

Underground Storage Tanks Inspection Targeting in New York State Using GIS Technology

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How To Target?

When the UST universe in New York alone is **more than 12,000 UST facilities**. . .how do we determine where to go?

- How does EPA R2 determine High Risk Areas?

GIS Technology

- EPA R2's UST Program uses GIS for inspection targeting by:
 1. Evaluating the hydrogeology to determine quickest pathways where contaminants will reach drinking water
 2. Utilizing existing UST databases and/or Dunn and Bradstreet data to identify industries/facilities in these risk Areas.
 3. Inspecting UST facilities in Target Areas.

Groundwater Endangerment-Risk Factors

EPA staff developed a state-wide Groundwater Risk Model (Hillenbrand - City University of New York, 2002). This model evaluated many factors, namely:

- Land Use (industrial/high intensity residential vs forested area)
- Hydrogeology—determining state areas with fastest pathways for contaminants= *aquifer susceptibility*
- Groundwater used primarily for drinking water
- Well Head Protection Areas (ground water)
- Source Water Protection Areas (surface water)

Groundwater Endangerment - Risk Analysis



Land Use-Risk

(Commercial, residential, forest, etc.)

Land Surface

Aquifer Susceptibility

(Travel time to Water-Table)

*Vadose
Zone*

Water-Table

Aquifer

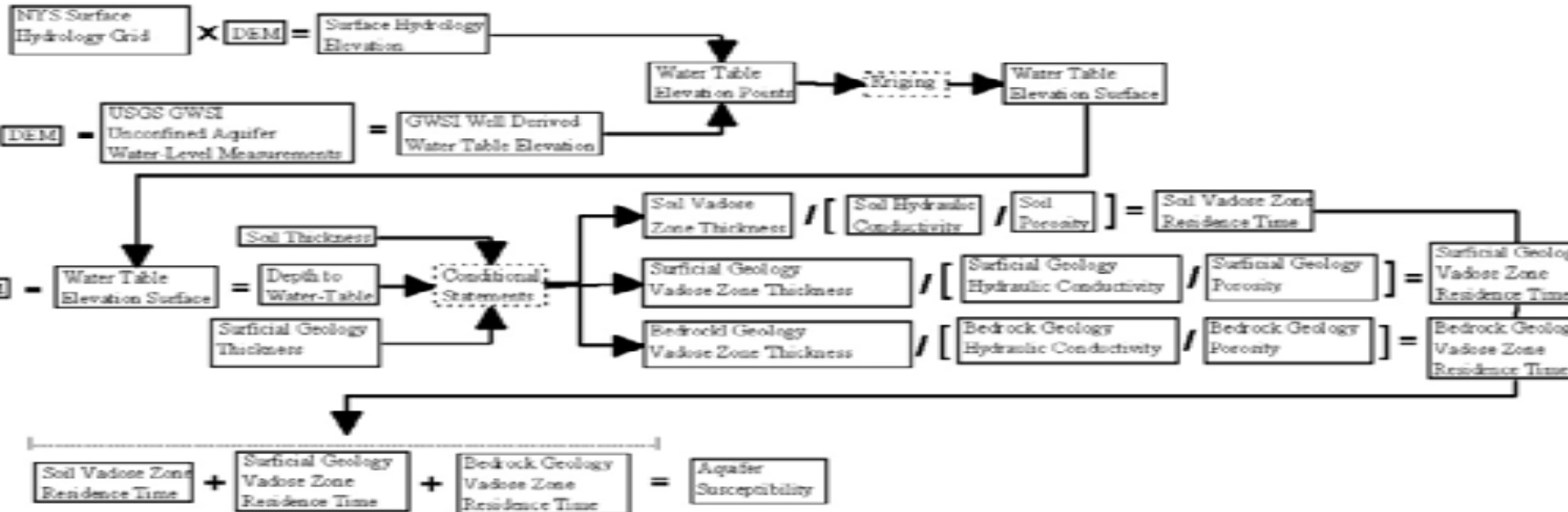


Groundwater Endangerment-Risk Analysis (cartographic model)

