Community Maps – User Guide

Revision: 7 November 2019

What is Community Maps?

Community Maps provides Wisconsin's law enforcement agencies and county Traffic Safety Commissions (TSCs) with a statewide map of all police reported motor vehicle crashes from 2010 to the current year. Fatal crashes are included from 2001. Crashes are updated on a nightly basis using geo-coded locations from the Wisconsin Department of Transportation (WisDOT) DT4000 police crash report. The Community Maps system was designed to support and enhance traffic safety planning, resource allocation, and decision support at the local level, in particular through the regular review of crashes at each of the county quarterly TSC meetings.

Data Sources

As previously mentioned, Community Maps is updated on a nightly basis with preliminary crash report information from the Wisconsin DT4000 police crash report database. All police reported motor vehicle crashes are included.

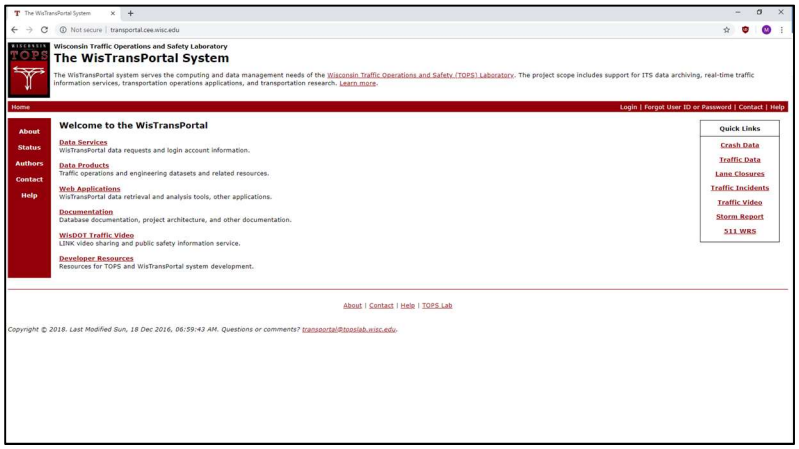
In order for a crash location to be displayed on the Community Maps crash map, it must be geo-coded to a latitude and longitude coordinate pair corresponding to the location of the crash on the roadway. Crashes that have not been geo-coded are counted in the total number of crashes returned for a particular search but will not be displayed on the map. Geo-coordinates are taken from the following sources:

- 2017 - Present: Reported geo-coordinates provided by law enforcement on the Wisconsin DT4000 police crash report.
- 2010 - 2016: WisTransPortal automated geo-processing of crash locations by the UW TOPS Lab.
- 2001 - 2009: Manually mapped locations using Community Maps editing tools by the WisDOT BOTS and county TSC members.

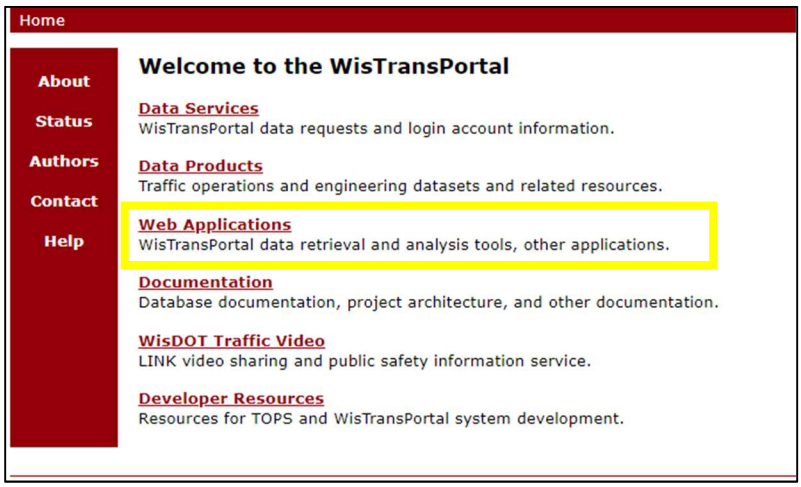
Accessing Community Maps

To access Community Maps, go to the following website:

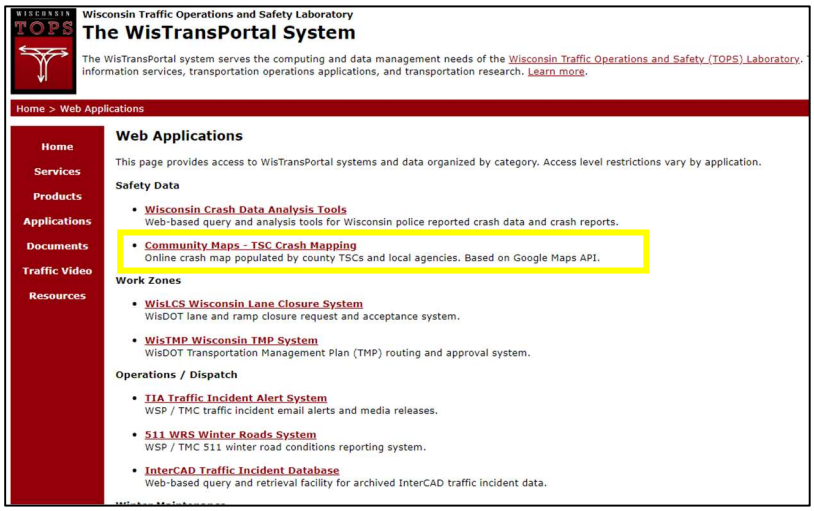
http://transportal.cee.wisc.edu/



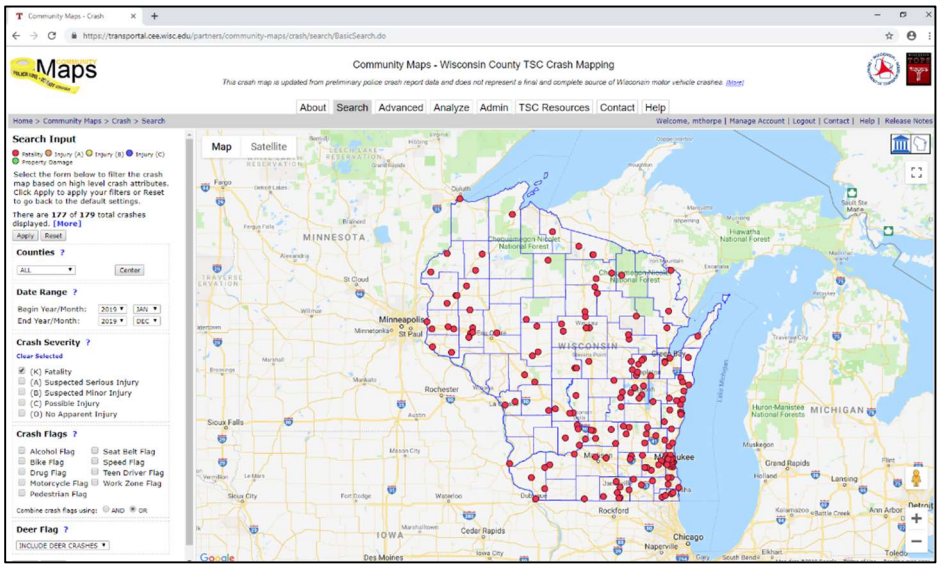
To access Community Maps, navigate to the "Web Applications" page:



On the “Web Applications” page, the user can navigate to the tab marked “Community Maps – TSC Crash Mapping”:



Clicking on this link takes the user directly to Community Maps:

