary (+benefits)
- 3,500 Equipment
- Training
- Continuation of ~2013-2014 Grants
- Unique: Synthesis of Data (including crime),
Dissemination Network

Goals

- The Traffic Intelligence Officer (TIO), hired by the Illinois Association of Chiefs of Police and assigned to the Statewide Terrorism & Intelligence Center (STIC), will **analyze crash data to identify high accident location areas and disseminate this data to state and local law enforcement officials for target patrol efforts.** The TIO is trained to a high standard in everything from mapping software, traffic safety, to dealing with traffic management and the use of technology. The TIO assists in **developing strategies to more accurately analyze data** in an effort to provide guidance for directed traffic enforcement.

Images

Covered in this Webinar

1. Traffic Statistics to Date
2. I-55 Analysis
3. Scott's Law "Move-Over Law"
4. Traffic Issues Coming Up
 - Deer Crashes
 - Halloween (Drunk driving)
 - Thanksgiving (Drunk driving, traveling)
5. DDACTS – Crystal Lake PD, Kendall County Sheriff's Office
6. Questions

Unclassified/For Official Use Only

Statewide Terrorism &
Intelligence Center



Images

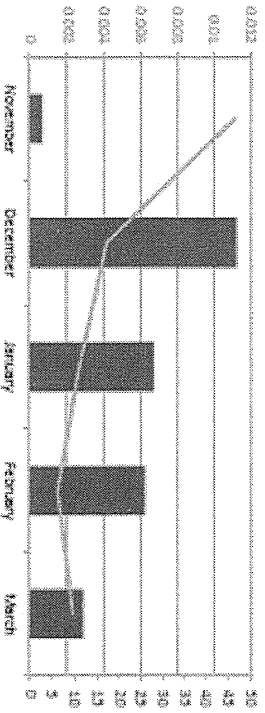


Crash Rates: When is it the highest?

For the past 4 years, the crash rate has been highest in November when looking at the number of fatal crashes compared to the snowfall totals for each month (2010-2013). Even though November has the least amount of fatal crashes in snow conditions, its crash rate compared to the snowfall is highest.

The most likely reason for this is that motorists are not used to driving in snow yet.

Fatal Crash Rate by Snowfall vs Fatal Crashes in Snow Conditions (2010-2013)

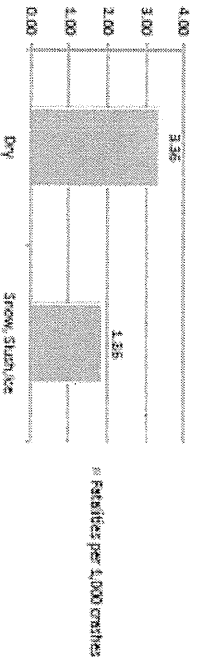


Fatal crashes in snow conditions showed by total of snowfall (in) at each highway interchange in the area from 2010-2013. Snow data from the National Climatic Data Center.

Crash Rates: Dry vs Winter Road Conditions

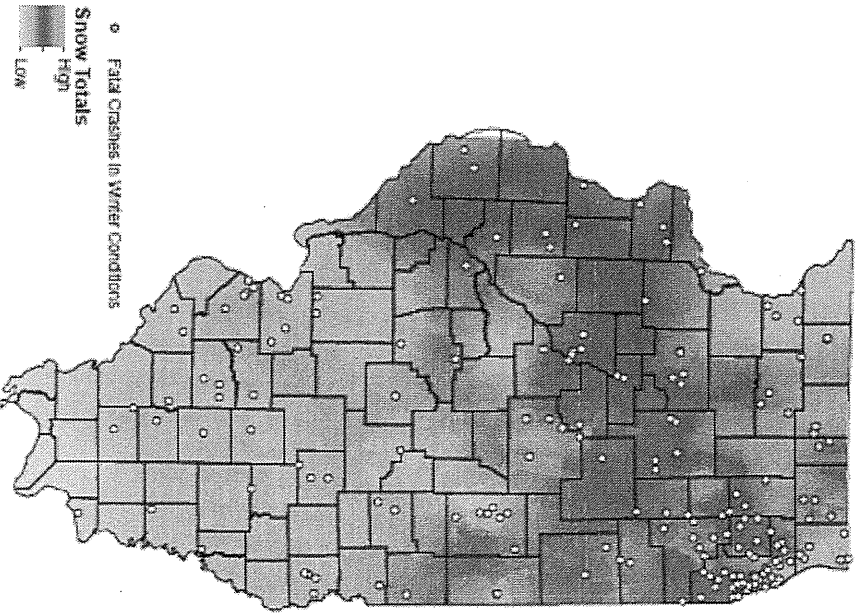
While crash data shows the crash rate during snow, slush, and ice road conditions is lower than those that occur in dry conditions. The likely reason for this is that motorists drive more careful and sit lower speeds in these types of conditions. Crashes that occur tend to be at lower speeds than those in dry conditions.

