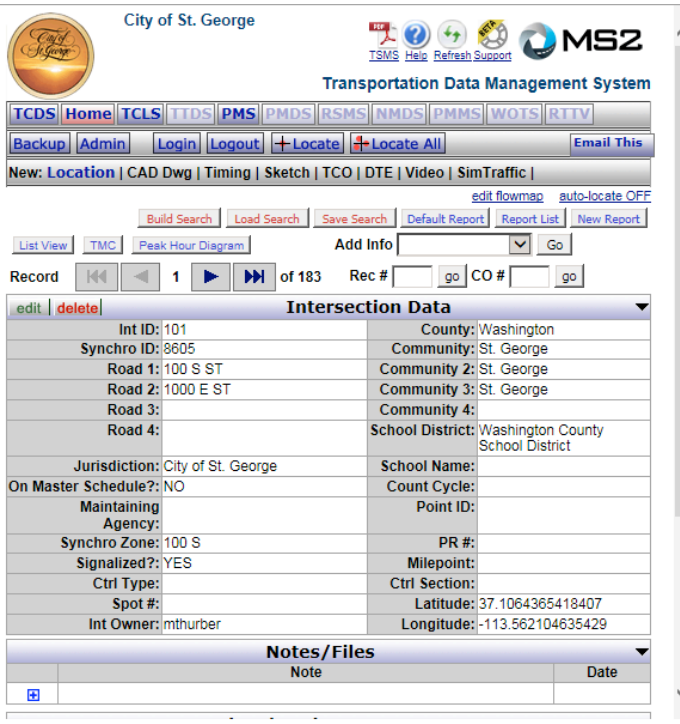
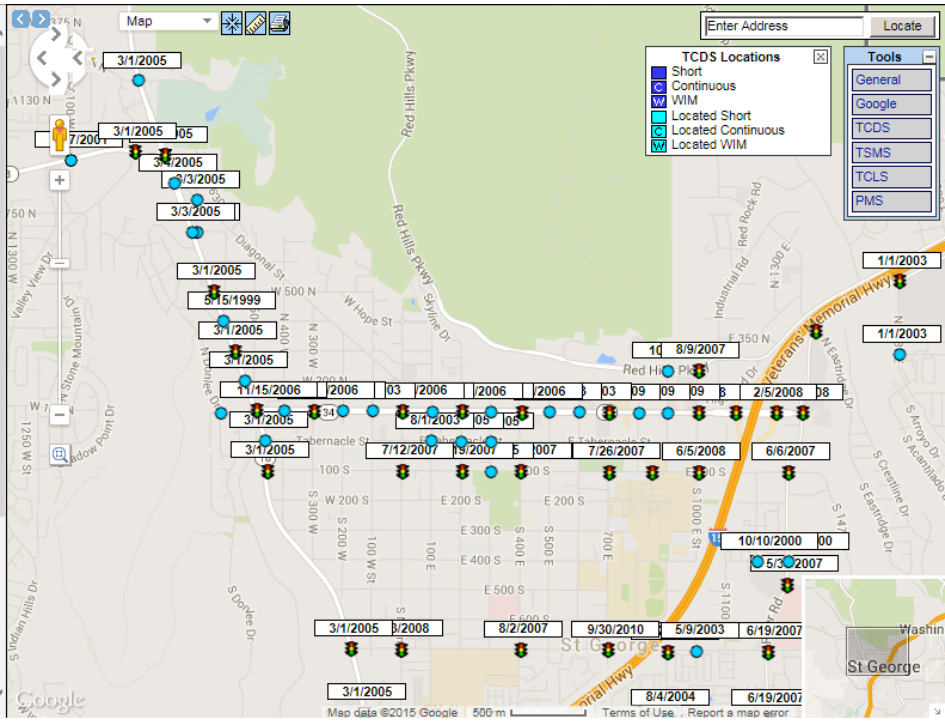
QUICK HELP GUIDE

Traffic Signal Management System (TSMS)





MS2

MODERN TRAFFIC ANALYTICS

www.ms2soft.cotm

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1.0 Introduction

This guide is for users who are beginners to the system. This guide will provide you with the tools to carry out the common tasks performed and guide you when engaging with this system. If you have further questions feel free to contact the staff at MS2 & we will be happy to assist you. Any features not discussed in this guide are considered advanced features. Detailed instructions for these additional features may be obtained from staff members at MS2.

The **Traffic Signal Management System (TSMS)** can be used in conjunction with TCDS, or exclusively to manage traffic data associated with a unique location. TSMS gives you the option of uploading TMC data directly from your TMC counter; calculating relevant statistics associated with an intersection; viewing photos, sketches, and traffic simulations of the intersection; search for locations from the database or by using the Google™ map.

This guide will introduce you to the most common tasks performed, including:

- Searching for existing counts
- Interacting with the map to obtain detailed count information
- Creating reports of count details
- Adding new counts
- Creating new count locations

This guide presents a generic agency for each example and should only be used as a demonstration of a limited selection of TMS capabilities. Your modules may have varying abilities specific to your needs.

Let's start at the beginning. Go to the main page and Login. The homepage for the agency referenced in this help guide is located at http://demo.ms2soft.com. The left side of the page will look like Figure 1. This page will always be the starting point no matter what you wish to do. The "Home" button will bring you back to the main search page of the module you are in. Take note that this is *not* the browser Home button, but rather the TSMS Home button. Should you want to add new locations or counts, search existing counts, edit existing counts or delete existing counts, generate reports or view graphs, you start at this page. Following this introduction is a flowchart of the TSMS process (Figure 2).