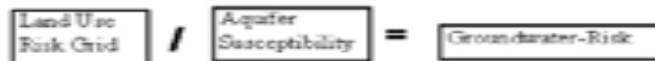
LAND USE-RISK



AQUIFER SUCCEPTIBILITY



GROUNDWATER-RISK



GROUNDWATER ENDANGERMENT-RISK

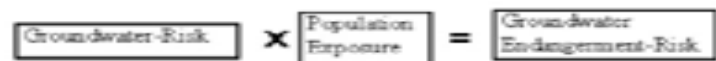
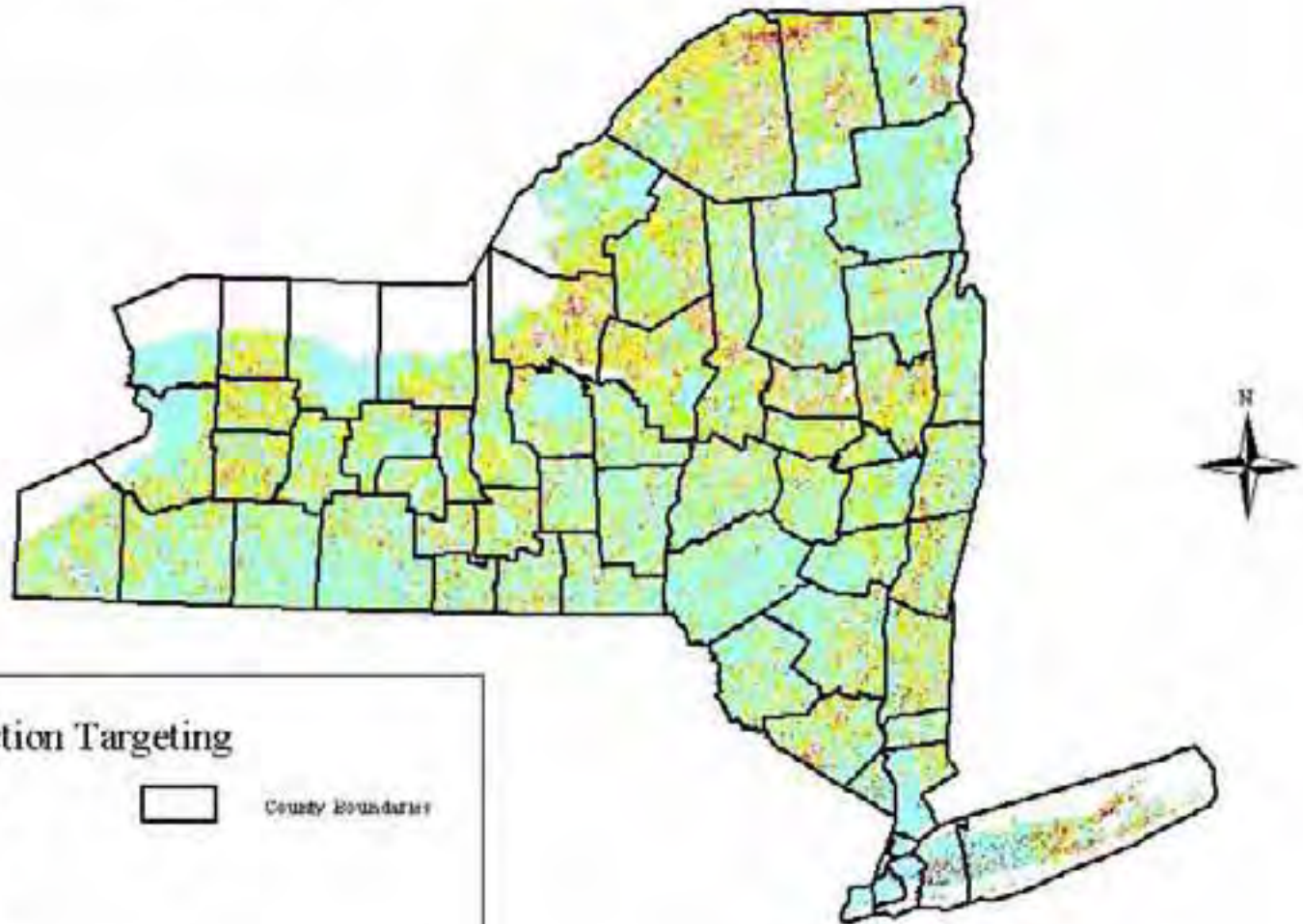


Figure 6. Groundwater Endangerment-Risk

(Hillenbrand, Hansen and Friedman, in press)