Fatalities/1,000 crashes (2009-2012)



Fatal Crashes in Winter Conditions & Snowfall Amounts (2010-2013)

Winter = Snow or Road Conditions = Snow, Slush, or Ice



Images



Thank You & Questions



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IDOT Grant Summary

Crash Analysis Environment

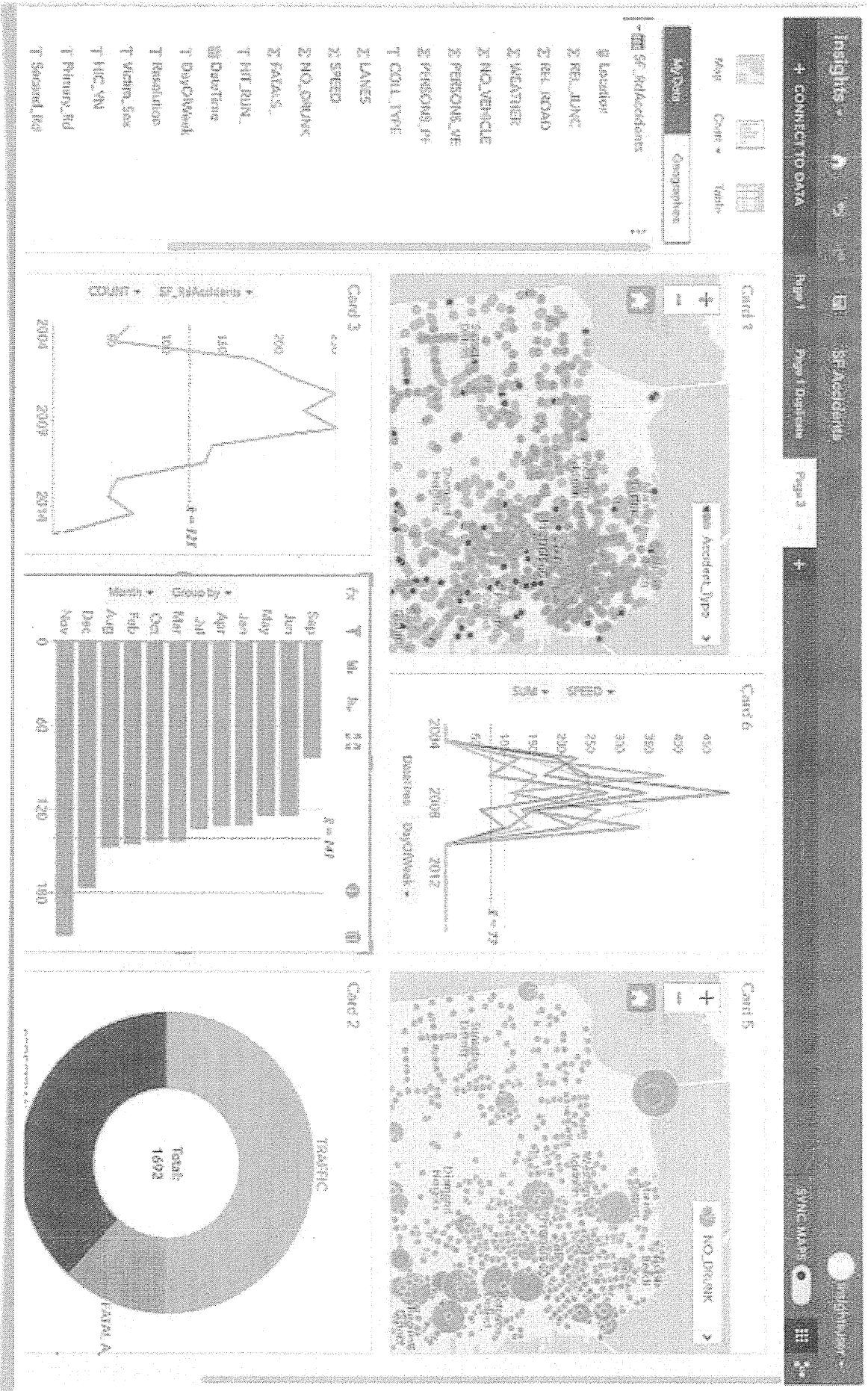


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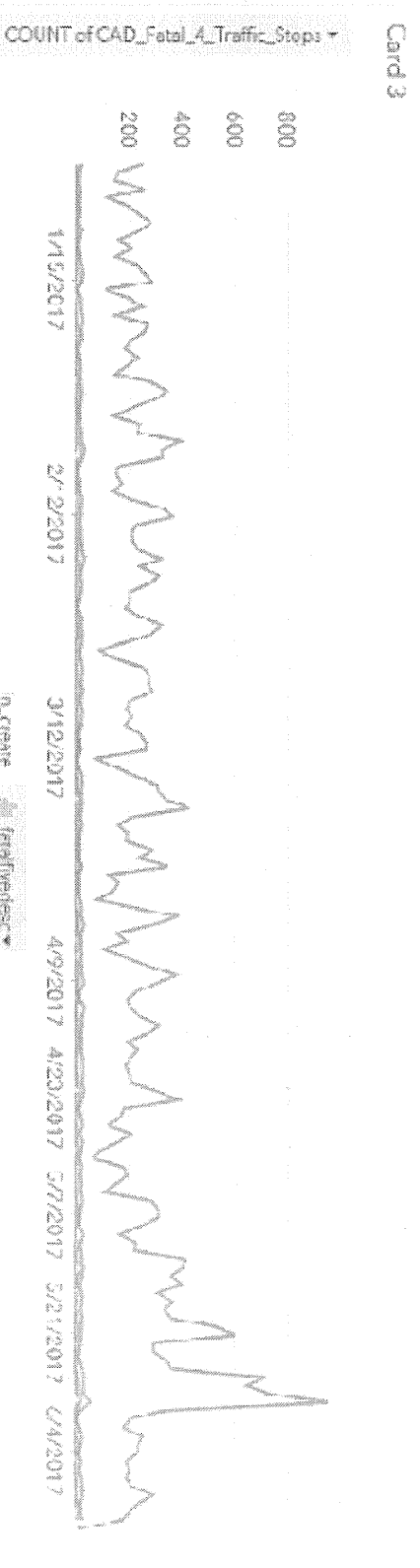
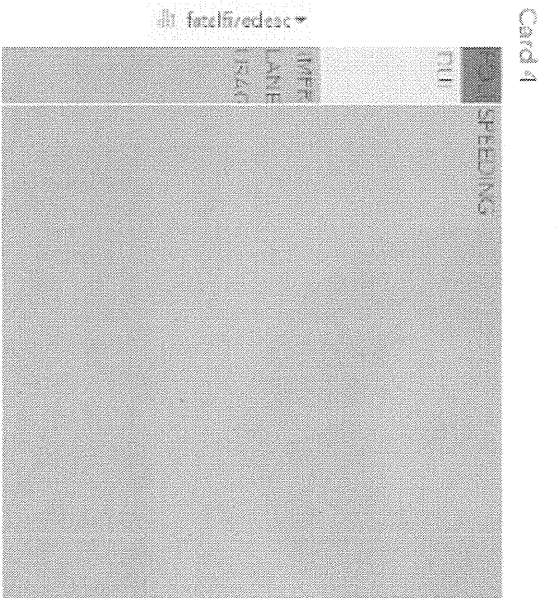
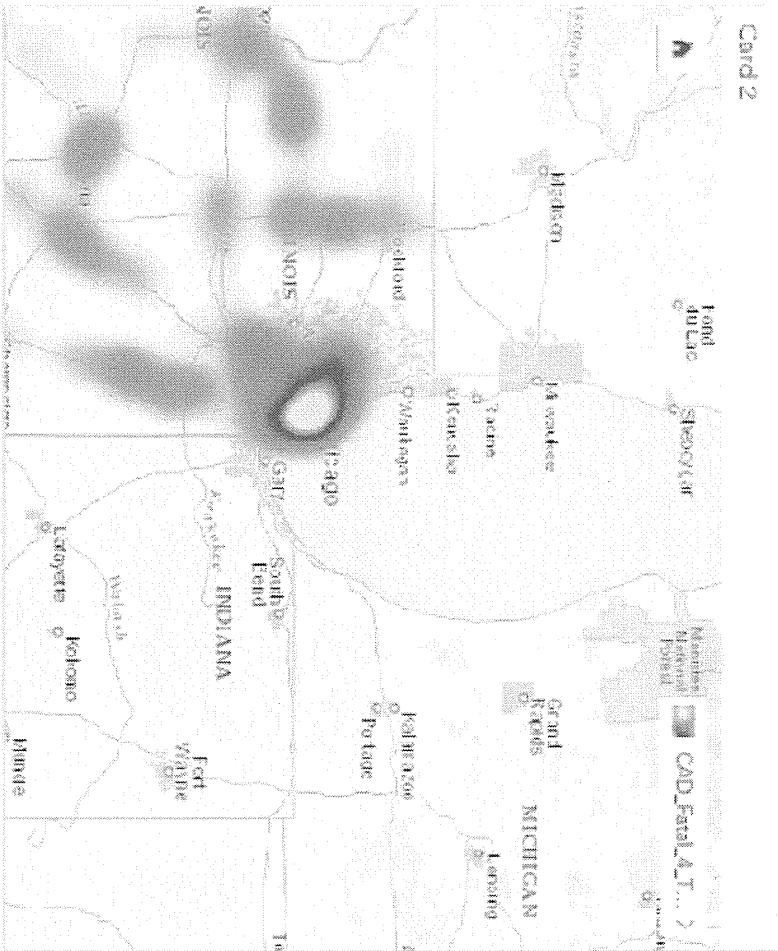
Summary