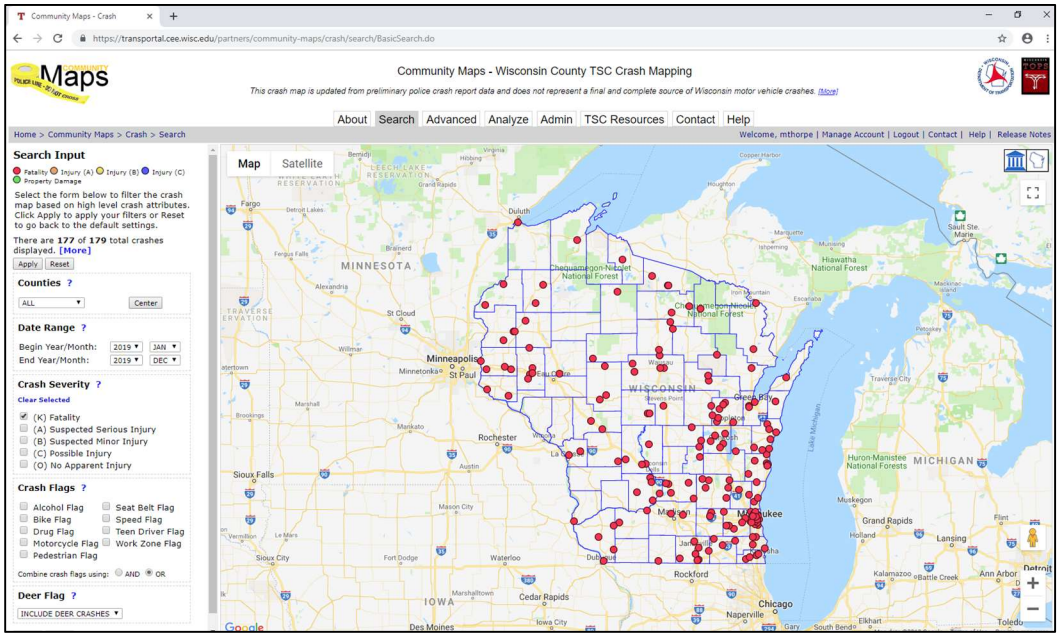


How to Use Community Maps

Queries and Basic Searches

In the introduction to this tutorial, we discussed how Community Maps draws from WisDOT’s traffic crash database. This database consists of crash reports filed by law enforcement and is updated regularly. Community Maps allows the user to request specific information on traffic crashes from this database by submitting a query. Users can be as broad or as narrow as they like in their respective queries.

To submit a query, the user enters the respective search variables into the “Search” page. The “Search” page should look like this:



At left of the page is the “Search Input” panel. Users will submit queries by adjusting the attributes in this panel and applying them to the data set.

The first field in the input panel lists all 72 counties in the state of Wisconsin. If the user wants to focus on a certain geographic area, they can select the name of the county they are interested in.

The second field in the input panel allows the user to set a given range of dates. If the user is interested in crashes that occurred within a specific time frame, they can adjust the start and end dates to reflect this.

The third field in the input panel concerns crash severity. Crash records in Community Maps are categorized in terms of crash injury severity, taken as the highest injury severity level over all persons involved in a crash. There are five injury severity levels defined on the Wisconsin police crash report:

- (K) Fatal Injury
- (A) Suspected Serious Injury
- (B) Suspected Minor Injury
- (C) Possible Injury
- (O) No Apparent Injury

The user can filter based on the severity of the crash in question. If crash severity is not a relevant factor, the user can deselect all crash severity subfields.

The fourth field in the input panel concerns additional factors ("flags") that can make up the query. These include "Alcohol" (whether the driver was intoxicated), "Bike" (whether there was a bicycle involved), and so on.

The user can select a single flag from the list, or they can combine multiple flags using either an AND statement or an OR statement. If additional factors are not considered relevant, the user can deselect all flags.

The fifth field in the input panel concerns deer. Deer are a major hazard to motorists and are the cause of many crashes. The user can choose to include crashes caused by deer, exclude crashes caused by deer, or only select for crashes caused by deer.

Once the user has adjusted all relevant attributes, they can click the button marked "Apply" at the bottom of the input panel to process their query.

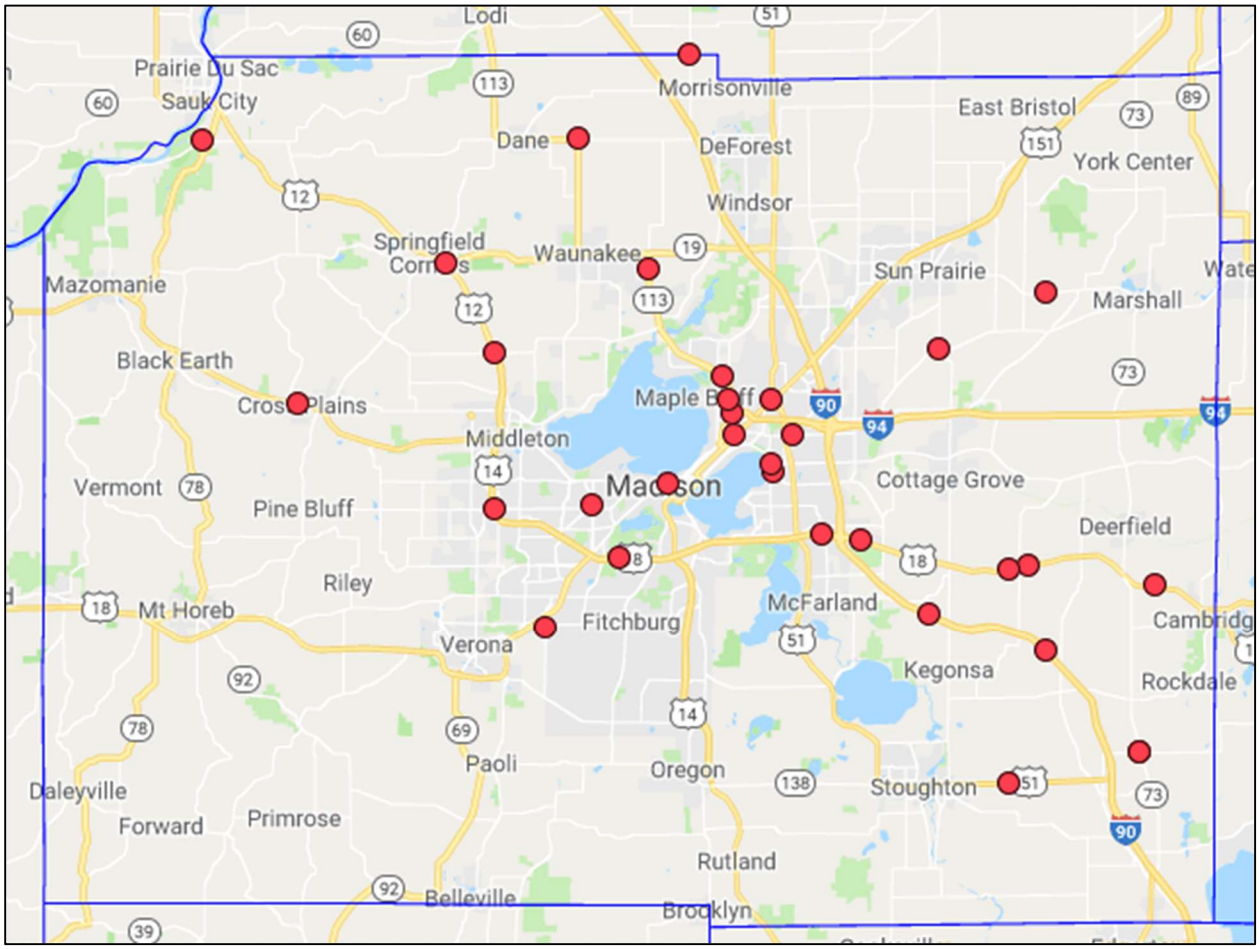
Example 1

Provided here is an example of how to conduct a basic query.

A user wants to determine how many fatal crashes occurred in Dane County, Wisconsin in the year 2011. Community Maps provides the user with information on all crashes in Wisconsin, and the user then filters this information in order to get an answer:

- The user is interested in a specific time period, so they select all crashes within that time frame (January 2011 through December 2011):
- The user is interested in crashes that occurred within a given location, so they select for that location (Dane County):
- The user is specifically interested in crashes that were fatal, so they select accordingly (Fatality):

Based on the user's query, Community Maps will come up with a list of all reported crashes that possess these attributes. Community Maps will also populate the inset map with a display of these crash locations.



NOTE: There may be additional crashes included in your results which have not been geocoded, and therefore will not appear on the inset map. For instance, the above query returns 179 results, but only 177 of these appear on the map. Two results have not been geo-coded, but are included in the output regardless.

Example 2

Here is another example for you to try:

The Dane County Sheriff's Office is interested in gathering data on traffic crashes in Dane County that occurred between March 2010 and June 2018. The sheriff's office is specifically interested in crashes that occurred because of alcohol, crashes where the driver was not wearing safety equipment (a seat belt), and crashes where fatalities and major injuries occurred.

Given these search parameters, let's imagine that you as the user have been tasked with producing this data set. Here are the steps you might take:

- Step 1: Select location
    - On navigating to the input panel, the first field we need to select from concerns location. We are only interested in Dane County, so we can click on the drop-down menu and select the option labeled "DANE".

