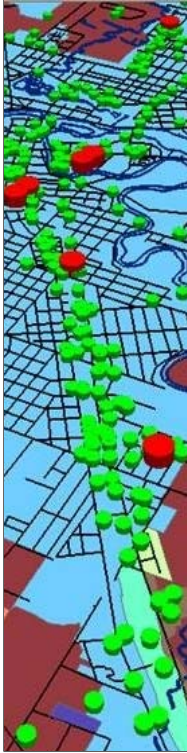


## Preventing Brownfields by Digitizing & Scoring Your Inventory

*Laura Coyne*

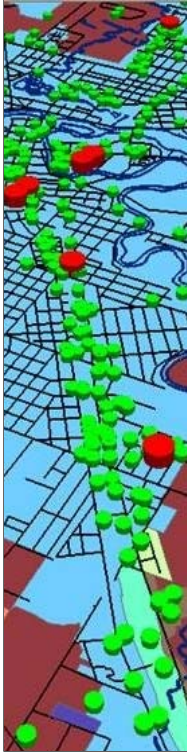
*lcoyne@elkhartcounty.com*

*September 2008*



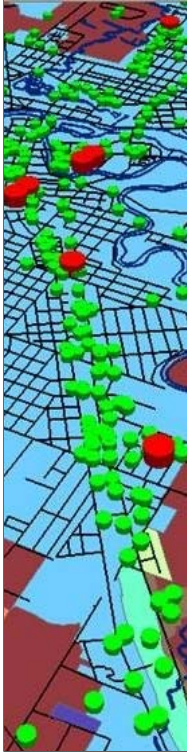
## Region 5 Message

- Municipalities can take **easy** steps toward preventing Brownfields by being proactive.
- By helping companies in your community, it is possible to identify potential problems and intervene before sites develop into Brownfields.
- Prevention partners activities lead to project benefits.



## Steps Local Governments can consider:

- Incorporate Brownfields Prevention into inspections;
- Incorporate Brownfields Prevention into your assessment of properties;
- Consider using ordinances;
- Work with your State agency; and
- Incorporate Brownfields Prevention in your Comprehensive Plan



## Desired Results

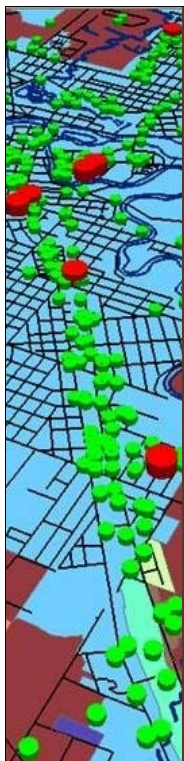
- Local governments will be exposed to ideas that can be used to help manufactures and commercial enterprises leave a cleaner footprint on their cities, counties and villages.
- This can be accomplished by building on lessons learned from peers



## Region 5 Challenge

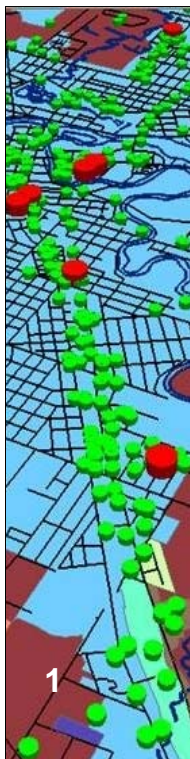
- Embrace this initiative
- Add to the dialogue
- Become a partner





## Speakers

- **John Hulewicz**, Environmental Health Supervisor, Elkhart County Health Department
- **Ryan Eckdale-Dudley**, GIS Coordinator, Symbiont



## Managing your inventory for Brownfield Prevention

We have it in our power  
to begin the world over again

--- *Thomas Paine* 1776

--- *Ronald Reagan* 1980

Elkhart County Indiana

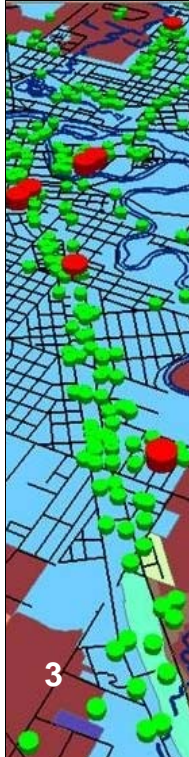


# The Brownfield Prevention Initiative

John J. Hulewicz  
Environmental Health Supervisor  
Elkhart County Health  
Department

Elkhart County Indiana





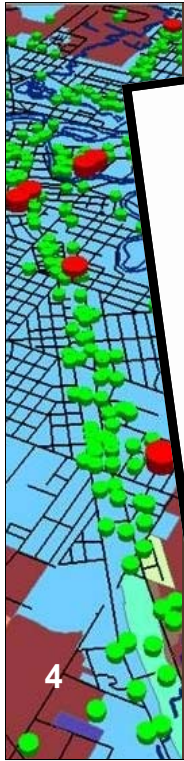
## The Brownfield Prevention Initiative

Consider building a  
Brownfield prevention program  
by **recycling**.