- 55,300 for ESRI Insights
- Partner with 10 Agencies
- 90 Day Cycles
- Unique: Your Data, Our Data, Saved Analytical Cards

Images



Images



Thank You & Questions



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Traffic Records Grant Application
July 25, 2017

Title: Funding Request for Illinois Trauma Registry Request for Proposal (RFP)

Brief Background: The Illinois Trauma Registry (ITR) is a web based application built in 2003 to meet the reporting requirements in the Trauma Center Code as mandated by (ILCS 515.2050) “Trauma Center Uniform Reporting Requirements”; (ILCS 550.120) “Head and Spinal Cord Injury Reporting Requirements”, and by (ILCS 560.120) “Illinois Violent Injury Reporting Requirements”. Over the years, the Illinois Trauma Registry (ITR) has had numerous updates and patches to accommodate the increasing demand of trauma centers, such as increase in the number of simultaneous users which is currently around 100 and additional data fields (currently 250 data fields) and validators to meet the reporting requirements of national benchmarking performed by the National Trauma Data Bank (NTDB).

The current ITR is **very rich in data** that have been requested in the past by IDOT through interagency agreement for use in **CRASH CODES and FARS** studies, as well as by educational and research institutes within Illinois that are interested in studying injuries and outcome. For example, ITR data served to justify the case for building a trauma center in the south side of Chicago, where trauma needs surpassed the current healthcare capabilities within that geographic area of the state.

The performance and report writing capability of the ITR **has been declining in the last three years**. The data parameters of **timeliness, accuracy, uniformity and completeness have declined from 99% to 75%** and the **HelpDesk calls have surged from 20% to 75%** with user problems of accessibility and crashing in the middle of data entry to total shutdown. The mechanism to submit data to NTDB for benchmarking has ceased in 2012 due to the ITR’s inability to update validators. The numerous issues plaguing the registry prompted the program to try to build a much needed trauma registry through Request for Proposal (RFP). This RFP seeks to develop a new, functional and updated Illinois Trauma Registry that also includes a subset of Head Spinal Cord and Violent Injury (HSVI) Registry. This new registry will expand the current data reporting from 71 trauma centers to all general hospitals and trauma hospitals (approximately 185 hospitals) within Illinois and with data fields congruent to NTDB for benchmarking. **A new and updated ITR will improve Data Performance Measures and will be beneficial to both IDPH and IDOT** as they continue with their data sharing interagency agreement.

Data Parameters

<i>Performance Measure</i>	<i>Benchmark (FY 17)</i>	<i>FY18</i>	<i>FY19</i>	<i>FY20</i>
Timeliness	70%	70%	80%	90%
Accuracy	75%	75%	90%	100%
Completeness	97%	97%	100%	100%
Uniformity	50%	50%	100%	100%
Accessibility	25%	25%	95%	100%
Integration	0%	0%	10%	20%

Specific Goals and Objectives:

- A. Develop an RFP (Completed)
- B. Submit to IDPH Procurement Office for approval (Completed – Under Review)
- C. Apply for IDOT grant for funding (In Progress)
(If Approved for Funding by IDOT – Submit Data User Agreement to IDPH Legal Office for review of IDOT’s rights to trauma data instead of interagency agreement)
- D. Selection of Vendor
 - D. 1. Post the ITR RFP on the Illinois Procurement Gateway (The Illinois Procurement Bulletin - Supplies & Services Edition)
 - D. 2. Review the bidders’ qualification, specifically the ones relating to the capability and experience in creating a “functional” trauma registry
 - D. 3. Evaluate the bidder’s proposal based on the RFP’s mandatory requirements.
 - D. 4. The bidders have an option for on-site and off-site hosting and the RFP has a list of mandatory requirements for both options. Trauma RFP will be awarded to a vendor with the highest score upon review and evaluation of bidders’ response to each mandatory requirement.
- E. Evaluation of vendor’s milestones and deliverables.
 - E.1. Milestones and deliverables will be agreed and signed off by IDPH and vendor.
 - E.2. Payment will be made based on the completed, agreed and signed off milestones and deliverables.
 - E.3. The selected vendor will be required to submit a Quarterly Status or Progress report on each milestones and deliverables due every 15th of the month until the ITR is fully implemented.
- D. Once implemented, the selected vendor will be responsible for providing training, maintenance and technical assistance on all issues related to the ITR.
- E. Once implemented, the vendor agrees to adhere to an established penalty structure for downtime based on the total cost of the contract from the vendor. Penalties for downtime shall be based on the following formula and applies to normal work days and hours not including weekends and holidays in Illinois:
(Annual Downtime Hours) / (Total Normal Annual Business Hours) = Percentage Downtime
Penalty Paid to the Department by the Vendor = (20 X Percentage Downtime) X (Total Annual Expenditure)

