

Department of Environmental Quality Michigan Environmental Mapper



Application User's Guide

Prepared by
Michigan Center for Geographic Information (MCGI)
Department of Information Technology
and the Remediation and Redevelopment Division
Department of Environmental Quality

September 18, 2006
Version 2.3

Table of Contents

*NOTE: For Web Viewing, the PDF Version of this document has bookmarks.

INTRODUCTION	5
CONTACT INFORMATION	5
SYSTEM REQUIREMENTS	5
SECTION 1: BASIC OUTLINE & PREVIEW DIAGRAM	6
Basic Outline.....	6
SECTION 2: MAIN PAGE HIGHLIGHTS	7
Links	7
SECTION 3: MAP EXTENT, TOOLS/BUTTONS & TYPE	8
Map Extent.....	8
Map Tools/Buttons	8
General Tools and Buttons.....	9
Tools with Submenus	9
Additional Items.....	10
Map Type.....	10
SECTION 4: SIDE MENU	11
Legend.....	12
Layers	12
Select.....	12
View Selection	13
Method of Collection	14
SID Information.....	14
SECTION 5: ADVANCED TOOLS - MEASURE & BUFFER	15
Measure.....	15
Buffer	16
Buffer Example.....	18
SECTION 6: STATE HOUSE/SENATE DETAIL	19
SECTION 7: SEARCH	20
Select Points by Location.....	21
Multiple Results Found	21
SECTION 8: FREQUENTLY ASKED QUESTIONS	22

INTRODUCTION

Welcome to the 'Michigan Environmental Mapper.' The Michigan Department of Environmental Quality (DEQ) has provided this application to allow users to view, on a Michigan map, sites regulated under [Part 201](#) Environmental Remediation¹, [Part 211](#) Underground Storage Tanks, and [Part 213](#) Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended (Act 451). “

The online interactive map viewer was created by [the Remediation and Redevelopment Division](#) (RRD). Base map features and image backdrops are included as well as layers specific to this project. With the viewer, users can locate storage tank systems on the map, find latitude and longitude coordinates, find addresses, and download spatial data.

The Michigan Environmental Mapper home page is at (control/click) [CLICK HERE](#) and it provides the definitions, disclaimers, and associated links. The application, itself, is at the web address: <http://www.mcgi.state.mi.us/EnvironmentalMapper/>

CONTACT INFORMATION

You may contact us as follows:

- Call Nick Ekel, at 517-241-7036 or e-mail to ekeln1@michigan.gov, or
- Call Susan Norton, at 517-373-2113 or e-mail to nortons1@michigan.gov.
- Mail to: Nick Ekel Jr., Geological Services Unit, Remediation and Redevelopment Division, Michigan Department of Environmental Quality, P.O. Box 30426, Lansing, MI 48909-7926.

SYSTEM REQUIREMENTS

In order to use Mapper, access to the Internet and version 6.0 or higher of Internet Explorer is required. Web browsers, such as Mozilla Firefox, may be used also. Some screens will have a different appearance depending on the web browser.

Note: Environmental Mapper uses “pop-ups”. Make sure that they are **enabled** in the web browser when using the application.

¹ The Part 201 layer is under construction and should be available in fall 2006.

SECTION 1: BASIC OUTLINE & PREVIEW DIAGRAM

Environmental “Mapper” is an online application that has a variety of features to assist in planning and field operations. Typical usage of Mapper will follow these 6 steps:

Basic Outline

1. Use search submenus or zoom tools to locate an area of interest.
2. Select an Underground Storage Tank (UST) Site or Facility map layer(s) to view.
3. Modify a background map with buttons if desired .
4. Choose a tool to highlight items of interest.
5. Select highlighted sites for additional details.
6. Use links and tabs to export or print information.

Most of these steps can be initiated from Mapper’s Main Page. Figure 1-1 shows an aerial photograph highlighting two Part 213 sites that fall within a 2000 foot buffer placed around the southern shoreline of Crystal Lake, near Frankfurt.

Figure 1-1: Mapper Preview



SECTION 2: MAIN PAGE HIGHLIGHTS

After entering the web address, the main page will be displayed (see Figure 2-1).



Figure 2-1: Main Page

The main page has three primary areas of interest: **Links** (bottom and top), **Map** (center area), and **Side Menu** (left area). (*NOTE: Section 3 explains **Map Features** and Section 4 describes the **Side Menu**.)

Links

There are numerous links located on both the top and bottom banners of the main page. Clicking on the top leads to the Environmental Mapper background information, DEQ, and State of Michigan home pages. There are also links to this Help Guide, a Text-Based Search, and a Contact Us link. Along the bottom banner of the web page, there are additional links to a variety of other web sites (see Figure 2-2).

[Michigan.gov Home](#) | [DEQ Home](#) | [Online Services](#) | [Permits](#) | [Programs](#) | [Site Map](#) | [Contact DEQ](#) | [State Web Sites](#)
[Privacy Policy](#) | [Link Policy](#) | [Accessibility Policy](#) | [Security Policy](#) | [Michigan Geographic Data Library](#) | [Michigan News](#) | [MI.GOV Survey](#)

Copyright © 2001-2005 State of Michigan

Figure 2-2: Bottom Links

SECTION 3: MAP EXTENT, TOOLS/BUTTONS AND TYPE

There are three items associated with the central map area on the main page:

- **Map Extent** - toggle the map size to the full extent of the browser window.
- **Map Tools/Buttons** - click these to zoom or recenter the map, measure distances, create a buffer zone, identify items, erase, or print the current map being displayed. *NOTE: Measure, Buffer, and Identify (House/Senate Detail) tools are explained further in Section 4 as they work in conjunction with the side menu.
- **Map Type** - click these buttons to choose the map type being displayed. Street, Aerial, Plat, Land Use, or Topographic maps are all available options.