- Step 2: Select date range
    - We now turn our attention to the date range. The sheriff's office has requested data on traffic crashes that occurred between March 2010 and June 2018. To set our start date, we can populate the field marked "Begin Year/Month":

    - With our start date set, we now set our end date in the field marked "End Year/Month". This tells the database to compile all records within a given range of dates:

- Step 3: Select degree of crash severity
    - We know where we are looking for crashes, and within what time period. However, there is another attribute to consider: The severity of the crash/crashes in question. The sheriff's office has requested data concerning fatal crashes and

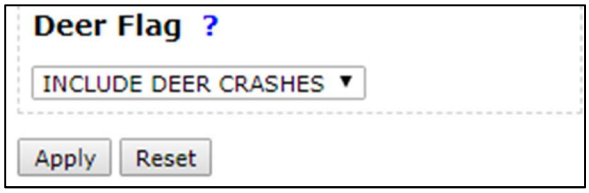
crashes resulting in severe injuries. This means we need to exclude all crashes except for those where fatalities and severe injuries occurred. To do this, we can look at the crash severity fields and select the fields marked "(K) Fatality" and "(A) Suspected Serious Injury":

- The database now knows to only look for crashes where people were killed or severely injured.

- Step 4: Select crash flags
  - The sheriff's office has told us they are interested in crashes where fatalities occurred and crashes where alcohol was involved. We have selected for fatal crashes; now we must select for alcohol-related incidents. To do so, select the flags field marked "Alcohol Flag":

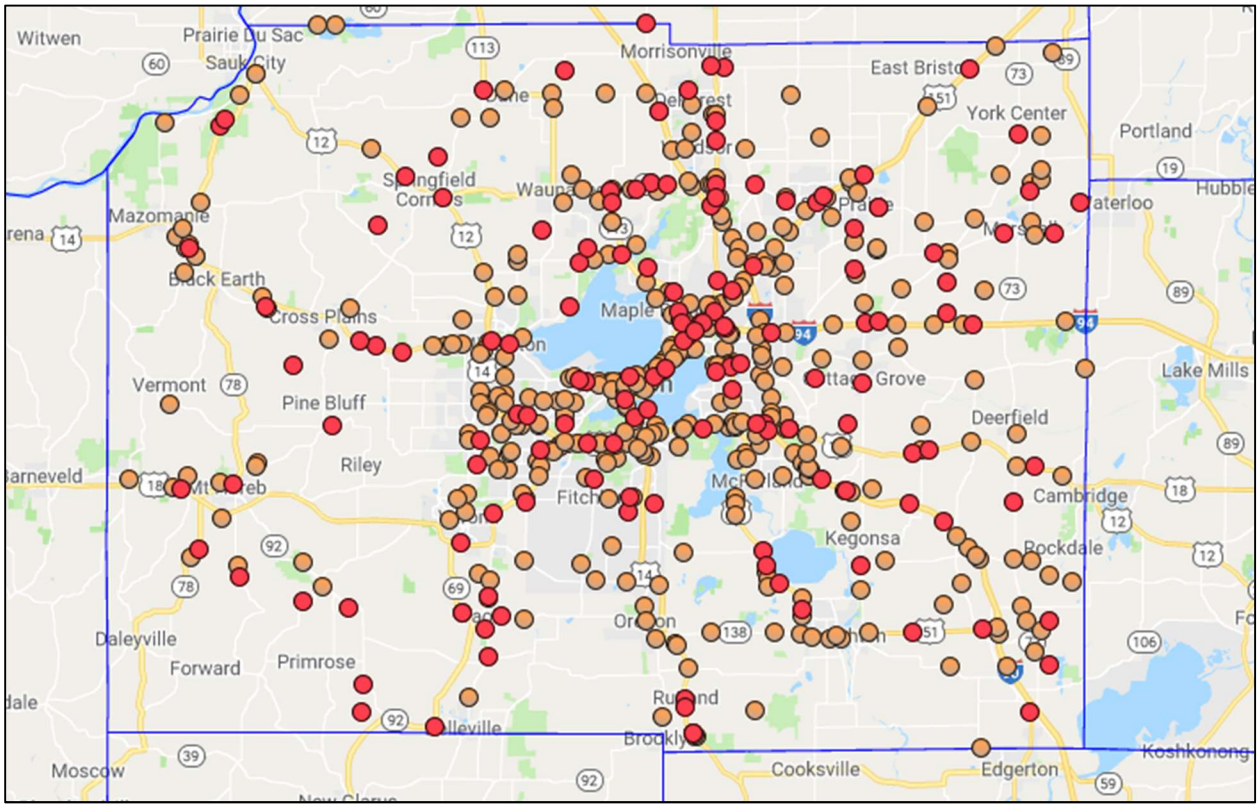
  - Wait – there's more! The sheriff's office is also interested in crashes where the driver was not wearing safety equipment. We need to select for this in addition to selecting for alcohol use:

- Step 5: Select deer flag
    - Let's assume that the sheriff's office does not care whether deer were involved. This variable does not matter, so we can allow the database to include deer-related crashes:

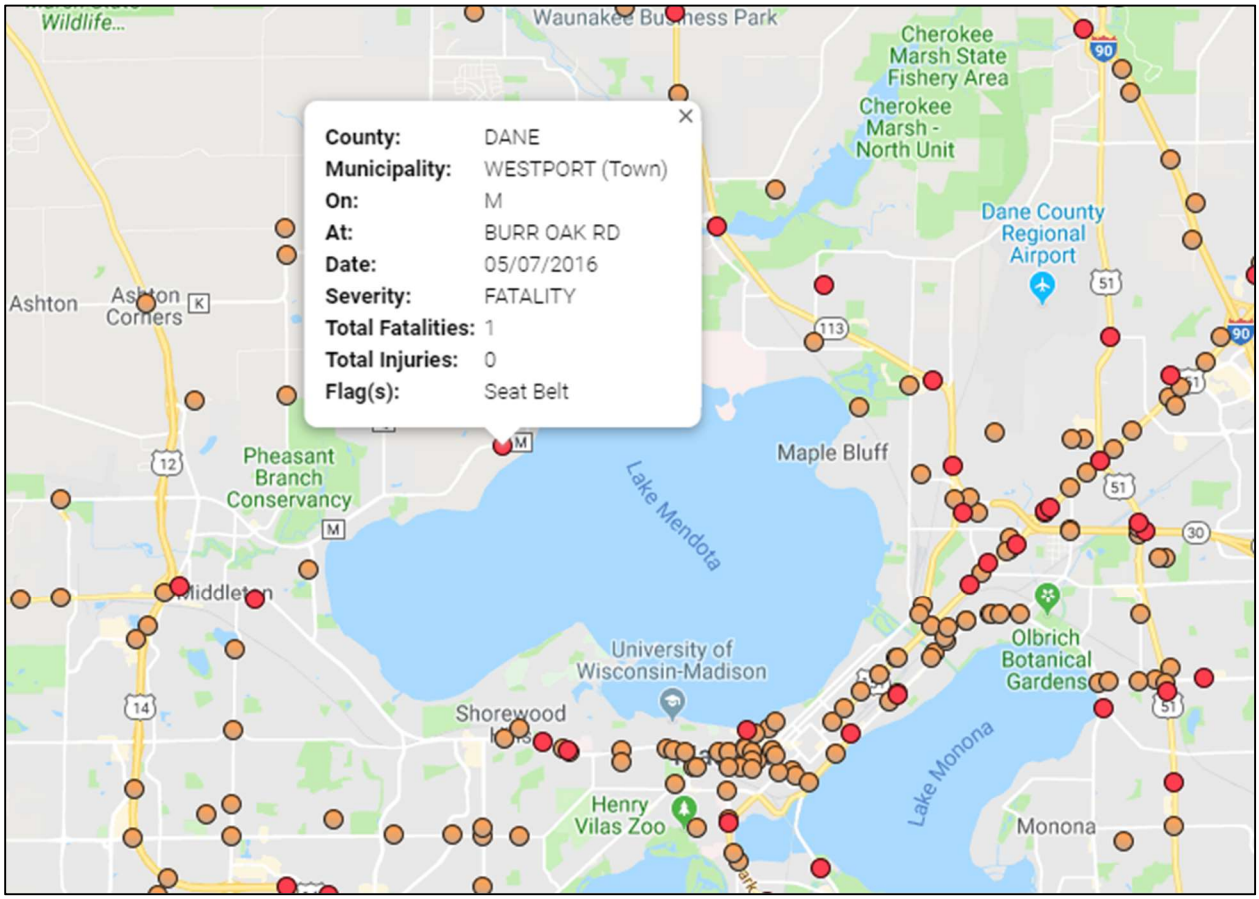


- Step 6: Run query
    - Congratulations – your query is ready! To run the query through the database, click the button marked "Apply".

