D16.1 - Manual on Classification of Motor Vehicle Traffic Crashes

Secretariat: National Safety Council (NSC)

The D16.1 is a standard <u>for classifying motor vehicle traffic crashes</u>. The primary purpose of the D16.1 Manual is to promote uniformity and comparability of motor vehicle traffic crash data being developed and used in states and local jurisdictions. The D16.1 provides a common language for reporters, classifiers, analysts, and users of traffic crash data. The following questions from the D16.1 address the distinguishing characteristics of motor vehicle traffic crashes. If the answer to each of these questions is "yes", the incident is a motor vehicle crash.

- 1. Did the incident include one or more occurrences of injury or damage?
- 2. Was there at least one occurrence of injury or damage, which was not a direct result of a cataclysm?
- 3. Did the incident involve one or more motor vehicles?
- 4. Of the motor vehicles involved, was at least one in transport?
- 5. Was the incident an unstabilized situation?
- 6. Did the unstabilized situation originate on a trafficway or did injury or damage occur on a trafficway?
- 7. If the incident involved a railway train in transport, did a motor vehicle in transport become involved prior to any injury or damage involving the train?
- 8. Is it true that neither an aircraft in transport nor a watercraft in transport was involved in the incident?

MMUCC - Model Minimum Uniform Crash Criteria

Sponsors: NHTSA, FHWA, FMCSA, GHSA MMUCC represents a public/private collaborative effort of the highway and traffic safety communities

MMUCC is a guideline representing a "minimum set" of data elements for describing a motor vehicle crash. MMUCC recommends 77 data elements that need to be collected by law enforcement at the crash scene and an additional 33 data elements that can be derived from those that are collected at the scene or obtained by linking to other data files, e.g., driver history, injury, and roadway inventory data. MMUCC was originally developed in response to requests by states interested in improving and standardizing their state crash data, leading to more complete reporting with uniform data element attributes.

D20.1 - Data Element Dictionary for Traffic Records Systems

Secretariat: American Association of Motor Vehicle Administrators (AAMVA)

The D20.1 is a standard <u>for promoting uniformity in the transmission of records between jurisdictions</u>, related to highway safety, driver licensing and vehicle registration.

- Motor vehicle registration and titling
- Driver licensing
- Highway inventory and traffic
- Traffic crashes and emergency medical services
- Motor vehicle inspection
- Commercial drivers licensing
- Traffic law enforcement
- Motor vehicle insurance







Connecticut's MMUCC PR-1 Initiative
A "Best Practices" Presentation
How A DOT/ University Partnership
Changed The Crash Reporting
Landscape in CT Forever







Timeline - Evolution Of CT CDIP Effort

Early Activity -TRCC

- CDIP Assessment (Oct)
- DOT mainframe;
- Coding to old PR-1
- State Police electronic feed
- UCONN crash data repository
- TRCC PR-1 Working Group
- Local e-crash pilot (CRCOG)

2011 and Prior

2012

DOT Commitment

- TR Assessment (April)
- LSU Peer Exchange (Mar)
- CDIP Business Plan (May
- DOT/UCONN Partnership (Sept)
- Recruit Data Champion (Oct)-CDIP Team
- DOT Software Developer (Oct)

Initial Business Plan Elements (Oct,2012-April, 2013)

- Roadway Network
- Backlog
- MMUCC Compliance
- Single State Solution (CJIS and CRCOG)
- Crash Data Repository

January 1 Implementation

- Enforce Base Edit Rules
- Move Agencies from Test To Production Data Base
- Assist Late Adopters

2013

2014

2015

Business Plan Adjustments (May,2013)

- Retained: MMUCC Compliance, Backlog Crash Data Repository
- Changed To: Multi Vendor E-Crash Strategy and Fillable PDF as Default/ESD
- Added:
 - FTP Site Development and IT Tools
 - MMUCC Training and Field Coordinators
 - Data Quality Protocols for DOT Coders





Connecticut Facts

Third smallest State by area, only 5,000 square miles Fourth most densely populated State in the nation; population 3.5 million Lots of vehicle miles traveled; 84.5 million on a daily basis Interstate congestion off the charts Lots of folks traveling in very small spaces The Nutmeg State Also Known as "The Land of Steady Habits" **Home of UCONN**

Can Also Be Cutting Edge:

Trivia: CT set first speed limit at 12 mph in 1901

















Background: State Crash Report Statute



- Uniform Accident Report.
 - Requires investigations of any crash in excess of \$1000 property damage or in which any person is injured or killed; report shall be submitted to the CT DOT within five days of completing the investigation
 - CT DOT Commissioner has authority to define content and format of paper crash report (known as the PR-1)

NOTE:

No enabling authority to mandate electronic reporting or to set data quality standards for electronic transmission

Major challenge to achieving MMUCC compliance through the use of technology











A Little Bit Of History The CT MMUCC PR-1 Story



- Crash Data Collection and Processing Prior to 2012: A Challenging Picture
 - Paper crash report (PR-1) with overlays that had not been changed since 1994;
 about 100,000 crash reports processed every year (70 percent paper)
 - Business process that captured only one third of crash data
 - Data entry paper backlog of 16 months and growing
 - Law enforcement culture of "just filling out reports for insurance companies"
 - Partners' needs for timely and complete crash data not being met
- Background Factors That Set The Stage For Change
 - Data driven performance based planning in SAFETEA-LU and MAP-21
 - Active and involved TRCC chipping away at change
 - Core DOT functions not being served –behavioral and engineering programs
 - Incremental funding TR model -a good start
 - TR Assessment, CDIP Assessment, CDIP Business Plan, LA Peer Exchange







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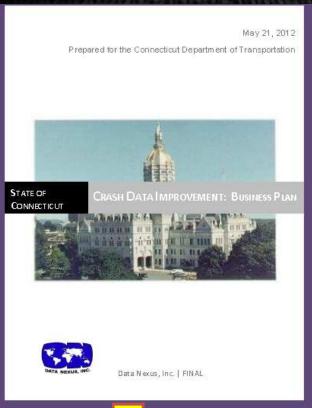
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A Word About Project Development



Business Plan Model

- Project Descriptions
- Action Item Tables
- PERT Charts

Weekly Coffee Meeting Action Plan

- Status of program components
- Action Items Required
- Identified Time Frames
- Resources Needed
- Decision Points
- Emerging Issues and Challenges for CDIP Team

COFFEE MEETING AGENDA SEPTEMBER 16, 2015 Room 2307



- Data Quality Management (DOT)
- Selected Agency Data Submission Challenges
- Field Coordinator Data Quality Outreach and Training Activity
- Status of Vendor DOT Edit Rule Updates/Other Issues
- MMUCC PR-1 refresher training materials



- Uploading of 2015 Data To Crash Data Repository
- Preparing Presentations for TR Forum
- Performance Measures; Tracking Tools