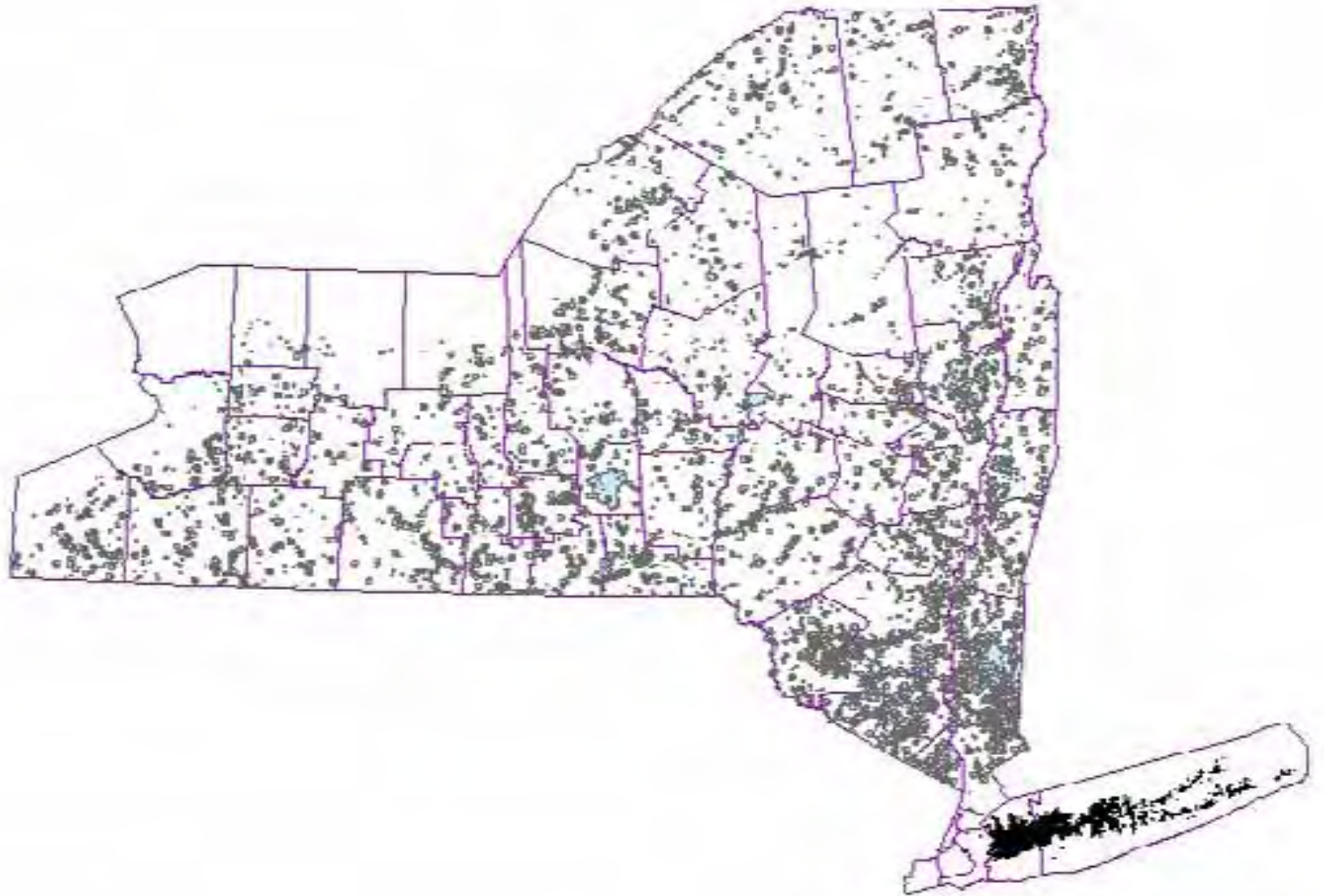


Inspection Targeting

GW Health Risk Index		County boundaries
	0.081 - 0.0166511	
	0.016 - 0.001	
	0.0020736 - 0.016	
	0.0006561 - 0.0020736	
	0.0001296 - 0.0006561	
	0.0000081 - 0.0001296	
	0 - 0.0000081	
	No Data	