You can forge new tools  
from old ones

such as . . .

Elkhart County Indiana



ELKHART COUNTY, INDIANA

**GROUNDWATER PROTECTION ORDINANCE**

Readopted May 1, 2004

WHEREAS Indiana Code Sections 36-1-3-1 et seq. permit any county in the State of Indiana to exercise any power or perform any function necessary to the public interest in the context of its county or internal affairs, which is not prohibited by the Constitution of the United States or of the State of Indiana, or denied or preempted by any other law, or is not expressly granted by any other law to another governmental entity;

WHEREAS the Board of Commissioners of the County of Elkhart, Indiana and the Elkhart County Board of Health find that it is in the public interest of Elkhart County to re-establish, reconfirm, and continue a groundwater protection program;

WHEREAS it is desired that the groundwater of Elkhart County be reasonably protected from the improper storage and discharge of toxic or hazardous substances;

WHEREAS the Elkhart County Board of Health is directed to enforce and observe all state laws and legally promulgated regulations pertaining to the preservation of health and is authorized to adopt such rules and regulations as may be deemed necessary or desirable to protect, promote, or improve public health by Indiana Code Sections 16-20-1 et seq.;

WHEREAS the Board of Commissioners of the County of Elkhart, Indiana and the Elkhart County Board of Health desire to mutually administer and enforce the groundwater protection program; and

WHEREAS pursuant to the authority vested by the Indiana Code Sections 36-1-3-1 et seq., the Board of Commissioners of the County of Elkhart, Indiana desire to re-establish, reconfirm, and continue the Elkhart County Groundwater Protection Program subject to the provisions hereinafter stated;

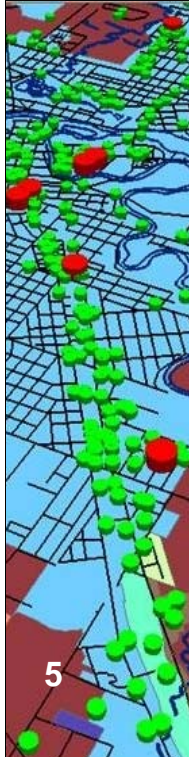
NOW, THEREFORE, be it ordained by the Board of Commissioners of the County of Elkhart, Indiana as follows:

Section 1. Title.

This Elkhart County Ordinance may be referred to as the "Elkhart County Groundwater Protection Ordinance."

Section 2. Purpose.

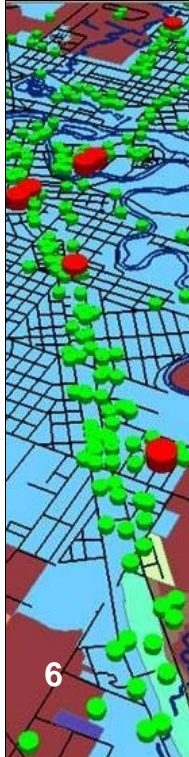
It is the purpose of this Ordinance to enhance and preserve the public health, safety, and welfare of and property in Elkhart County by protecting the groundwater of Elkhart County from degradation and property from toxic or hazardous substances.



## The Groundwater Protection Ordinance of Elkhart County

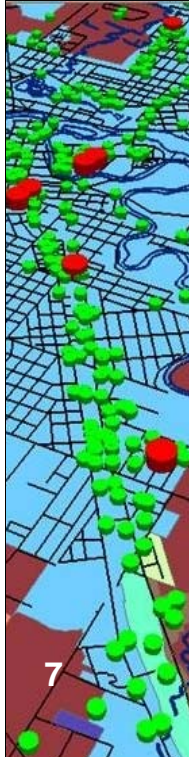
- Prompted by groundwater contamination events almost three decades ago, including NPL Superfund sites
- 5 years from input, writing, hearings, to authorization

Elkhart County Indiana



## The Groundwater Protection Ordinance of Elkhart County

<b>April 1984</b>	Formation of GW advisory committee
<b>Summer 1985</b>	Survey of local industries to ascertain potential problems
<b>Summer 1986</b>	Voluntary compliance follow-up
<b>Spring 1987</b>	Formation of GW technical/citizen review group
<b>Summer 1987</b>	Draft GWPO released
<b>Winter 1987</b>	Comments incorporated and redraft released
<b>Fall 1988</b>	Comments incorporated/final draft released
<b>May 1, 1989</b>	GWPO adopted into rule

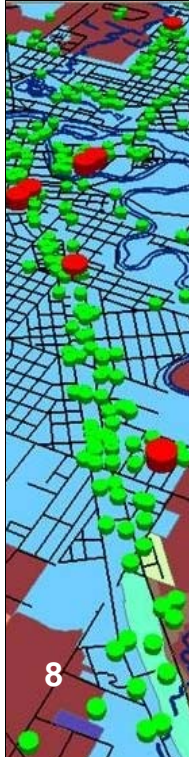


## The Groundwater Protection Ordinance of Elkhart County

The purpose is **prevention**:

- To help **prevent** groundwater contamination
- To measure, document and follow sites with chemical activity
- To reflect and comply with applicable state and federal codes

Elkhart County Indiana



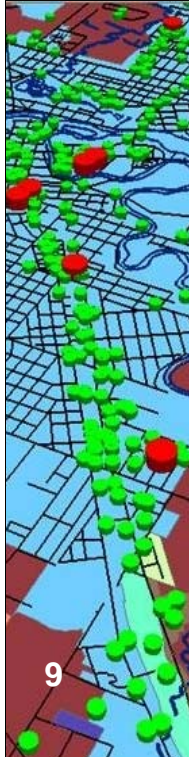
# The Groundwater Protection Ordinance of Elkhart County

## The Inspection Process

### Scope:

1. Gives **power of entry** and routine inspection, to determine compliance with ordinance provisions, at facilities with
  - toxic / hazardous materials
  - onsite wastewater systems (septic or drywells)

Elkhart County Indiana



## The Groundwater Protection Ordinance of Elkhart County

### The Inspection Process

#### Scope, continued:

2. Proper storage of toxic/hazardous materials
3. Testing of wastewater systems
4. Reporting and cleanup of spills
5. Perform unofficial basic audits for compliance with RCRA, NPDES, and air permitting

Elkhart County Indiana



## The Groundwater Protection Ordinance of Elkhart County

The Inspection Process

goes the extra mile

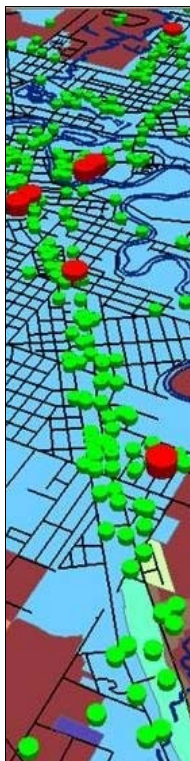
with onsite prevention tips,  
training and education.



- The ordinance has evolved to include education as well as enforcement
- Industry is receptive to this non-threatening approach and educational component

Elkhart County Indiana



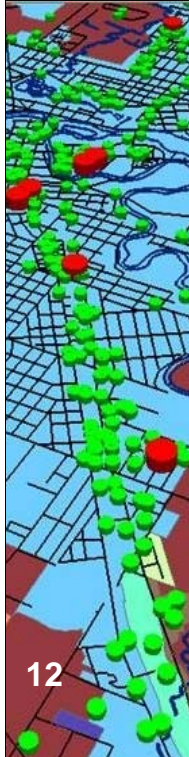


# The Groundwater Protection Ordinance of Elkhart County

## Chronology of DATA MANAGEMENT

- Incident and historic paperwork (1970s)
- + inspection reports (1989)
- + an R-based system (to create index)
- + state and fed actions at properties
- + MS Access for facilities and inspections (1998)
- and at this point...

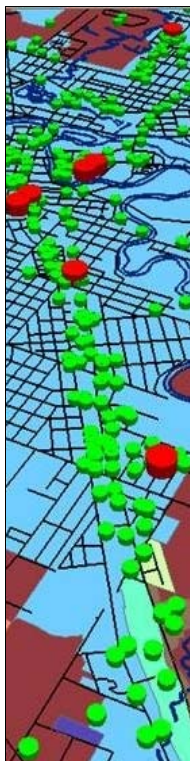
Elkhart County Indiana



## Our DATA MANAGEMENT was an oxymoron

- 5,100 sites in 44 file drawers
- filed by business name, not location
- so properties with several businesses over time = piecemeal property histories
- labor intensive queries only
- not all city/state/fed actions or testing
- no community-wide picture

Elkhart County Indiana

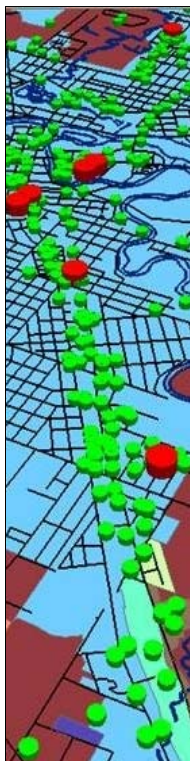


Our DATA MANAGEMENT was an inefficient, ineffective, and time consuming.