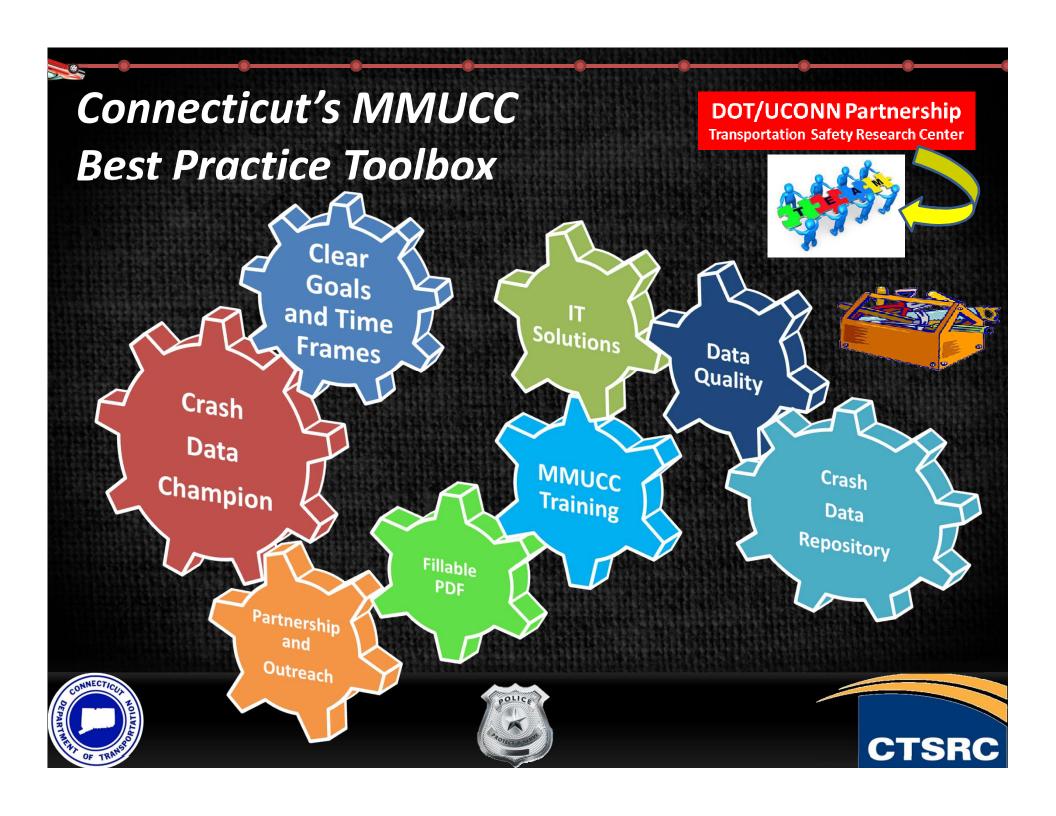
1

Agile System Development











Direction

Best Practice Number 1 Commitment To Clear Policy Goals, Timeframes, and Engagement

> conversion to electronic Paper Commitment



YIELD



Activate new MMUCC PR-1 system by January 1, 2015-**No Turning Back**



DOT/University Partnership

Ongoing Training and Technical Support From UCONN Transportation Safety Research Center



Connecticut Transportation Safety **CTSRC** Research Center

Technology Capability Surveys



Change relationship dynamic with law enforcement community

Engage vendor community for the first time

New Level of **Engagement**

No Agency To Be Left **Behind Philosophy**



Full MMUCC Compliance **Electronic Reporting** January 1, 2015



MMUCC City Limits Home of High Quality Crash Data

Best Practice Number 2 Crash Data Champion



Lots of Moving Parts To The Project



Project Coordinator Ring Master

Facilitator

Diplomat

Advocate...

Formulates goals, objectives, strategies, and projects

Supports DOT management and UCONN in tracking project milestones and deliverables;

Jointly reports to UConn and Conn

Serves as <u>daily</u> internal DOT focal point for planning and coordination of all CDIP related projects

Documents issues requiring senior management attention and/or decisions

Works with Field Coordinators to plan outreach meetings with LEAs

Facilitates weekly meetings to monitor CDIP program elements

<u>Liaisons with</u>
<u>external project</u>
<u>stakeholders on</u>
an ongoing basis

Works with IT to engage vendor community

Identifies
resources, tools,
and best practices
capable of
advancing CDIP's
goals

Makes
presentations to
support CDIP
deployment

The Four C's Always In Play

Coordination, Collaboration, Communication, and Cooperation

Best Practice Number 3

PARTNERSHIP AND OUTREACH TO MULTIPLE AGENCIES AND GROUPS

TRCC and Federal Partner Support Monthly Briefings

Business Plan Outreach MPO and State IT Projects

UCONN Vendor Summit HSO Law Enforcement Summits CPCA Vendor Fairs

Peer Exchange With Other States Alaska, Iowa, Ohio, Michigan

Letters To Police Chiefs

- √ Brochures/Posters
- ✓ LEL Video
- ✓ CPCA Web site

DOT/UCONN Partnership

Transportation Safety Research Center



Training Cadre for MMUCC Course

- √ Field Coordinators
- ✓ UCONN Technical Support

Level 4

Level 2



Law Enforcement Workshops

- PR-1 Form and Content
- ✓ Edit Rules

Level 3

Vendor Incentives

- ✓ DOT Specs and IT Tools
- ✓ Testing and Certification
- ✓ Weekly Calls

Meetings on Input To Fillable PDF



Level 1





Best Practice Number 4 MMUCC Compliant Fillable PDF With Multiple Electronic features

Multiple data entry options, auto population features; import crash diagrams, cut and paste GPS coordinates

Validation and Edit Rules (115)

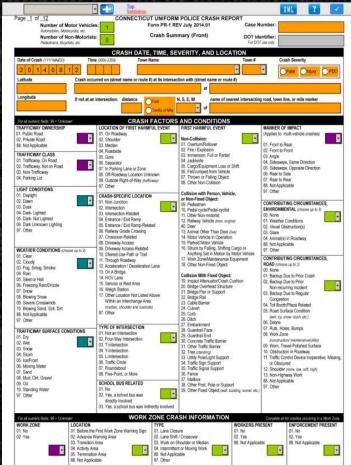
Matching DOT FTP site Requirements

Ability to be saved as xml file, exported to FTP site and imported into local RMS systems