Map Extent

The following buttons control the main map display in the center of the page:

 This button is located above the map and to the right. Clicking here allows the map to enlarge to the full extent of the browser window, as seen in Figure 1-1.

 This button replaces the Full Screen button after the map has been enlarged. Clicking here returns the map to the default size, as seen in Figure 2-1. *NOTE: When printing, be sure to have the screen size as the default view.

Map Tools/Buttons

The main map display can be modified in a variety of ways. There are both tools (using the cursor to do a task) and buttons (alters map features or display immediately). These are contained in a tool bar located just above the main map (see Figure 3-1).



Figure 3-1: Map Toolbar

To make map tools/buttons active, click once with the mouse. Click again to make the button/tool inactive or click on a different selection. An active tool will be outlined with a red box and have its upper left corner filled in.  = Active Tool  = Inactive Tool

General Tools and Buttons:



Zoom in: once active, click the cursor on the map to zoom in, or click and draw a box to show the zoom extent of the box and show a smaller area.



Zoom Out: click the cursor on the map area to zoom in and show a larger area.



Zoom to Previous Map or Back - click to view the previous map. This tool will only go back one map and not to earlier ones.



Zoom to Last Extent or Forward - click here to zoom to the most recent map. This icon will turn red (as above) while viewing the previous map.



Recenter - once active, click on an area to make that the new center of the map.



Clear Screen - click here to erase any tool features currently active on the map, such as the **Buffer** seen in Figure 1-1.



Zoom Full - click here to return the map to the full extent of the state.



Identify Single Location - once active, click near a site to show the facility's Name, ID, and location; including street address, county, and district. Clicking the Facility ID provides a link to additional information, see Figure 4-6.



Print - click here to print the current map - this will open up a new window displaying a print preview and printing options as an Adobe PDF file.
*NOTE: When printing, be sure to have the screen size as the default view.

Tools with Submenus

The Following tools work in conjunction with the Side Menu. Each tool will open up a separate submenu to further define parameters used by the tool. These tools are further explained in **Sections 4, 5, and 6**.



Measure - use multiple clicks to measure distances between two or more locations. The measure submenu will automatically open.



Identify State House/Senate Detail - click to show House and Senate detail information about a location.



Select - drag a cursor extent window to select sites or facilities, and then retrieve statistics from the Environmental Mapper database.



Buffer Feature - highlight sites or facilities located within certain distances of a river, road, or other area of interest selected by the user.

 **Buffer Polyline** - highlight sites or facilities located within designated distances of a line, or multiple line segments created by the user.

 **Buffer Point** - highlight sites or facilities located within designated distances or radius of a circle emanating from a point created by the user.

Additional Items

Tool Tips - When held over certain icons or listings, the cursor may change to a pointing hand and a tool tip will appear giving information about that item.

Coordinates - To the right of the map tool bar are latitude and longitude coordinates indicating the location of the cursor on the map. 46.07203,-92.77992

Map Type

Across the bottom of the map is a list of buttons that can change the background map being viewed in the main display area. (*NOTE: clicking on “**Legend**” in the **Side menu** will provide a map legend detailing items on the Street, Land Use, and Topographic Maps. See **Section 4** for more details.)



Figure 3-2: Map Types

The current map will have red text versus black. The following selections are available:



Pressing this button (the default selection) allows the user to see roads, streets, and highways (Michigan Geographical Reference Version 5, soon to be Version 6).



Pressing this button allows the user to see aerial photos for the selected area. Resolution can vary between counties. (Maps Source: Rockford Map Publishers. Black and White = 1992 United States Geological Survey (USGS) Digital Ortho Quarter Quad, and Circa 1998 USGS Digital Ortho Quarter Quad).



Pressing this button allows the user to see features ranging from individual parcel ownership to corporate city limits and others (Rockford Plat Maps).



Pressing this button allows the user to see the various types of land cover, including types of vegetation, population density, and certain geology. This map is based on the 2000 National Land Cover Data.



Pressing this button allows the user to see elevations of both man-made and natural features, including lakes and streams off the USGS Topographical Quadrangles.

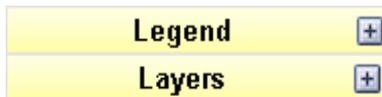
SECTION 4: SIDE MENU

The left side of the main page is occupied by the “Side Menu.” From this menu the following options and functions are available:

- **Legend** - open a legend detailing the items displayed on the main map.
- **Layers** - display **Part 213**, **Part 201**,² and **Part 211** sites on the main map.
- **Select** - use with the Select tool to highlight sites of interest.
- **Buffer** - use with the Buffer tool to highlight sites within given parameters, **Section 5**.
- **Measure** - choose a unit of measurement to use with Measure tool, **Section 5**.
- **State House/Senate Detail** - find information with the Identify tool, **Section 6**.
- **Search** - change the map display to match Address, Community, County, Legislative District, RRD District, or Watershed information entered by the user, **Section 7**.

Initially the Side Menu is contracted as seen in Section 2, Figure 2-1.

To open up a submenu, click on the “+” located to the right of the submenu title.



The submenu will expand as seen in the Layers submenu open in Figure 2-3.

To close a submenu, click on the “-” and the submenu will contract.



