



Niagara County Department of Health

THE COMMUNITY LOOW PROJECT

MAPPING SYSTEM

COMMUNITY LOOW PROJECT PUBLIC MEETING Lewiston Senior Center June 13, 2007

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Niagara County Department of Health

THE COMMUNITY LOOW PROJECT

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PRESENTATION OVERVIEW

- Niagara County GIS Program Background
- Community LOOW Project GIS Database Development
- Community LOOW Project GIS Web Mapping Site
- Questions / Discussion

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WHAT IS GIS?

“GIS is a collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information”

Geographic information is stored in map 'layers'



NIAGARA COUNTY GIS PROGRAM BACKGROUND

November 2006: Niagara County issues RFP for procuring a GIS Consultant for Countywide Enterprise GIS Development

-County-wide GIS “Geodatabase” Development

- County-wide GIS web-mapping site

- Intermunicipal agreement with Erie County to host Niagara County GIS database and web mapping sites.

- GIS Technical Support

- GIS Training and Application Development for Public Health, Sheriff, and Economic Development

January 2007: Project awarded to ecology and environment, inc. and kicked off

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NIAGARA COUNTY GIS PROGRAM BACKGROUND

Task 8 of the GIS RFP called for the development and integration of the “Community LOOW Project GIS” into the new county system. The deliverables from this task are:

- Develop a GIS Management Plan
- Design a Geodatabase to store sample data
- Populate data into geodatabase from LOOW sampling studies (Electronic data and data entry)
- Develop web based mapping interface for public consumption, showing locations of samples and results.

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ERIE / NIAGARA INTERMUNICIPAL AGREEMENT

Erie County and Niagara County have entered into a joint 'Intermunicipal Agreement' to share Emergency 911 and GIS Resources. Erie County will host the hardware and software for Niagara County's web mapping programs (including LOOW)

Screen 1 of 33

Erie and Niagara County Intermunicipal Agreement (IMA) Summary

The Erie and Niagara County IMA is a joint-agreement that is designed to primarily leverage Erie's current GIS infrastructure to enable Niagara County to offer similar GIS services to its departments, without incurring the high start-up costs associated with establishing an enterprise-level GIS. By sharing GIS services and resources, it is anticipated that both parties can expect the following benefits over the course of the 5-year contract term:

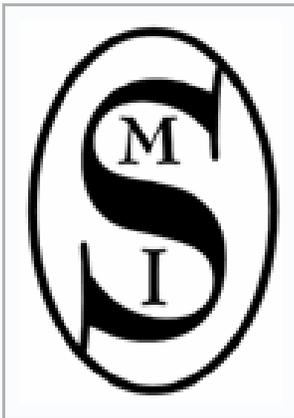
GIS Assistance: To t
agree to provide mut
assistance, and inform
Assistance, for each r
GIS Emergency Assist
or man-made disaste
mutual GIS assistance
County's respective I
Internet/ Intranet Ma
hosting and conducti
Services (IMS) using A

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ERIE / NIAGARA SHARED MUNICIPAL SERVICES GRANT

A good portion of the funding for the microwave communications that will support this connection between the two counties. Check is still pending (and final deployment of the LOOW GIS site is waiting for this financial support)



State Assistance for Shared Municipal Services

Later in 2007, the Department of State will be soliciting applications for the 2007-2008 round of the **Shared Municipal Services Incentive Grant Program**. The grant application award eligibility criteria and reference materials will be available for download on the Department's web site.

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COMMUNITY LOOW GIS DATABASE DESIGN

E & E and Scott King coordinated in the development of a geodatabase, to store the large amount of samples and related information in a *'normalized database'* Tables of information store different types of data about the project