At the same time, Elkhart County like other communities was told

*You  
need a dynamic  
Brownfield  
INVENTORY !*

Elkhart County Indiana

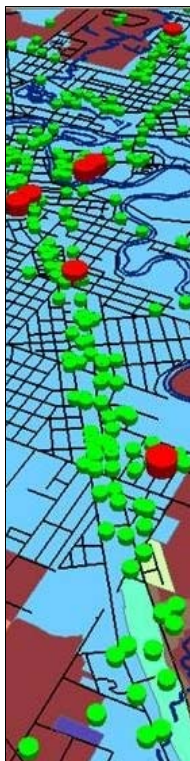


## Chronology of DATA MANAGEMENT continued

2006: a new County Comprehensive Plan called for better land use management:

- reduce urban sprawl by redeveloping Brownfield and other underutilized sites and existing infrastructure
- incentivize Brownfield reuse
- regard Brownfield inventory as a repository of economic development opportunities

Elkhart County Indiana



## Chronology of DATA MANAGEMENT continued

At the same time access to public records and information increased, demanding more time and attention prompting the need for drastic change

You cannot manage  
what you cannot measure

John W. Thompson

We had yet to identify,  
let alone measure and manage,  
the Brownfields of Elkhart County

Elkhart County Indiana

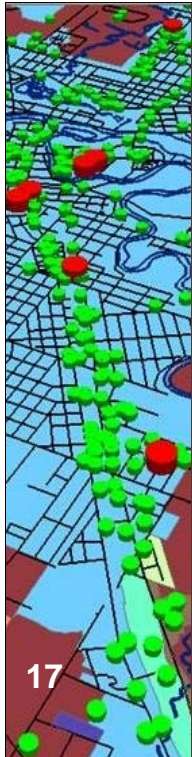


# The Brownfield Prevention Initiative

Ryan Eckdale Dudley

GIS Coordinator  
and  
Computer Applications Designer

Elkhart County Indiana



## Chronology of DATA MANAGEMENT continued

2006: An EPA Brownfield assessment grant provided an opportunity for a data management solution

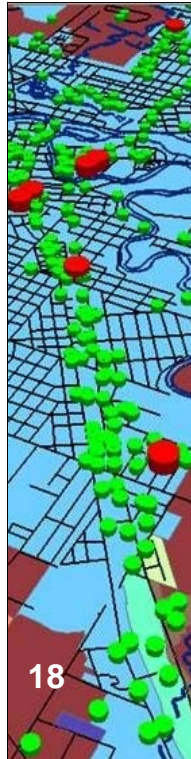
17

Elkhart County Indiana

<In 2006, Elkhart County was awarded it's first 2 USEPA Community Wide Site Assessement Grants

<Elkhart is one of the top ten counties, highest percentage of manufacturing employment in the

<This opportunity provided Elkhart with the necessary funding to develop a comprehensive data management solution and build upon efforts to prevent Brownfields



## Chronology of DATA MANAGEMENT continued

In its grant application, the County proposed a unique approach to complete  
**Task 1: Inventory and Prioritization:**

### THE GOAL

Use **existing** County Ground Water Protection information and external datasets as the foundation for the inventory database

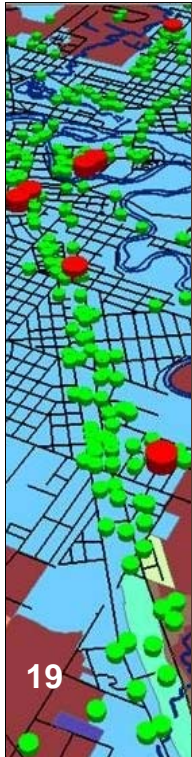


Elkhart County Indiana


In it's grant application the County proposed an unique approach to complete a County-Wide Inventory and Prioritization Task>

THE GOAL, was to utilize existing information including the Counties Groundwater Protection Information and External datasets as the foundation of the inventory database





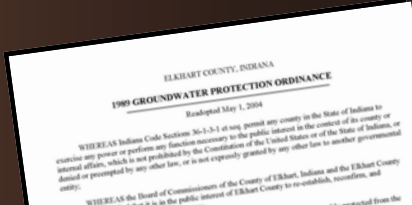
## Chronology of DATA MANAGEMENT



### WHY THIS APPROACH?

Groundwater inspection program has been preventing Brownfields for 18 years.

- Contained property information of facilities involved with hazardous materials
  - among them, the environmental records of the most contaminated or neglected



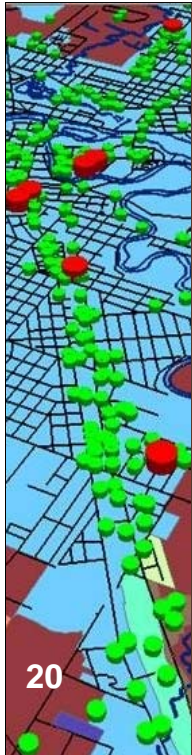
In reality, the Groundwater Inspection Program had been developing an inventory and preventing potential Brownfields throughout the County for the past 18 years>

It's RECORDS CONTAINED property information for facilities involved with Hazardous Materials, which is a key factor in assessing Brownfields.

And among them, records of the most contaminated or neglected.

With over 5100 sites in the program, and nearly 30% transition to new ownership, each year, the Benefit to using these records to create an Brownfield inventory was realized.

Unlike many grantees, who may have to create an Inventory from scratch, Elkhart was fortunate and had a big head head start.