Above the side menu are two master controls. These control buttons will affect all submenus.

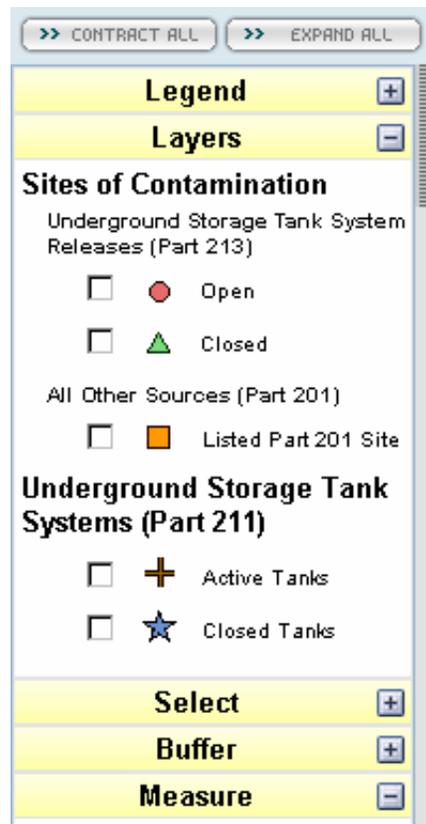


Figure 4-1: Expanded Submenu

² Part 201 layer is under construction and will be available in fall 2006.

The side menu master controls are:

Click here to open all submenus:



Click here to close all submenus.



Note: On the right side of the side menu is a scroll bar that also can be used to navigate through the open submenus.

Legend

Open this submenu to show a map legend corresponding to the main map display. This is available for the Street, Land Use, and Topographic background maps and will automatically update when a new selection is made.

*NOTE: There is no legend information for either the Aerial or Plat Map backgrounds.

Layers

The second option in the Side Menu is the Layers Submenu. This shows the available layers to choose to display on the main map: Sites of Contamination (Part 213 and Part 201) and Underground Storage Tank Systems (Part 211), see earlier Figure 4-1.

When active, facility and sites will be represented on the main map by the designated symbols. To make a layer active, simply click on the checkbox and a check will appear. To deselect a layer, click on the checkbox a second time.

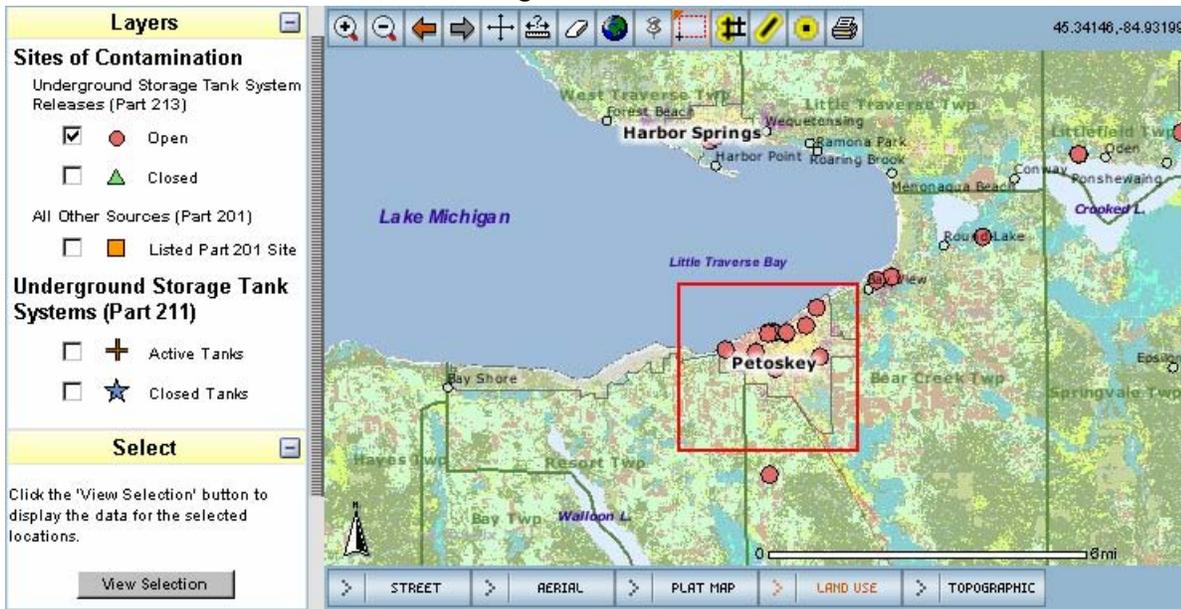
For a definition of the type of sites, leave the cursor on the item in the submenu and a Tool Tip explanation will appear.

*NOTE: Other functions will cause the layers to automatically become active.

Select

The select submenu works in conjunction with the Search Tool, , (see page 20). Activating the tool opens both the Select and Layers submenu, (a layer must be present in order to be selected.) Once the Select Tool is active, drag a box extent to include the sites of interest. In Figure 4-2, the user wishes to select Open 213 sites in the Petosky area.

Figure 4-2: Select Tool



The items falling within the extent box will be highlighted in blue as shown in Figure 4-3.

These sites are now selected. For more information about them, click **“View Selection”** in the Selection submenu (see Figure 4-4).

The site(s) information will appear in a new browser window (see Figure 4-5).