Methods/Procedures: Request for Proposal (RFP) to build a new ITR will be solicited from bidders via review and selection of bids submitted at the Illinois Procurement Bulletin with the contract awarded to a vendor with the highest score on the mandatory requirements based on the results of evaluation by the RFP Evaluation Committee. IDPH and the selected vendor will have an agreed upon milestones and deliverables, with payments made upon signing off on each completed and functioning milestones and deliverables. Training, maintenance and technical assistance will be provided by the selected vendor upon completion and implementation of the ITR.

Budget/Timeline:

Time Period FY 18	Activities
October 2017	Selection of vendor
November 2017- March 2018	Planning, review and building of trauma modules including HSVI subset
April – June 2018	Testing of ITR’s functionality
Software Cost	\$1,800,000.00
Personnel and Fringe	\$190,538.69
Equipment	\$2,000.00
Total Cost for FY 18	\$1,992,583.69
Time Period FY 19	Activities
July 2018 - June2019	Regional and statewide ITR Training
Total Cost for FY19 (Travel, Personnel Salary and Fringe and Contractual Services)	\$322,789.60
Time Period FY 19	Activities
July 2019 – June2020	ITR Maintenance, travel and training
Total Cost for FY201 (Personnel Salary and Fringe, Equipment, Travel and Contractual Services)	\$319,789.60

EMSC / Loyola University Chicago Grant Application

July 31, 2017 ITRCC Meeting

1. Title of Application: Data Analysis/Data Reporting of Statewide Databases

2. Brief Background

a) Over many years, EMSC has worked under IDOT funding to develop a number of analysis and reporting projects. Among these are database linkages and projects for making crash and injury data available for public use.

1) Database linkage

- Aligns with 2016 Illinois Traffic Records Assessment recommendation to improve “traffic records systems capacity to integrate data”
- Aligns with NHTSA performance measure - EMS/Injury Surveillance data integration
- For this grant, we plan to work further on a linkage between FARS data and the Illinois trauma registry
 - Previous work established the feasibility of augmenting FARS BAC from trauma data
 - Methodology will be refined - 2 additional linkage software products will be tested

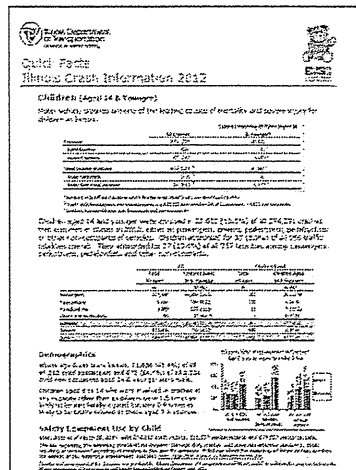
2) As a separate project, EMSC maintains an online query system that makes statewide data available to the public for crash, trauma, mortality, and hospital inpatient records.

Illinois EMS Data Reporting System (<http://app.idph.state.il.us/emsrpt/>)



3) As a third project, for more than 10 years we have prepared a set of "quick fact" reports for Illinois crash data.

Traffic Crash “Quick Facts” Fact Sheets (<http://ssom.luc.edu/emergency-medicine/children/data/illinoiscrashinformation/2015idotquickfacts/>)



- 4) Important change in EMSC program partnership as of March 2018, affecting data agreements

3. Specific Goals and Objectives

This is a multi-initiative project with the following objectives:

- a) Address recommendations made by the Traffic Records Assessment for data use and integration, as well as the NHTSA performance measure of data integration, by linking FARS records to trauma registry records to augment FARS BAC data.
- b) Maintain and improve the online query system by adding new years of data from a comprehensive set of statewide data sources (crash, trauma, mortality, and hospital inpatient).
- c) Update the set of 11 "quick facts" reports regarding key subsets of crash victims.

