

MassDOT Interactive Mapping Portal for Analysis and Crash Tracking (IMPACT)

September 26, 2022

Note to User

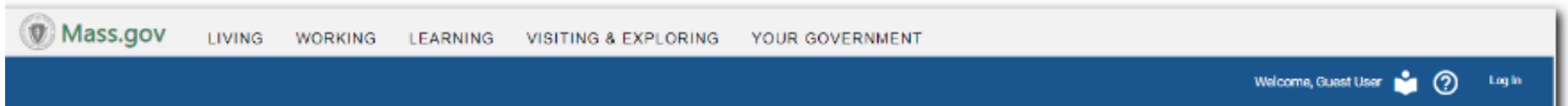
This document explores the basic functionality of MassDOT Interactive Mapping Portal for Analysis and Crash Tracking (IMPACT).

Note that IMPACT is a Massachusetts Department of Transportation website and the Somerville Police Department has no involvement in its creation nor maintenance.

The following instructions are based on IMPACT's site as of September 26, 2022. Mass DOT may make changes at any time at which point some of the provided material may become obsolete.

MassDOT IMPACT Help Function

On each page of the IMPACT website, the help function (question mark on top right of screen) provides detailed step-by-step instructions on content and navigation. Instructional videos are also provided.



Interactive Mapping Portal for Analysis and Crash Tracking (IMPACT) Homepage

<https://apps.impact.dot.state.ma.us/cdp/home>

Engage with crash related data through easy-to-understand pre-built reports, interactive dashboards, or conduct your own self-driven analysis. IMPACT provides several means of engaging with the crash data including:

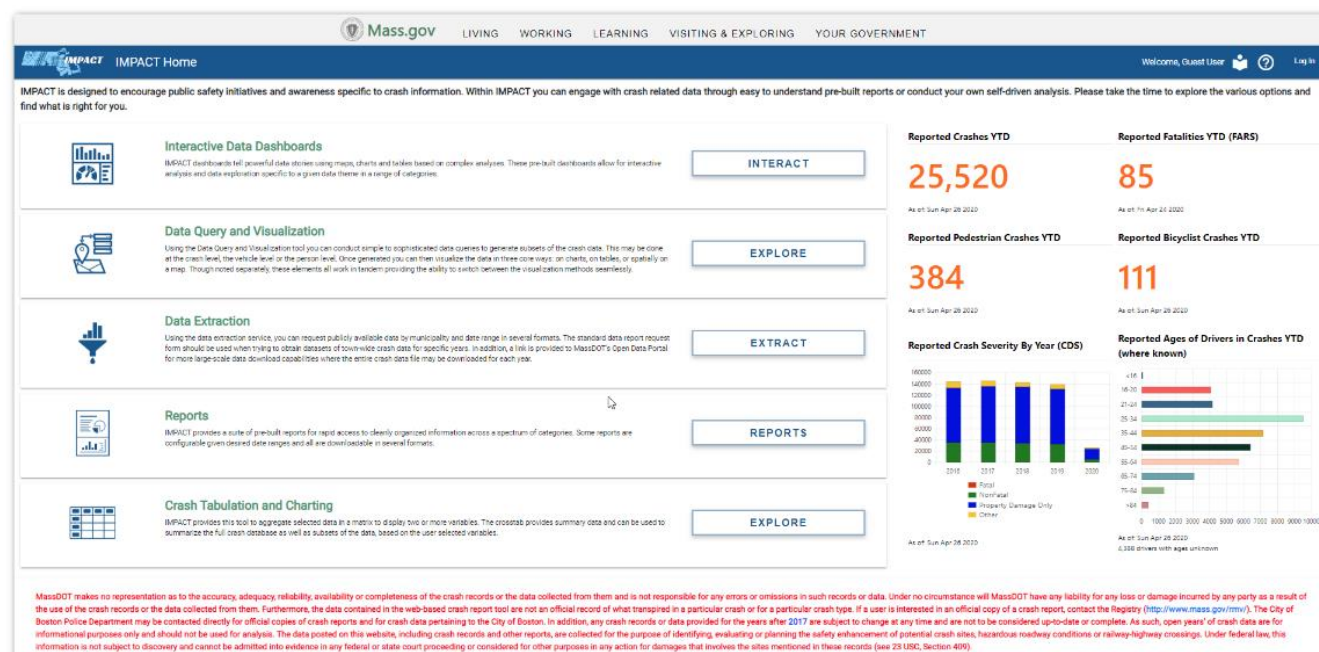
Interactive Data Dashboards: Pre-built dashboards use maps, charts, and tables to describe data. Allows for interactive analysis and data exploration specific to a given data theme in a range of categories.