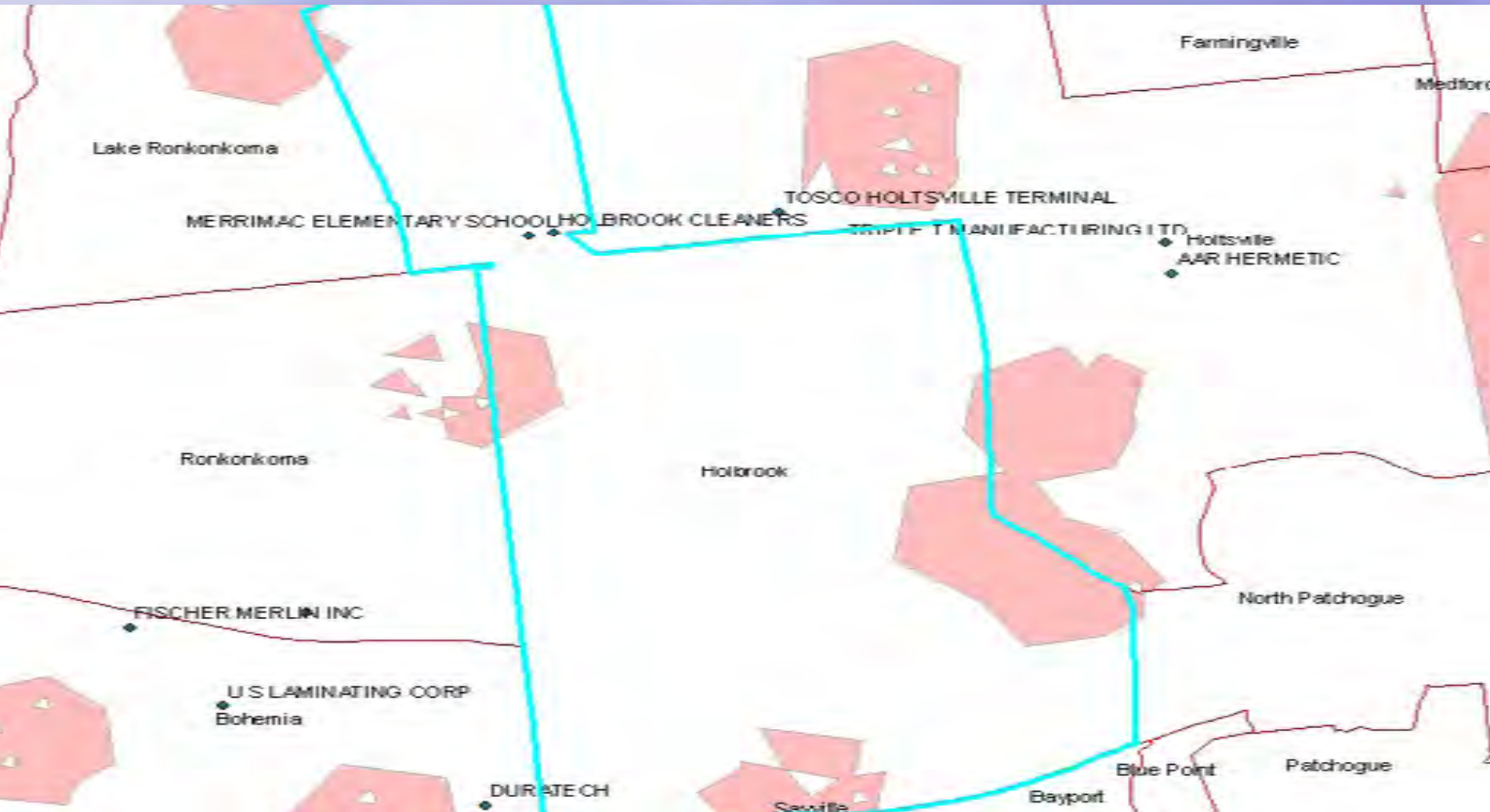
NYS Source Water Areas



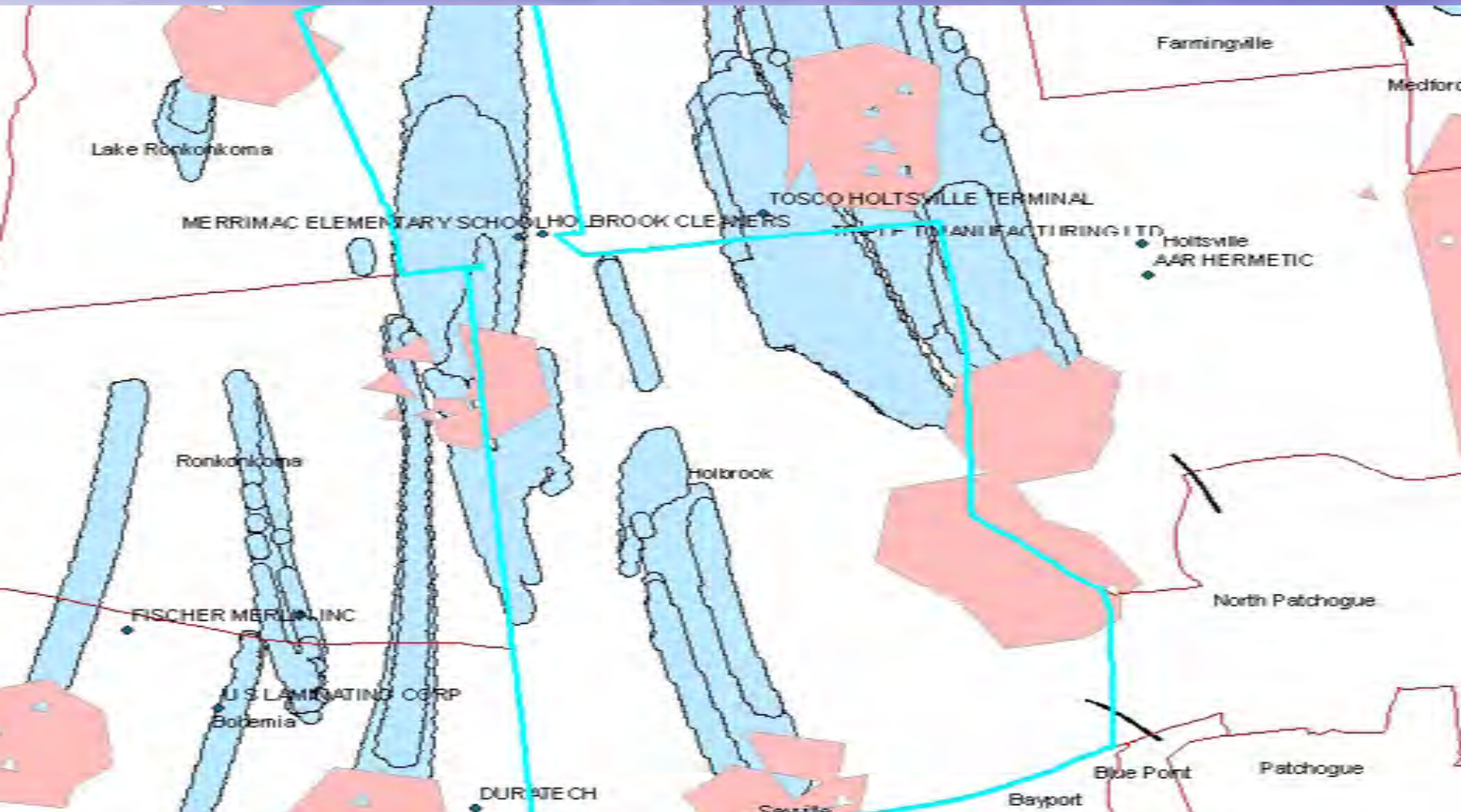
How will it work?