4. Methods/Procedures

- a) These projects require the use of statewide data sources. For all of them, the steps include:
 - 1) Data requests
 - 2) Receipt and secure storage of incoming data
 - 3) Preliminary data review to determine data quality
 - 4) Feedback with data owners when issues are identified
 - 5) Preparation of data, data analysis, and report writing to meet each objective
- b) For the linkage, we want to test additional linkage software products to compare match rates as well as to compare their overall capabilities:
 - 1) Previously used CDC's LinkPlus, a free software designed for use with cancer registries
 - 2) Plan to test Link King, a free software developed at Washington State University, which can work with much larger files than LinkPlus
 - 3) Plan to test Python Record Linkage Toolkit, which can link files when person names or SSN are not available, and calculates the probability of a match for each linked record pair
- c) Separately, for the online query system, hospital inpatient records changed from ICD9 diagnosis coding to ICD10 coding in October of 2015

5. Budget/Timeline

- a) Budget
 - 1) Budget is entirely for personnel with one exception - hospital inpatient data purchase at \$1900
 - 2) This year Loyola is charging indirect costs at 26%, which increased the budget relative to previous years
 - 3) Total budget proposed is \$147,941
- b) Timeline
 - 1) Tests of linkage software and restructuring of the reporting system for ICD10 inpatient data can begin with datasets that are currently on hand
 - 2) Other tasks for the grant will be performed as data become available

CATT Lab – RITIS application

July 31, 2017 ITRCC Meeting

1. Title of Application: CATT Lab RTIS application

2. Brief Background

The University of Maryland - CATT Lab has a portfolio of tools within a web hosted Environment for a Real-Time Data, Situational Awareness, & Analytics Platform. These tools include RITIS (Regional Integrated Transportation Information Systems), Work Zone Performance Monitoring, Incident Clustering Analysis, along with several other Safety Analysis and Vehicle Probe tools. These tools will allow the Department to more quickly integrate our crash data, traffic data, Federal NPMRDS and HERE vehicle probe data into a common interface that will allow improved analysis and access to this data. These videos provide a demonstration of the capabilities of several of these modules.

- Police Crash Report Data Analytics: <https://vimeo.com/179830512>
- Work Zone Monitoring Analytics: <https://vimeo.com/207291891>
- Probe Data Analytics (for project prioritization, before/after studies, after action reviews, etc.): <https://vimeo.com/179829037>
- Volume and Speed sensor Analytics: <https://vimeo.com/179847599>
- Traffic Management System Incident Data Analytics: <https://vimeo.com/179841494>

The CATT Lab also has a user group that meets quarterly. It covers ongoing feature enhancements, user's stories, and general updates. IDOT would become a part of those meetings and would provide input for future enhancements as well as continue to look for other opportunities to integrate and visualize other data sources.

The utilization of these tools will allow for enhanced abilities for analysis of the completeness, accuracy, and timeliness of data to our partners as well as provide enhanced integration and accessibility of data.

3. Specific Goals and Objectives

The Department would work with the CATT lab to integrate the Department's existing crash, traffic, roadway, and third party data sources into the web based portal. This integration will provide improved accessibility and integration of the data in a timely manner. These tools would allow for more integration than is currently possible with the limited IDOT IT staff and the high cost of CMS/DoIT infrastructure hosted costs. These solutions are already utilized by many states and MPO's and are very mature applications. Currently the Department has limited integration between these data sets and is very limited with the available applications or developer resources to build and support enhancements.

- a) Improve reporting and analysis capabilities with visual web based tools.
- b) Enhance the ability to collaborate with our partners by having a common platform for review and analysis that is accessible to each area, regardless of their access to GIS or IT staff.

4. Methods/Procedures

The Department will work with Business Services on the IGA agreement with the University of Maryland. We will also coordinate with our IT staff on the process to integrate existing

data sources with the University of Maryland. The Department will work with University of Maryland to develop a complete project timeline to implement the initial modules and develop a training plan for our business partners.

5. Budget/Timeline


a) Budget

- 1) Budget is for access to all the modules and the hosting costs. The current estimate is \$400,000/annually. We are looking to implement a 4 year agreement. The initial term may run a little higher depending on the amount of historical data for the initial modules.

b) Timeline

- 1) Procure services through an IGA with Maryland CATT Lab. (September – December 2017).
- 2) Define out the crash data integration from the current warehouse. (January – March 2018)
- 3) Integrate the HERE Real-Time and Historical Probe data. (January – March 2018)
- 4) Review remaining modules and work with Business areas to prioritize implementation of remaining items and finalize the data sources needed for implementation of those modules. (March – June 2018)
- 5) Provide communication to business partners as modules are implemented. (ongoing)

Implementation of a Data Governance Framework



The Illinois Department of Transportation is seeking to establish and begin the implementation of a Data Governance Framework. IDOT has vast amounts of high quality and high value data originating from the agency's various data subject areas and spanning the complete transportation project/asset life cycle. As IDOT advances with data analytics and business intelligence, data governance becomes increasingly more important to properly manage, analyze and share transportation data as a true enterprise asset.