Data Query and Visualization: Conduct data queries to generate subsets of the crash data. This may be done at the crash level, the vehicle level, or the person level. You can then visualize the data in three core ways: on charts, on tables, or spatially on a map.

Data Extraction: Extract publicly available data by municipality and date range. Also, a link is provided to MassDOT's Open Data Portal for more large-scale data download capabilities.

Reports: IMPACT provides a suite of pre-built reports for access to cleanly organized information across a spectrum of categories.

Crash Tabulation & Charting: Tool to aggregate selected data in a matrix to display two or more variables. The crosstab provides summary data and can be used to summarize the full crash database as well as subsets of the data, based on the user selected variables.





Interactive Data Dashboards

IMPACT dashboards tell powerful data stories using maps, charts and tables based on complex analyses. These pre-built dashboards allow for interactive analysis and data exploration specific to a given data theme in a range of categories.

This grouping of dashboards provides information on general crash statistics at the crash level.

SHSP Emphasis Areas

Users can view the fatal and serious injury trends and safety performance measures in the Strategic Highway Safety Plan emphasis areas.

[Explore →](#)

Statewide Crashes by Severity and Year

Users can filter by a municipality and/or year (or multiple years) to view crash data statistics on various charts, graphs and maps.

[Explore →](#)



Geocoding Performance Metrics

View the percentage of crashes that are geocoded by municipality, and the type of geocoding methods used.

[Explore →](#)

Fatal Crash Information

Users can view preliminary motor vehicle fatality information using filters that include Year/YTD, Region, Town, Sex, Age, Month, Day, Time and/or Type. Data is updated daily as reported by police departments and is subject to change when new information becomes available.

[Explore →](#)