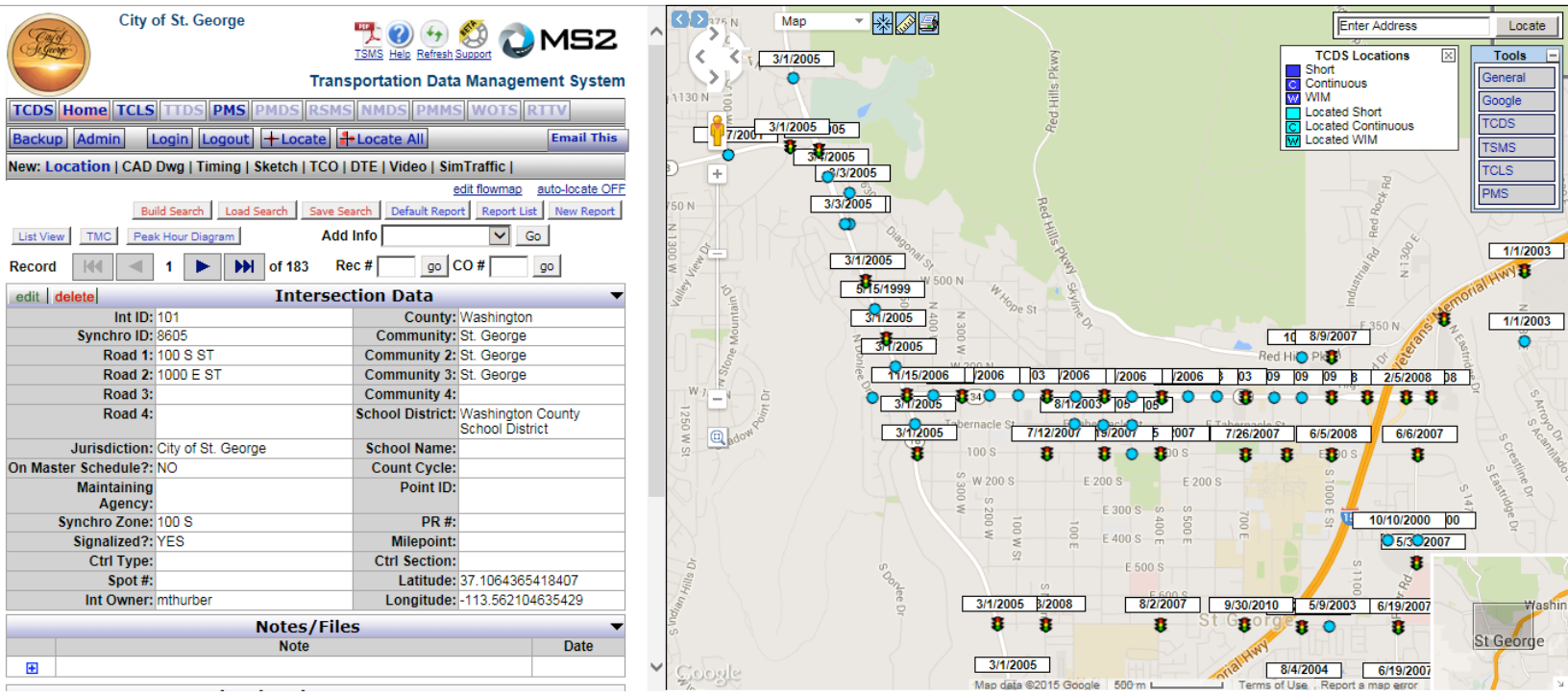


Figure 1: TSMS Homepage

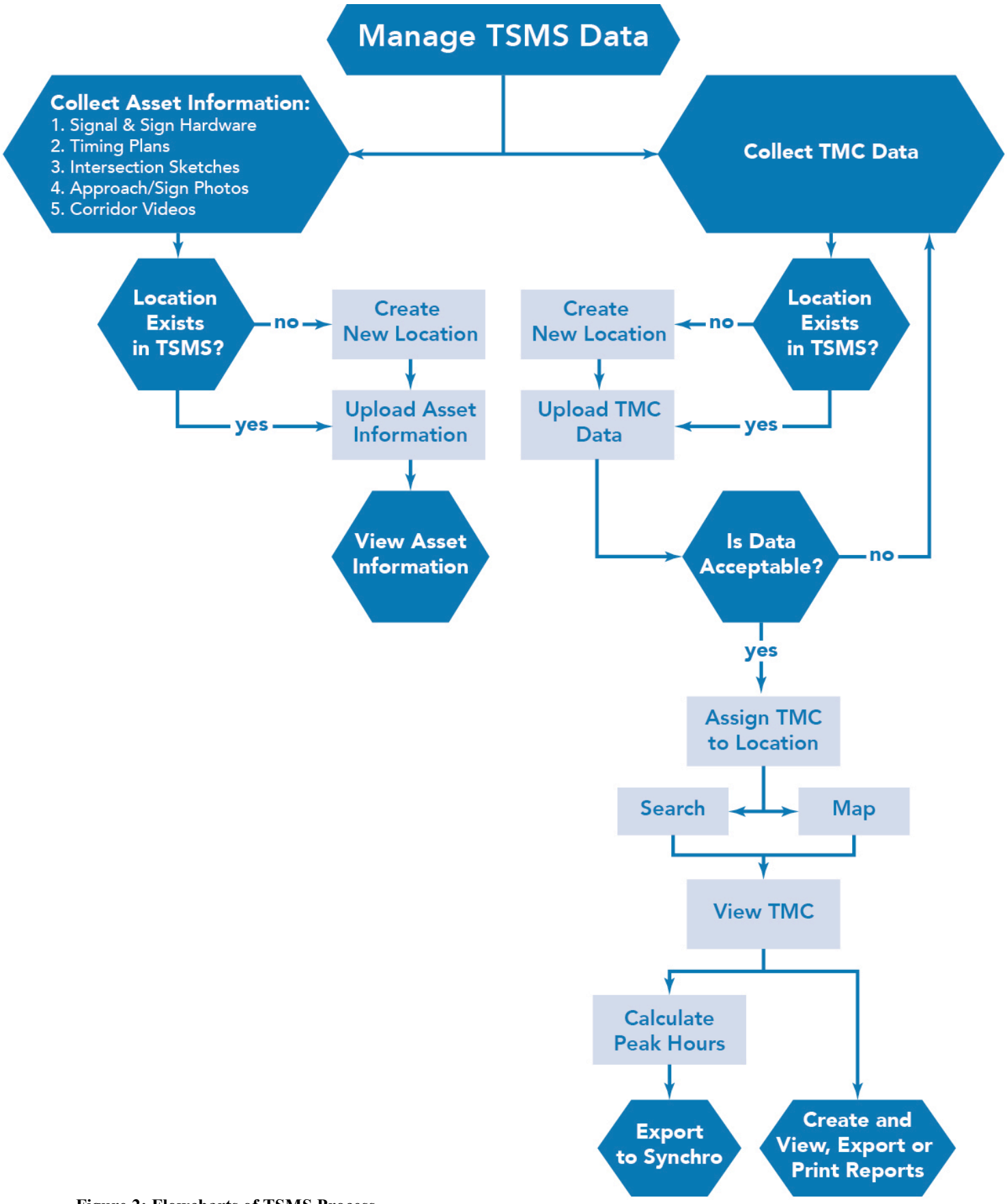


Figure 2: Flowcharts of TSMS Process

2.0 Search Types

You can search broadly or narrowly using the numerous fields. Typically, a search is only conducted on one or two fields at a time.

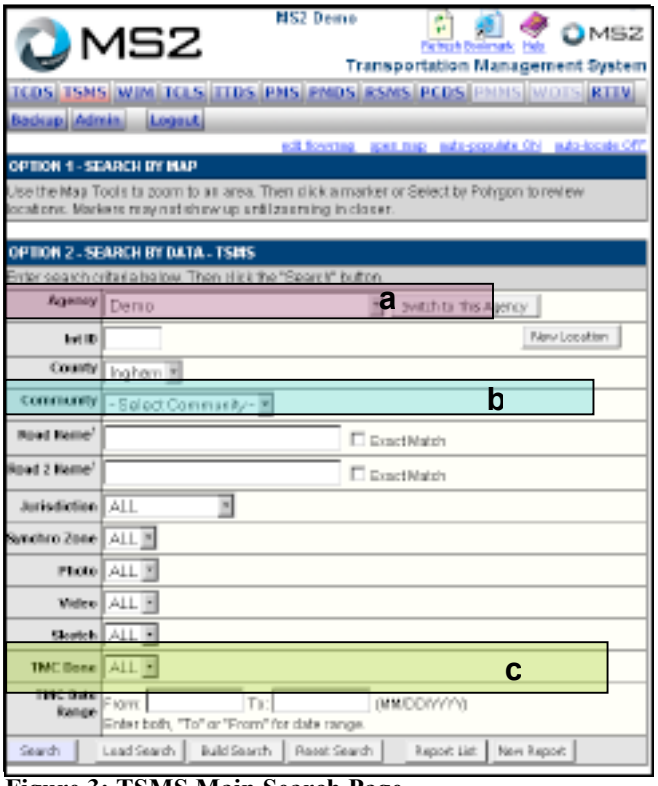


Figure 3: TSMS Main Search Page

Intersections will be displayed as a blue pin and surrounding locations as red pins.

Depending on the agency, the Signal and Sign Inventory may be used. This is a complete inventory of the signal hardware used including case signs and pedestrian hardware. Click the "View" button to display the Sign & Signal Inventory page. Authorized users may edit these fields. Refer to section 6.0 for instruction on adding hardware information.

Section 3.0 will explain how to display the search results and how to interact with the map.

Common Search Fields:

- County
- Community
- Int ID
- Road Name
- Synchro Zone
- TMC Date Range

You will usually only search by Int ID, Road Name, and TMC Date Range (Figure 3 a, b, c). As an example, search for all counts; search with no entered criteria. You will have 11 records that match.

You can page through all found records using the arrows at the top of the page. Use the "Locate" button on the left side at the top of the page to display an intersection on the map (Figure 4, d).

Figure 4: TSMS Search Results Page

3.0 Map Interactions

Google™ maps are a familiar feature to many users.
The user can:

- Pan
- Zoom
- Switch from road view to satellite view to street view
- View count locations on the map
- Pull up count details from map
- Select multiple locations on map simultaneously
- Change marker type shown

This map allows easy location of current count locations, and links the map points to the data entries on the left side of the screen. Depending on the tab you have selected, different data points will show up. First zoom to the center of the map. Pins are placed on the map at all count locations and intersections. The map will display a limited number of pins at one time. You will see a message box overlaid on the map if there are more markers present then can be displayed. If no markers are in the map view, you will see a message telling you this.