## Chronology of DATA MANAGEMENT

### WHAT WE DID... AND WOULD RECOMMEND

1. Utilize a document management software
  - Evaluate existing systems for compatibility
  - Determine index structure for cataloging records
  - Scan/digitize records (with optical character recognition)
2. Integrate with Geographic Information Systems
  - Create GIS layer for all facilities by geocoding addresses
3. Create a custom, web-based, centralized tool to integrate information with GIS
  - Framework is built using ESRI's ArcGIS Server

(we call ours e-Atlas)

Elkhart County Indiana

In order to effectively utilize the Groundwater Inspection Program Records as an basis for Inventory and Prioritization the county faced few challenges.

#### CHALLENGE 1

<As mentioned previously, over the last 18 years the County had accumulated over 44 file drawers of paper based records containing important historic information to each facility.

<Access to the records was cumbersome and labor intensive

<Records were cataloged by Facility Name only

<Retrieving records based on location was very difficult

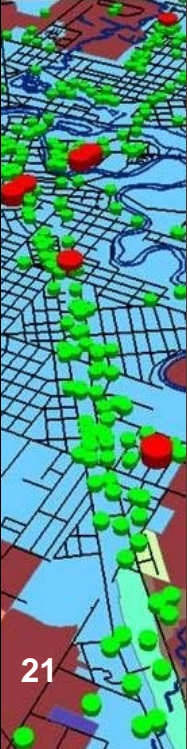
Utilizing a Document Management System to manage historic and ongoing paper-based information was an key component to creating an comprehensive Inventory

<A Document Management System computer system used to track and store electronic documents and/or images of paper documents

<A Document Mangment System Provided quick, easy access to all inspection records using a computer.

<The health Department selected Laserfiche as an Enterprise Level Document Management Solution Experience based on experience and availability in other departments and the cost savings of upgrading verses an purchasing a complete new system

<We also determined that utilizing an web-based module would allow more flexibility for access to documents and integration with other proposed applications developments



## Chronology of DATA MANAGEMENT

### WHAT WE DID... AND WOULD RECOMMEND

4. Incorporate other environmental datasets and information portals
  - EPA, State, other gov. databases (like code violations)
  - ESAs done by others
  - Encourage cities and towns to view as THEIR inventory
5. Dedicate a server with enough on board RAM and storage (we chose 1.4 terabytes)
6. Procedure/policies for ongoing integration and access to data

Elkhart County Indiana

#### Challenge 4

MANY external (location based) environmental data resources were available to the county thru various organizations.

<Such as EPA Facilities, State UST databases, and other governmental databases/GIS layers

<Our goal was to include those datasets into e-Atlas for “one point” access.

<In addition, Elkhart has been promoting to other entities in the county (such as the City of Elkhart, and Goshen, both grant recipients) to provide them with completed ESA's to be accessible thru e-Atlas

<Also, to encourage these entities to view as their inventory

#### Challenge 5

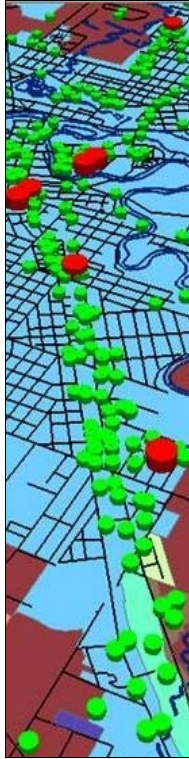
These types of applications require lots of processing and storage

<Recommend evaluating existing Hardware, prior to developing this type of application

<Elkhart decided to purchase a new server to run e-Atlas.

#### Challenge 6

Ongoing management of such a system is important

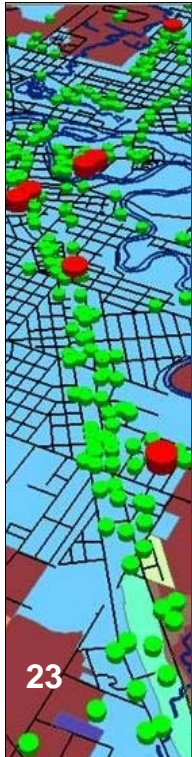


## The intent of e-Atlas

1. Make it scalable, flexible, integrated, accessible and become a centralized resource for data management and information retrieval
2. Perform a variety of queries
  - Keywords, Attributes
  - Spatially
3. Able to rank/prioritize inventory sites county-wide
  - Utilization Factors
  - Environmental Status

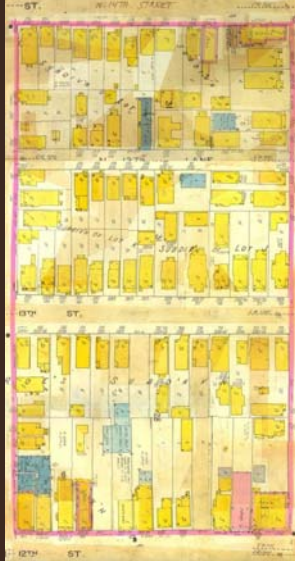


Elkhart County Indiana



## Potential enhancements to e-Atlas

1. Integration with other datasets
  - Sanborn Maps
  - Tax Information
  - Spills not associated with industrial facilities (transportation, farm)
  - Planning and zoning overlays