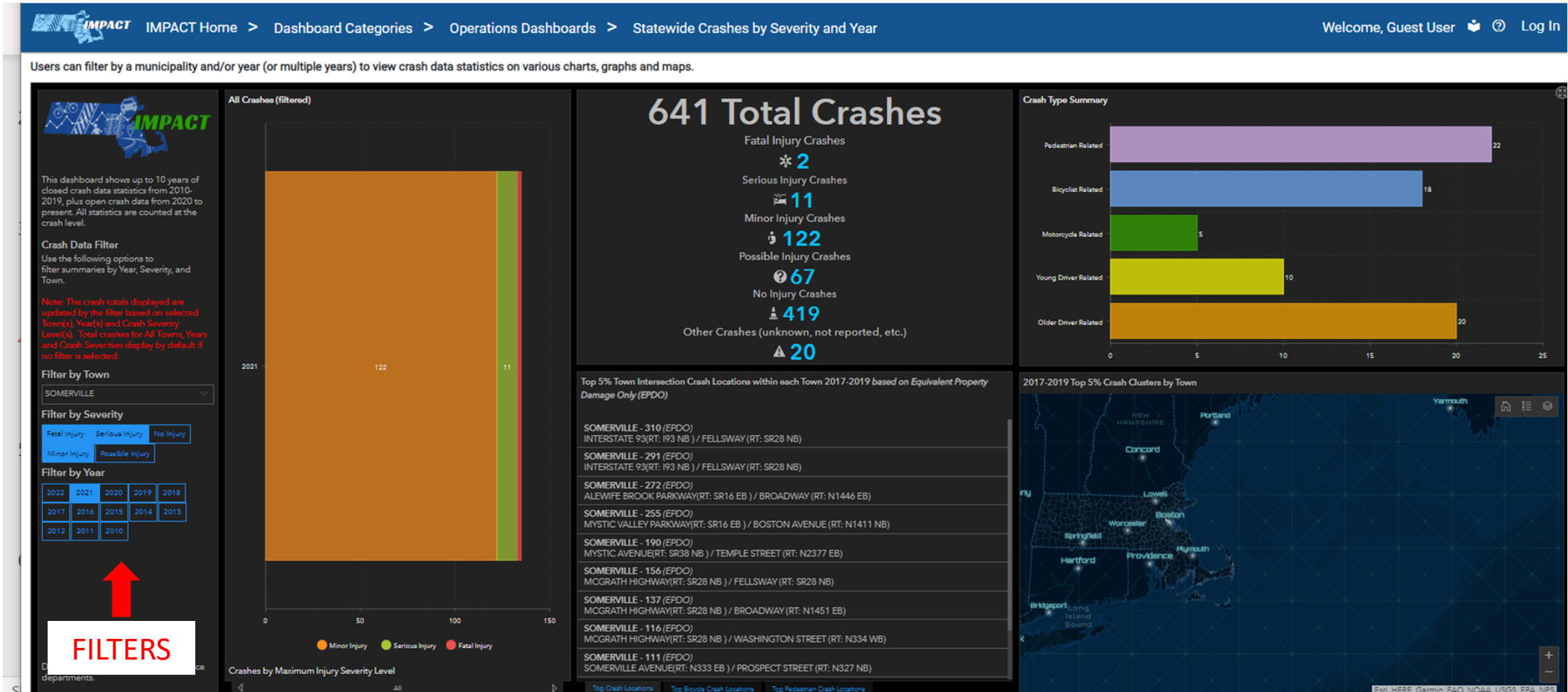
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Interactive Data Dashboards

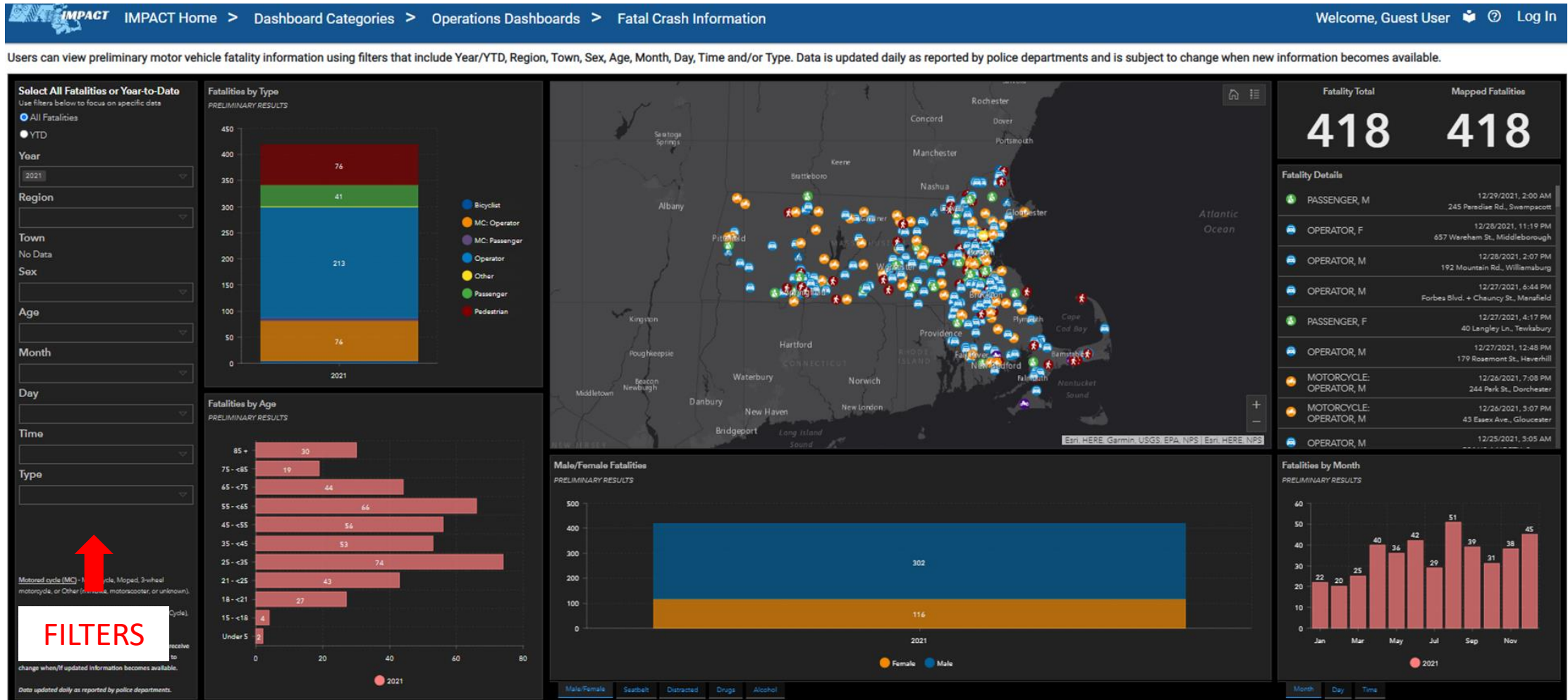
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[Explore →](#)