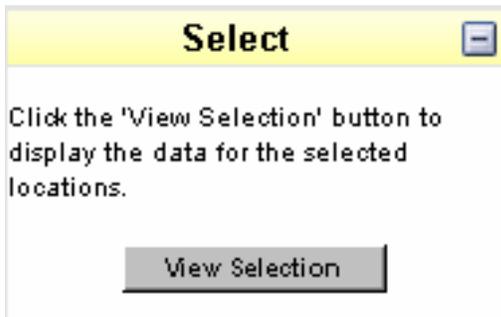


Figure 4-4: View Selection

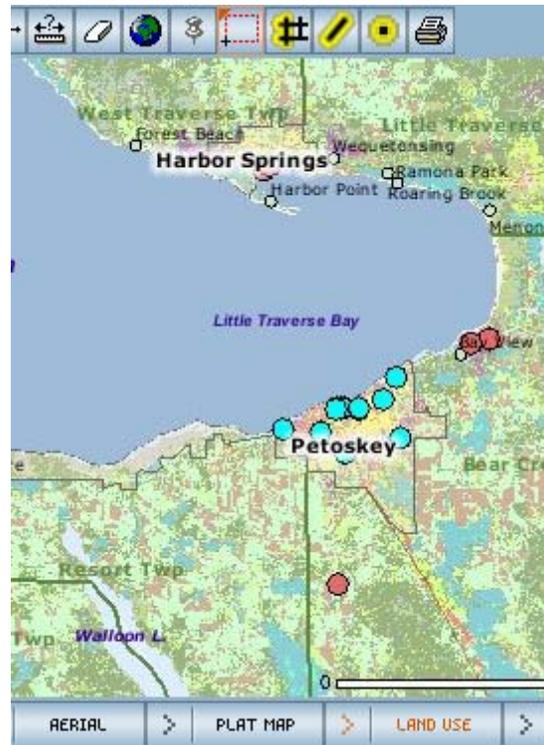


Figure 4-3: Selected Sites

Michigan Environmental Mapper
Department of Environmental Quality

Michigan.gov
The Official State of Michigan Website

Storage Tank Facilities Data

Selected Record Count: 14

Export to Excel Spreadsheet

Facility ID	Facility Name	Address	City	Zip Code	County	District	Latitude	Longitude	Method of Collection
00001390	Tallberg Used Cars	900 Bay View Rd	Petoskey	49770	Emmet	Cadillac District Office	45.3811310000	-84.9462510000	Select
00003646	Farmers Petroleum Coop-petoskey	1115 Charlevoix Ave	Petoskey	49770	Emmet	Cadillac District Office	45.3695000000	-84.9833430000	Select

Figure 4-5: Selections Window

This new window shows all the Storage Tank Facilities Data corresponding to the selected sites. The information can also be exported to an Excel Spreadsheet by pressing on the designated button in the upper right.

A facility may have more than one Leaking Underground Storage Tank (LUST) site name. To list all the LUST site names under one facility, click on the 'Facility ID' number on the left in the table. A new window will appear with more listings and details about the site selected.

Clicking on the far right “ ” button will bring up a new window describing the Method of Collection at that particular site, as seen in Figure 4-6.

Figure 4-6: Method of Collection

Method Of Collection							
Method of Collection	Date of Collection	Accuracy Value	Accuracy Value Unit	Source	Horizontal Datum	Description Category	Point Line Area
Address Matching-House Number	05/10/2004	100	FEET	STAMIC	NAD83	Plant Entrance (Freight)	POINT

Clicking on the Facility ID number next to a selection changes the window to show more specific information about that site (see Figure 4-7.) This is a link to the DEQ’s Storage Tank Information Database or SID.

Tank ID	Tank Status	Capacity (in gallons)	Installation Date	Substance Stored	Tank Release Detection	Piping Release Detection	Piping Material	Piping Type	Construction Material	Impressed Device
1	Removed from Ground	1000		Gasoline			Galvanized Steel	Suction: Valve at Tank	Asphalt Coated or Bare Steel	No
2	Removed from Ground	1000		Gasoline			Bare Steel	Suction: Valve at Tank	Asphalt Coated or Bare Steel	No
3	Removed from Ground	500		Kerosene			Galvanized Steel	Suction: Valve at Tank	Asphalt Coated or Bare Steel	No

Leak ID	LUST Site Name	Discovery Date	Substance Released	Release Status	Closed Date	Evaluation	Land Use Restrictions
C-0441-96	Rasmussen Property	06/26/1996	Gasoline	Closed	06/16/1998	Tier I Evaluation	NONE

Figure 4-7: Specific Site Information

*NOTE: Other tools and submenus, such as **Buffer** or **Search**, also have the “View Selection” button available. Each works in a similar fashion to the Select submenu.

Use the browser 'back' buttons to return to the facilities list that were a part of the initial selection. These browser windows may be closed without having to close the UST application.

*NOTE: Section 5 explains Measure and Buffer under Advanced Tools. State House and Senate Details are explained in Section 6, while Section 7 describes the Search Submenu.

SECTION 5: ADVANCED TOOLS - MEASURE & BUFFER

MEASURE – This item measures distances between two or more locations or along a selected path by using the following steps:

1. Click the  button on the Map Toolbar to activate the tool. The Measure submenu opens directly below the Buffer submenu (see Figure 5-1).