You should see a result similar to this one on your screen:



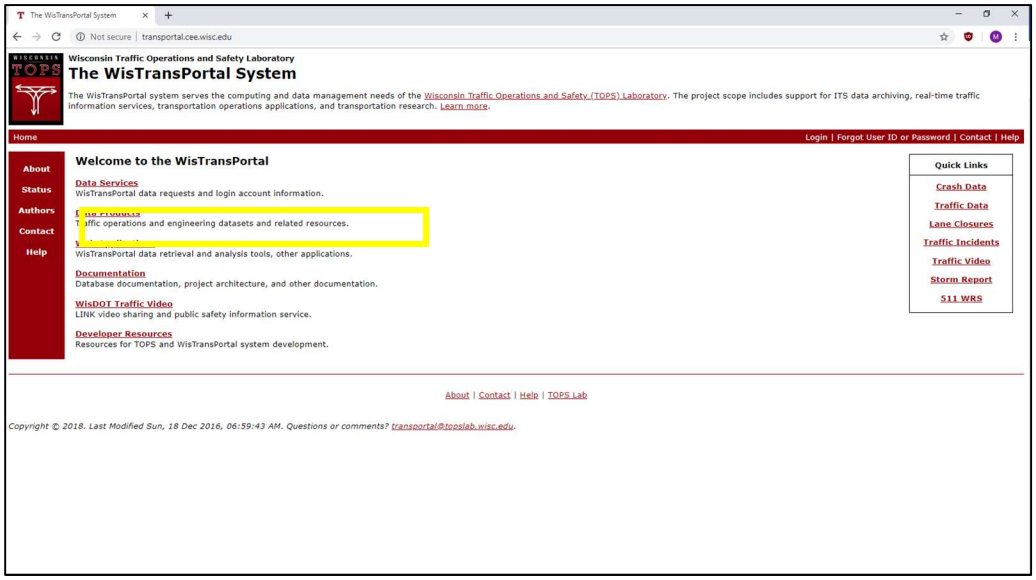
Each dot denotes a single traffic crash. Clicking on one of these dots provides you with information about that crash:


County: DANE
Municipality: WESTPORT (Town)
On: M
At: BURR OAK RD
Date: 05/07/2016
Severity: FATALITY
Total Fatalities: 1
Total Injuries: 0
Flag(s): Seat Belt
Cherokee Marsh State Fishery Area
Cherokee Marsh - North Unit
Dane County Regional Airport
Ashton
Ashton Corners
Pheasant Branch Conservancy
Maple Bluff
Lake Mendota
University of Wisconsin-Madison
Olbrich Botanical Gardens
Shorewood
Henry Vilas Zoo
Lake Monona
Monona

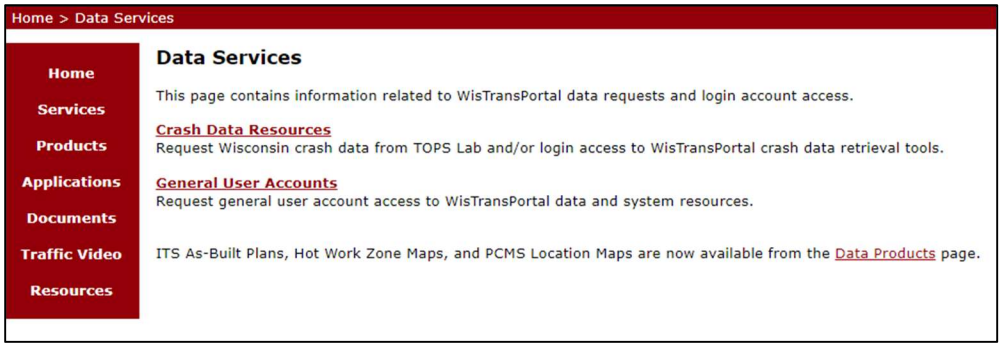
Advanced Searches

In order to access the advanced search toolbar, the user needs to have the correct authorization. Users wishing to receive authorization will need to set up a registered account with TOPS.

To set up an account, return to the main page (http://transportal.cee.wisc.edu/) and navigate to the "Data Services" page:

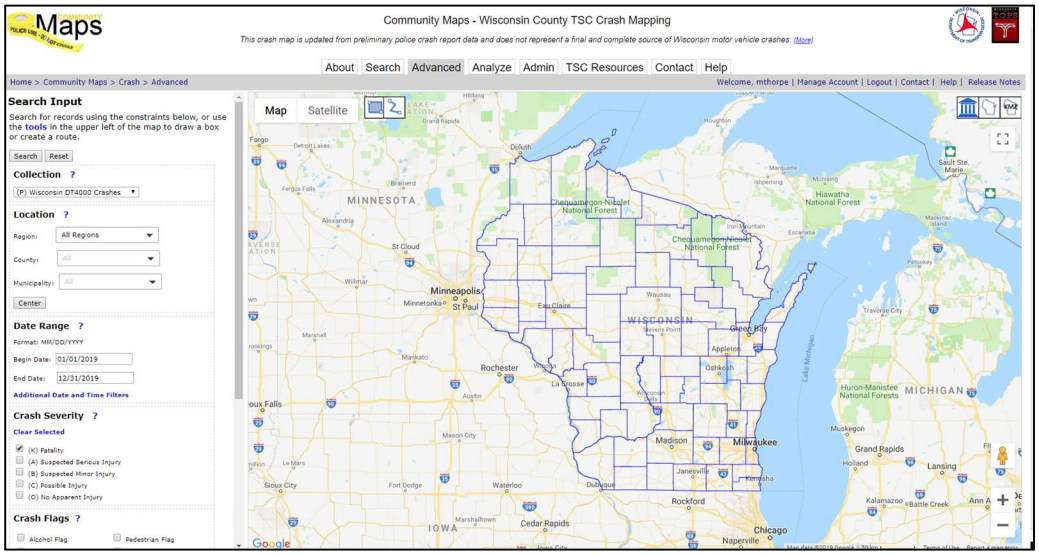


Once on the "Data Services" page, select the tab marked "Crash Data Resources":



The "Crash Data Resources" page contains links that allow the user to a) request Wisconsin crash data; b) request a user account and; c) access contact information for the TOPS Lab. The user can proceed accordingly.

Once the user has been properly credentialed, they can return to Community Maps in order to access the advanced search feature:



To conduct an advanced search, the user can select for additional attributes in order to narrow down their query. Note that the search input box on the left side of the screen is very similar to the one used when conducting basic searches, albeit with some small differences.

As before, the first search field concerns location. With a basic search, the user is able to select by county. An advanced search will allow the user to populate based on the region of interest (as defined by WISDOT's traffic regions), the county, and/or the municipality.

The second field allows the user to select a starting date and an end date. With an advanced search, the user can specify the exact day as well as the month and year. They can also make use of additional date and time filters to further narrow their query.

The third field concerns crash severity, as previously referred to in the section on basic searches.

The fourth field concerns crash flags. Again, information on crash flags can be found in the preceding section of this document.

The fifth field allows the user to include/exclude crashes involving deer.

The sixth field allows the user to search for a specific crash report, provided that the user has on hand the number of the document in question.

The next few pages go over an example of how to conduct an advanced search:

Example

To best explain the nature of advanced searches, consider the example previously given:

> The Dane County Sheriff's Office is interested in gathering data on traffic crashes in Dane County that occurred between March 2010 and June 2018. The sheriff's office is specifically interested in crashes that occurred because of alcohol, crashes where the driver was not wearing safety equipment (a seat belt), and crashes where fatalities occurred.

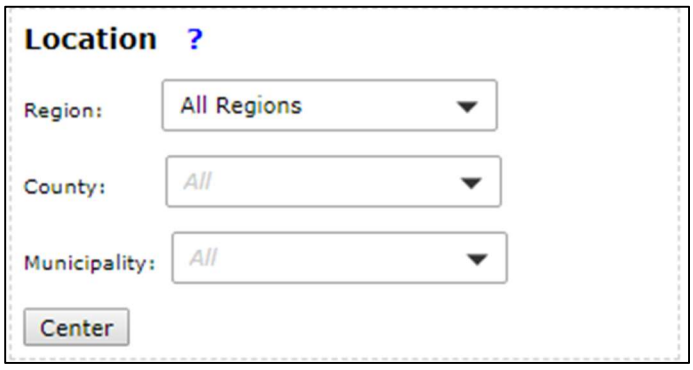
We will now add some additional variables:

> The sheriff's office is interested in crashes that occurred within the communities of Madison, Middleton, Verona, Fitchburg, Monona, Sun Prairie, DeForest, and Waunakee.
>
> The sheriff's office is interested in crashes that occurred during the business week (Monday to Friday).
>
> The sheriff's office is interested in crashes that occurred between the hours of 0800 and 1700.
>
> The sheriff's office is interested in crashes where injuries occurred as well as crashes resulting in fatalities.
>
> The sheriff's office is not interested in crashes where deer were involved.