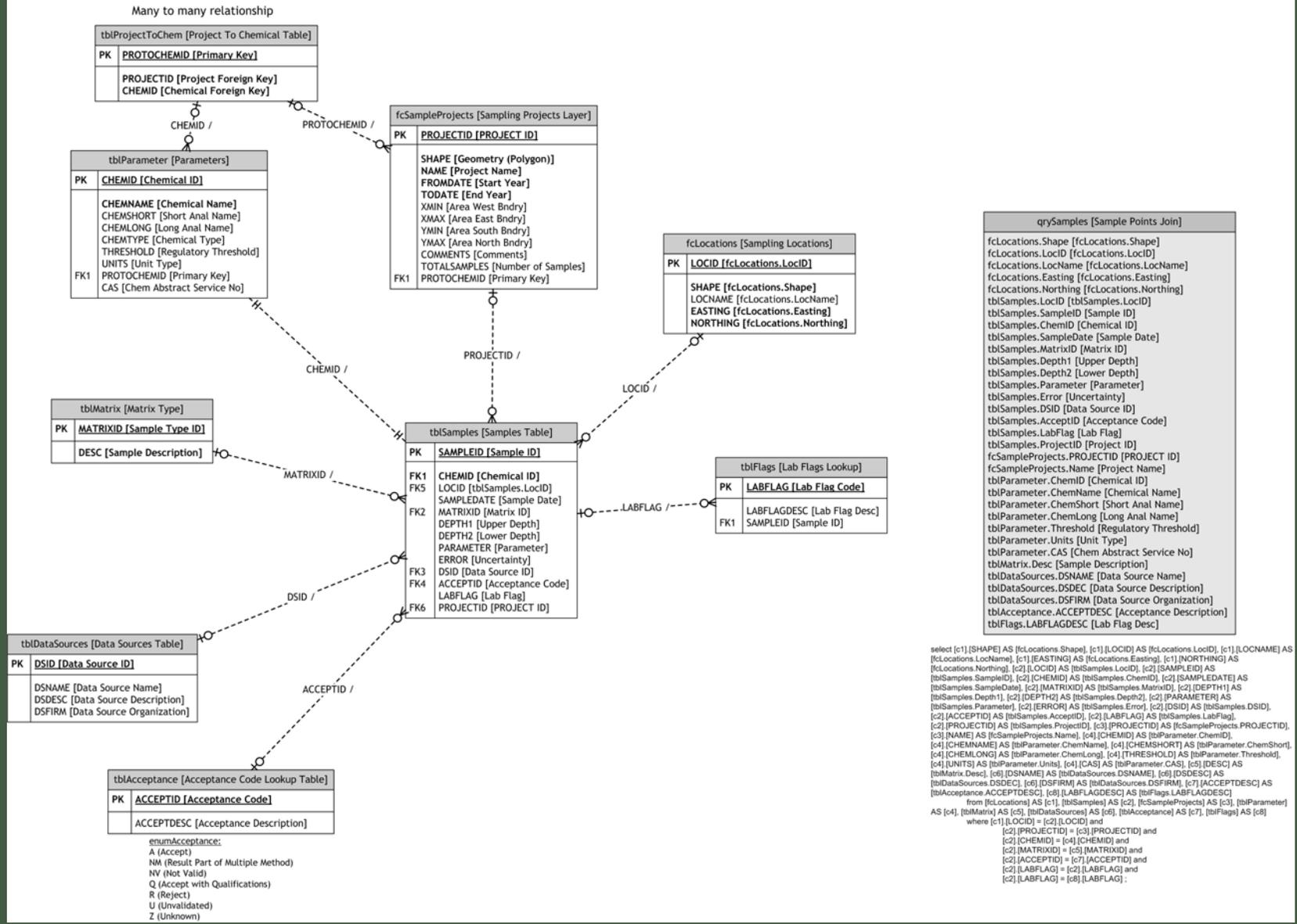
- Locations of Samples
- Sample Results
- Chemicals 'Parameters' Sampled
- Sample Types (Soil, Groundwater, etc.)
- Regulation Threshold Values for Parameters

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COMMUNITY LOOW GIS DATABASE



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GEODATABASE DATA ENTRY

Information from LOOW Sampling Studies was imported from electronic deliverables from each project (Microsoft Excel and Access) into the new LOOW GIS Geodatabase

CWM

Niagara Falls Storage Site Investigation

Niagara Falls SAIC Storage Site Investigation

USACE Phase 1 (DERP-FUDS)

USACE Phase 2 (DERP-FUDS)

Lewport Schools

Small Berm Clearing

Bechtel Radiological Study

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ArcCatalog - ArcView - Database Connections\coniglio@gis_LOOW.sde\gis_LOOW.mcfaill.TBLSAMPLES