Operationalizing AASHTO's Data Principles

Data Principle

1. **VALUABLE:** Data is an asset
2. **AVAILABLE:** Data is open, accessible, transparent and shared
3. **RELIABLE:** Data quality and extent is fit for a variety of applications
4. **AUTHORIZED:** Data is secure and compliant with regulations
5. **CLEAR:** There is a common vocabulary and data definition
6. **EFFICIENT:** Data is not duplicated
7. **ACCOUNTABLE:** Decisions maximize the benefit of the data

Transportation agencies adopting these principles – and putting them into action – should realize steady improvements to data value, and an increased return on their data investments

Implementing a Transportation Agency Data Self-Assessment NHTF 08-02

QUESTIONS

Do we have the right data to make good decisions and meet reporting requirements?



Agency Leaders

How can our agency make it quicker and easier to access and analyze data so that we can do our jobs more efficiently and effectively?



Data Users

Is our data good enough? Do we need to improve its level of accuracy, precision or timeliness?



Data Stewards

Are we managing our data to maximize its value and ensure its integrity?



Data Managers

Prepare

ASSEMBLE TEAM

Assemble a broad-based team to guide the effort.

ESTABLISH ASSESSMENT GOALS

Set a clear direction for what is to be accomplished.

SET SCOPE AND TIMELINE

Select data programs and assessment elements to include and establish a scope and schedule for the effort.

Assess

ASSESS DATA VALUE

Assess current data availability, quality, and usability.

ASSESS DATA MANAGEMENT

Assess maturity level for current data management processes.

DETERMINE GAPS

Identify gaps between current state and desired state and identify candidate actions to close gaps.

Improve

PRIORITIZE IMPROVEMENTS

Analyze the results and prioritize actions for improvement.

DEVELOP ACTION PLAN

Develop a plan of specific actions to address the priority gaps.

IMPLEMENT PLAN

Assign responsibilities, allocate resources and track implementation.

ASSESSMENT

DATA VALUE

Availability
Quality
Usability

Rating
Score For Good Excellent

DATA MANAGEMENT

Data Strategy and Governance
Data Architecture and Integration
Data Lifecycle Management
Data Collaboration
Data Quality Management


Maturity Level
1 2 3 4 5

KEY
Current
Target

No Gap
Small Gap
Large Gap

ACTIONS

Data Consolidation and Standardization
Data Collection, Processing, and Quality Improvements
Data Management Staffing and Responsibilities
Data Policies, Procedures, and Standards
Data Mapping and Documentation
Data Presentation and Analysis Improvements
Information System Improvements



Key motivations and early benefits of implementing data governance

1. Improved accountability to produce high-quality and reliable data (sources of truth).
2. Ensuring that the data are accessible and integrated using a common linear referencing system.
3. Engaging business areas within transportation agencies in their data, rather than viewing data as strictly an information technology (IT) issue.

There should be a distinction between managing data (data management) and ensuring that data are managed properly (data governance)