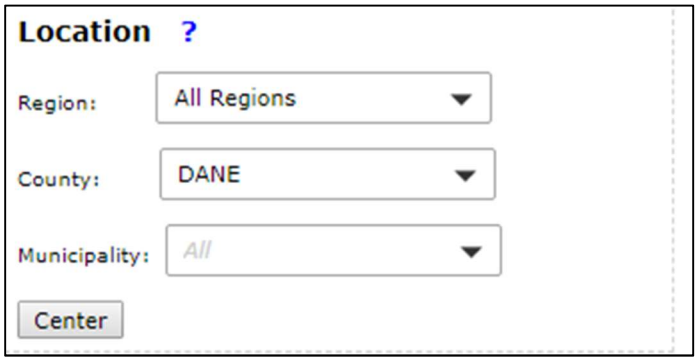
We are going to break this down into its component parts, starting with location:

> The Dane County Sheriff's Office is interested in gathering data on traffic crashes in Dane County that occurred between March 2010 and June 2018.

In a basic search, you would have selected based on county. In an advanced search, there are three options immediately available:



Here, as before, we could just select by county:

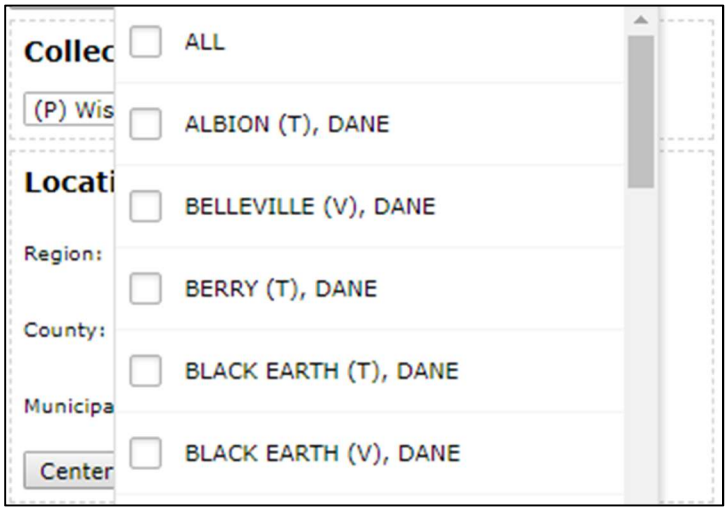


And all would be well. But there is another way to do it. The Wisconsin Department of Transportation (WisDOT) classifies counties into groups based on region. Dane County lies within WisDOT's southwest (SW) region. Thus, you could select the region first:

This will tell the server to provide you with a list of all counties within that region. From this list, you can select the county of your choice. **NOTE: After selecting the desired county/counties, you must click the box marked "OK" at the bottom of the list.**

Your result should look like this:

A third component to consider is that of the municipality in question. On selecting "DANE" as your county, the server will provide you with a list of all municipalities within Dane County:

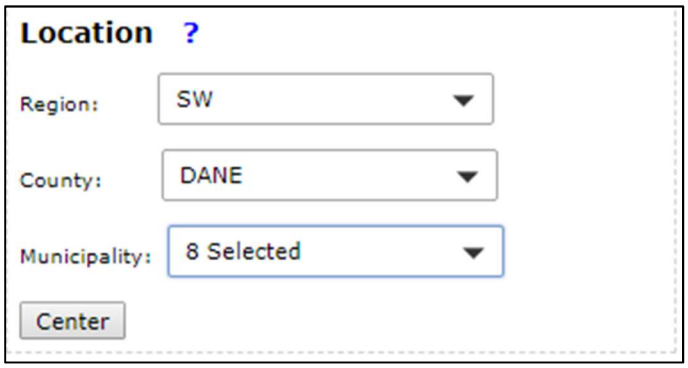


From this list, you can select the municipalities in question.

The sheriff's office is interested in crashes that occurred within the communities of Madison, Middleton, Verona, Fitchburg, Monona, Sun Prairie, DeForest, and Waunakee. Select these communities from the list, **and make sure to check the box marked "OK" at the bottom of the panel.**

NOTE: Madison, Middleton, Verona, and Sun Prairie are listed as both cities and towns (townships) in the directory. Select the listing with a "(C)" next to the name, as this denotes "city of".

Your result should look like this:



Congratulations! You have now selected for your location based on region, county, and municipality.

The next component of our query concerns date and time:

> The Dane County Sheriff's Office is interested in gathering data on traffic crashes in Dane County that occurred between March 2010 and June 2018.
>
> The sheriff's office is interested in crashes that occurred during the business week (Monday to Friday).
>
> The sheriff's office is interested in crashes that occurred between the hours of 0800 and 1700.

This is complex, so let's break it down further:

> Start date: March 1, 2010
>
> End date: June 30, 2018

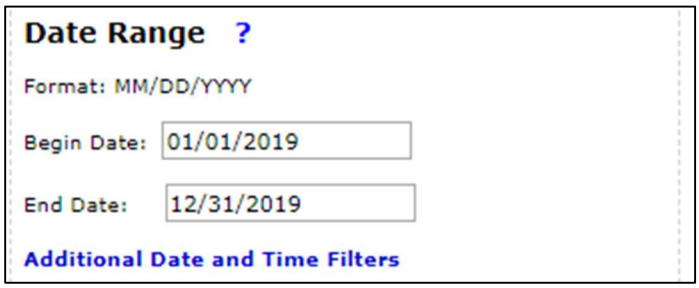
It is safe to assume that the sheriff's office wants us to include the entire month of March and the entire month of June. The above dates capture that time frame.

> Days of week: Monday, Tuesday, Wednesday, Thursday, Friday
>
> Hours of day: 0800, 0900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700

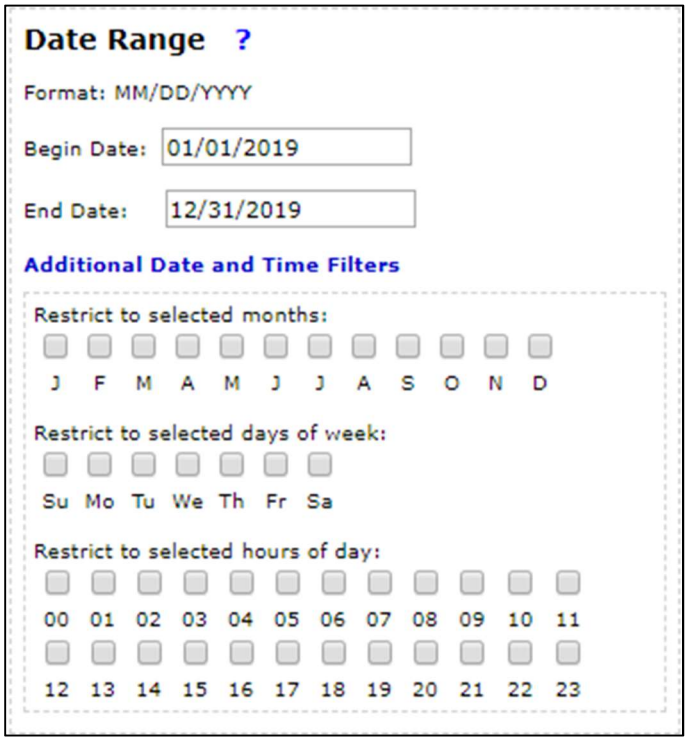
NOTE: All times entered in the database must be in 24-hour format.

When given a complex query with many different date and time parameters, break it down and write out each variable independently. This will make it easier to enter into the input box.