Note that the “Town” filter appears to currently not be functional.





Data Query and Visualization

Using the Data Query and Visualization tool you can conduct simple to sophisticated data queries to generate subsets of the crash data. This may be done at the crash level, the vehicle level or the person level. Once generated you can then visualize the data in three core ways: on charts, on tables, or spatially on a map. Though noted separately, these elements all work in tandem providing the ability to switch between the visualization methods seamlessly.



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Crash Query and Visualization



ver 1.0.19

Crash Query and Visualization

The Query and Visualization Tool is a web application built to provide crash-related data, maps, and charts for the state of Massachusetts. Providing crash data and the ability to analyze this information will encourage public safety initiatives and awareness. It is primarily for this reason that this tool has been made available. Analysis of the crash data is a complex undertaking, one that may require trial and error on the part of users. It is suggested you approach this information as a tool rather than an end in itself and that you cross-check your results with other data sources.

Upon entering the tool, you will first be asked to select your data level of interest (crash level, vehicle level or person level) and will next be asked to select the fields you want to include in your query results.

Enter As Guest

Sign In

By clicking 'Enter As Guest' or 'Sign In' above, I agree to the disclaimer



System Information

The system is currently available.

Supported Browsers



This site is best viewed at a screen resolution of 1600 x 900 or greater.

This application deals with large amounts of data so it is recommended that 64-bit browser versions are used. You may encounter a problem using 32-bit browsers.



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IMPACT

Crash Query and Visualization

Welcome, Guest User

ver 1.0.19

1. Select Fields

2. Query Type

3. Define Query

4. Visualize Results

Crash Data

Vehicle Data

Person Data

?

Select Query Type →

Crash Data Level Fields

?

Select All

Reset

Query Speed Estimator: slower faster ?

Query speed estimates adjusted here are relative to the query parameters defined in the following steps. The estimate assumes no filters are set. If filters are chosen, a quicker response can be expected.