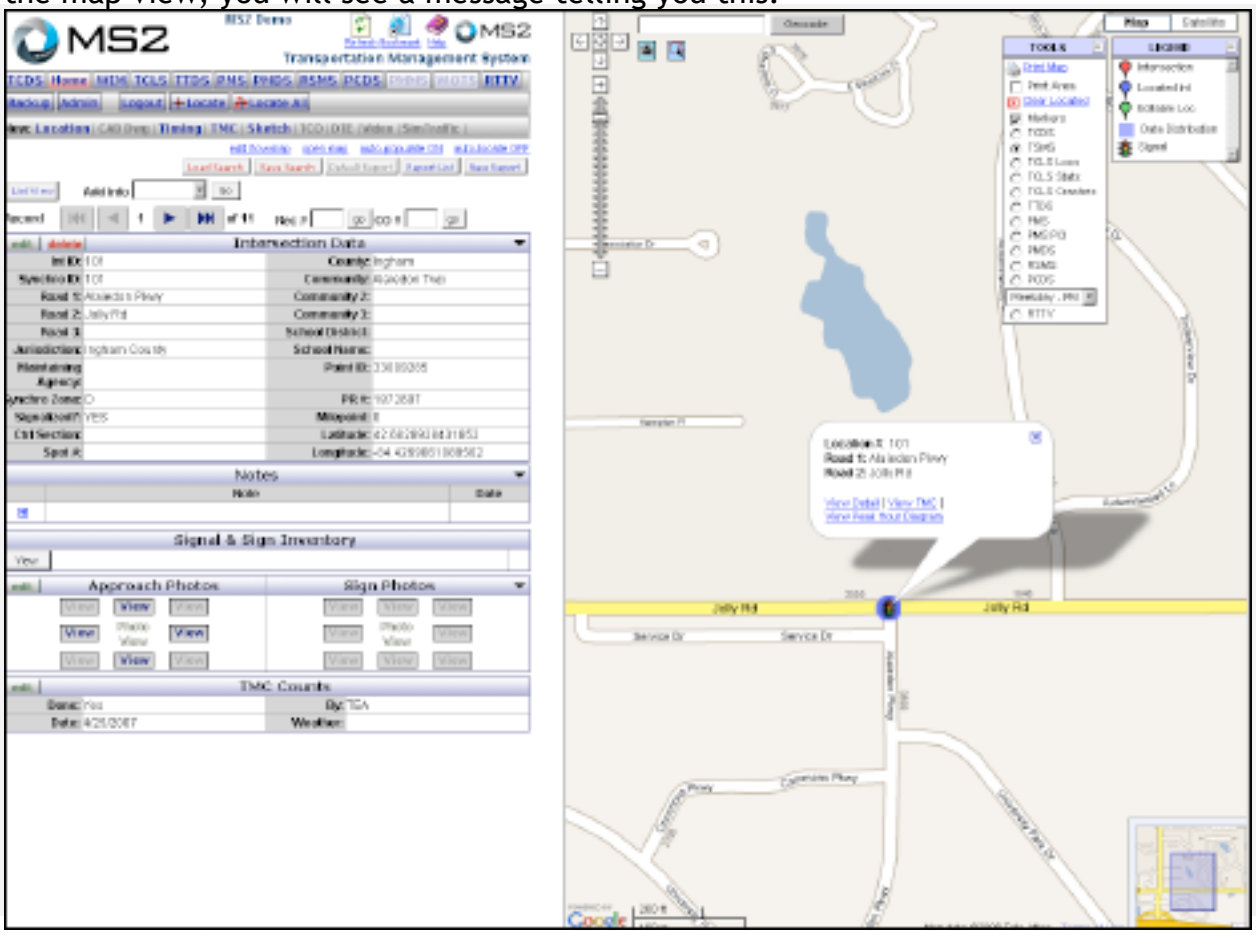


Figure 5: TSMS Search Results Page and Map View

You can search for locations directly from the map. To display the intersection data on the left side, click on the point and "View Detail" link. Figure 5 shows each item obtained from the map. Intersections will be shown as signal heads on the map. Move the mouse cursor over the point and the Int ID# will appear. If you click on an intersection, a bubble will appear displaying the Int ID#, Road and Cross Road names, and a link to "View Detail". If you click on this link it will pull up the location information on the left side of the screen.
"View TMC" will display the latest turning movement count (TMC) data on the left side of the screen. If multiple dates are available you may choose a different date at the top of the page. "View Peak Hour Diagram" will display the peak hours of the latest TMC in a table followed by a diagram of the intersection overlaid with the count data. The most recent data for each peak period is used to calculate the peak hours. If no or insufficient data is available for a peak hour it will not be displayed. Refer to section 4 for further information on the TMC and Peak Hour Diagram features.

You can toggle the markers for each module through the Tools Menu. You may also print the map and clear located markers through this menu. Check the "Print Area" box to display the print area on the map, shown as a red dashed line. The Legend menu, found next to the Tools menu on the map, is the key to the icons used on the map. The legend will change according to the active module.

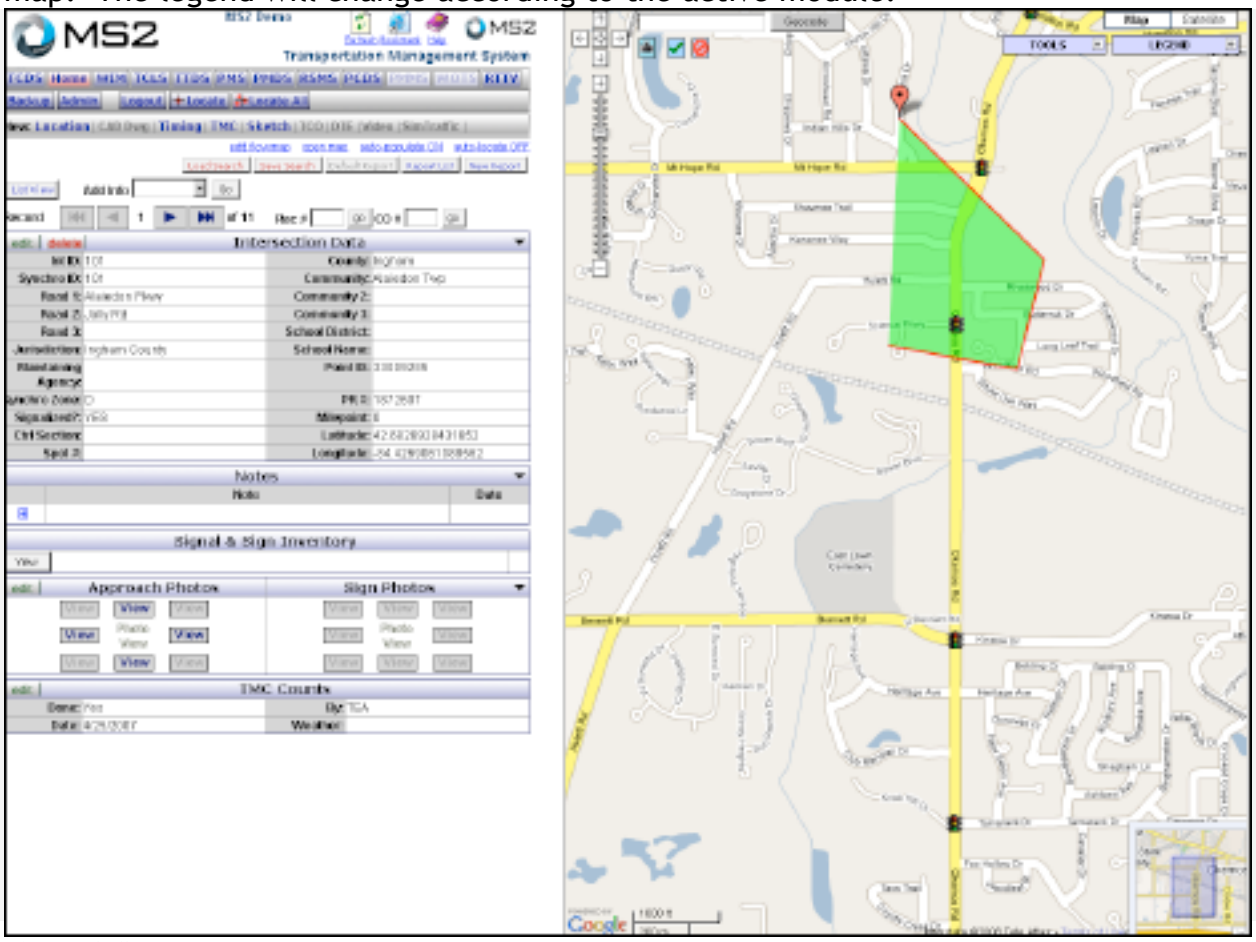


Figure 6: Select by Polygon Map Feature

Select by polygon acts as a search mechanism directly on the map (See Figure 6). Everything within the green area is selected. The user can select several markers at one time and after closing the polygon, the results are pulled up on the left side of the window. You can cancel the polygon feature at any time by clicking the icon.

Street View is a recent feature introduced by Google™. It provides street level views of roads, buildings, and infrastructure features. This feature is not available in all areas. Click on the camera to display blue areas that indicate the feature is available (Figure 7). Click on a blue lined street to display the street view window in the lower right corner. Click on the camera icon, now with a red slash through it, to turn off the Street View feature.

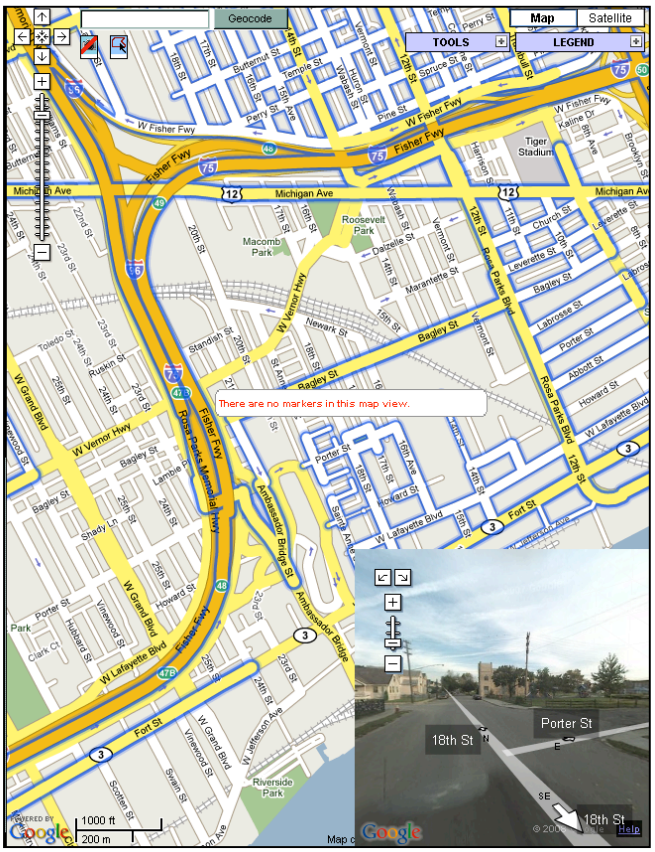


Figure 7: Street View Map Feature

The Geocode map feature was added to provide the user with a way to search the map directly. You do not have to go back to the search page to find a street, city, or place of interest. Type in your location and click the "Geocode" button (Figure 8). For best results, include the city and state when searching for an intersection.

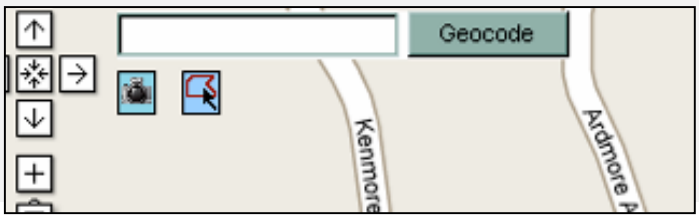


Figure 8: Geocode Map Feature

4.0 Reports

You may want to take the data in TSMS and use it in another application, or insert it into a presentation or report. MS2 has developed an easy process of extracting information in a clean and organized format. All reports will use the results from the last search you performed, regardless of the module.

Reports are created in TSMS following a different procedure. For example, if you search for all TMC collected in the township of Meridian and would like to create a report of all locations that fit this category; click on "New Report" button (See Figure 9, a).