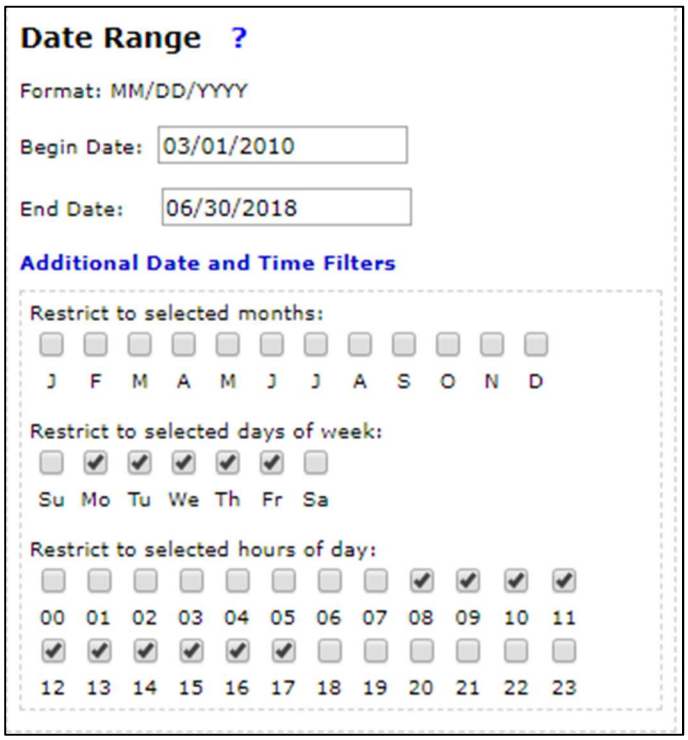
The date range box should look familiar:



However, we need to enter additional date and time filters. To expand the box, click on the blue link marked "Additional Date and Time Filters":



Enter the parameters given. Your result should look like this:



You have now selected your date and time parameters.

The next component of our query concerns crash severity:

> The sheriff's office is interested in crashes where injuries occurred as well as crashes resulting in fatalities.

We want to select for fatal crashes, crashes where serious injuries occurred, and crashes where minor injuries occurred. As mentioned before, this is a relatively easy selection to make:

You have now selected for crash severity.

The next component of our query concerns crash flags:

> The sheriff's office is specifically interested in crashes that occurred because of alcohol, crashes where the driver was not wearing safety equipment, and crashes where fatalities occurred.

As with crash severity, selecting for additional factors is not a difficult process. **NOTE: Because we are interested in both alcohol-related and seatbelt-related crashes, we need to select the button marked "AND" at the bottom of the field.**

Your result should look like this:

You have now selected for crash flags.

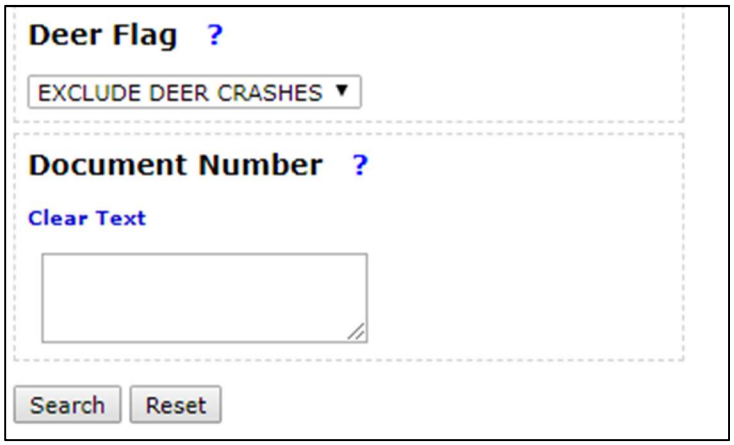
The final component of our query concerns deer-related crashes:

The sheriff's office is not interested in crashes where deer were involved.

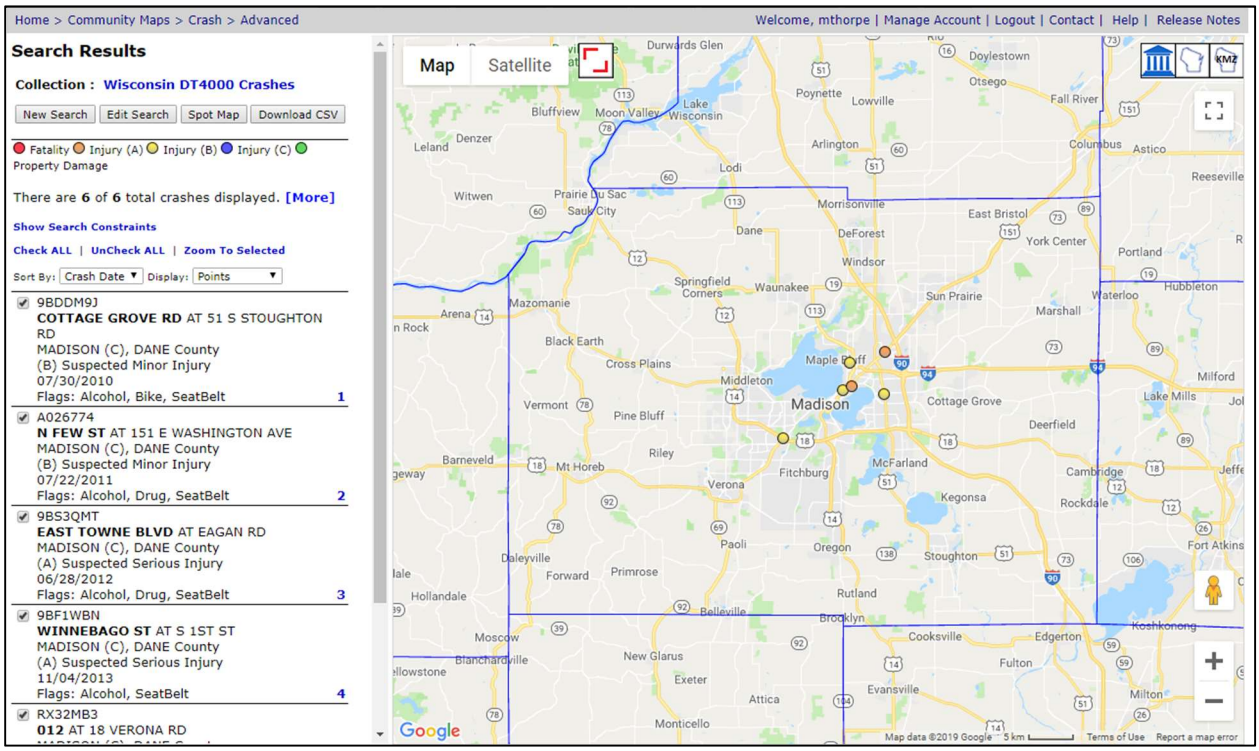
Again, a simple selection to make:

We have successfully populated all relevant fields. Our query is ready to be processed!

To submit the query, click the button marked "Search" at the bottom of the input box:

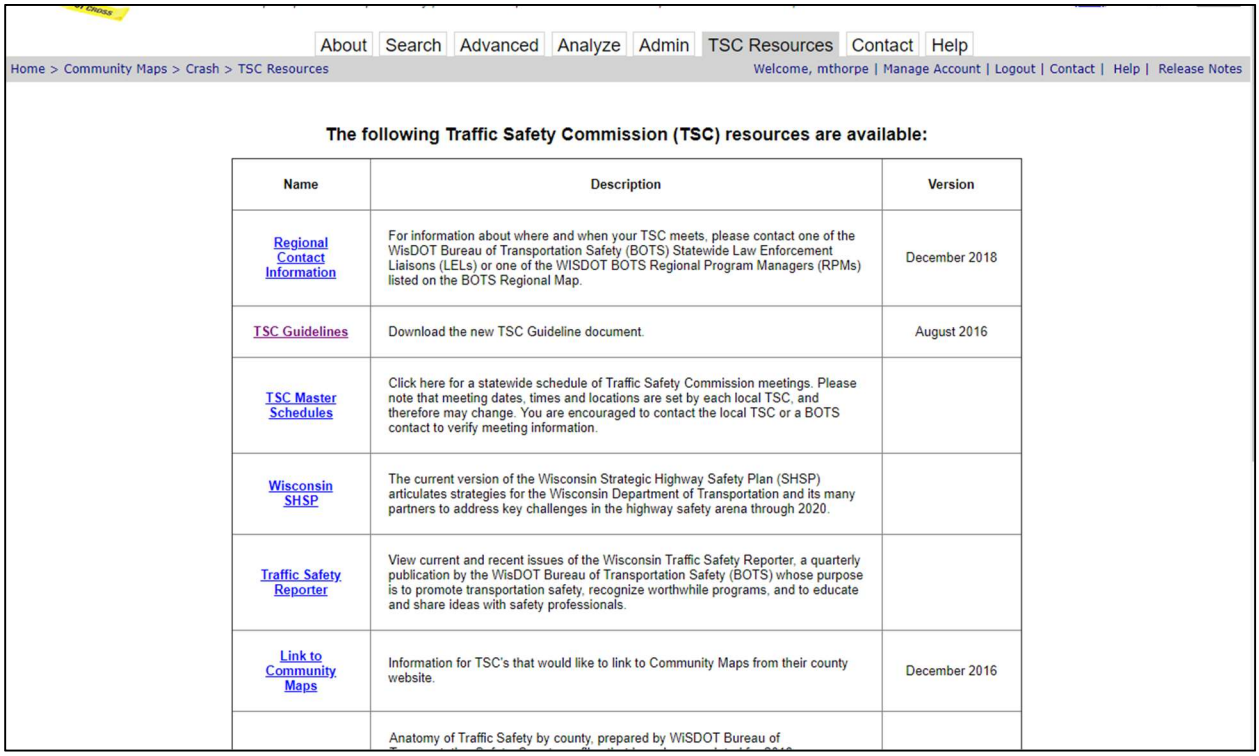


Your result should look like this:



TSC Resources

An additional point of reference concerns the TSC-related information provided as part of Community Maps. To access this information, click on the tab marked "TSC Resources" at the top of the page:



The categories provided within the resources subpage contain information about all traffic safety commissions (TSC) in the state of Wisconsin. There are two categories of major importance:

- The category marked "TSC Guidelines" contains information on how TSCs are structured and managed. This is useful for users who are unfamiliar with the concept of a TSC and/or would like to learn more about these organizations.
- The category marked "County Profiles" contains reports prepared by all 72 TSCs in the state of Wisconsin. Each report provides an in-depth analysis of traffic conditions in the respective county. These reports are useful for users interested in county-level raw data.

Supplementary Tools

The following information concerns additional features that make up Community Maps. Most of the information described in this section is only made available to advanced search users.

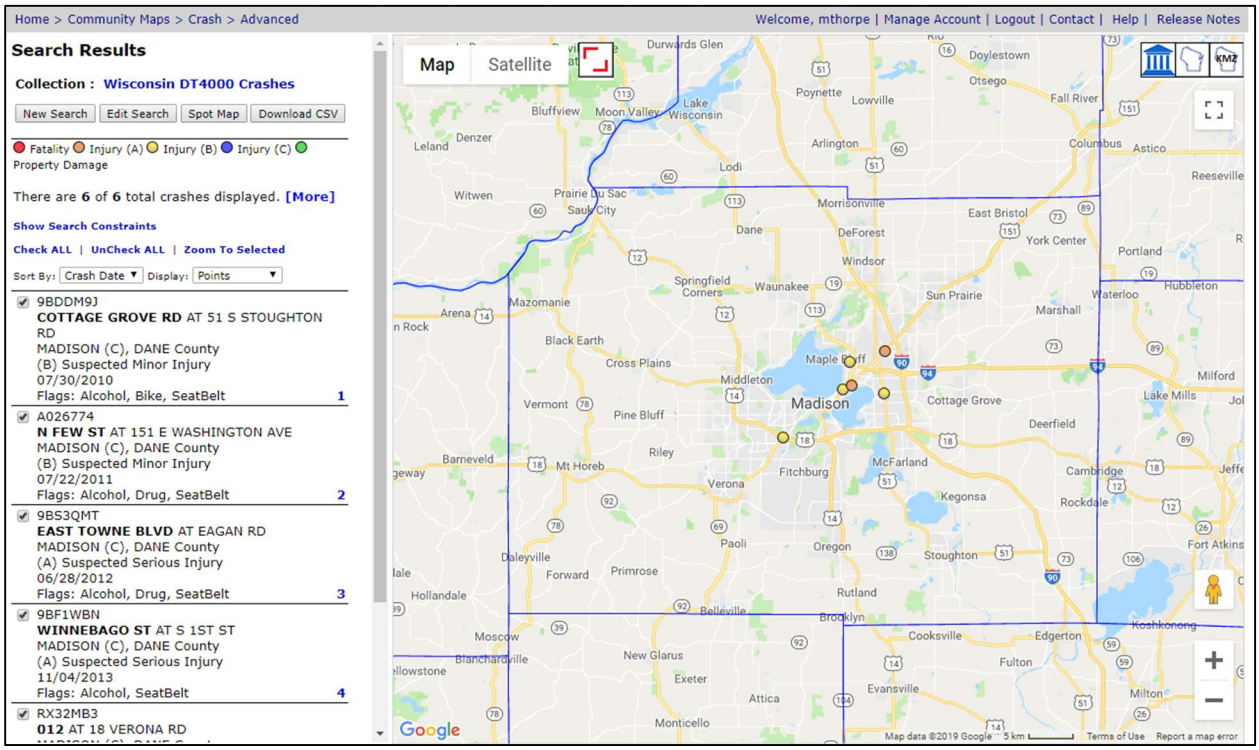
CSV Data Download

The previous sections of this document discussed the nature of Community Maps, how to access it, and how to use it. The document detailed how to make a query, how to conduct a basic search, and how to conduct an advanced search.

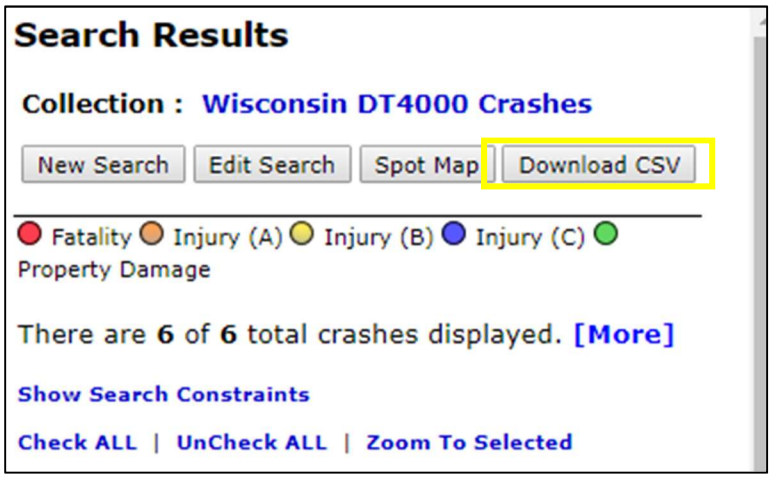
By now, the user should be comfortable with making queries. However, what good is a query if you cannot see the resulting data output?

The advanced search tool allows the user to download the output data from their query in .csv format. The file extension .csv denotes an Excel data table (spreadsheet).

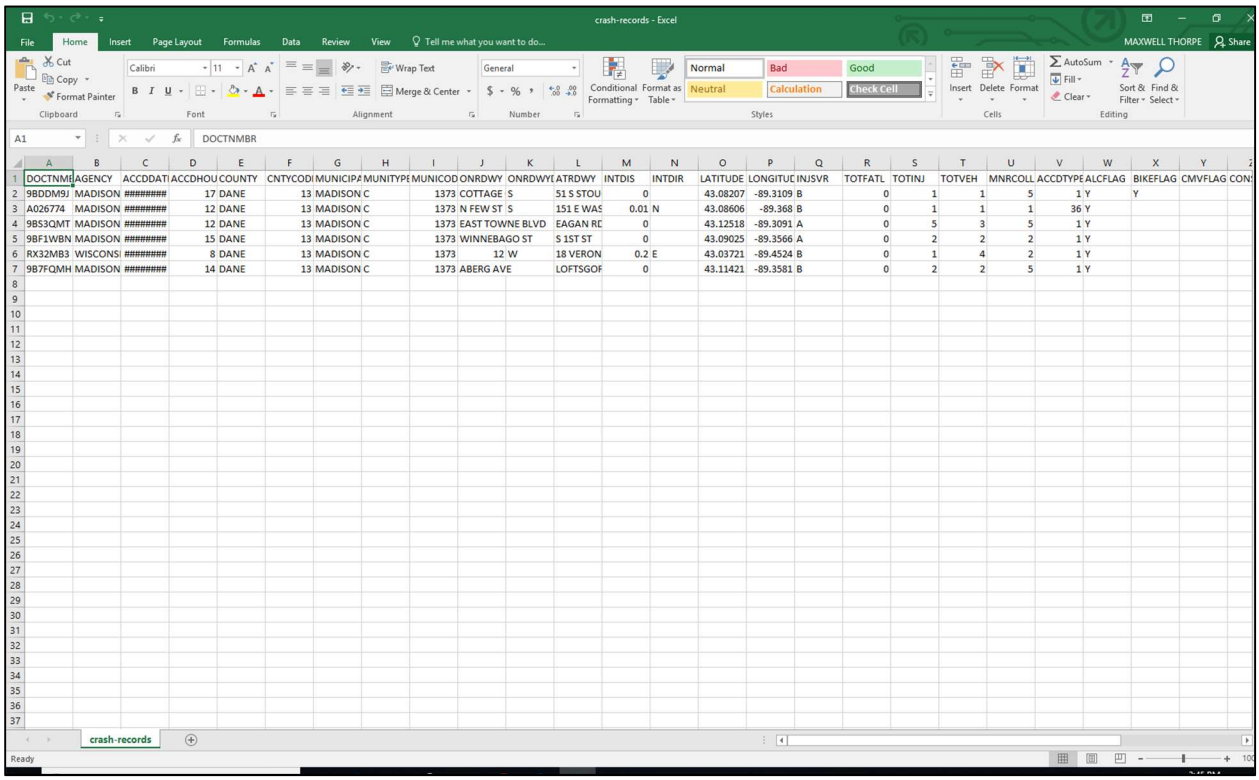
Let us consider our previous example:



In the search input box, at upper left, the user should see a button marked “Download CSV”:



Clicking this button allows the user to download a data table containing their search results. For the query shown above, the pre-generated data table should look like this when opened:



In the above spreadsheet, each row represents an individual crash. The columns provide information related to these crashes.

