Support Information for Using Year 2002 through 2013 MassDOT Crash Data Files
As of 6/25/2015

Crash data for years 2002 through 2013 are derived from the Registry of Motor Vehicles (RMV) Crash Data System (CDS). The RMV Division of MassDOT obtains crash reports from local police, State Police, other police agencies and enters the data into the CDS database. The reporting threshold is any crash involving an injury or fatality, or damage to any one vehicle or other personal property in excess of $1000. Crashes not on public ways or in off-street parking lots are usually excluded, however some that were entered have been identified with the text "In Parking Lot" (or similar text) in the Landmark field, but many others have not been detected and identified in this manner.

The RMV is dependent upon the cooperation of police agencies in sending crash reports in a complete and timely fashion. The Highway Division of MassDOT has geocoded (attached geographic coordinates corresponding to the crash location) the RMV crash data and makes the crash data files available upon request.

The year 2013 Statewide crash data contain 125,285 crashes, compared to 122,645 crashes in 2012, 120,631 crashes in 2011, 115,641 crashes in 2010, and 117,762 crashes in 2009. The increase in the total number of crashes in recent years is in part attributable to different reporting rates by different police jurisdictions. In some cases this is due to difficulties that some local police departments have experienced with electronic reporting, and overcoming such difficulties. There has been a significant decline in the number of operator-only reports (reports submitted by motorists who are involved in crashes, for which no police report was submitted) that were entered in CDS by the RMV in recent years. An Excel file named 'Total Crashes by Town and Year1990-2013.xls' is available to show the differences in total crashes by city/town from year to year.

The number of operator-only reports that have been entered in the Registry's Crash Data System has been declining each year since 2006. This is not due to a decrease in the number of reports received, but is due to the number of reports that have actually been entered. In recent years very few operator-only reports that have been received have been entered. However, all police reports received (that have been determined by RMV to be reportable) have been entered.

For cities/towns where local police regularly report all motor vehicle crashes to the RMV, the effects of missing operator-only reports is minimal. However, for those cities/towns where local police do not routinely submit crash reports, or underreport crashes to RMV, the effects of missing operator-only reports in the database can be significant when comparisons of crash data are made between years prior to 2011.

Number of Crashes in Crash Data System by Year and Report Source
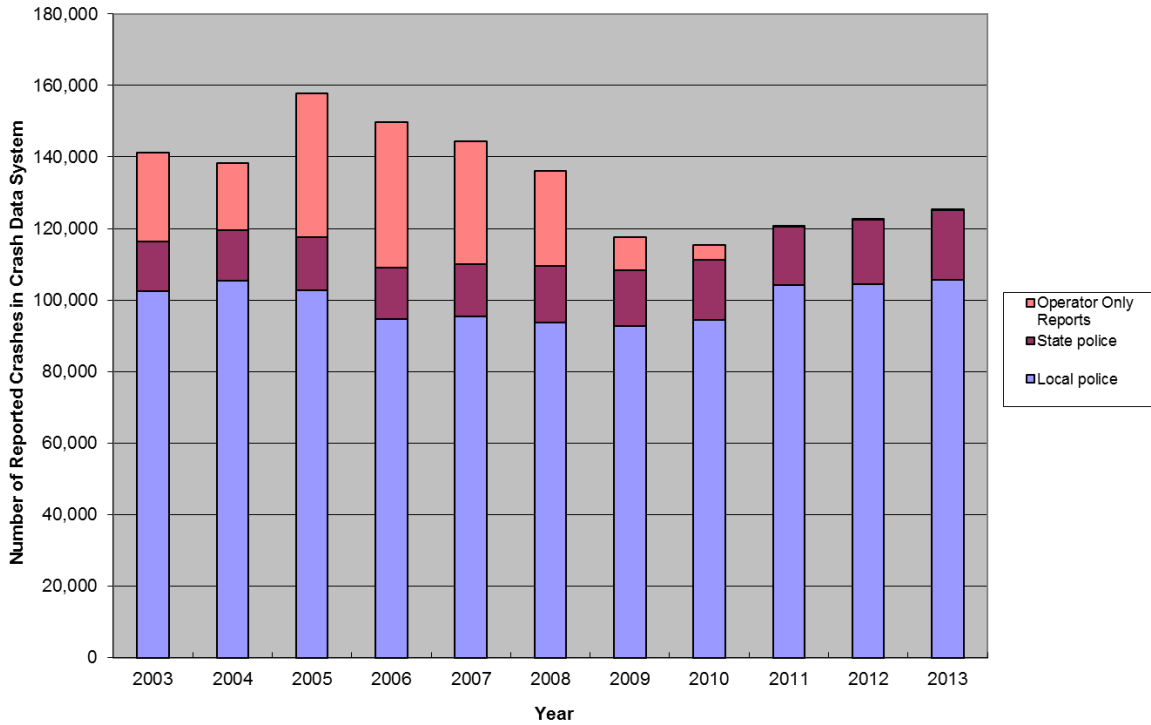
As can be seen from the chart above, the total number of crashes reported by and entered from local and State police agencies has been reasonably consistent in recent years. However, due to limited data entry staff at RMV and changing priorities there has been a significant decline in the number of operator-only reports entered by RMV. It cannot be assumed that all operator-only reports are for property damage only crashes. In fact, approximately 25% of all crashes reported by operators and entered into the RMV Crash Data System for year 2009 crashes were non-fatal injury crashes (which was nearly identical to the percentage of injury crashes reported by local police). On a Statewide level the percentage of reported crashes that are property damage only has remained relatively constant in recent years (67.5% in 2013,65.1% in 2012, 66.3% in 2011, 64.7% in 2010, and 64.3% in 2009) despite the declining number of operator reports that have been entered each year. This may not be the case in each city/town due to different levels of reporting by local police agencies.