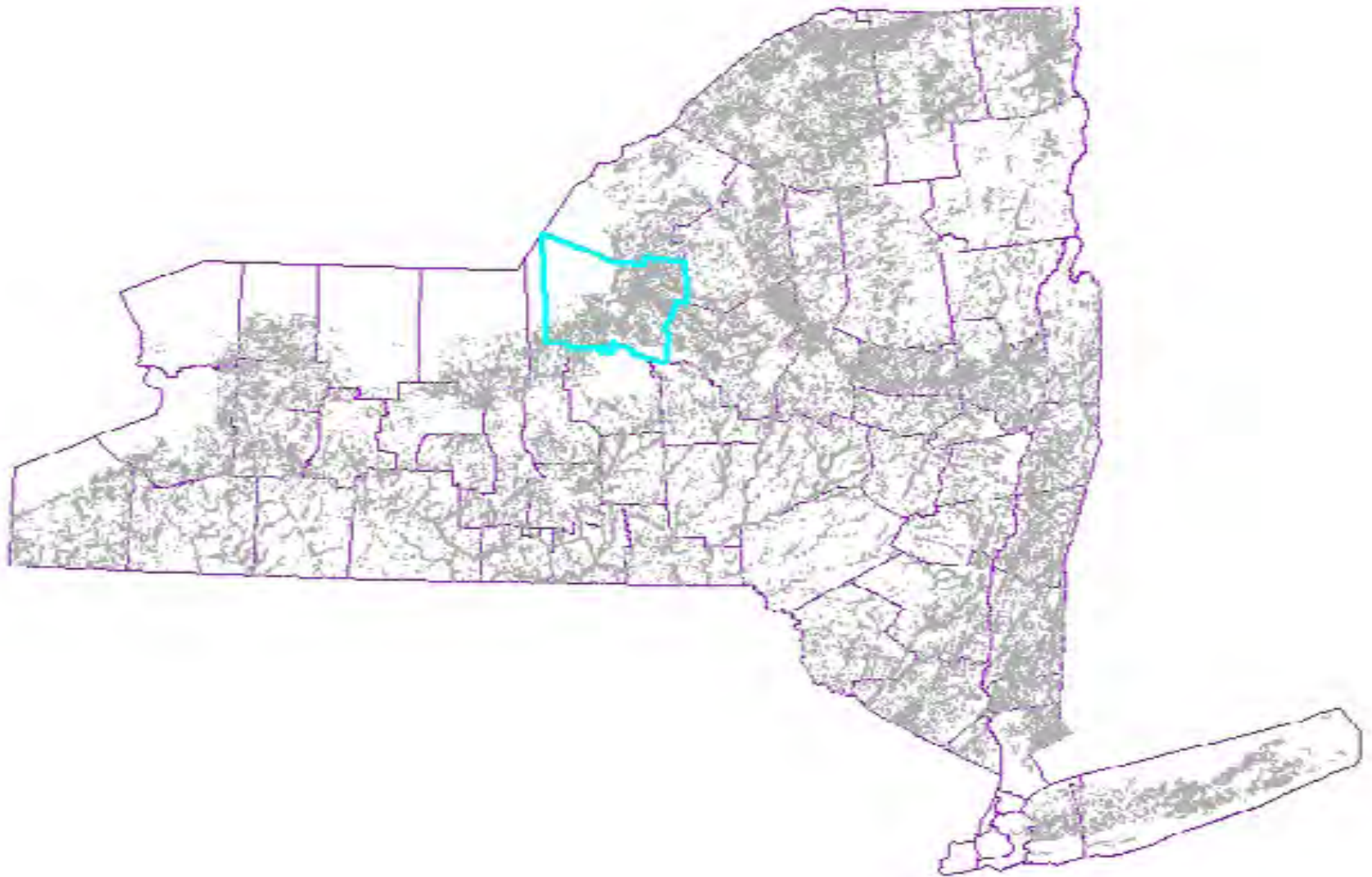
GIS Analyst Reviews NYS Risk map

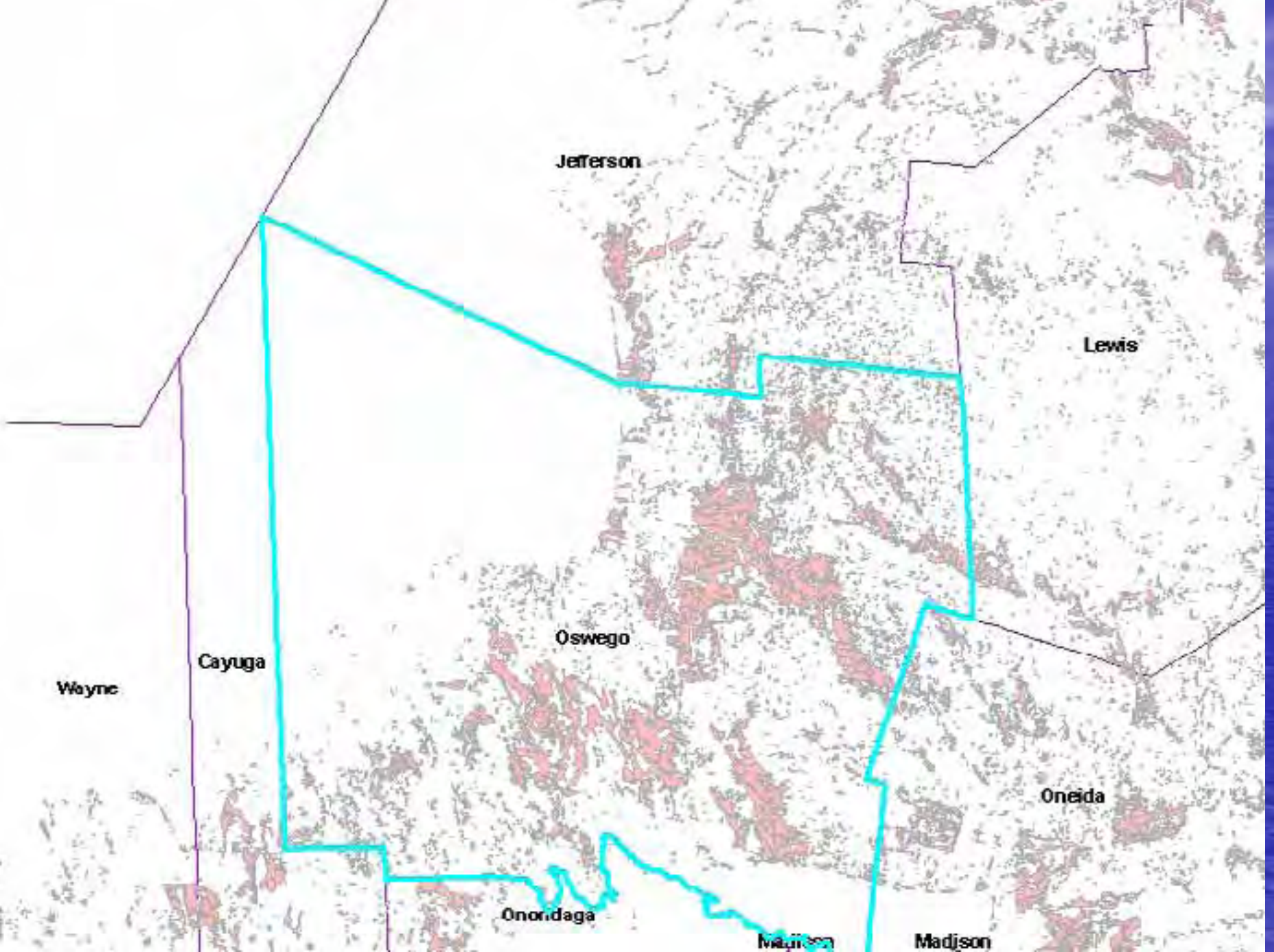


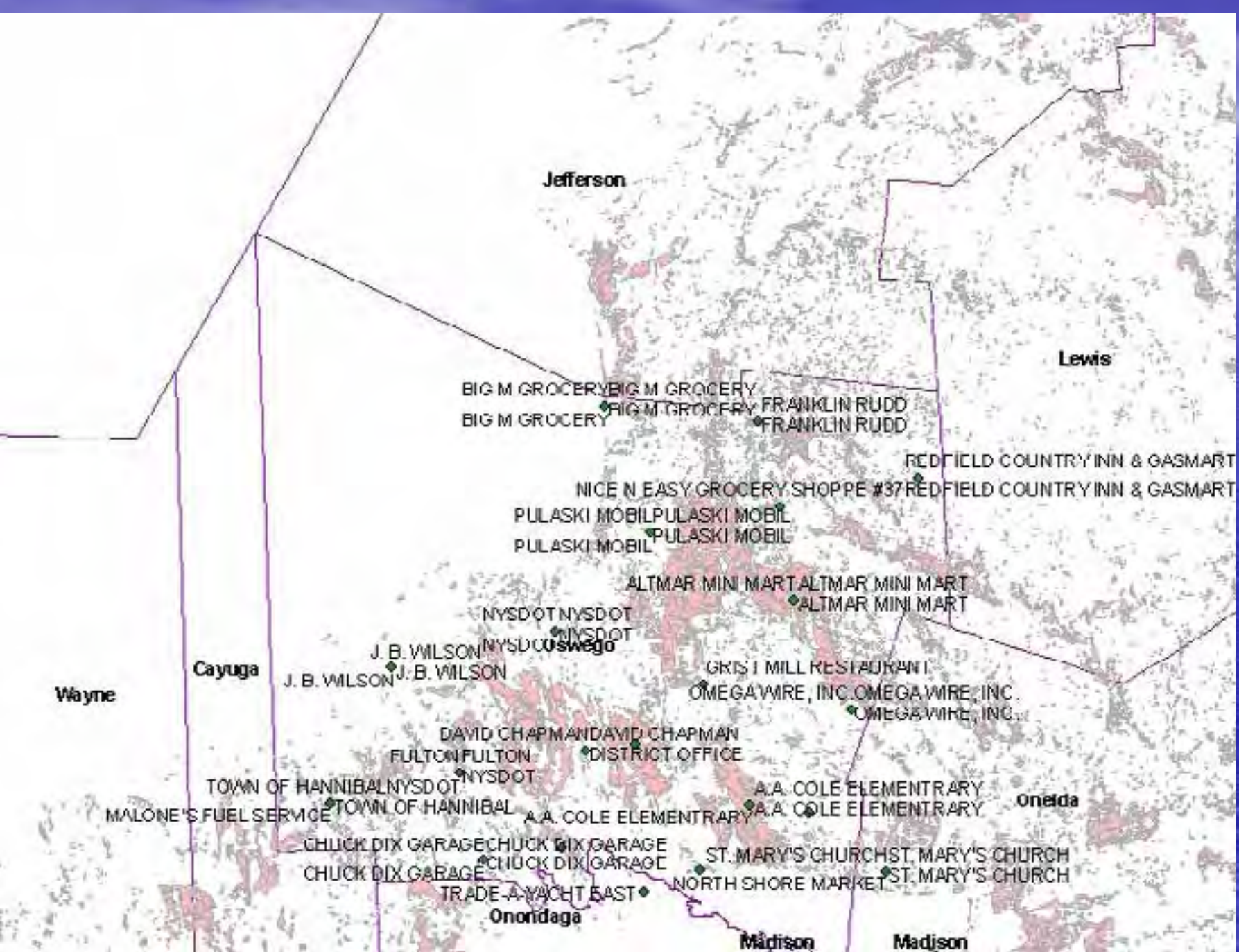
GIS Analyst Reviews includes SWAP