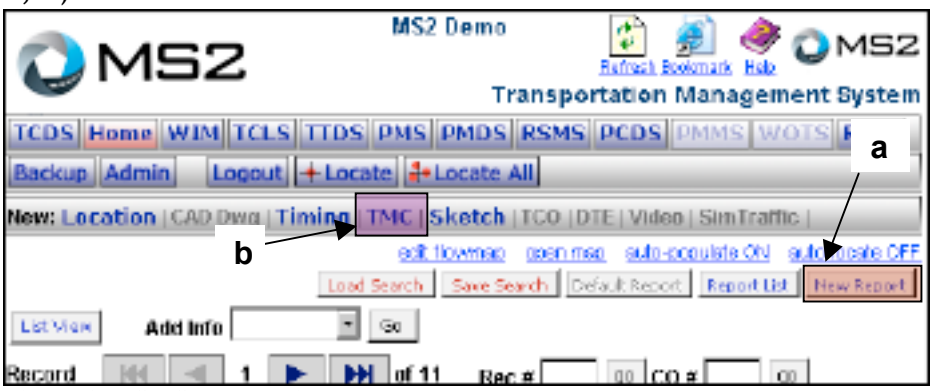


Figure 9: TSMS Intersection Data Page Header

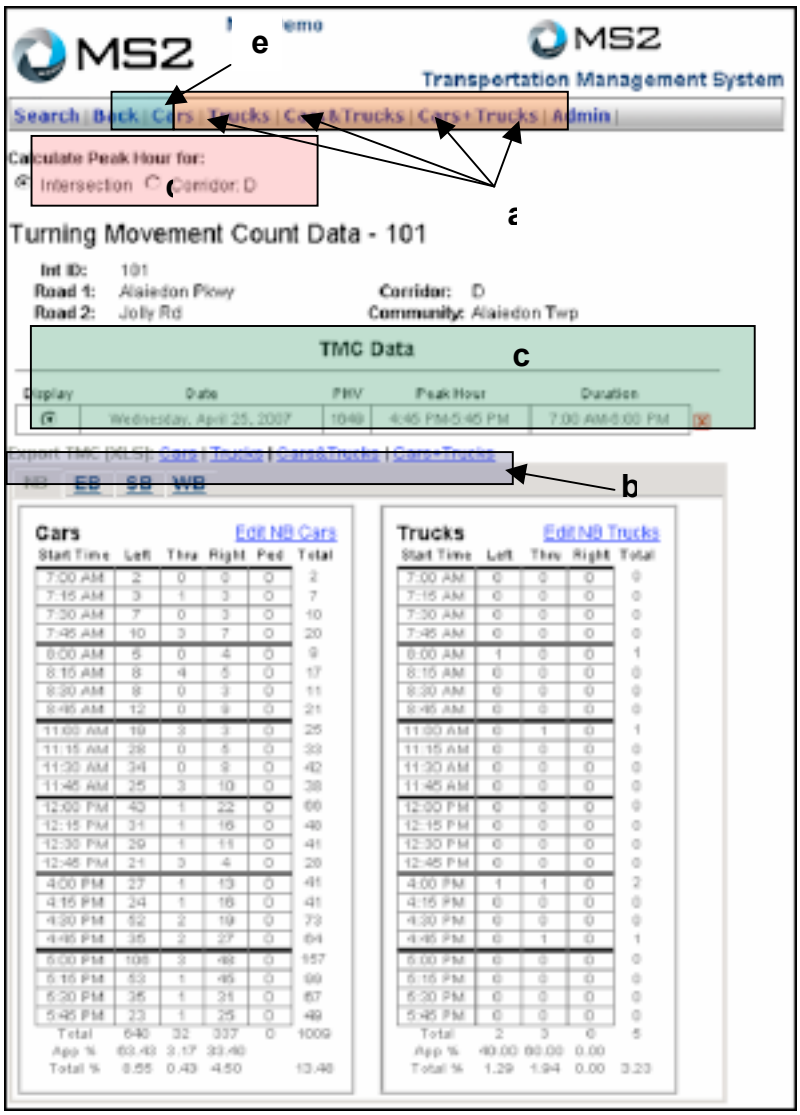
You have to choose the fields you want to include in the report. After making your selections, click "Display Report" to view the new report.

Figure 10 is an example report. Each column header is a field chosen from the report list. This report can be viewed in Excel or printed directly from the web.

You also have the option of printing the TMC for an intersection from the web. Of the five results from the previous search only two have TMC done. You can view the turning movement counts for one of the intersections by clicking the "TMC" button at the top of the page (See Figure 9, b).

Figure 10: TSMS Report List

Figure 11 is the TMC for one intersection. From here you can view the data in a printable report format (a), or export it to Excel (b). You are given the option of what information you want to include: cars, trucks, cars and trucks, or cars and trucks combined. If the intersection had multiple counts, you choose which one you want to display (c).

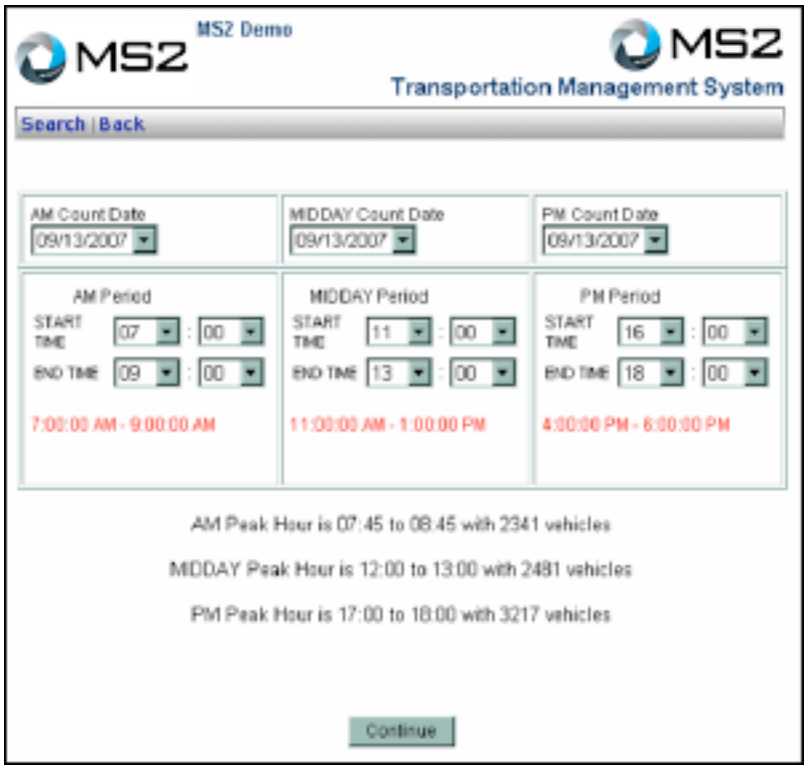


The peak hour for the intersection can also be calculated, or, if part of a larger group of intersections, for the corridor (d). Click the "Back" button (e) to return to the previous page.

You can export the peak hour TMC to upload to Synchro. From the Turning Movement Count Data page, choose the type of calculation you want. If you are studying the individual intersection, click the "Intersection" radio button. Click the "Corridor" radio button if you are studying a corridor of multiple intersections.

Figure 11: Turning Movement Count Data View

The next step calculates the peak hours of the latest count date (see Figure 12). The system will automatically calculate the peak hour of each time period and display the peak volumes. You will the option to define the hours to be used for each peak hour. You must choose a time period that exists in the turning movement count, and it must encompass at least one full hour. If you do not follow these guidelines, you will be given an error message explaining what information is missing. If the location has multiple dates, you may choose the desired date from a drop down menu. The system will automatically calculate the peak hour for the most recent count date for each time period. You will not have the option to choose a different date if calculating the peak hour for a corridor.



Click "Continue" to move to the calculated Peak Hour Data page. Click the "Back" button to return to the Turning Movement Count Data page without calculating peak hours.

From the Peak Hour Data page you can download a file of each calculated peak hour (Figure 13). Typically this is used to import data into Synchro, a traffic modeling program.

A link will appear for every peak hour that has been calculated. If Midday and PM peak hours were not calculated, there will not be a link to download the files.

Figure 12: Peak Hour Range Selection

The following steps will explain how to download a peak hour data file and import it to a Synchro file. These instructions assume version 6 (build 614) of Synchro. If your model is different, consult Synchro's help guide for alternate instruction.

Depending on the type of traffic model you are creating, you may calculate the peak hour for intersection or corridor. Either one will have the same result. The instructions for importing to Synchro are identical for each peak hour.