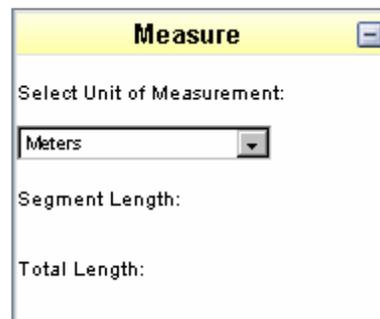


Figure 5-1: Measure Submenu

2. Select the unit of measurement to be used. Click the  and choose meters, feet, or miles (see Figure 5-2).
3. To begin measuring, click a location on the map to be used as the starting point.
4. Move the cursor to your next location; this measuring leg is colored pink.
5. Click on the new location to measure the distance; this completed leg becomes blue.
6. Continue the process until you arrive at your destination; click twice to finish measuring.

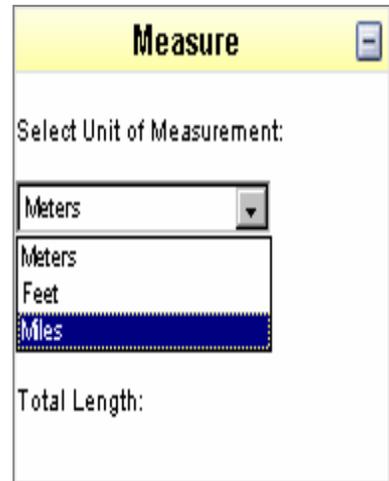
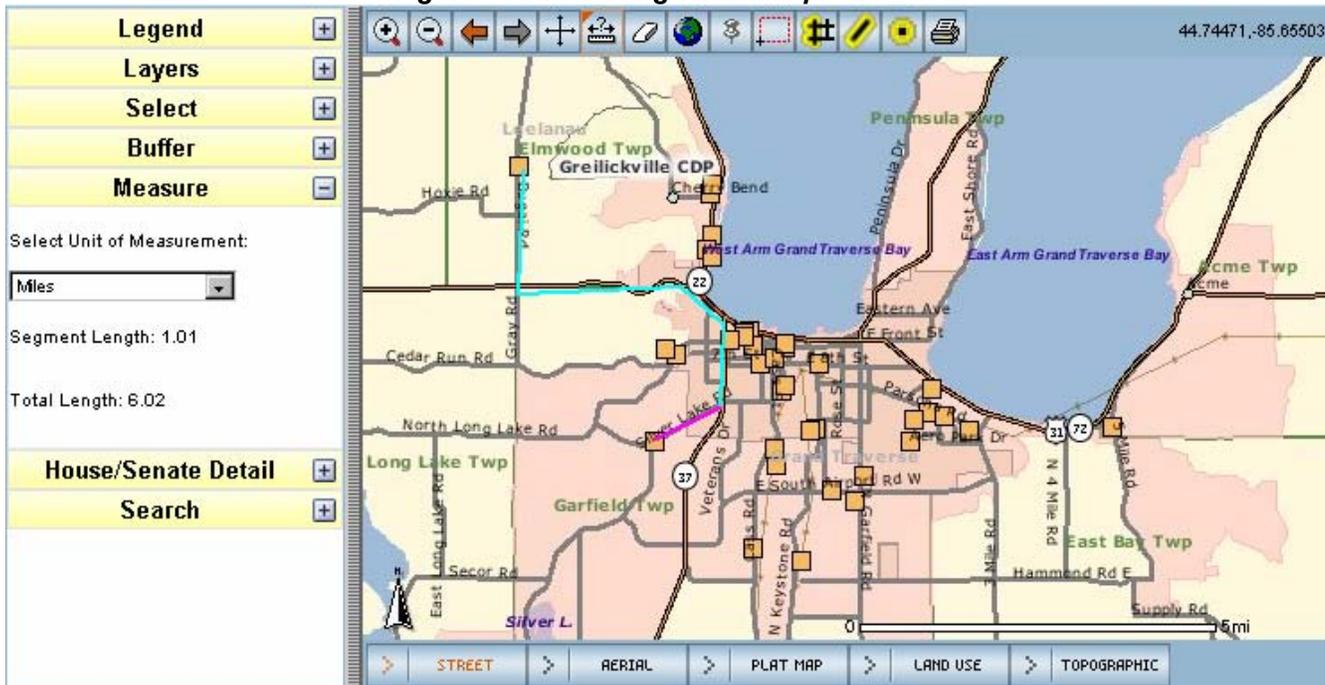


Figure 5-2: Measure Units

*NOTE: The measure of the current leg being drawn is listed as the **Segment Length** while the total distance is shown as **Total Length**. In Figure 5-3, the measuring leg in pink is 1.01 miles and the total distance along the blue path is 6.02 miles.

Figure 5-3: Measuring With Multiple Locations



BUFFER – This item determines whether sites or facilities fall within a certain distance of a river or other selected location. A buffer refers to an area of interest such as a zone of protection or potential area of contamination.

Buffer Tool Tutor

To create a buffer, use the following steps:

1. Select the type of buffer tool:
Feature, Polyline, or Circle.

*NOTE: The **Buffer Submenu** will open on the **Side Menu** (see Figure 5-4).

2. **Units for Buffer** - choose units to be used for the buffer - Meters, Feet, or Miles.

3. **Buffer Tolerance** - choose the distance the buffer will extend when using the buffer tool (refer to step 6, to see how this distance is used).