SELECT FIELDS

All Core Crash Details

Extended Crash Details

Limited Crash Details

☒ Crash Number

☒ City/Town Name

☒ Crash Date

☒ Crash Severity

☒ Crash Status

☒ Crash Time

☒ Crash Year

☒ Max Injury Severity Reported

☒ Number of Vehicles

☒ Police Agency Type

☒ State Police Troops

☐ Age of Driver - Oldest Known

☐ Age of Non-Motorist - Youngest Known

☐ Age of Non-Motorist - Oldest Known

☐ Age of Driver - Youngest Known

☐ Driver Contributing Circumstances (All Drivers)

☐ Driver Distracted By (All Drivers)

☐ First Harmful Event

☐ Crash Hour

☐ Light Conditions

☐ Manner of Collision

☐ MassDOT District

☐ Is Geocoded

☐ Non-Motorist Location (All Persons)

☐ Non-Motorist Type (All Persons)

☐ RMV Document Numbers

☐ Non-Motorist Action (All Persons)

☐ Roadway Junction Type

☐ RPA Abbreviation

☐ Total Fatalities

☐ Road Surface Condition

☐ Traffic Control Device Type

☐ Trafficway Description

☐ Vehicle Actions Prior to Crash (All Vehicles)

☐ Total of Non-Fatal Injuries.

☐ Vehicle Emergency Use (All Vehicles)

☐ Vehicle Towed From Scene (All Vehicles)

☐ Vehicle Travel Direction (All Vehicles)

☐ Vehicle Configuration (All Vehicles)

☐ County Name

☐ Crash Report IDs

☐ FMCSA Reportable (All Vehicles)

☐ FMCSA Reportable (Crash)

☐ First Harmful Event Location

☐ Geocoding Method

☐ Hit and Run

☐ Locality

☐ Most Harmful Event (All Vehicles)

☐ Road Contributing Circumstance

☐ School Bus Related

☐ Speed Limit

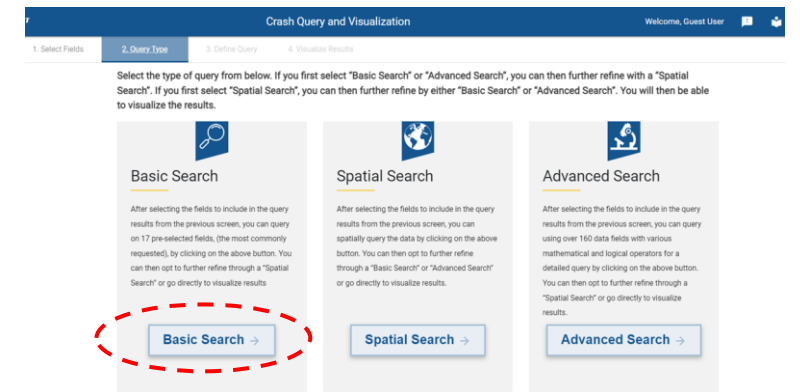
Type here to search

11:38 AM 9/26/2022



Data Query and Visualization

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DEFINE QUERY

IMPACT

Crash Query and Visualization

Welcome, Guest User

1. Select Fields

2. Query Type

3. Define Query

4. Visualize Results

Basic Search

Spatial Search

Advanced Search

Reset All Filters

Data Level: Crash

Visualize Results

Reset Basic Filters

☐ Join Spatial Filter (Find) ?

Basic Filters

crash date from

07/01/2021

?

crash date to

06/30/2022

?

City/Town

SOMERVILLE

?

Time Of Day

?

From: 12 00

AM

PM

To: 11 59

AM

PM

☐ Restrict to Not Located

?

Crash Characteristic Filters

Vehicle Characteristic Filters

Person Characteristic Filters

Basic Search Help

The basic query is a parameter-driven search. This search supports selecting criteria specific to a crash but also vehicle and person-type details as well. Results for this search can be displayed on a crash level identifying all crashes meeting the selected criteria, on a vehicle level for all vehicles involved in crashes, or on a person level for all persons involved in crashes.

Upon submitting the search, the results screen will display showing all records meeting the search criteria. The related crashes will display as points on the map based on the location they occurred. After reviewing the results, the search can be refined by returning to the basic search form. Otherwise, by navigating to the spatial tab, the results can be refined to a specific area on the map based on several location types.