Local police agencies with the lowest apparent degree of compliance for, or highest degree of yearly variation in, reporting crashes to RMV for one or more years from 2009-2013, are shown below. In many cases reporting issues were temporary and have since been resolved.

Number of crashes submitted and entered in Crash Data System – Selected Cities/Towns

Year / City Town	2009	2010	2011	2012	2013
BARNSTABLE	4	6	779	1199	1105
BOSTON	952	1816	1307	1210	1039
BOXBOROUGH			2	37	44
BROOKLINE	360	14	296	296	168
CHATHAM	105	89		73	75
CLINTON	56	42	33	43	47
DARTMOUTH	596	520	626	639	132
DUXBURY	2	136	140	115	114
EASTHAMPTON		279	270	295	273
FOXBOROUGH	232	96	351	297	270
GROVELAND		2		57	63
HANOVER	248	240	237	179	146
HUBBARDSTON	1		15		76
HULL	73	55	80	9	80
KINGSTON	74		2	57	226
LANESBOROUGH	34	3		1	
LEE		1	1	75	136
LYNNFIELD	54	54	37	130	169
MALDEN	799	152	2	834	757
MEDFORD	637	256	1	511	609
MEDWAY	156	171	27	161	171
MERRIMAC	46	39	16		38
NEW BRAINTREE	14	15	13		
NEWBURY	61	15	1	64	76
ORANGE	108			16	81
PLAINVILLE	110	133		138	220
PRINCETON	49		52	48	57
RANDOLPH	511	444	458	151	1
ROCKLAND	205	208	223	185	91
SALISBURY	216	201	75	128	253

Year City Town	2009	2010	2011	2012	2013
SPRINGFIELD	8	19	4206	4084	3935
SWANSEA	546	72	564	566	594
TEMPLETON	102	46	77	58	56
UPTON	106	73	162	115	1
UXBRIDGE	111	243	219	1	1
WAKEFIELD	271	98	23	361	374
WELLFLEET	1	129	127	117	117
WEST BRIDGEWATER		258	238	238	306
WINCHENDON	1	80	215	210	246
WINCHESTER	174	5	292	249	223
YARMOUTH	496	55	490	541	489

Other cities/towns have under-reported crashes to a lesser degree. A file named 'Police_Crosstabs_2002-2009 5-11-2011.xls' is available upon request to show individual city/town percentages of crashes by source of report through 2009.

The year 2013 crash data files from the Highway Division of MassDOT are in the same format as the year 2007 through 2012 files. X and Y coordinates are included in the last two columns in the data files but note that these columns have been excluded from the default print range in the Excel files. For year 2013 about 96% of records have X and Y coordinates; for year 2012 about 93%; for year 2011 about 94%; for year 2010 about 92%; for 2009 about 94% and for 2008 about 88% of the records have X and Y coordinates. However these are Statewide averages and do not apply to particular crash locations.

Attempts have been made to prevent duplicate crashes from appearing in the crash data, however sometimes they occur. If the crash dates, time and location are identical (or nearly identical); the crash may be a duplicate, but with a different crash number.

The data MassDOT Highway Division has supplied is in Microsoft Excel 2010 (.xls) format. Sorting the data by location may be difficult because of the five different columns that may contain location data. Crash data are not completely standardized. Several different variations of a street name (or other field) may exist. Due to the format of the year 2002-2013 data, searching may be more useful than sorting. Search both the At Roadway Intersection and Distance from Nearest Roadway Intersection fields for each occurrence of a street name.