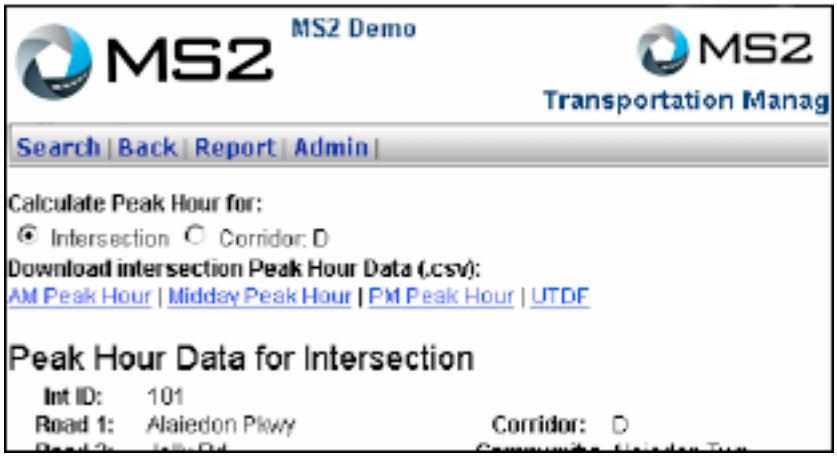
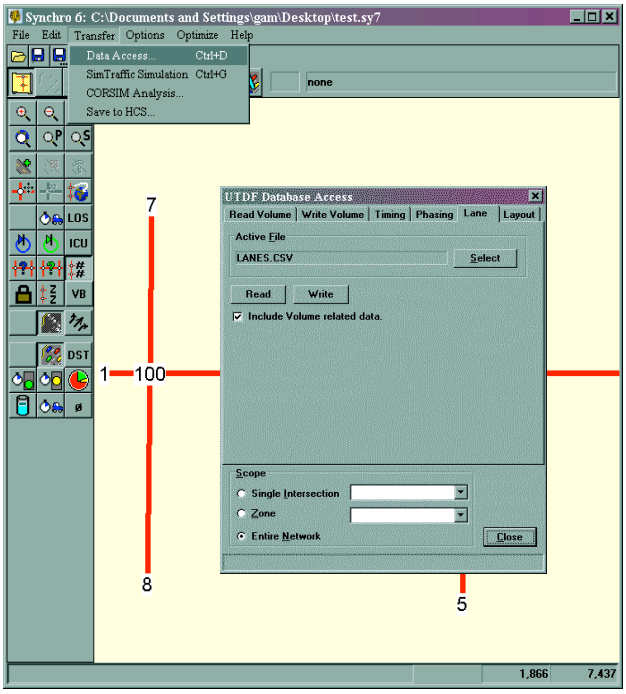


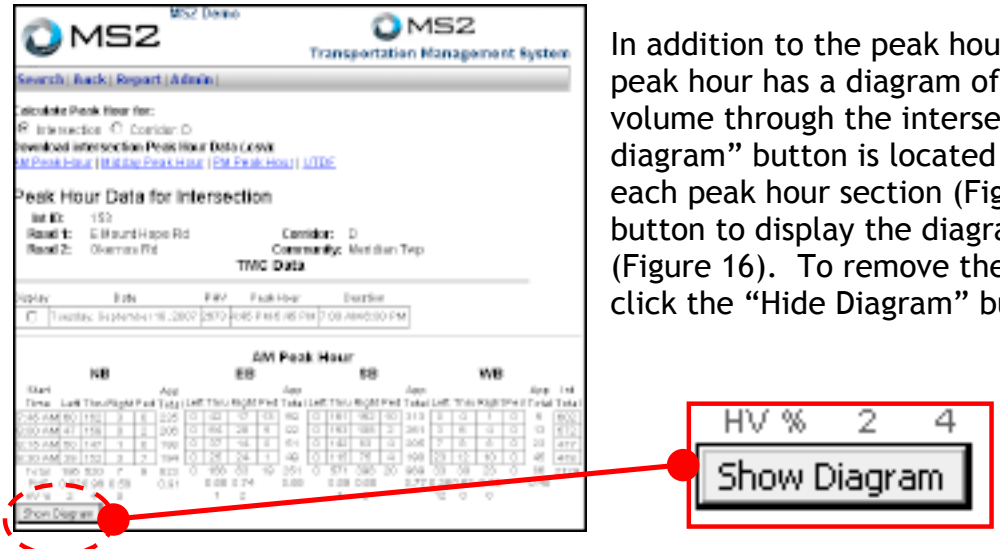
Figure 13: Top of Peak Hour Data Page



1. Save the .csv file to your computer and open a traffic model in Synchro.
2. In Synchro, Go to Data Access under Transfer menu. Remember intersection ID#s must be the same in Synchro and TSMS for this process to work.
3. Go to the Lane tab. (See Figure 14).
4. Browse for the file you saved in step 1. Take care that the "Include Volume Related data" box is checked.
5. Choose the scope of the data you are importing. And Read the data.

Figure 14: Example Synchro Model Data Importing

A new window will pop-up confirming the import. Look at this window to ensure the process was successful. Consult the Synchro Help Guide for further explanation of the data import process.



In addition to the peak hour data tables, each peak hour has a diagram of the peak hour volume through the intersection. A "Show diagram" button is located below the data in each peak hour section (Figure 15). Click the button to display the diagram below the data (Figure 16). To remove the diagram, simply click the "Hide Diagram" button.

Figure 15: Peak Hour Data Page Detail

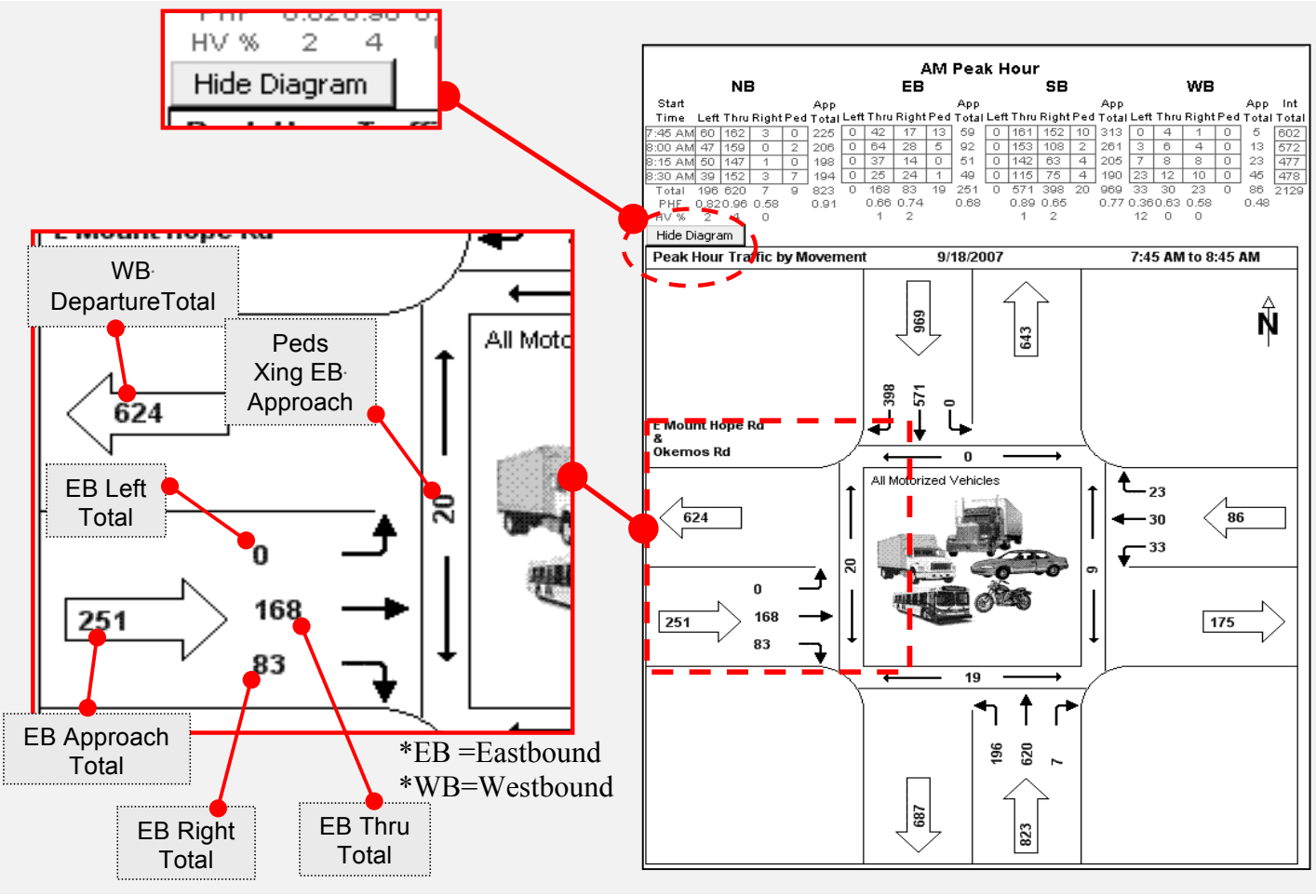


Figure 16: Peak Hour Diagram and Detail

This diagram is for illustration purposes only. Currently, there is no way to print this diagram through our system. It is also possible to access the peak hour diagram through the map. This feature will be discussed in section 3.

5.0 Administration Page

The Admin page is home base when you are adding, assigning, or managing any module in TMS. Authorized users may add new counts through the Admin page (Figure 17). You may return to the Admin homepage at any time to import more counts, import different data types, or manage all of your unassigned counts.

The TSMS tab must be chosen on the Admin page to add counts to this module (See Figure 18). If you are using Petra, Lotus, or XLS data formats, you can click on the single file or multiple files link under the corresponding Data type. A template is available for download if you are unable to use the listed data types (See Figure 20).

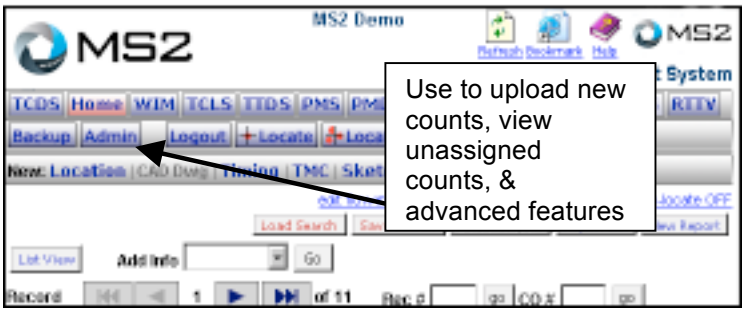


Figure 17: Header of TSMS Webpage

Note: Admin page will open in a separate window.