- Step 1: Select Criteria in one of the collapsible panels
- Step 2: Submit the search
- Step 3: View results
- Step 4: Refine search parameters




Data Query and Visualization

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VIEW
OPTIONS





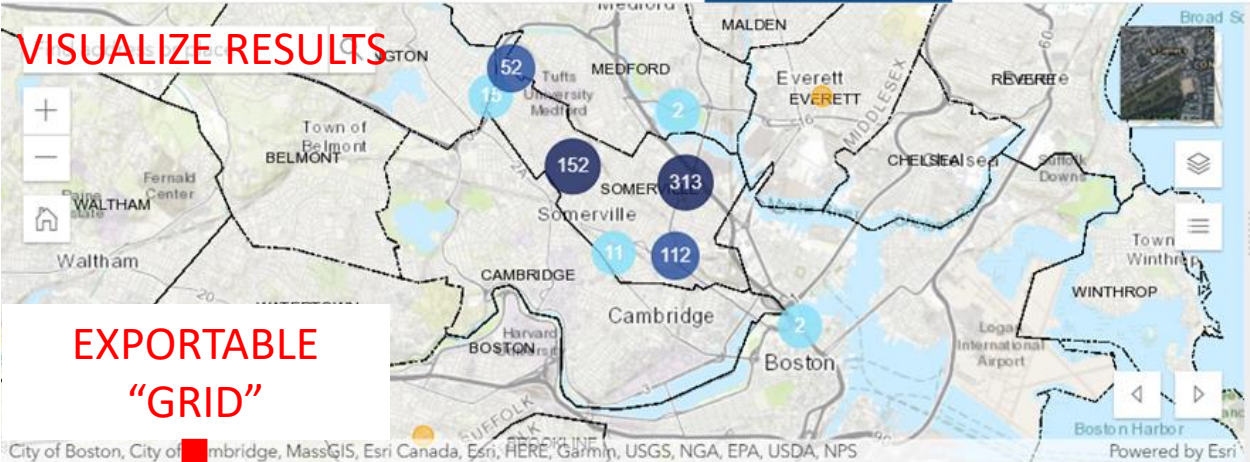
Crash Query and Visualization

Show AllShow MapShow ChartShow Grid

Welcome, Guest User?ver 1.0.19

1. Select Fields2. Query Type3. Define Query4. Visualize Results

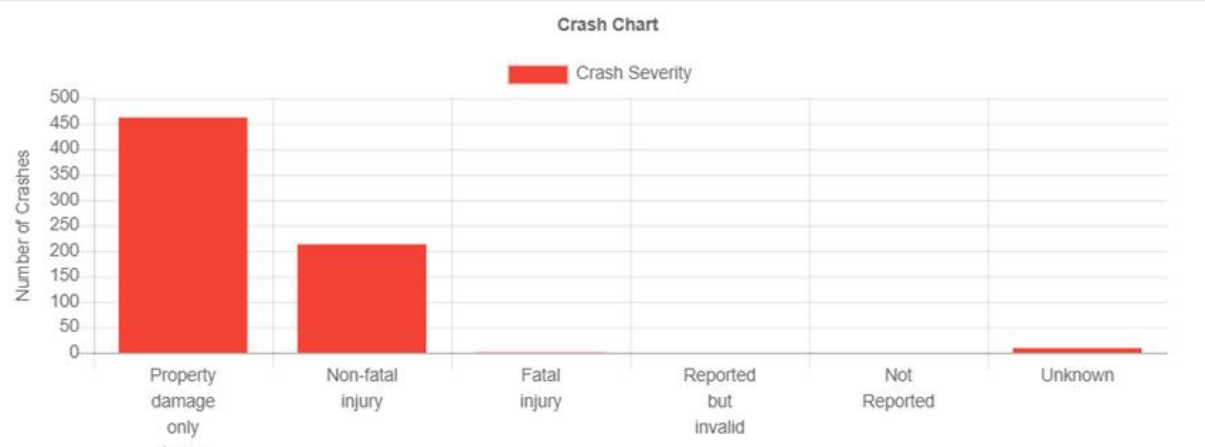
VISUALIZE RESULTS



City of Boston, City of Cambridge, MassGIS, Esri Canada, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS