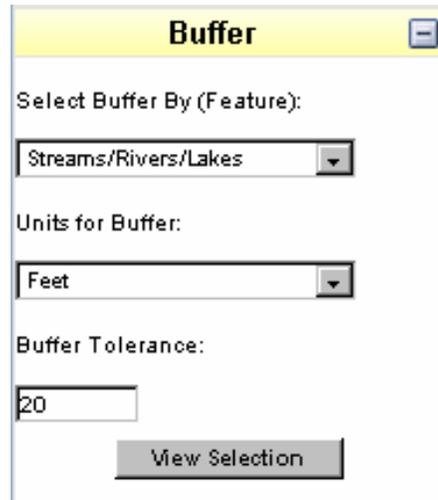


Figure 5-4: Buffer Submenu

4. **Choose the Sites** - The **Layer Submenu** has also opened. Click the desired layer active if this has not already been done (see Figure 4-2, page 13).

5. **Draw the Buffer** - each buffer tool operates differently as follows:



Feature - use a polygon to select a buffer around an area of water (or other map feature when available.) Drag the mouse to form a red rectangle over the desired area, then unclick. A Buffer will extend a select distance from the midline of the river etc. to the next node along the river path outside of your selected area (see **Buffer Tolerance** regarding distance).

*NOTE: If **Feature** was chosen as the Buffer tool, that feature must be selected using the **Select Buffer By (Feature)** drop down menu. Streams/Rivers/Lakes are currently available.



Polyline - click to begin building a line similar to the measure tool. Double click to finish the line. A buffer is created that extends the tolerance level outward from both sides of the line and its endpoints.



Circle - click the cursor to make the center point for a circular buffer. The buffer tolerance is used as the circular buffer's radius.

After the parameters have all been determined, follow the procedure of the chosen **Buffer tool** (step 3) and click to place a point, click multiple times for a line, or drag a box over a desired feature to apply the buffer.

Once these steps have been followed, the buffer is represented by a yellow polygon. Sites or facilities that have been chosen as the buffer layer will appear highlighted in

blue if they fall within the buffer's area. Click on the following links to find more information about these sites:

View Selection

– This button brings up a tabular listing of sites that fall inside the buffer zone. (**NOTE:** See Section 4 for further details)



Clear Screen – use this tool to erase the buffer.

EXAMPLE: Find Active Underground Storage Tank Systems (Part 211) within a 0.4 mile radius of the US 131 and I 196 interchange near downtown Grand Rapids.

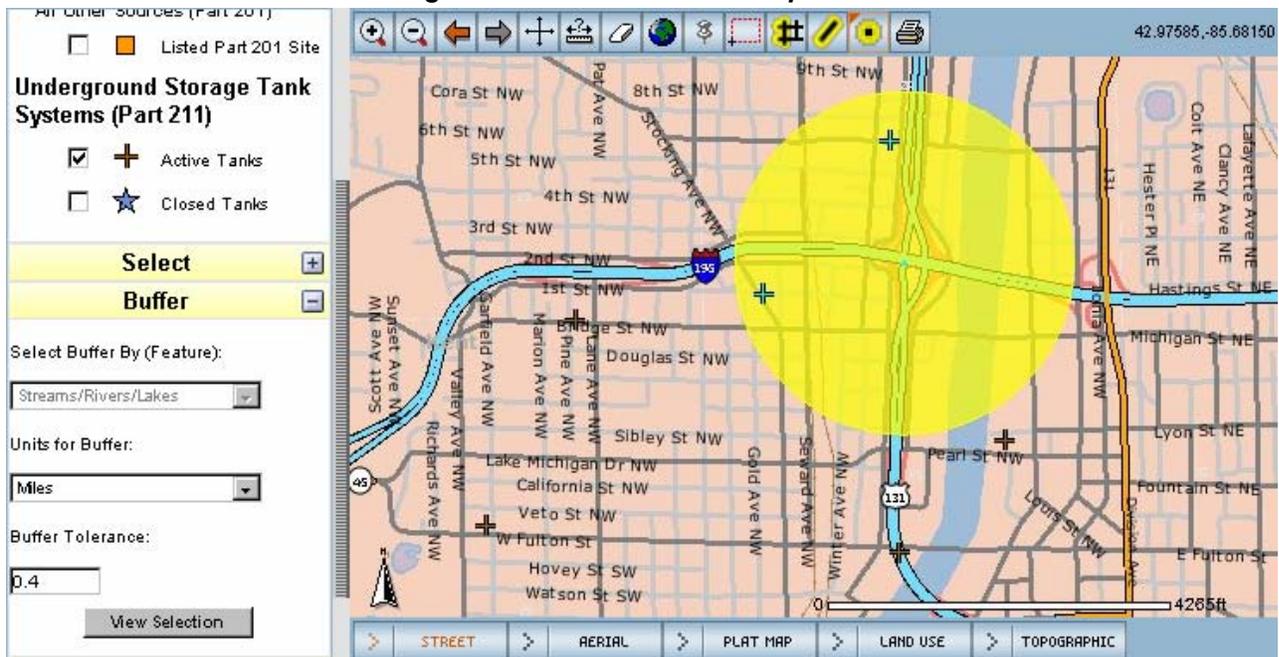
First open the **Search Submenu** - type in Grand Rapids, select city as the option, then press “search.” This will pull up the city of Lansing in the Main Page Display Map. Use the zoom-in tool to get a closer view. *Note: The **Search Submenu** will be explained further in **Section 8**.

Next follow the buffer steps:

1. Select Buffer tool - click  once to activate **Buffer Circle**.
2. Select Units to Buffer - in the now open Buffer Submenu, use the down arrow and highlight “Miles.”
3. Select Buffer Tolerance - type in “0.4”
4. Select Layer to Buffer - click “Active UST Facility” checkbox in **Layer Submenu**.
5. Click on the intersection of US 131, and I 196 to place the center of the buffer.