File Edit View Go Tools Window Help

Location: Database Connections\coniglio@gis_LOOW.sde\gis_LOOW.mcfaill.TBLSAMPLES

Stylesheet: FGDC ESRI

Conversion Tools

Contents Preview Metadata

- gis_LOOW.MCFAILL.FLOODPLAINS
- gis_LOOW.MCFAILL.GroundwaterWell
- gis_LOOW.MCFAILL.LOOW_BOUNDARIES
- gis_LOOW.MCFAILL.LULC
- gis_LOOW.MCFAILL.NIAGARA_ROAD
- gis_LOOW.MCFAILL.NIAGARA_ROAD
- gis_LOOW.MCFAILL.NWiwetlands
- gis_LOOW.MCFAILL.NYSDECstreamhy
- gis_LOOW.MCFAILL.NYSDECwetlands
- gis_LOOW.MCFAILL.ONTARIO
- gis_LOOW.MCFAILL.ONTARIO_WNYS
- gis_LOOW.MCFAILL.PARCELS
- gis_LOOW.MCFAILL.PARCELSSP
- gis_LOOW.MCFAILL.ProjectBoundarie
- gis_LOOW.MCFAILL.Railroad
- gis_LOOW.MCFAILL.SAMPLING
- gis_LOOW.MCFAILL.SamplingLocation
- gis_LOOW.MCFAILL.SamplingLocation
- GIS_LOOW.MCFAILL.SAMPLINGLOCA
- gis_LOOW.MCFAILL.SiteDrawing
- gis_LOOW.MCFAILL.SOILMULOOOW
- gis_LOOW.mcfaill.TBLACCEPTANCE
- gis_LOOW.mcfaill.TBLDATASOURCES
- gis_LOOW.mcfaill.TBLFLAGS
- gis_LOOW.mcfaill.TBLGROUNDWATER
- gis_LOOW.mcfaill.TBLMAPUNIT
- gis_LOOW.mcfaill.TBLMATRIX
- gis_LOOW.mcfaill.TBLPARAMETER
- gis_LOOW.mcfaill.TBLSAMPLES

OBJECTID	SAMPLEID	LOCID	SAMPLEDATE	MATRIXID	DEPTH_UPPER	DEPTH_LOWER	ERROR	DSID
132622	132622	924	7/12/1998	SO	2	4	0	
132623	132623	924	7/12/1998	SO	2	4	0	
132624	132624	924	7/12/1998	SO	2	4	0	
132625	132625	997	6/24/1998	SS	0	2	0	
132626	132626	997	6/24/1998	SS	0	2	0	
132627	132627	997	6/24/1998	SS	0	2	0	
132628	132628	997	6/24/1998	SS	0	2	0	
132629	132629	997	6/24/1998	SS	0	2	0	
132630	132630	997	6/24/1998	SS	0	2	0	
132631	132631	997	6/24/1998	SS	0	2	0	
132632	132632	997	6/24/1998	SS	0	2	0	
132633	132633	997	6/24/1998	SS	0	2	0	
132634	132634	997	6/24/1998	SS	0	2	0	
132635	132635	997	6/24/1998	SS	0	2	0	
132636	132636	997	6/24/1998	SS	0	2	0	
132637	132637	997	6/24/1998	SS	0	2	0	
132638	132638	997	6/24/1998	SS	0	2	0	
132639	132639	997	6/24/1998	SS	0	2	0	
132640	132640	997	6/24/1998	SS	0	2	0	
132641	132641	997	6/24/1998	SS	0	2	0	
132642	132642	997	6/24/1998	SS	0	2	0	
132643	132643	997	6/24/1998	SS	0	2	0	
132644	132644	997	6/24/1998	SS	0	2	0	
132645	132645	997	6/24/1998	SS	0	2	0	

Record: 8

Show: All Selected

Records (of *2000)

Options

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GEODATABASE DATA ENTRY

Radiological data from the 1983-1985 surveys performed by Bechtel are only available in PDF format. This information is being entered into the database, as well...