I am going to demonstrate by showing some screen shots, but first I would like to discuss some potential future enhancements

<Incorporate Sanborn Map Data

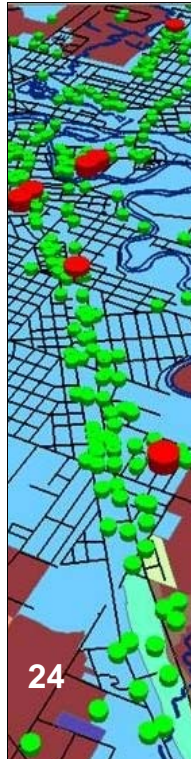
<Integrate with Tax Information

Tax Delinquent or Not

<Include Spill information that is not directly associated with industrial facilities that might impact the assesement of a site (such as transportation, farming)

<Include additional planning and zoning overlays





## Potential enhancements to e-Atlas (continued)

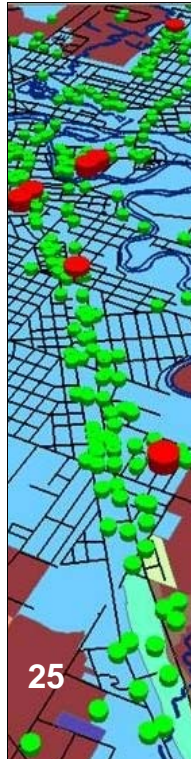
### 2. Maintain datasets

- Go to one paperless inspection system for all county agencies
- Integrate with enterprise inspection program



Elkhart County Indiana

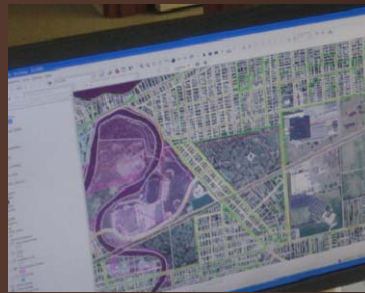
Currently the County is evaluating Enterprise Paperless Inspection applications, which would allow Inspectors to maintain the dataset without adding additional documents to the Document Management System.



## Potential enhancements to e-Atlas (continued)

### 3. Create External Users

- Free read only web portal
- Subscription based with download capabilities (defray costs)

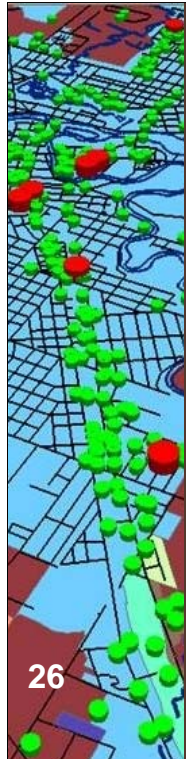


Elkhart County Indiana

Create external users,

currently the system is only available at the county but was designed to be deployed over the internet.

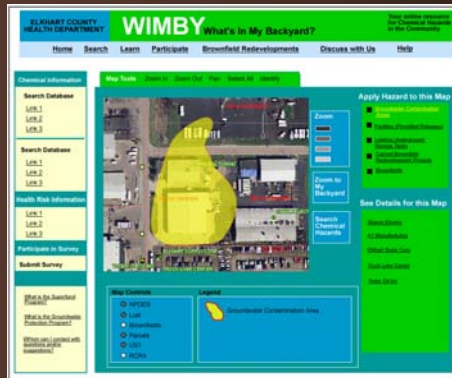
The county has discussed options for generating additional revenue to defray the ongoing costs associated with Maintenance.