Generate additional pages for drivers, vehicles

Includes Appendices for narrative, commercial vehicle, bicycle, bus, and witness statements











Best Practice Number 5

MMUCC Compliant Training Tools and Resources



Basic Six Hour MMUCC Curriculum

Sample Officer's Pocket Guide and **Investigator's Guide**

Weekly Newsletters and Podcasts

Self Help you tube videos on edit rules, diagramming, fillable PDF

On site agency technical support

MMUCC edit rules brochure and two hour refresher training

Weekly Vendor/Agency Calls with **DOT/UCONN**







CTSRC Crash News



newsletter will highlight new areas of the report as well as crash and training news

EDIT RULES AND

WARNINGS UPDATE AN OFFICER'S HANDY REFERENCE











CTSRC





ccess to Error Messages

Best Practice Number 6

MMUCC Compliant IT Tools For RMS Vendors and DQ Analysts

Crash
Uploader,
ESD, and
Work Flow
Tool For
Fillable PDF.

Crash Report
Reader Tool To
Validate Incoming
Reports and Beta
Test Vendor
Software

Model MMUCC Edit Rules (115)

MMUCC XML Schema



Preparation Synchronization OpeningSession SessionOpened

InitializingTransmissionLog
Processing 1 of 3, WallingFord_CT0014800_2015-00014823.xml
RecordingReceiptInLogFile
PostingRayContentsToDatabase

ValidatingAgainstSchema ValidatingAgainstBusinessRules ComposingNotification

Processing 2 of 3, Wallingford_CT0014800_2015-00014957.xml RecordingReceiptInLogFile

PostingRawContentsTODatabase ValidatingAgainstSchema ValidatingAgainstBusinessRules ComposingNotification

Processing 3 of 3, Wallingford_CT0014800_2015-00018349.xml RecordingReceiptInLogFile

RecordingReceiptInLogFile PostingRawContentsToDatabase ValidatingAgainstSchema ValidatingAgainstBusinessRules

Posting 3 log files to DOT_ECRASH_WALLINGFORD Removing 3 xml files from DOT_ECRASH_WALLINGFORD PostingTransmissionLogToRemoteHost

Cleanup

Complete all crash fields to

avoid errors and warnings

Never use non applicable in the first field when you have multiple checkboxes

Crashes

xmlns:xsi="http://www w3.org/2001/XMLSchem a-instance"

xmlns:xsd="http://www. w3.org/2001/XMLSchem a"

xmlns="http://www.ct.g ov/dot/schemas/CTCras h.xsd"><Preamble><Doc umentOriginator><Trans mitterID>999901</Trans mitterID><TransmitterEm ailAddress>moe@xyz.org </TransmitterEmailAddre ss><TransmitterEmailAddre ss>terry@xyz.org</Tra nsmitterEmailAddress></ DocumentOriginator><D ocumentStatistics DOT
Specifications
Testing and
Certification
Protocols





CONNECTICAL DEPARTMENT OF TRANSPORTATION

RNG PROVIDER TESTING AND CERTIFICATION PROCEDURES













New Protocols for Data Quality Management

- Results Of CDIP Initiative
 - Converted Positions of Data Coder into DQ Analysts
 - Eliminate Re-coding Of Crash Data
 - All Inclusive Crash File: diagram, narrative, and MMUCC elements
 - Edits And Validations Enforced at Three Levels
 - Vendor Software and Fillable PDF
 - DOT FTP Site
 - DOT DQ Analysts
 - Required GPS Coordinates Help To Locate to LRF
 - All rejected cases resubmitted
 - Processed Crash Data Uploaded To UCONN CDR daily
 - MMUCC Crash Data Available in less than 90 days from date of receipt at DOT











Best Practice Number 8 Data Retrieval, Analysis, and Evaluation

The UConn Crash Data Repository

- State Crash Summary Tables : 2007-2011 (Nine major variables)
- Basic and advanced query tools for individual departments (1995-2014)
 - » Basic Report Tool- summary crash tables and trend charts for each town (five year increments, 11 different crash types, includes rankings)
 - » Advanced Report Tool: Select own date ranges, locations, contributing factors

Crash Data Templates For Grant Management (last five years-DUI crashes)