Crash Chart

Crash Severity




Crash Severity	Number of Crashes
Property damage only (none)	~450
Non-fatal injury	~200
Fatal injury	~10
Reported but invalid	~5
Not Reported	~5
Unknown	~5

EXPORTABLE "GRID"




Crash Number	City Town Name	Crash Date	Crash Severity	Crash Status	Crash Time	Crash Year	Max I	Pivot Mode
5126778	SOMERVILLE	6/29/2022	Non-fatal injury	Open	9:43 AM	2022	St	<input checked="" type="checkbox"/>
5127299	SOMERVILLE	6/29/2022	Property damage only (no...	Open	8:05 AM	2022	Nc	<input checked="" type="checkbox"/>
5122531	SOMERVILLE	6/28/2022	Property damage only (no...	Open	11:51 PM	2022	Nc	<input checked="" type="checkbox"/>
5124175	SOMERVILLE	6/28/2022	Non-fatal injury	Open	10:21 AM	2022	Nc	<input checked="" type="checkbox"/>
5126772	SOMERVILLE	6/28/2022	Property damage only (no...	Open	3:48 AM	2022	Nc	<input checked="" type="checkbox"/>
5127291	SOMERVILLE	6/26/2022	Property damage only (no...	Open	7:07 AM	2022	Nc	<input checked="" type="checkbox"/>
5122886	SOMERVILLE	6/25/2022	Property damage only (no...	Open	6:12 PM	2022	Nc	<input checked="" type="checkbox"/>
5122499	SOMERVILLE	6/24/2022	Property damage only (no...	Open	1:01 PM	2022	Nc	<input checked="" type="checkbox"/>
5122236	SOMERVILLE	6/23/2022	Property damage only (no...	Open	8:05 AM	2022	Nc	<input checked="" type="checkbox"/>

EXPORT OPTIONS



FILTERS



Columns

☒ Filter...
☒ Crash Number
☒ City Town Name
☒ Crash Date
☒ Crash Severity
☒ Crash Status
☒ Crash Time
☒ Crash Year

Row Groups

Drag here to set row

Data Level: CRASH Total Records: 685 Filtered Results: 685

Grid Tools:

Map Tools:

Chart Tools:

Export Tools: ☐ Selected Only

Safety Analysis Tools:



Data Extraction

Using the data extraction service, you can request publicly available data by municipality and date range in several formats. The standard data report request form should be used when trying to obtain datasets of town-wide crash data for specific years. In addition, a link is provided to MassDOT's Open Data Portal for more large-scale data download capabilities where the entire crash data file may be downloaded for each year.



Open Data Portal

This service should be used when trying to obtain statewide crash data that may be filtered at the crash, vehicle, or person level that could be downloaded in several formats.

[VIEW](#)

Standard Data Report Request Form (for crash level data)

By completing the fields below, an email should be sent to you within 5-10 minutes with a link to the resulting data. For a small or medium sized town you may be able to use this form for multiple years of data. For multiple towns you can make multiple requests using this form. For statewide data, the Open Data Portal should be used instead.

Email Address *



Confirm Email *



Report Start Year *



- Report End Year *



Municipality *



File Format *

xlsx

[EXTRACT DATA](#)

Contact Us

Address

Massachusetts Department of Transportation - Highway Division

Traffic and Safety Engineering Section

10 Park Plaza, Suite 7210

Boston, MA 02116-3969

[directions](#) →

Phone

Main: 857-368-9649

This line is open M-F 8 AM – 4 PM

[More about this organization](#) →

Online

Email: DOTCrashDataRequest@dot.state.ma.us

Web: <https://www.mass.gov/how-to/request-specialized-crash-data>

[Contact Form](#) →

Fax

Main: 857-368-0628



Reports

IMPACT provides a suite of pre-built reports for rapid access to cleanly organized information across a spectrum of categories. Some reports are configurable given desired date ranges and all are downloadable in several formats.