## Potential enhancements to e-Atlas (continued)

### 4. "WIMBY" What's in my Backyard?

- Public health impacts from Brownfields

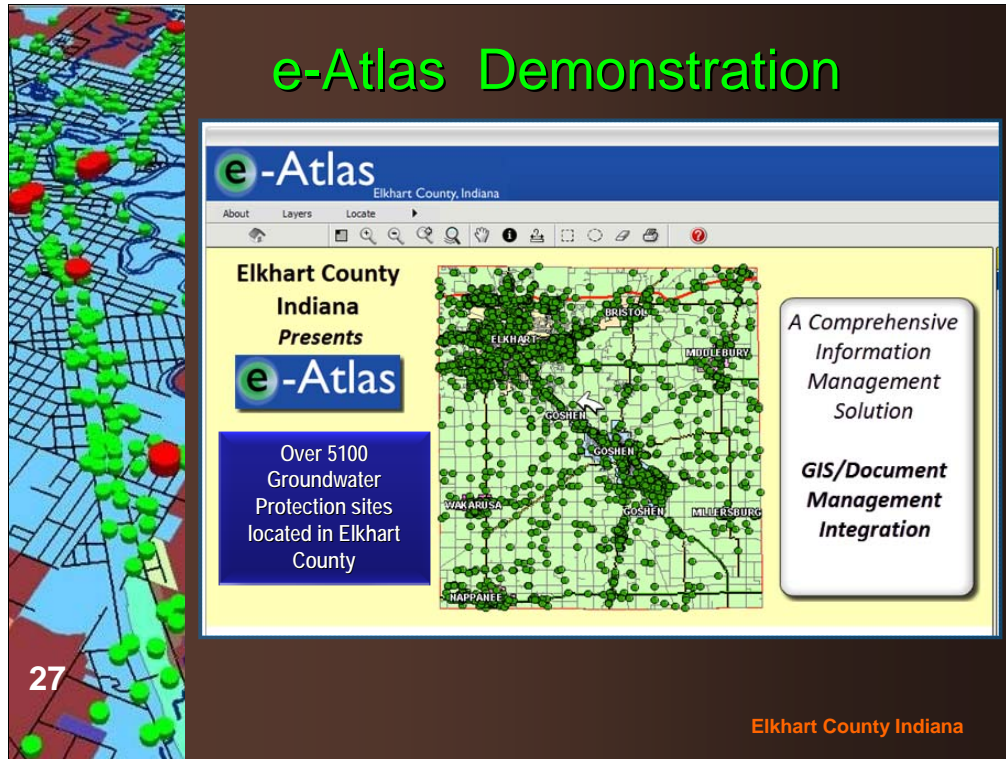


Elkhart County Indiana

<Utilize as basis for other projects

<Recently Elkhart County was awarded an grant from The Center of Disease Control where they proposed to develop an GIS-Based website to educate users about public impacts from Brownfields. It's being call "WIMBY", or what's in my backyard.





I would like to take this opportunity to demonstrate the look ,feel, and functionality of e-Atlas by viewing series of screen captures...

< As you can see e-Atlas offers a map based interface for interacting and viewing the available data.

<Shown above, are the 5100 Groundwater Protection Sites located in Elkhart County



## Application Goals

e Atlas was designed to provide a dynamic inventory of potential brownfield sites throughout Elkhart County, as well as to provide a tool for prioritizing sites for environmental assessment, and to provide a platform for ongoing management and analysis of environmental conditions throughout the entire county.

Provides users with easy access to site information using a variety of mapping interface tools



Groundwater Protection site history and scoring information available for every facility in the County



28

Elkhart County Indiana

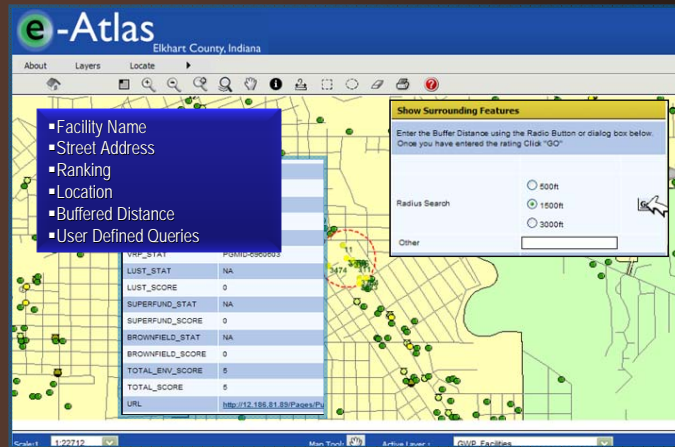
Map Layers change based on your extent..

<Mapping tools provide easy access to site information, with the ability to interact with the map in many ways

<After querying for or selecting sites via a variety of map tools, USERS of the system have access to site history and scoring information

## Extensive Querying Capabilities

Sites can be queried via the map or by their attributes



29

Sites can be queried via the map or by their attributes such as (Facilty Name, Street Address, Ranking, Custom)

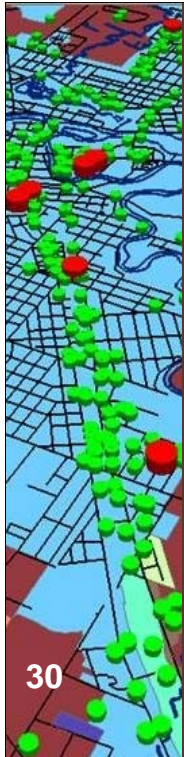
Illustrated above is a query which allows users to select sites based on the Buffer Distance

# Available Tools

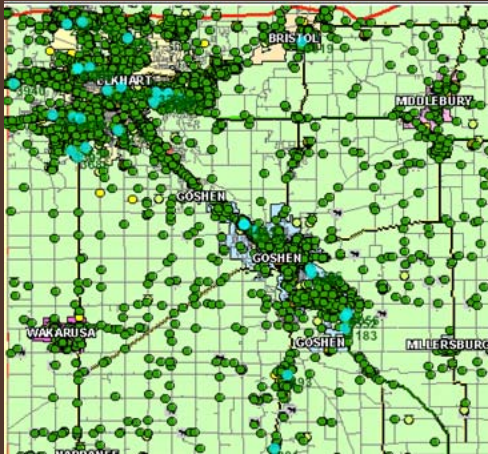
## Extensive Querying Capabilities

User Defined Query

User Defined Query



30



In this example sites are being selected based on current utilization and an assigned overall environmental risk score

**Locate**

**User Defined Query**  
Enter the name of the layer you are looking for in the dropdown field below. Once you have entered the Layer name Click "Go". Select an attribute from the dropdown list. Once you have selected the attribute name click "Go". Select or Type your query, click "Add" to expand your query or select "Verify" to evaluate your query or select "Execute" to view results.