2015 MMUCC PR-1 data (49,000 records to date)

- » Advanced Query Tool: Summary tables of individual crash reports
- » ESD Crash Diagrams
- » Mapping Capability-heat and pin maps, street view
- Coming Soon:
 - Ability to map citation data
 - Merging of old and new MMUCC PR-1 Data for query purposes
 - Private parking lot crashes













Try It Out www.ctcrash.uconn.edu

UCONN

Connecticut Crash Data Repository

[Main Menu] User: jackson (erj02003@engr.uconn.edu)

[View Recent Export Requests][Update Account][Logout]

gin Register

User Guide

The Connecticut Crash Data Repository (CTCDR) is a web tool designed to provide access to select crash information collected by state and local police. This data repository enables users to query, analyze and print/export the data for research and informational purposes. The CTCDR is comprised of crash data from two separate sources; The Department of Public Safety (DPS) and The Connecticut Department of Transportation (ConnDOT).

The purpose of the CTCDR is to provide members of the traffic-safety community with timely, accurate, complete and uniform crash data. The CTCDR allows for complex queries of both datasets such as, by date, route, route class, collision type, injury severity, etc. For further analysis, this data can be summarized by user-defined categories to help identify trends or patterns in the crash data.

Basic Users:

Crash Summary Tool

Basic Report Tool

Advanced Users:

Data Query Tool

Restricted Users:

GIS/Map Based Query Tool









Recap "Best Practice" Accomplishments

Crash Data Uniformity and Completeness

Achieved 99.3 percent overall MMUCC compliance for elements collected at the crash scene



Stood up a Statewide MMUCC compliant e-crash reporting system in eighteen months without authority to mandate electronic reporting

Crash Data Timeliness

Crash Data Partnership and Outreach

Demonstrated that a DOT/University partnership model consisting of a multi-disciplinary project team and dedicated data champion can achieve success

Changed the crash reporting dynamic between DOT and the law enforcement community forever

Developed state of the art MMUCC training materials

Developed cutting edge IT tools to facilitate electronic crash reporting including a fillable **PDF**

Crash Data





Crash Data Accessibility Crash Data Integration work in progress

and mapping capabilities

Launched MMUCC compliant Crash Data

Repository with full query, diagramming



Accuracy

Lessons

Lessons Learned The Connecticut MMUCC PR-1 Experience

Planning Lessons

 Need a dedicated full time project team and a "data champion" to achieve scale



 Structure a project plan but stay flexiblebe ready to adopt new strategies or drop old ones to solve problems



 Make the most informed decision you can make in the moment knowing that more decisions will need to be made down the road











Lessons Learned (Continued) The Connecticut MMUCC PR-1 Experience

Leadership Lessons

ACCOUNTABILITY



- Stay focused on approach –deal with the crash reporting world as it is rather than visioning the project to achieve significant structural change
- Don't be afraid to "push the envelope" to leverage continuing progress
- Partnership Outreach and Team Building Lessons
 - Develop a team building style that fosters continuous and open communication and complementary skills



- As project moves from one phase to the next, enable different project staff to take the lead, change roles, and blend expertise as needed
- Frequent communication, transparency and accountability to the law enforcement and the vendor community should be the order of the day







Lessons Learned (Continued)

Technical Lessons

• Attention to detail especially in the testing of support tools and products



Be efficient in developing solutions or work arounds to technology challenges

The Connecticut MMUCC PR-1 Experience

- Stay on Mission Lessons
 - Stick to the project launch date no matter what- the project is a sprint and not a marathon
 - Do not be discouraged by short term setbacks: a State can change the culture of crash reporting if crash data collectors are engaged on all levels to see the benefits of becoming crash data users











Final Observation Leverage All Available National and State Resources At Your Disposal

- National Resources Helped Us To Achieve Our Goals:
 - MMUCC Web Site
 - NHTSA TR Assessment
 - CDIP Assessment



- Support from FHWA to develop a "Business Plan" to guide our efforts; use of eligible FHWA accounts for project startups
- NHTSA GO Team Support





- State Resources
 - Peer exchange program with LA DOT and LSU to research State/University Partnership Model
 - Information Sharing With Other States: Alaska MMUCC PDF, Iowa TraCS, Ohio MMUCC Video, Vendor Experiences in Michigan and Wisconsin





Final Words of Wisdom from Those Who Have Gone Before Us





There comes a time when you have to choose between turning the page and closing the book

Lessans Leastned in Life