Figure 18: TSMS Admin Page

Petra is a very common traffic data management program. Many agencies use it to download hand-held counters. You can export your PETRA file to a text file format and upload it to TSMS.

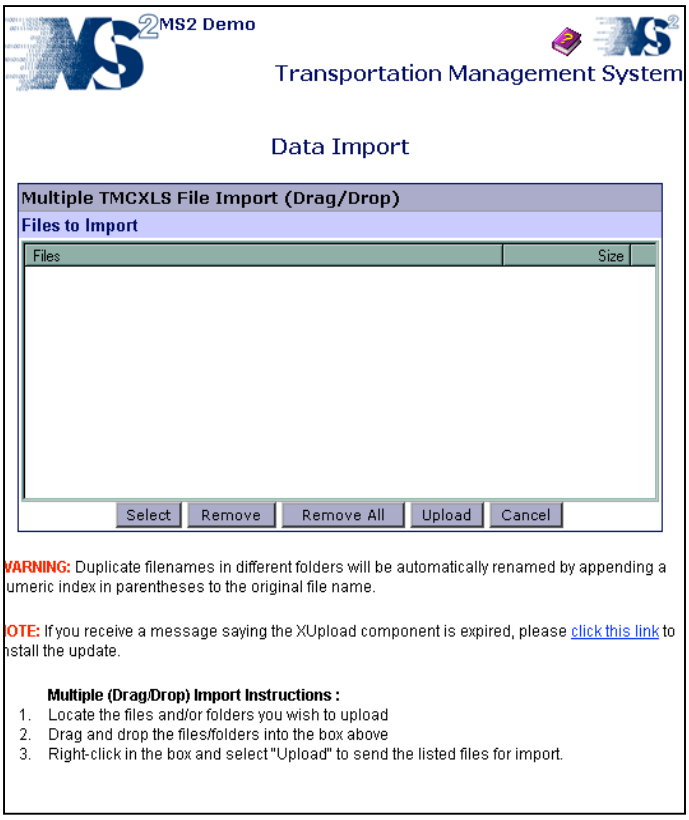
1. Open a count in Petra
2. Export as a .txt file and Save
3. Select "All Groups" and "Comma Delimiter"

The .txt file can now be uploaded into TSMS.

You can upload a single file or multiple files. This section will cover importing multiple files. Regardless of the file type you have, the uploading process is the same. Let's assume you used the available template.

1. Navigate to the Admin page; you must be logged in to access this page
2. Click on the "Multiple Files" link under XLS
3. A new window will appear where you can drag and drop all the files you want to upload (Figure 19)

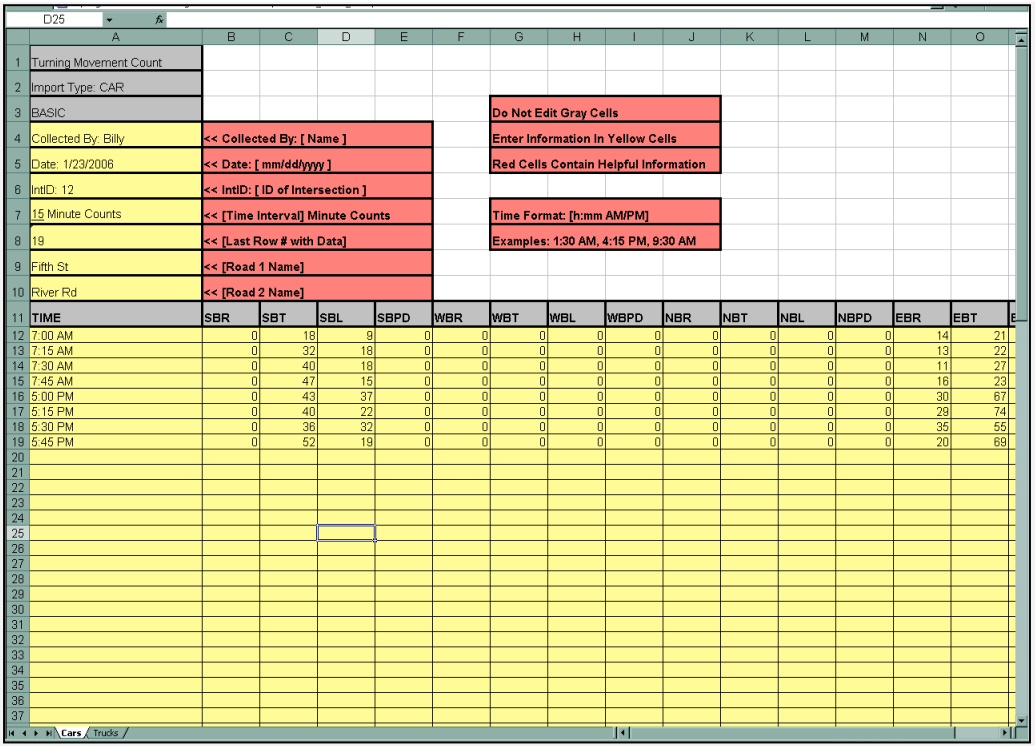
4. After you have added all the files, click “Upload”. You will be brought back to the Admin home page
5. From here you need to “View Unassigned” under “Manage Imported Data” to assign the counts
6. From here you can view, delete or assign the counts



It is recommended you view the counts before assigning them to ensure the data is reasonable and accurate.

The template, an Excel spreadsheet shown below in Figure 20, will be downloaded to your computer. You can proceed to add your data directly to it. Save the Excel spreadsheet to your computer using your desired naming convention. You can now import this data to the TSMS system.

Figure 19: Multiple File Import Window



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Turning Movement Count														
2	Import Type: CAR														
3	BASIC						Do Not Edit Gray Cells								
4	Collected By: Billy	<< Collected By: [Name]					Enter Information In Yellow Cells								
5	Date: 1/23/2006	<< Date: [mm/dd/yyyy]					Red Cells Contain Helpful Information								
6	IntID: 12	<< IntID: [ID of Intersection]													
7	15 Minute Counts	<< [Time Interval] Minute Counts					Time Format: [h:mm AM/PM]								
8	19	<< [Last Row # with Data]					Examples: 1:30 AM, 4:15 PM, 9:30 AM								
9	Fifth St	<< [Road 1 Name]													
10	River Rd	<< [Road 2 Name]													
11	TIME	SBR	SBT	SBL	SBPD	WBR	WBT	WBL	WBPD	NBR	NBT	NBL	NBPD	EBR	EBT
12	7:00 AM	0	18	9	0	0	0	0	0	0	0	0	0	14	21
13	7:15 AM	0	32	18	0	0	0	0	0	0	0	0	0	13	22
14	7:30 AM	0	40	18	0	0	0	0	0	0	0	0	0	11	27
15	7:45 AM	0	47	15	0	0	0	0	0	0	0	0	0	16	23
16	5:00 PM	0	43	37	0	0	0	0	0	0	0	0	0	30	67
17	5:15 PM	0	40	22	0	0	0	0	0	0	0	0	0	29	74
18	5:30 PM	0	36	32	0	0	0	0	0	0	0	0	0	35	55
19	5:45 PM	0	52	19	0	0	0	0	0	0	0	0	0	20	69

Figure 20: Example Basic Template

You must manually assign each count individually. If you do not wish to assign the counts immediately, you can return to the Admin page at a later time to do so, you just need to "View Unassigned" to view the counts and assign them.

To assign the counts:

1. Click on the ⊞ icon (Figure 21) and search for the location you wish to assign the count.
2. Enter the count time intervals and counter initials. If you wish, you can save these values as your default values (See Figure 22).
3. After you choose the location and count times, click "Assign TMC".

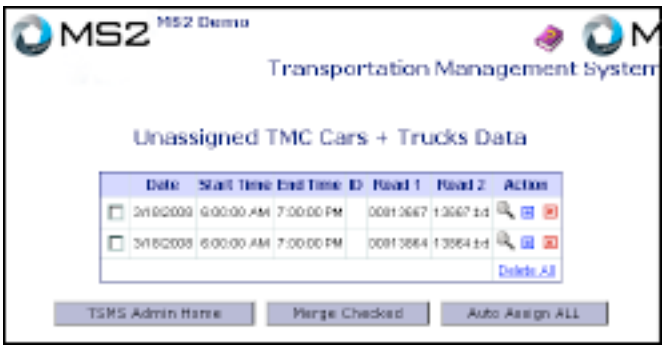


Figure 21: Unassigned Counts Window

When you are confirming the location data and selecting the count times of a TMC, note the check box providing the option to create a copy of the count data and place it in TCDS as an unassigned volume count (Figure 22).
This option will create volume counts for each approach of the TMC location. Each approach count consists of a 2-way count and directional counts, i.e. SB/NB or EB/WB.