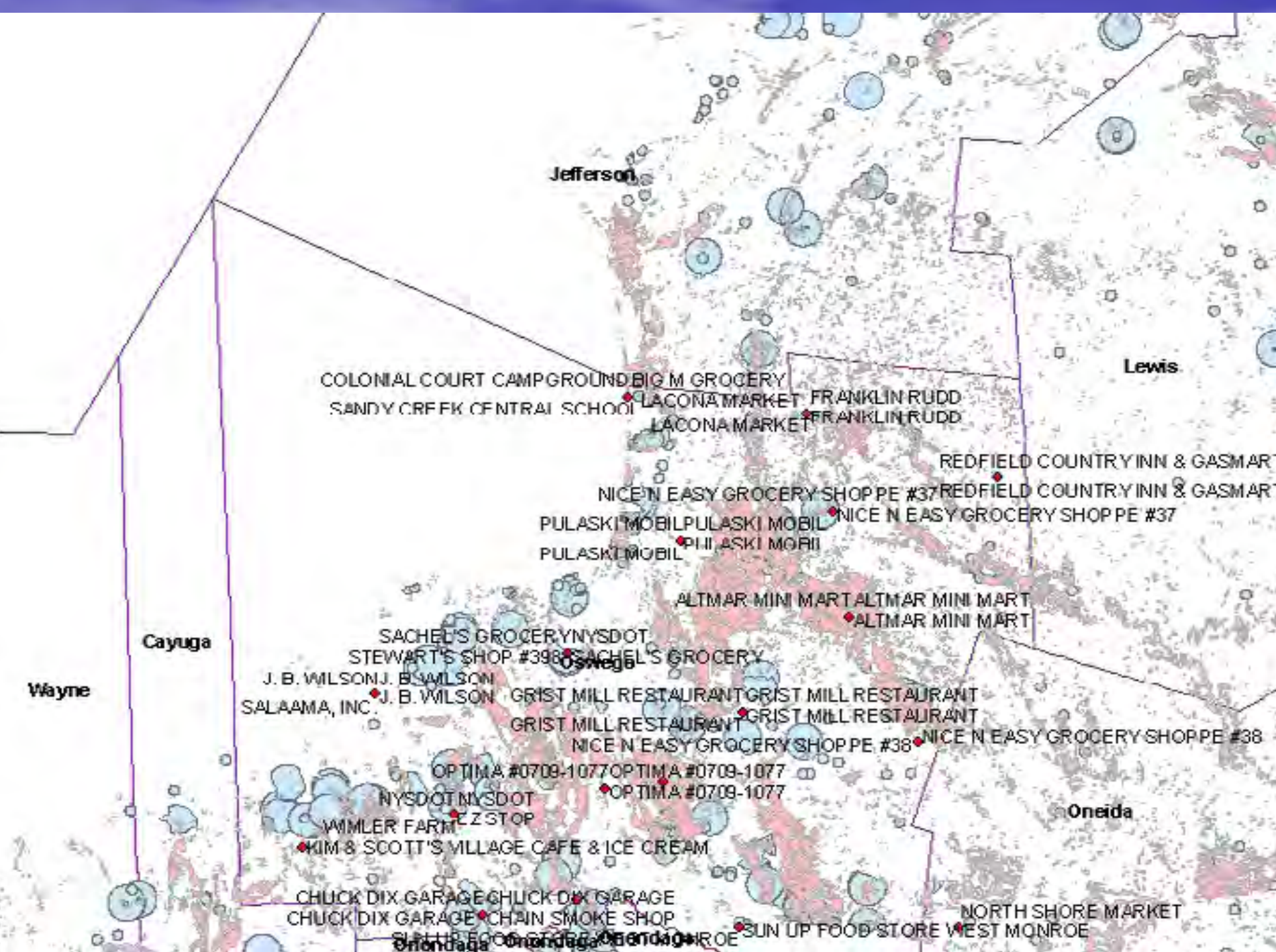


Regional GIS Analysis









Jefferson

Lewis

COLONIAL COURT CAMPGROUND
SANDY CREEK CENTRAL SCHOOL
BIG M GROCERY
LACONA MARKET
FRANKLIN RUDD
FRANKLIN RUDD
LACONA MARKET

NICE 'N EASY GROCERY SHOPPE #37
PULASKI MOBIL
PULASKI MOBIL
PULASKI MOBIL
REDFIELD COUNTRY INN & GAS MAR
REDFIELD COUNTRY INN & GAS MAR
NICE 'N EASY GROCERY SHOPPE #37