TABLE 2
POST-REMEDIAL ACTION SAMPLING RESULTS
FOR PROPERTY B

Grid Coordinates		Concentrations (pCi/g +/- 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E5527	N3293	A	2.0 ± 0.3	1.6 ± 0.5
E5531	N3233	A	1.1 ± 0.3	1.0 ± 0.4
E5537	N3243	A	0.9 ± 0.2	A
E5537	N3283	A	4.1 ± 0.4	2.0 ± 0.4
E5537	N3303	A	1.1 ± 0.3	1.0 ± 0.4
E5538	N3328	A	4.7 ± 0.4	A
E5548	N3339	A	1.6 ± 0.2	3.9 ± 0.2
E5591	N3338	A	2.9 ± 0.4	0.3 ± 0.4
E5624	N3052	A	13.1 ± 0.7	A
E5627	N3042	A	1.0 ± 0.3	1.2 ± 0.4
E5636	N3052	A	0.6 ± 0.2	0.6 ± 0.3
E5663	N3323	A	14.8 ± 1.0	4.3 ± 0.7
E5664	N3236	A	11.8 ± 0.8	2.4 ± 0.5
E5664	N3274	A	13.0 ± 1.1	2.2 ± 0.6
E5669	N3307	A	4.1 ± 0.3	0.4 ± 0.2

'A' denotes less than detectable activity.

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COMMUNITY LOOW PROJECT WEB MAPPING SYSTEM

One of the main components of this project is a mapping program, accessible from the World Wide Web by anyone with a browser (Internet Explorer, Mozilla, etc.) This site provides access to the hundreds of thousands of samples analyzed over several decades in the study area.

The site provides interactive mapping, and was built using an application called "ArcGIS Server", developed by ESRI, Inc. (Environmental Systems Research Institute)



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COMMUNITY LOOW PROJECT WEB MAPPING SYSTEM

Visitors to the site will be able to

- browse general map information on the site and its surroundings
 - Air photography
 - Roads
 - Properties
 - Environmental Information (soils, flood plains, etc.)
 - Site historical building plans

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COMMUNITY LOOW PROJECT WEB MAPPING SYSTEM

Visitors to the site will be able to

- Gather information about the project samples
 - Locate sampling locations on the map
 - Display a list of samples taken at location(s)
 - View all samples as dots on the vicinity map.
 - Filter map display to only view samples meeting specific criteria entered by the user
 - Export sample list to Excel
 - Print sample maps

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COMMUNITY LOOW PROJECT WEB MAPPING SYSTEM

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Close

Zoom To Owner: Army National Guard

Tasks

Results

Map Contents

- LOOW
 - Analysis Info
 - Groundwater Well
 - Sampling Locations
 - CWM Air Monitoring Station

Overview

Query Parameters

Investigation: CWM

Sample Type: GROUND WATER

Chemical: 1,1,1,2-TETRACHLOROETHANE

1 Miles

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LOOW WEB MAPPING SITE: MAP TOOLS

This is the location of tools where the user can interact with the map

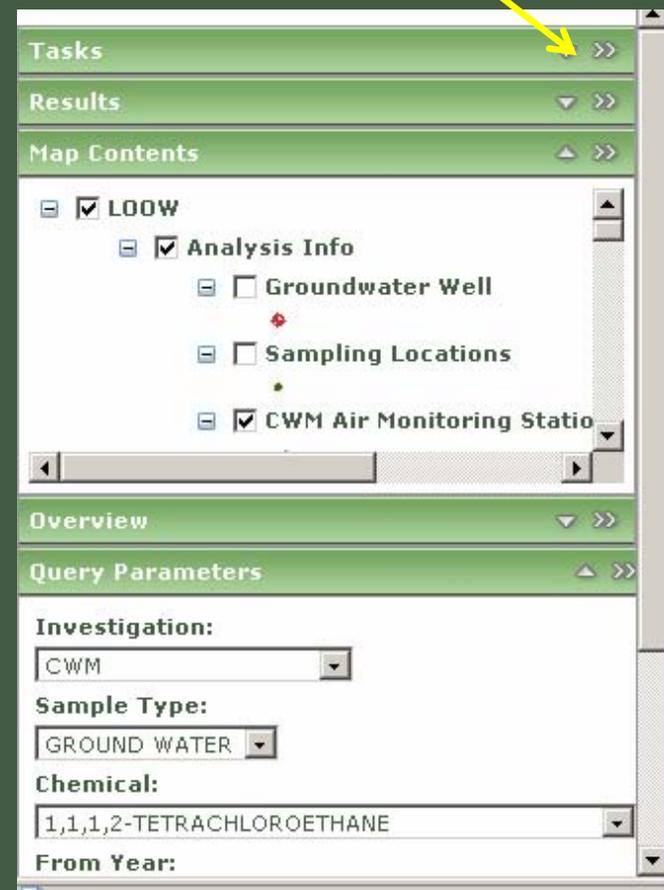
- Zoom in and Out
- Return to full view
- Information about a specific location
- Measure Distance
- Rectangle Tool to select all samples within a box for information



LOOW WEB MAPPING SITE: PANELS

• On the left side of the map are “Panels”, each of which serves a specific map function. They can be hidden or shown by clicking on the triangle button. They serve several purposes:

- Tasks: Address location
- Results: Identify information posted
- Map Contents: Map layers and legend
- Overview: Overview map of region
- Query Parameters: Filtering tool to only show specific types of samples shown here.