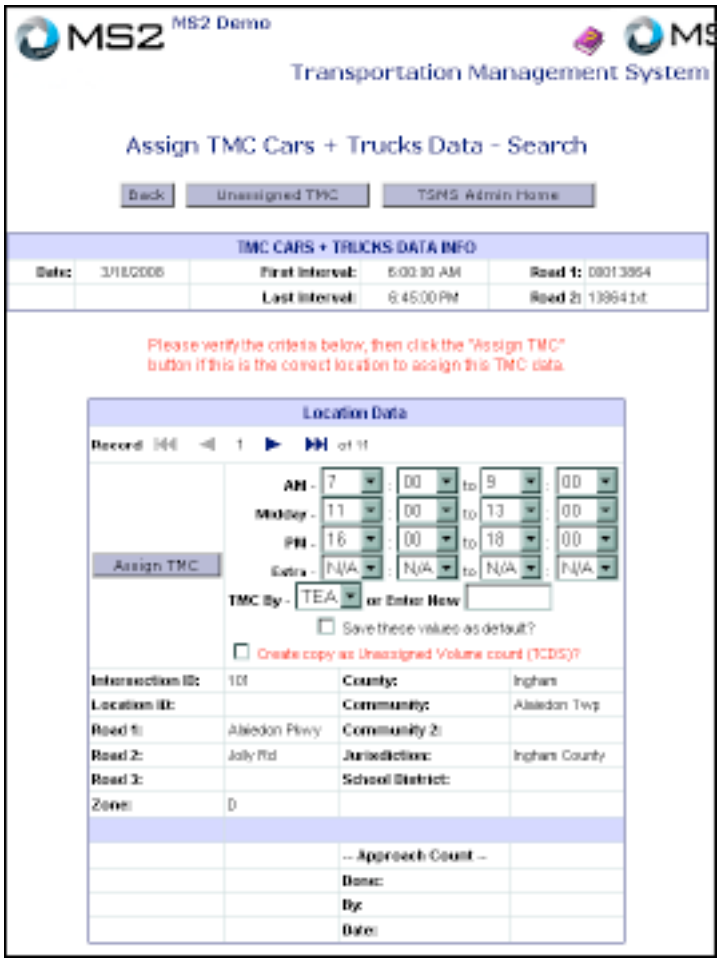


Figure 22: Location Data for TMC Assignment

For a 4-way intersection you will have 12 new unassigned volume counts. You must go to the TCDS Admin unassigned counts area to assign these counts to the proper TCDS locations.

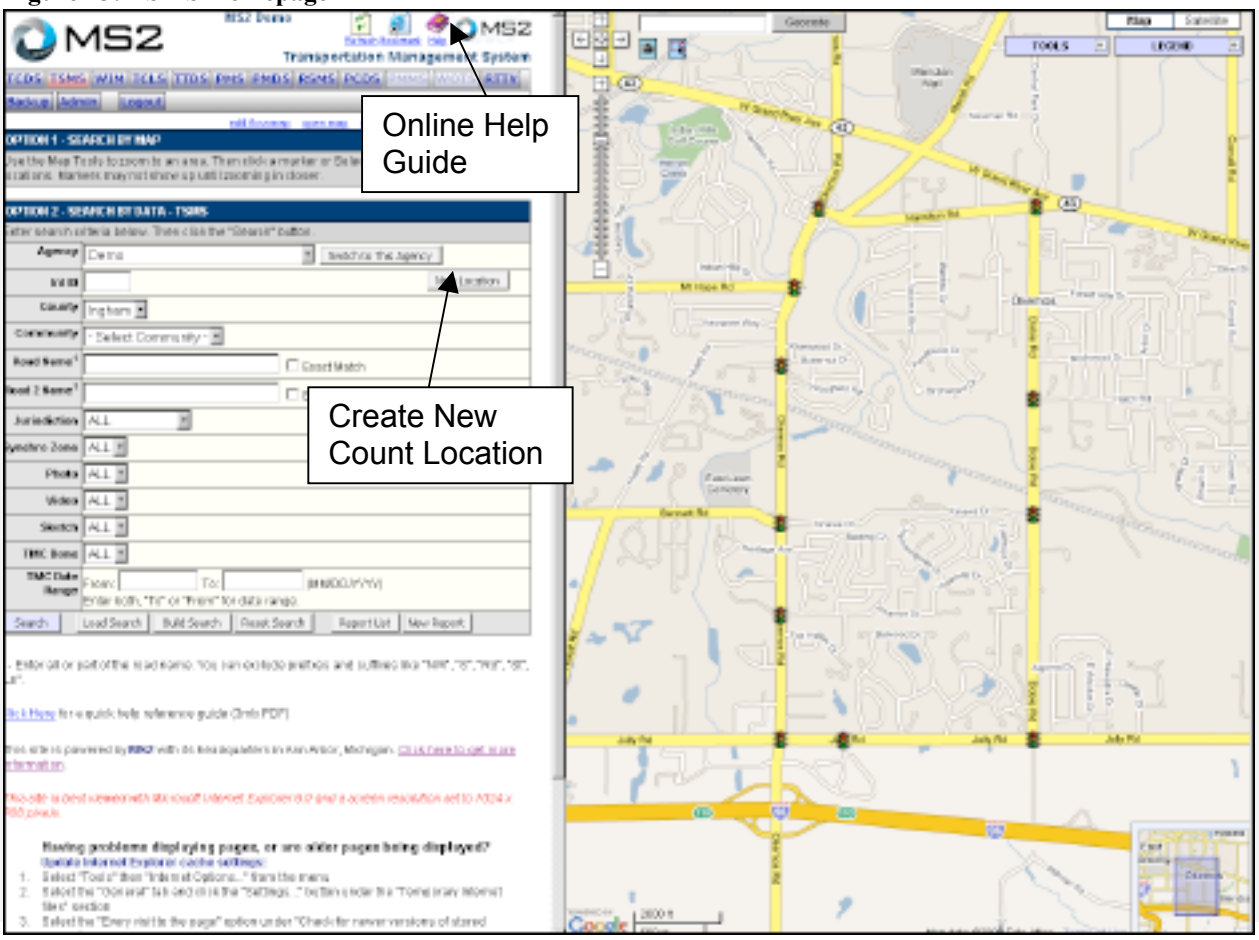
Consult the TMS help guide to learn more about the TCDS module. Because the volume counts created are partial counts, you must manually assign each count.

Proceed through all unassigned counts in the same manner. If the location of a count is not present in the database, you can create the location, covered in section 6.0.

6.0 New Locations

Before you can assign the count data, you must first create a count location in the database and on the map. The steps in adding a new location are contingent on the module you are in.

Figure 23: TSMS Homepage



After you have logged in and selected the TSMS tab, you can add a new intersection.

1. Click on the "New Location" button (Figure 23)
2. Select the new location on the map, usually at an intersection. A green pin will be placed in the new location. You can reposition the pin or click it again to delete it.
3. Fill in the new location's information on the left side of the page. Int ID # will automatically be generated or manually overridden. Required fields are in red (Figure 24).
4. After you fill in all desired information, click "Submit". The new location has been added and the green pin will disappear.

The new intersection data will be on the left side of the screen. You can display the new location on the map by clicking the "Locate" button at the top of the screen.

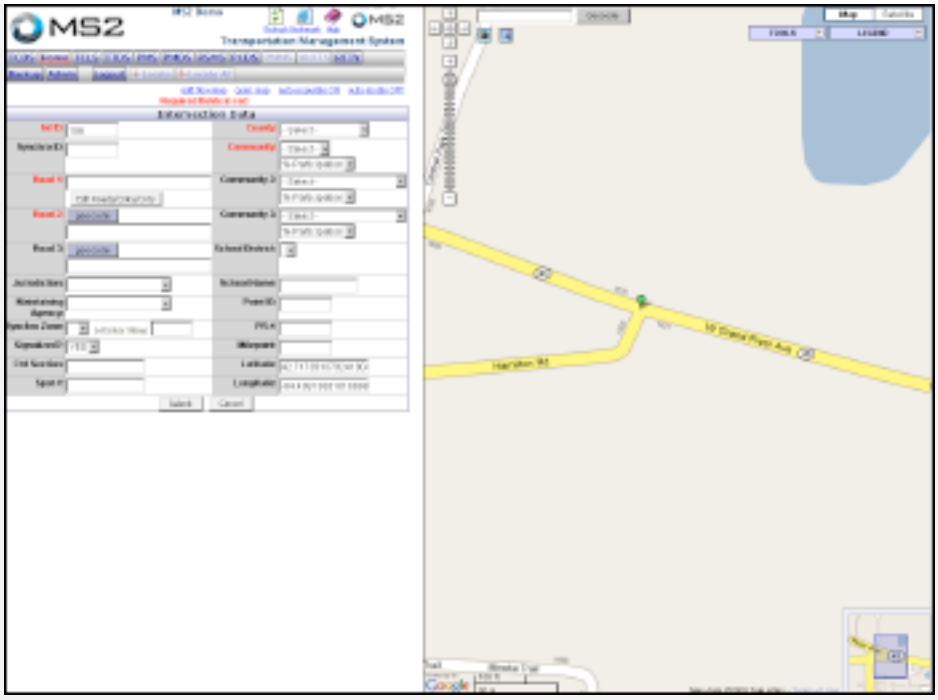


Figure 24: New TSMS Location Edit Window

The located intersection will be shown as a signal head, highlighted in blue, on the map (See Figure 25). Refer to Section 1.0 for more on the map features.