ALTMAR MINI MART
ALTMAR MINI MART
ALTMAR MINI MART

Cayuga

Wayne

SACHEL'S GROCERY
STEWART'S SHOP #398
J. B. WILSON
SALAAMA, INC.
OSWEGO
SACHEL'S GROCERY
J. B. WILSON
GRIST MILL RESTAURANT
GRIST MILL RESTAURANT
GRIST MILL RESTAURANT
GRIST MILL RESTAURANT

NICE 'N EASY GROCERY SHOPPE #38
NICE 'N EASY GROCERY SHOPPE #38

OPTIMA #0709-1077
OPTIMA #0709-1077
OPTIMA #0709-1077
OPTIMA #0709-1077
NYS DOT
NYS DOT

WIMLER FARM
EZ STOP
KIM & SCOTT'S VILLAGE CAFE & ICE CREAM

Oneida

CHUCK DIX GARAGE
CHUCK DIX GARAGE
CHUCK DIX GARAGE
CHAIN SMOKE SHOP
SUN UP FOOD STORE
WEST MONROE
NORTH SHORE MARKET

Onondaga Onondaga Onondaga

GIS Mapping Tools

- After Identifying the Facilities,
- EPA R2's GIS Specialist (R Jamison) prepares maps for Inspectors w/locational data (highways, local streets, rivers, lakes, etc.) to assist the inspectors.

Benefits of EPA Region 2 GIS Targeting Method

Inspections Targeted in areas where:

- Groundwater and/or surface water is a Source of Drinking Water**
- Land Use Increases Potential of Introducing Chemicals Harmful to Human Health to the Environment**
- Aquifers May be Susceptible to Contamination**

New York State DEC

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION PETROLEUM BULK STORAGE PROGRAM

FBS Facilities Identified for Priority Inspection in Albany County

FBS #	Site Name	Address	City	Zip	Exp. Date	1 Regis Exp.	3 Capac	3 Tank Test	3 Gen	0 Equip Viol	1 Old Tank	3 UST	0 EPA	0 Imp Viol	0 EPA Viol	1 Spill	1 Total
4-087329	FORLANS GARAGE	225 NORTHERN BLVD	ALBANY	12210	05/09/2003	1	0	3	3	0	1	3	0	0	0	0	11
4-429627	CENTRAL AVENUE SINOCO	487 CENTRAL AVENUE	ALBANY	12206		1	0	3	3	0	1	3	0	0	0	0	11
4-001939	PINE HILLS TAXI	117 LARK ST	ALBANY	12210	03/05/2004	0	0	3	3	0	1	3	0	0	0	0	10
4-000189	STATE OFFICE BUILDING CAMPUS	WESTERN AVE BLDG #GR FL ALB UTILITIES	ALBANY	12206		0	3	0	3	0	1	3	0	0	0	0	10
4-181349	ENXONMOBEL OIL 468-GRY 17472	114 BROADWAY	MENANDS	12204-2703		0	0	3	3	0	1	3	0	0	0	0	10
4-181470	ENXONMOBEL OIL 468-GRY 10110	247 NEW SCOTLAND AVE	ALBANY	12208-1014	04/17/2002	0	0	3	3	0	1	3	0	0	0	0	10
4-133610	SELBY'S AUTO SERVICE, INC.	200 CEDD ST	WATERVLIET	12189	09/05/2002	0	0	3	3	0	1	3	0	0	0	0	10
4-800670	VAN VORST PROPERTY	183 SECOND AVE	ALBANY	12206		0	0	3	3	0	0	3	0	0	0	0	9
4-800928	POKE BUSH FIRE STATION	210 WASHINGTON AVE EXT.	ALBANY	12205-1504		0	0	3	3	0	0	3	0	0	0	0	9
4-143006	B F MULDERY INC	689 THIRD ST	ALBANY	12206	07/22/2004	1	0	0	3	0	1	3	0	0	0	0	8
4-007880	RIVERSIDE TRAVEL PLAZA, INC.	240 CHURCH STREET PORT OF ALBANY	ALBANY	12202	04/21/2004	0	0	0	3	0	1	3	0	0	0	0	7
4-001113	ACSD-SOUTH PLANT	CHURCH STREET PORT OF ALBANY	ALBANY	12202		0	0	0	3	0	1	3	0	0	0	0	7
4-004993	GETTY #18873	1882 2ND AVE	WATERVLIET	12189	12/29/2002	0	0	0	3	0	1	3	0	0	0	0	7
4-000441	AVIS RENT A CAR SYSTEM, INC.	887 ALBANY SHAKER ROAD	COLOONIE	12206	03/06/2002	0	0	0	3	0	1	3	0	0	0	0	7
4-006984	VILLAGE OF COLOONIE DPS	1 THUNDER RD	ALBANY	12205	08/09/2001	0	0	0	3	0	1	3	0	0	0	0	7
4-003553	TOWN OF NEW SCOTLAND HWY DEPT	2369 NEW SCOTLAND RD	VOORHEESVILLE	12186		0	0	0	3	0	1	3	0	0	0	0	7
4-007123	CUMBERLAND FARMS #3200	801 19TH ST	WATERVLIET	12189	12/29/2002	0	0	0	3	0	1	3	0	0	0	0	7
4-007178	CUMBERLAND FARMS #3200	1196 CENTRAL AVE	COLOONIE	12205	09/12/2000	0	0	0	3	0	1	3	0	0	0	0	7

For More Information

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