This point becomes the center of the buffer (yellow circle), having a radius of 0.4 miles. All sites within the buffer are highlighted in light blue (see Figure 5-5).

Figure 5-5: Buffer Circle Example



SECTION 6: STATE HOUSE/SENATE DETAIL

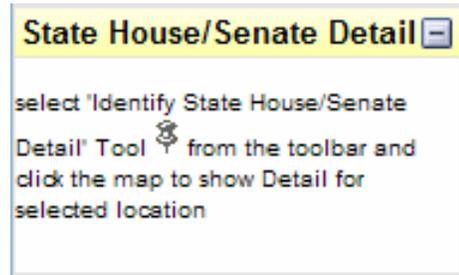
Environmental Mapper has a tool allowing the user to view congressional information about an area. This is the Identify tool, as mentioned previously in **Section 4**.



Identify State House/Senate Detail - click to show House and Senate detail information about a location.

When the Identify tool is made active, the **House/Senate Detail** Submenu will open (see Figure 6-1).

As the submenu explains, click the main map with the cursor to show Detail for the selected location.

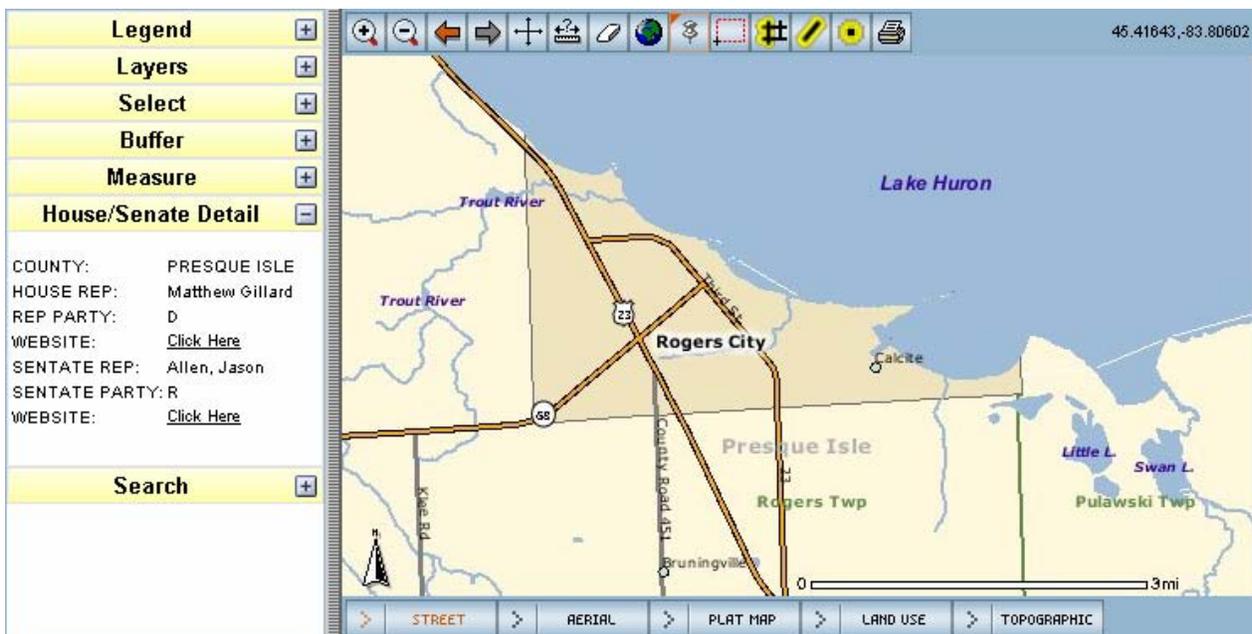


Once the Identify tool is clicked, the submenu will change to show the following information:

Figure 6-1: House/Senate Detail Submenu

- **COUNTY** - clicked location is part of this county.
- **HOUSE REP** - person listed is the House Representative for selected location.
- **REP PARTY** - this is the House Representative's party affiliation.
- **WEBSITE** - click here to go to the House Representative's website.
- **SENATE REP** - person listed is the Senate Representative for the selected location.
- **SENATE PARTY**: this is the Senate Representative's party affiliation.
- **WEBSITE**: click here to go to the Senate Representative's website.

Below is an example of the House/Senate Detail for Rogers City (Figure 6-2).



SECTION 7: SEARCH

Mapper has a variety of ways to search for a desired location. The following options are available within the **Search** submenu (also see Figure 7-1):

- **By Address** - enter a street address with either the City or Zip Code.
- **By Community** - enter the community: Village, Township, City etc.
- **By County** - select a County from a list.
- **By RRD District** - select a Remediation and Redevelopment Division District from a list.
- **By Watershed** – select a Major Watershed Boundary from a list.
- **By Legislative District** - select the House or Senate District from a list.



Figure 7-1: Search Submenu

Each Search option may be opened by clicking on the  and closing with the .

Click on the down arrow, , next to an entry to show a list of choices, then click again on the desired district (highlighted blue) as seen in Figures 7-2 and 7-3.

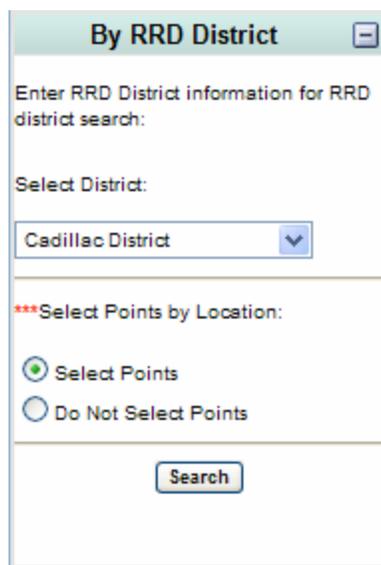


Figure 7-2: Open RRD District Search Option.