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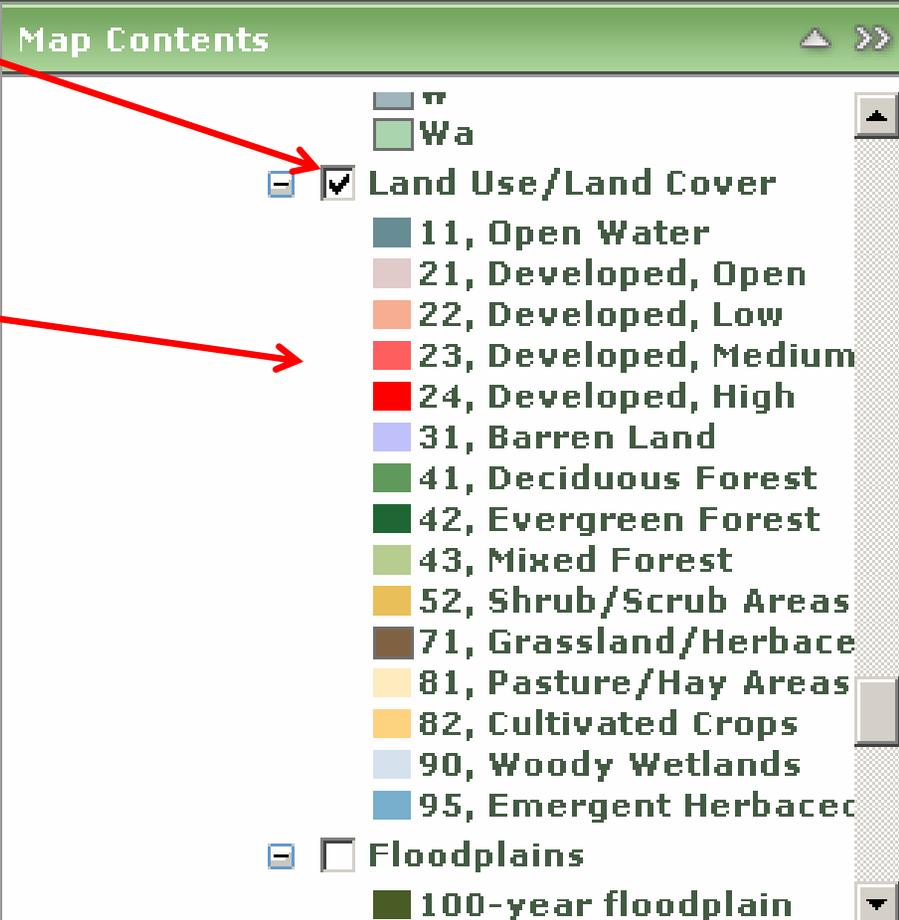
MAPPING SYSTEM

LOOW WEB MAPPING SITE: MAP CONTENTS

The "Map Contents" panel is where layer visibility is controlled, and it also gives the user a map key, showing how features are drawn on the map.

-Check the check box next to a layer to turn it off or on. Underneath each layer is a legend showing how those features are drawn

(Note: You may need to click the 'plus' symbol to expand the legend)



The screenshot shows the "Map Contents" panel with the following layers and their legends:

- Wa
- Land Use/Land Cover
 - 11, Open Water
 - 21, Developed, Open
 - 22, Developed, Low
 - 23, Developed, Medium
 - 24, Developed, High
 - 31, Barren Land
 - 41, Deciduous Forest
 - 42, Evergreen Forest
 - 43, Mixed Forest
 - 52, Shrub/Scrub Areas
 - 71, Grassland/Herbace
 - 81, Pasture/Hay Areas
 - 82, Cultivated Crops
 - 90, Woody Wetlands
 - 95, Emergent Herbace
- Floodplains
 - 100-year floodplain

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LOOW WEB MAPPING SITE: QUERY PARAMETERS

The "Query Parameters" panel allows the user to filter sample results on the map to only display samples matching the criteria displayed.