IMPACT Home > Report Categories

Welcome, Guest User



Log In

IMPACT provides a suite of pre-built reports for rapid access to cleanly organized information across a spectrum of categories. Some reports are configurable given desired date ranges and all are downloadable in several formats.

Standardized Reports

The Standardized Reports show Crash Report data broken down by a variety of different criteria.

[Explore →](#)

Geocoding Performance Metrics

The Geocoding Performance Metrics reports show information about the numbers and status of the types of geocoding methods.

[Explore →](#)

The Standardized Reports show Crash Report data broken down by a variety of different criteria



Police Agency
Crashes by Severity
Older, Younger, and JOL Driver Related Crashes by Injury Type
Pedestrian and Motorcyclist Crashes by Injury
Fatal Crashes by Town
Persons Involved in Crashes by Age Group
Reports Entered by Police Agency by Month
Grant Application – Crashes at a Glance

Driver Distractions in Crashes
Injury Severity and Safety Systems by Person Type
Crashes by Urban Type and Functional Class
Crashes by Jurisdiction
Mass DOT Timeliness of Fatal Reports to CDS
MassDOT Timeliness of Non-Fatal Reports to CDS
Community Crashes
Community Non-Motorists





Crash Tabulation and Charting


IMPACT provides this tool to aggregate selected data in a matrix to display two or more variables. The crosstab provides summary data and can be used to summarize the full crash database as well as subsets of the data, based on the user selected variables.


 IMPACT Home > Crash Tabulation and Charting 

CURRENT SELECTED DATA: CRASH DATA

 **NOTE:** In all fields "BLANK" represents a Null, or empty value.

 **NOTE:** Labels will always behave as though they are a strings when applying filters.

 **NOTE:** For improved visibility of options in the fields selection, expand the pop up window by dragging the right and left edge to increase the width.

 **NOTE:** Exit numbers updated in 2021.

Custom Report Title

! The Textbox below allows for user to enter a custom title that will be included in the exported image, pdf, and excel reports.

Enter Custom Chart / PDF Label Text

Expand / Collapse Data

Expand all data

Collapse all data

Crash Data

Vehicle Data

Person Data

Open

Save

Export

Grid

Charts

Format

Options

Fields

Fullscreen

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1																								
2																								
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Fields

Drag and drop fields to arrange

All fields
Expand all

Crash Attributes

Date Dimension

Crash Measures

Report filters

Drop field here

Columns

Values

Drop field here

Rows

Drop field here

Values

Drop field here

APPLY

CANCEL

FIELD CHOSER

PIVOT CONFIGURATION



Crash Tabulation and Charting

IMPACT provides this tool to aggregate selected data in a matrix to display two or more variables. The crosstab provides summary data and can be used to summarize the full crash database as well as subsets of the data, based on the user selected variables.

EXAMPLE

Fields

Drag and drop fields to arrange

All fields
[Expand all](#)

► Crash Attributes

► Date Dimension

► Crash Measures Σ

Report filters

City Town Name \equiv

Year \equiv

Drop field here

Columns

Σ Values \equiv

Drop field here

Rows

Age of Driver - Youngest... \equiv

Drop field here

Values

Crash Count $\Sigma \vee \equiv$

Drop field here

APPLY

CANCEL



Crash Tabulation and Charting

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EXAMPLE

Expand all data

Collapse all data

Crash Data

Vehicle Data

Person Data

Open

Save

Export

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Charts

Format

Options

Fields

Fullscreen

CITY TOWN NAME

SOMERVILLE

YEAR

2021

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	AGE OF DRIVER - YOUNGEST KNOWN	Crash Count												
2	1-16	2												
3	16-17	6												
4	18-20	39												
5	21-24	108												
6	25-34	221												
7	35-44	112												
8	45-54	63												
9	55-64	38												
10	65-74	17												
11	75-84	6												
12	84 plus	1												
13	Blank	28												
14	Grand Total	641												

Edit selected fields

Next Steps

Self-exploration of IMPACT's functionality is encouraged.
Please take advantage of its robust HELP feature. 