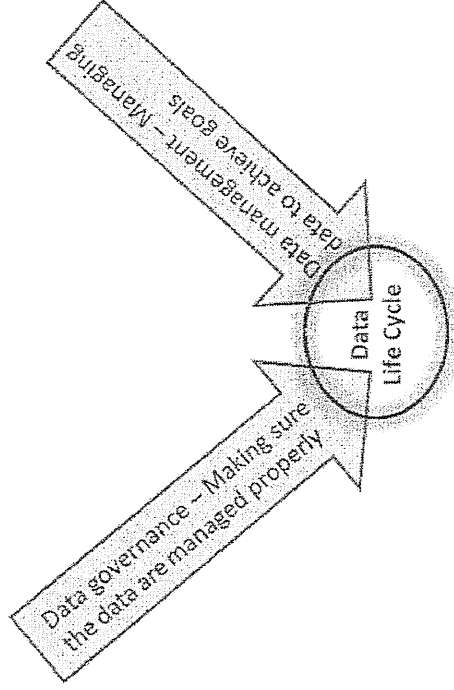
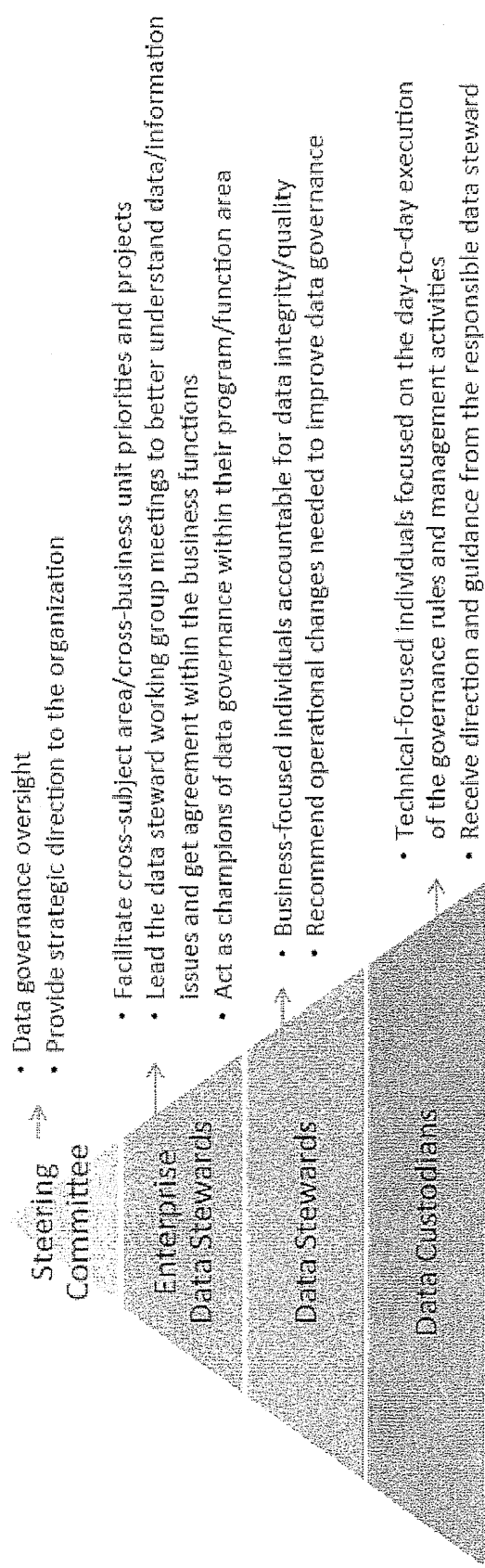
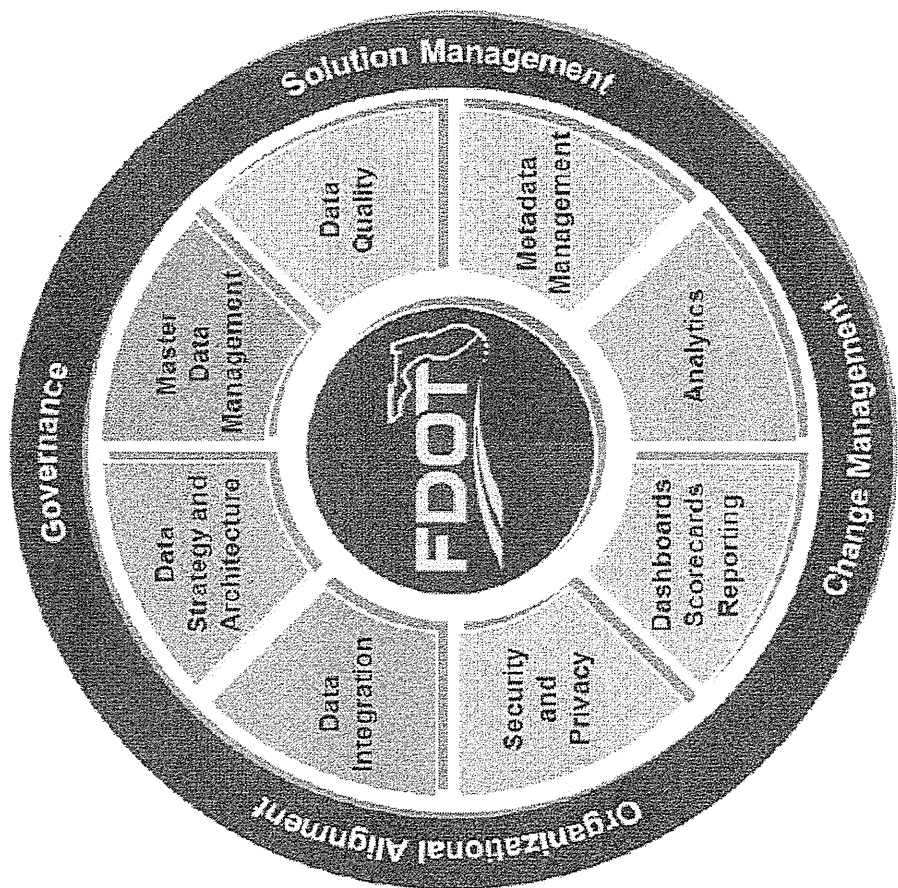


FIGURE 6 V-shaped illustration used to distinguish between data governance and data management. Source: Adapted from Ladley (2012).



NCHRP SYNTHESIS 508: Data Management and Governance Practices



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