Layer Name : GNP\_Facilities Go  
 Field Name : TOTAL\_ENV\_SCORE Go  
 = > (max 20)  
Add

VACANT\_STAT = 'VACANT' AND  
 TOTAL\_ENV\_SCORE > 0  
Clear Verify Execute

Status: Ready.

e-Atlas has the ability to perform user defined queries.

In this example... sites are being selected based on current utilization and an assigned overall environmental risk score



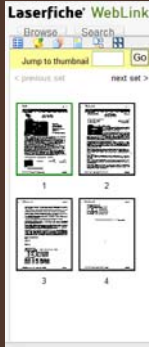
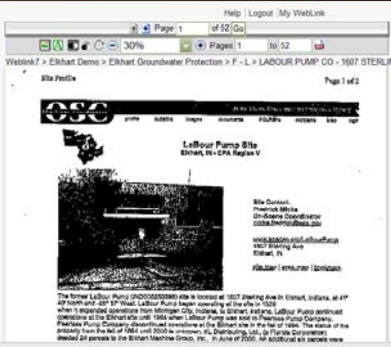
31

## Available Tools

### Document Management Integration

e Atlas provides access to all of Elkhart County's Groundwater Protection Program scanned records using a linked Document Management System



e Atlas currently maintains over 180,000 pages of historic site information and new records are being created and updated daily

Elkhart County Indiana

<After selecting a site, users have access to all of Elkhart County's Groundwater Protection Program scanned records using a linked DMS.

<e-Atlas currently maintains over 180,000 pages of historic site information and new records are being created and updated daily



## Available Tools

### Document Management Integration

During scanning hard copy documents were digitized using  
Optical Character Recognition  
which converts scanned images into searchable text

32

Elkhart County Indiana

During scanning hard copy documents were digitized using Optical Character Recognition which covers scanned images into searchable text

This enables users with quick access to those occurrences in the document

## Available Tools

### External Data Connections

e Atlas datasets can be linked to external online datasets

#### EPA's Facility GIS dataset

#### (IDEM) Online Virtual File Cabinet

Document #	Document Date	Program	Docu
<a href="#">view</a> 22109093	05/05/1986	UST	Notif
<a href="#">view</a> 27460148	11/29/1994	HW Site	OLQ
<a href="#">view</a> 22109081	10/08/1991	UST	UST
<a href="#">view</a> 22109096	09/20/1991	UST	UST

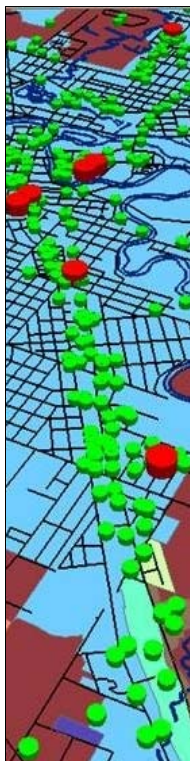
4 documents

Elkhart County Indiana

e-Atlas datasets can be linked to external online datasets

EPA's facility GIS dataset

IDEM-Online Virtual File Cabinet



## For More Info

### GWPO-Elkhart County

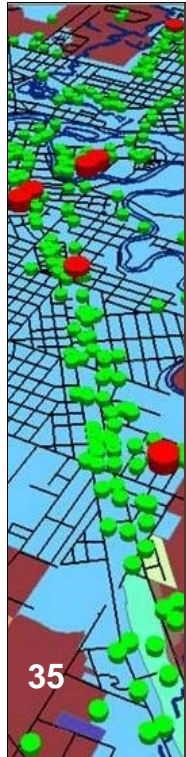
John Hulewicz  
Environmental Health Supervisor  
Jhulewicz @ elkhartcounty.com  
574.875.3391

### e-Atlas SYMBIONT

Ryan Eckdale-Dudley, GISP  
GIS Coordinator  
ryan.dudley @ symbiontonline.com  
414.755.1131

Elkhart County Indiana





## Useful Links

e-Atlas Demo  
[www.elkhartcountylanduse-reuse.com/e-atlas](http://www.elkhartcountylanduse-reuse.com/e-atlas)

GWPO Document  
<http://elkhartcountyhealth.org/forms/GW%20ORDINANCE.pdf>

35

Elkhart County Indiana

On this slide, we have added the URL to an short movie that we use to demonstrate e-Atlas

Also,

The URL for downloading the Groundwater Protection Ordinance