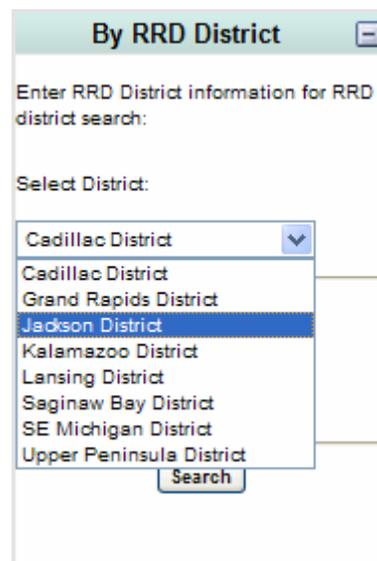


Figure 7-3: RDD District list of choices by clicking down arrow .

Once the appropriate information has been entered/selected, click on the  button located toward the bottom of the section. The main map display will change to match your search.

Select Points by Location

Several search options have the ability to use an Active Layer and map storage tank systems at the same time. Above the **Search** button is a window with two circle checkboxes having the following options (see Figure 7-4):

- **Select Points** - highlights sites from the active Layer when the map is displayed.
- **Do Not Select Points** –only maps the intended location or area without highlighting any points.
- If you have no layers active and click the “  ” button, a warning message appears in a pop-up window as seen in Figure 7-5.

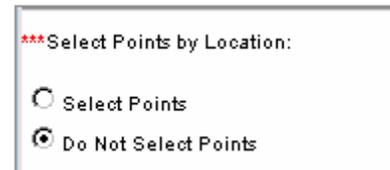


Figure 7-4: Select Points

*NOTE: The type of sites or facilities must be selected from the **Layers submenu** as described in **Section 4**.

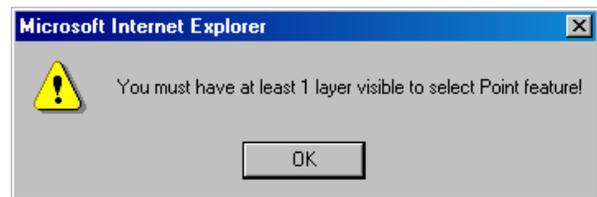


Figure 7-5: Point Feature Message

Multiple Results Found...

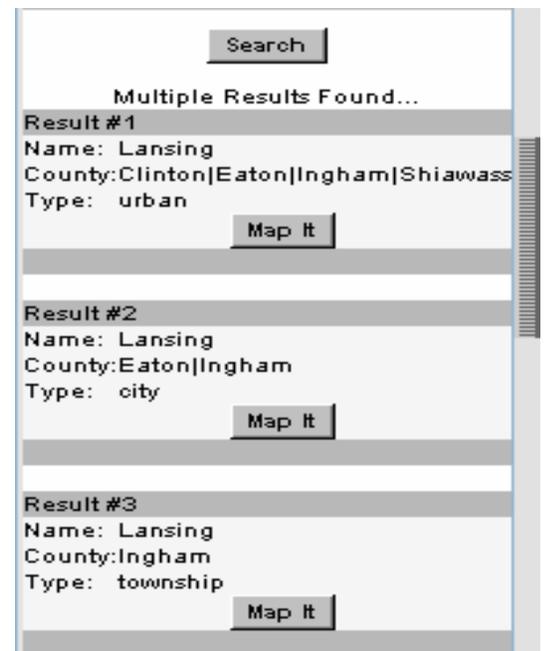
In the case where multiple selections match the entered search criteria, a list of choices will be available (see Figure 7-6).

Typing in “Lansing” for the Community Name in the **By Community** Search Submenu returns Lansing as an urban, city, and township community type.

Use the scroll bar to navigate to the desired location.

To map the location, click on the  button.

**Figure 7-6:
Multiple Results
During Search**



SECTION 8: FREQUENTLY ASKED QUESTIONS (FAQs)

1) How do I see my storage tank sites?

Answer: Click on **Layers** in the side menu, then select the type of sites to view.

2) How do I see more information about a particular site?

Answer: Use the **Select Tool** " " from the top **Map Toolbar** to highlight sites, then click on **View Selection** in the **Select** submenu (see pages 9, 12, and 13).

3) How do I see an aerial photo of my map?

Answer: Use the bottom map type buttons and click on the **aerial** button (see **Map Type** on page 10).



4) I opened the submenu "Search," and then clicked on "By Address." How do I see the rest of the options?

Answer: Use the scroll bar to the right of the menu and move it up or down.

5) How do I see a larger map?

Answer: Click on the full screen button " FULL SCREEN" just above the upper right corner of the map (see page 8).

6) How do I contact someone regarding Environmental Mapper?

Answer: Click the [Contact Us](#) link just above the upper right corner of the map to send an e-mail to the appropriate personnel. You may also click on the [Environmental Mapper](#) Home Page.

7) How do I move my map over a little?

Answer: Use the **Recenter** tool "," then click closer to the desired location (see page 9).

8) How do I clear my map?

Answer: Use the **Clear Screen** tool "" (see page 9).

9) How do I see information about just one site?

Answer: Use the **Identify Single Location** tool "." Once active, click near a site to show the facility's information (see page 9).