- The first column from the left contains the document number (as related to the original police report).

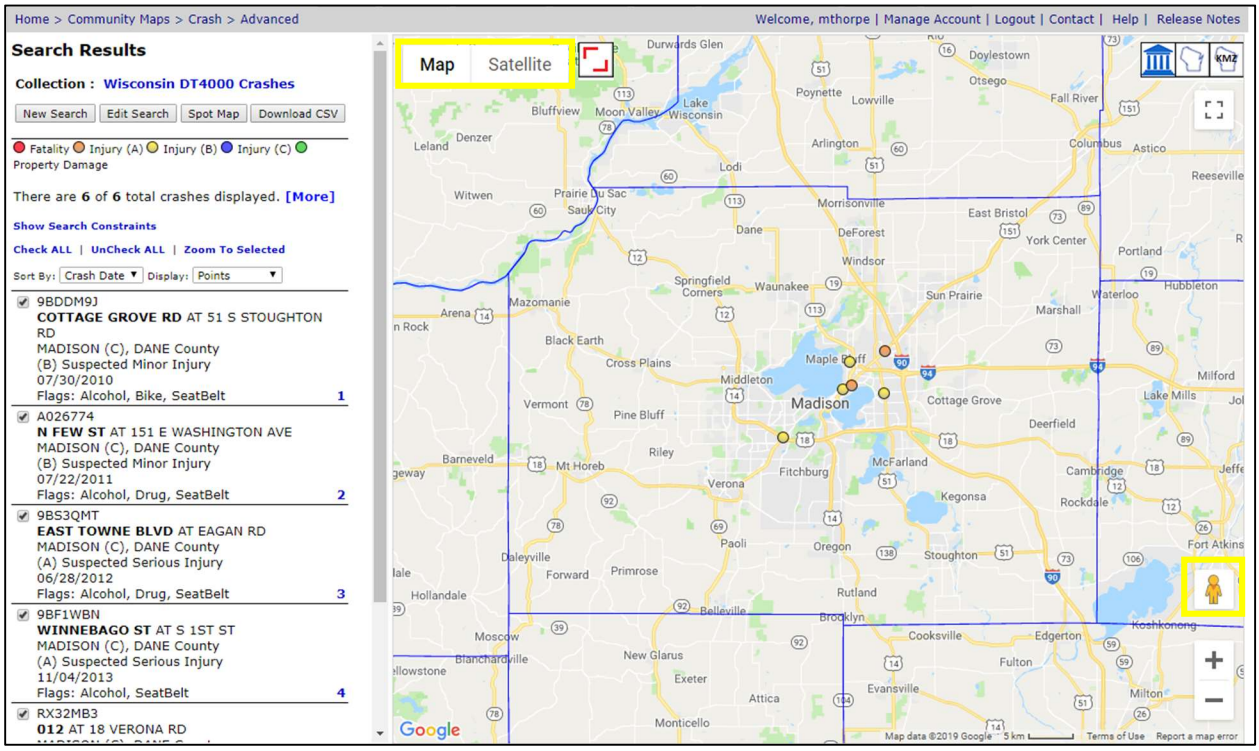
- The second column lists the law enforcement agency which filed the report.
- The third column lists the date of the crash.
- The fourth column lists the time at which the crash occurred.
- The fifth column lists the county where the crash occurred.
- The sixth column lists the county code.
- The seventh column lists the municipality where the crash occurred.
- The eighth and ninth columns provide additional information about the municipality in question.
- All remaining columns provide information on the location of the crash (street, direction of travel, and geographic coordinates).

Please note that this feature is only made available to advanced search users.

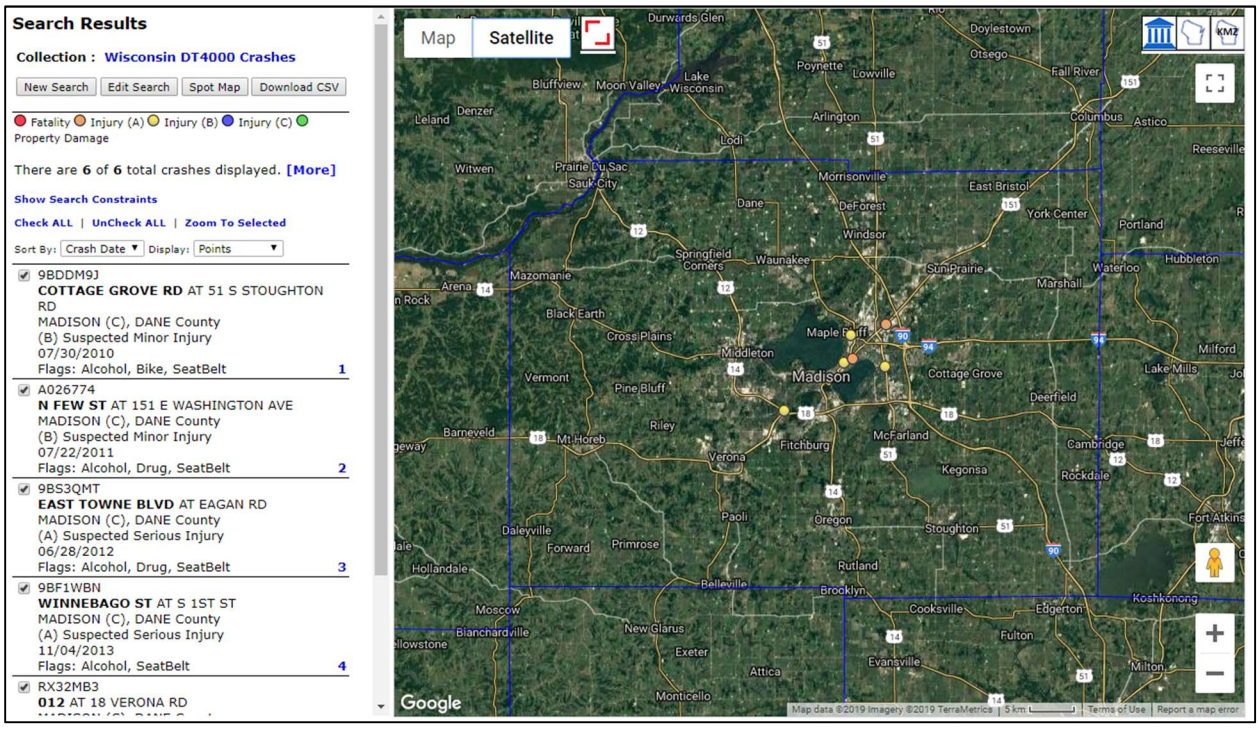
Map Tools and Overlays

Another additional feature concerns the map overlays. Community Maps uses a Google Maps API to provide an inset map of the state of Wisconsin. Viewers can manipulate this map just as they would when using Google Maps proper.

Like Google Maps, the API inset is equipped with satellite-view and street-view tools:



These allow the user to see the physical geography of the area they are interested in:



Another feature concerns the map overlays present. Overlays are layers of data added to the map. The overlays shown here represent political boundaries (county lines, TSC locations, law enforcement locations, etc.). They can be turned on and off via the icons at upper right:

The satellite-view and street-view options are available to all users. Some of the overlay tools are available to all users, but others are available only to advanced users.

In summary, Community Maps provides an easy means of requesting real-time data on traffic crashes within Wisconsin. Note that this guide provides a basic overview of the system, and does not include information on other tools and options made available to basic and advanced users.