Choose the criteria listed to display those samples..... The map will only show samples meeting this filter.

- Investigation
- Chemical
- From and To Year (range of dates to search)
- Exceeding of Regulatory Standard (coming soon)

Query Parameters ▲ >>

Investigation:

Sample Type:

Chemical:

From Year:

To Year:

Regulatory Standard:

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LOOW WEB MAPPING SITE: SELECTING SAMPLES

Using the pictured "Select Tool", drag a box around samples that you want information on....



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LOOW WEB MAPPING SITE: QUERY PARAMTERS

A popup window will appear, displaying information about all of the samples taken in the area that you dragged the box over.

LOOW Community Project - Microsoft Internet Explorer provided by E & E (3.0.1)

File Edit View Favorites Tools Help

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[Export To Excel](#)

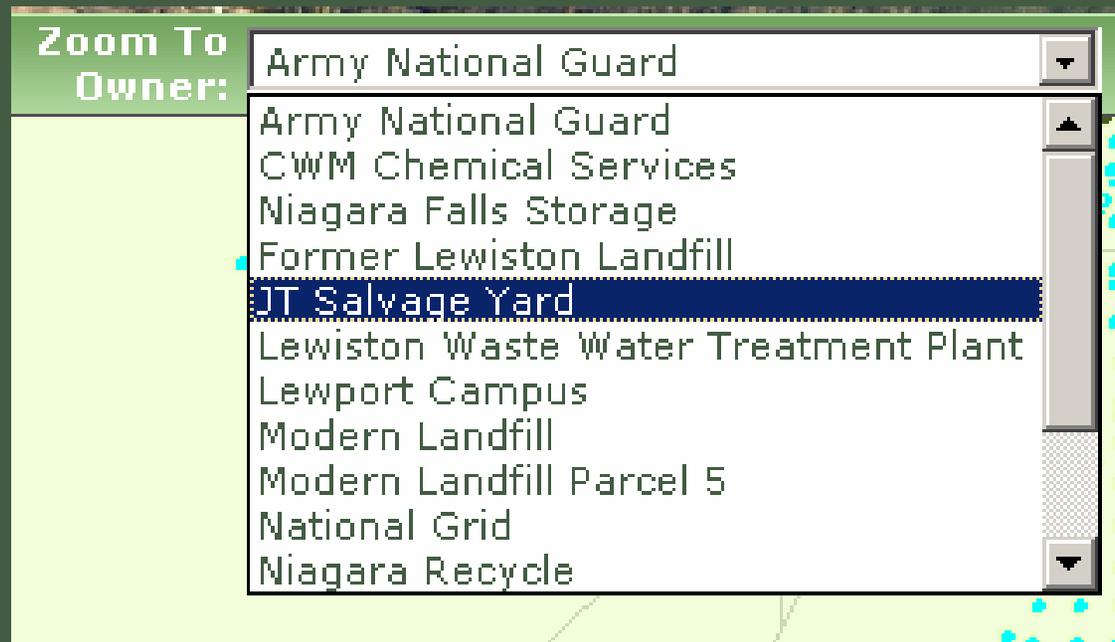
PROJECT	LOCID	RESULT	UPPER DEPTH	LOWER DEPTH	UNITS	CHEMICAL	SAMPLE TYPE	SAMPLE YEAR	X	Y
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1997	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1997	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1997	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1998	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1998	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1998	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1999	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	1999	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	2000	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	2000	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	2001	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	2001	1041473.87826	1173228.31034
CWM	1	1.9	0	0	UG/L	TRICHLOROETHENE	GROUND WATER	2002	1041473.87826	1173228.31034

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LOOW WEB MAPPING SITE: ZOOM TO OWNER

The "Zoom To Owner" pull down, above the map, to the right of the tools, allows the user to locate a specific property within the project area ...



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LOOW WEB MAPPING SITE: FINAL ENHANCEMENTS

- Fine tune the parameter query tool
- Add in the printing functionality
- Create images for customized tools
- Create layer cache to enhance the speed of the site
- Migrate site from development server hosted at E&E to Erie County servers once IMA is in place



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WRAP-UP

Discussion / Questions

Thank you!