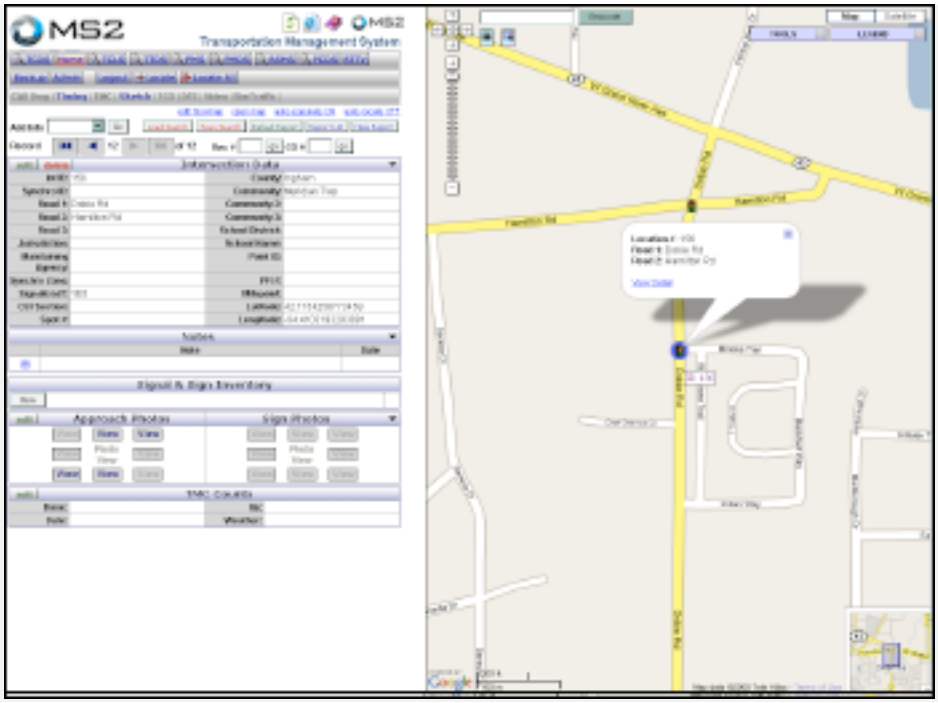


Figure 25: New TSMS Location Record and Mapped Intersection

Now that you have the location entered into the system, you can assign counts to it If you are unsatisfied with a location or information for it, you may edit it or delete it. These buttons will appear above each record. You must be an authorized user to perform either task.

After adding a new location, you may also add asset information. This information can include: signal and sign inventory, timing plans, intersection sketches, approach and sign photos, corridor videos, etc. In order to add this information to an intersection you must log in as an administrator. Different from the process of adding turning movement counts, the user does not need to navigate through the Admin page to upload the aforementioned asset information.

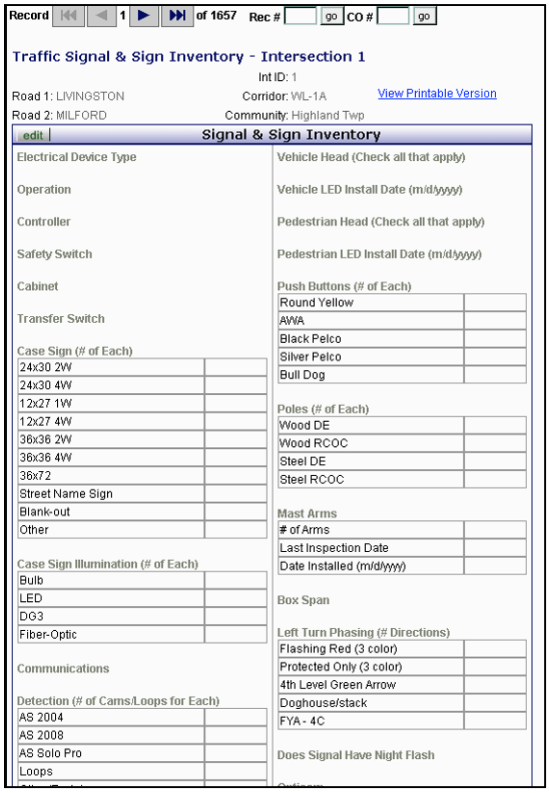


Figure 26: Signal & Sign Inventory Page

Signal and Sign Inventory

Go to the intersection desired and click on "View" under the Signal & Sign Inventory section. You will be forwarded to a new page containing all available hardware options. This inventory list may be customized to your agency's needs.

Figure 26 shows a portion of the inventory available. Click the "Edit" button to add information to any field. When you have completed the task, click the "Submit" button at the bottom of the inventory list.

Timing Plans

The process of adding the first timing plan is slightly different than adding additional timing plans. To add the first timing plan, go to the intersection and select "Timing" from the "Add Info" pull down list and click "Go" (Figure 27).

Define the file path of the timing plan (use the Browse button) and click "Add Asset". The file must be in pdf format. You are brought back to the intersection form view page. The "Timing" tab is now highlighted. View the timing plan here or add additional timing plans from here. Click "Add New" and search for the file as before.

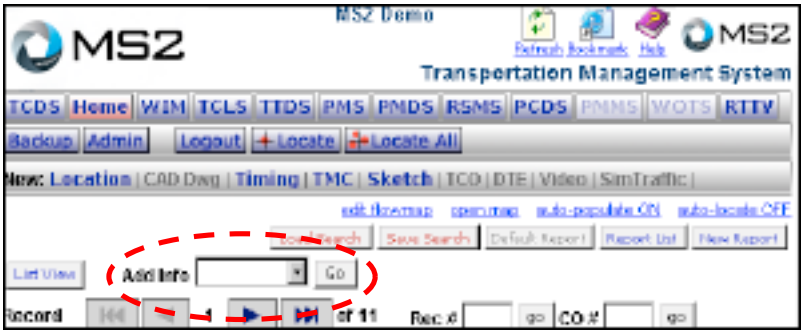


Figure 27: Add Info View

Sketches, Corridor Video, Cad Drawings, etc.

Follow the same process as described for timing plans to add a new sketch, corridor video, CAD drawing, and several other assets. The file format will vary depending on the asset being added.

Approach/Sign Photos

Photos are added in a different way than other assets. To add new photos, add additional photos, or replace existing photos click the "edit" button in the Photo section on the intersection detail page (Figure 28). You must then select the approach you wish to edit.

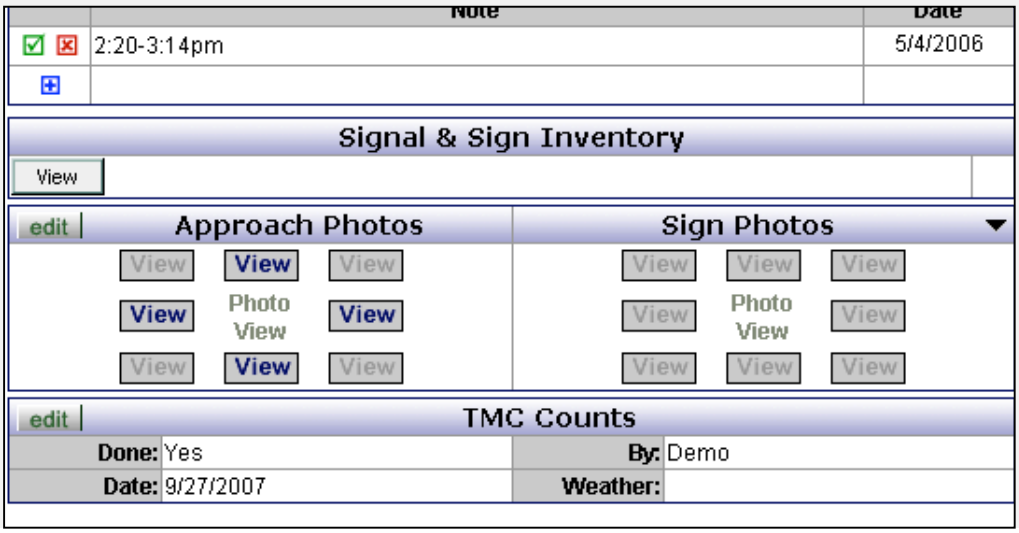


Figure 28: Photo Section on Intersection Detail Page

Each approach with no photos will have the ⊞ icon, indicating you may add a photo, and each approach with the icon ☒, has an existing photo (Figure 29). Use the "Cancel Edit" button to go back to the intersection detail page without making changes.

This is only an introduction to a few of the tasks you are capable of performing using the TSMS interface. Contact MS2 and we will be happy to provide further support.

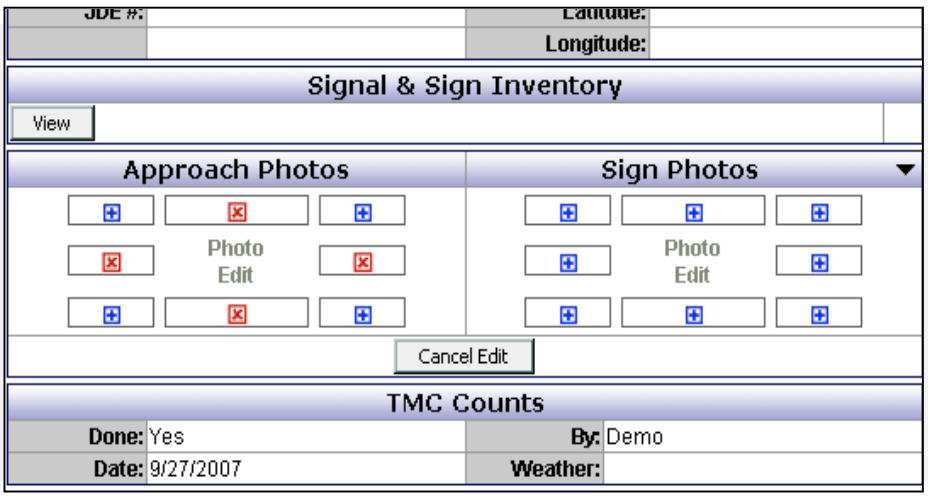


Figure 29: Photo Edit Page