Explanation of columns and abbreviations in Excel Spreadsheets

A. *Crash Number* – Unique number used by Registry of Motor Vehicles to identify each crash. Each crash could have several reports: police, operator(s), so this is the master record ID number. There is no relationship between this number and police department incident or crash numbers.

B. *City/Town Name* – The city or town in which the crash occurred. If the crash was reported as occurring in a locality (neighborhood name) within the city or town, this is shown in parentheses after the proper city/town name. However if the crash was just reported as occurring in the city/town (rather than in a locality/neighborhood), then the locality name is <u>not</u> shown. Therefore, searching/sorting by locality name will not identify all crashes that actually occurred in that locality.

C. *Crash Date* – Date of the Crash

D. *Crash Time* - Time of Crash

E. *Crash Severity* – Type of Crash
- Fatal injury
- Non-fatal injury
- Property damage only (none injured)
- Not Reported
- Unknown

F. *Number of Vehicles* – Total number of vehicles involved in the crash

G. *Total Nonfatal Injuries* - Number of persons injured in the crash excluding fatalities

H. *Total Fatal Injuries* - Number of persons killed in the crash

I. *Manner of Collision* - Manner of Collision or Collision Type
- Angle
- Head-on
- Rear-end
- Rear-to-Rear
- Sideswipe, opposite direction
- Sideswipe, same direction
- Single vehicle crash
- Unknown
- Not reported

J. *Vehicle Action Prior to Crash* – The action that each vehicle was taking prior to the crash; V1 = Vehicle 1, V2 = Vehicle 2, etc.
- Travelling straight ahead
- Slowing or stopped in traffic
- Turning right
- Turning left
- Changing lanes
- Entering traffic lane
- Leaving traffic lane
- Making U-turn
- Overtaking/passing
- Backing

- Parked
- Other
- Not reported
- Unknown

K. **Vehicle Travel Directions** – Direction that each vehicle was traveling at time of the crash; V1 = Vehicle 1, V2 = Vehicle 2, 8 (truncated from 98) = Not reported, 6 (truncated from 96) = Reported but invalid.

L. **Most Harmful Events** – Most harmful event for each vehicle. *Only reported if the source of data was from a police report. Not reported if the only source of data was from an operator report.*

- Collision with motor vehicle in traffic
- Collision with parked motor vehicle
- Collision with pedestrian
- Collision with cyclist (bicycle, tricycle, unicycle)
- Collision with animal – deer
- Collision with animal – other
- Collision with moped
- Collision with workzone maintenance equipment
- Collision with railway vehicle (train, engine)
- Collision with other movable object
- Collision with curb
- Collision with tree
- Collision with utility pole
- Collision with light pole or other post/support
- Collision with guardrail
- Collision with median barrier
- Collision with ditch
- Collision with embankment
- Collision with highway traffic sign post
- Collision with overhead sign support
- Collision with fence
- Collision with mailbox
- Collision with impact attenuator/crash cushion
- Collision with bridge
- Collision with bridge overhead structure
- Collision with other fixed object (wall, building, tunnel)
- Collision with unknown fixed object
- Overturn/rollover
- Fire/explosion
- Immersion
- Jackknife
- Cargo/equipment loss or shift
- Other
- Other non-collision
- Unknown non-collision

- Unknown
- Reported but invalid

M. Vehicle Configuration – The type of each vehicle involved in the crash
- Passenger car
- Light truck (Van, mini-van, pick-up, sport utility)
- Motorcycle
- Bus (with seats for 16 or more, including driver)
- Bus (with seats for 9-15 people, including driver)
- Single unit truck (2 axles, 6 tires)
- Single unit truck (3 or more axles)
- Truck/trailer
- Truck tractor (Bobtail)
- Tractor/semi-trailer
- Tractor/doubles
- Tractor/triples
- Unknown heavy truck
- Motor home/recreational
- Moped
- Low speed vehicle
- All terrain vehicle (ATV)
- Snowmobile
- Other light truck (10,000 lbs. or less)
- Other e.g. farm equipment
- Unknown

N. Road Surface Condition –The condition of the road's surface at the time of the crash
- Dry
- Wet
- Snow
- Ice
- Sand, mud, dirt, oil, gravel
- Water (standing, moving)
- Slush
- Other
- Unknown

O. Ambient Light – Light conditions
- Daylight
- Dawn
- Dusk
- Dark – lighted roadway
- Dark – roadway not lighted
- Dark – unknown roadway lighting
- Other
- Unknown

P. ***Weather Condition*** – A maximum of two weather conditions may be reported
- Clear
- Cloudy
- Rain
- Snow
- Sleet, hail, freezing rain
- Fog, smog, smoke
- Severe crosswinds
- Blowing sand, snow
- Other
- Unknown

Q. ***At Roadway Intersection*** – If crash location information was entered in the AT INTERSECTION side of the report, the route numbers and/or roadway names will appear in this column. The route/roadway where the crash occurred will appear first, followed by a slash (/), followed by up to two combinations of routes and/or roadway names. This is based on the roadway names and route numbers that were entered by police or as edited by the Highway Division of MassDOT, and does not necessarily mean the crash was related to an intersection.

R. ***Distance from Nearest Roadway Intersection*** – If crash location information was entered in the NOT AT INTERSECTION side of the report, and if the crash was referenced as occurring at some distance and direction from the nearest intersecting street, the crash location information will appear in this column. However, sometimes only a route and/or roadway name will appear, or other information such as address numbers may appear in this column. Location information entered here is based on what was entered by police or as edited by the Highway Division of MassDOT, and does not necessarily mean the crash was or was not related to an intersection. Some police agencies enter all of their location information into this field, whether the crash occurred at an intersection or not at an intersection.

S. ***Distance from Nearest Milemarker*** – If crash location information was entered in the NOT AT INTERSECTION side of the report, and if the crash was referenced as occurring at some distance and direction from the nearest milemarker, the crash location information will appear in this column. However, sometimes only a route and/or roadway name will appear, or other information may appear in this column.

T. ***Distance from Nearest Exit*** – If crash location information was entered in the NOT AT INTERSECTION side of the report, and if the crash was referenced as occurring at some distance and direction from the exit or interchange, the crash location information will appear in this column. However, sometimes only a route number or other information may appear in this column.

U. ***Address/Distance from Nearest Landmark*** – If crash location information was entered in the NOT AT INTERSECTION side of the report, and if the crash was referenced as occurring at a street address or at a landmark, or at some distance and direction from them, the crash location information will appear in this column. However, sometimes only a roadway name, route number, or other information may appear in this column. There may be some data in this column that duplicates data in

      other crash location columns. Landmark text is limited to a maximum of 32 characters (the portion enclosed by parentheses).

V. ***Non Motorist Type*** **–** For any Non Motorists that were reported as being involved in the crash, the Person Number (P1, P2, etc.) of the Non Motorist is shown, followed by that person's role: Pedestrian, Pedalcyclist (bicycle, tricycle, unicycle, pedal car), Skater, Railroad or Trolley Passenger, or Other non-motorist (wheelchair, etc.).

Crash location data as described above will only be shown in the format described above if it was correctly entered by police or operators and/or RMV, or if it was edited by the Highway Division during the geocoding process. Offset and/or direction of offset may be missing, or the nearest intersecting street/milemarker/exit number may be missing. If a named roadway also has a route number, the route number may be missing if it was not entered in the police crash report or if it was not entered during review or editing by MassDOT. So, when trying to find all crashes that occurred on a particular route number in a particular city or town, it will be necessary to search for both road names and route numbers.

W, X.

> Shown are ***X and Y coordinates for crashes that have been geocoded*** (located to a point) by the MassDOT Highway Division GIS (Geographic Information System) crash geocoding application. Coordinates are shown only for crashes that were successfully geocoded to a point <u>or to an approximate point</u> based on available crash location data. Users should be aware that for many crashes (especially ones located at or near an exit, highway interchange, rotary, etc.) these coordinates are only <u>approximate</u>, depending on the quality of the source crash location data. Crashes referenced by an exit number or interchange may in fact actually have occurred some distance from that exit or interchange. Coordinates are in Massachusetts Mainland State Plane NAD 83 meters. The X and Y coordinate columns have been excluded from the default print range in order to keep the font size of printed report pages reasonably legible.

MassDOT Crash Portal
For Crash Records Web Reporting

Beginning in August 2012, the Traffic Engineering and Safety section of the Highway Division of MassDOT implemented a new Crash Portal for crash records reporting via the web. You may use the link below to request crash data files for individual cities and towns via the web. This new Crash Portal will also let you use a new Crash AdHoc Query Tool to obtain much more detailed information about crashes that meet certain user-supplied selection criteria, and to export the results as Excel files. The new Mapping Tool can be used to view <u>only those crashes that have been geocoded</u> on an interactive map. The link to this new MassDOT Crash Portal is:

http://services.massdot.state.ma.us/crashportal