

# Utilizing Web-based GIS for Drinking Water Source Protection Management and Outreach

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**Mundell**  
Consulting Professionals  
for the Earth and the Environment

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01

About Us

Who or what is MCWEC?

# About MCWEC

(Marion County Wellfield Education Corporation)



- Not-for-profit corporation established in 1996 by the Marion County Wellfield Protection Zoning Ordinance.
- Performs voluntary & confidential business outreach and education.
- Maintains database of known & potential contaminant sources for Marion Co utilities (Citizens Energy, Lawrence Utilities and Speedway Waterworks)
- Visit potential contaminant sources in the wellfield and offer free consulting on how to improve waste/chemical storage and handling. Donates secondary containment materials as well.
- Website: <http://mcwec.org>

## Mission:

To prevent contamination to the valuable groundwater resources of Marion County through public awareness and education.



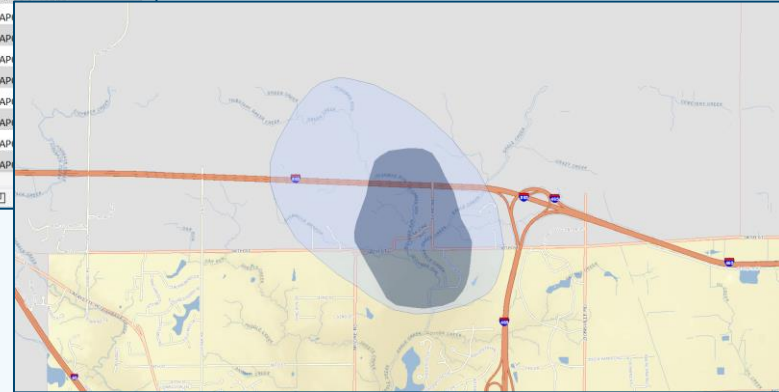
The background of the slide features abstract, flowing shapes in various shades of blue, ranging from a deep cerulean to a very light, almost white, sky blue. These shapes are organic and fluid, creating a sense of movement and depth. The overall aesthetic is clean and modern.

02

# The Old Approach

# Prior MCWEC Field Data Collection

1	A	B	C	D	E	F	G	H	I	J	K
Site ID	Status	Inside Wellfield?	Name	Mailing Name	Previous Name	Address	Mailing Address	City	Zip	Contact N	
837	839	active	in	Rockwell			2121 E 45th St	2121 E 45th St	INDIANAPOLIS	46205	
838	840	active	in	Specialty Guttering Systems			1902 Duke St	1902 Duke St	INDIANAPOLIS	46205	
839	841	active	in	Hair Theory			4201 Evanston Ave	4201 Evanston Ave	INDIANAPOLIS	46205	
840	842	active	out - 2017	Virtue Construction Services		McNeely Heating Contractors	3607 Orchard Ave	3607 Orchard Ave	INDIANAPOLIS	46218	
841	843	active	out - 2017	J Beard Management			3529 N Hovey St	3529 N Hovey St	INDIANAPOLIS	46218	
842	844	active	out - 2017	Lil Hawk's Liquor Store			1504 E 34th St	1504 E 34th St	INDIANAPOLIS	46218	
843	845	active	out	Jimco Engineering Company			3315 Sutherland Ave	3315 Sutherland Ave	INDIANAPOLIS	46218	
844	846	active	out - 2017	Providence Ministries			1602 E 34th St	1602 E 34th St	INDIANAPOLIS	46218	
845	847	active	out - 2017	Jesus House			3402 Schofield Ave	3402 Schofield Ave	INDIANAPOLIS	46218	
846	848	active	out - 2017	Serenity Angels Childcare Ministries Community		The Faith Church	1601 E 35th St	1601 E 35th St	INDIANAPOLIS	46218	
847	850	active	in	Zores			1701 Trumbull St	1701 Trumbull St	INDIANAPOLIS	46218	
848	851	active	out - 2017	Keystone Sunoco			3360 N. Keystone Ave		INDIANAPOLIS	46218	
849	852	active	out - 2017	Sean Hadden Painters			2110 Clay St.		INDIANAPOLIS		
850	853	active	out - 2017	Faith & Healing Temple		Faith Powerhouse Healing Church	3709 Schofield Ave.		INDIANAPOLIS		
851	854	active	out - 2017	Ameritech NE Diesel Generator Installation			2761 East 55th Place		INDIANAPOLIS		
852	855	active	out - 2017	4143 Winthrop - Diesel Generator Installation			4143 Winthrop Ave		INDIANAPOLIS		
853	856	active	out - 2017	Extra Space Storage		EZ Stor Mini-Storage	4410 Allisonville Rd		INDIANAPOLIS		
854	857	active	out - 2017	AT&T FA# 10042791/Crestview & Crown Castle			1212 East 52nd Street		INDIANAPOLIS		
855	858	active	out - 2017	Creekside Health and Rehabilitation Center			3114 E 46th St		INDIANAPOLIS		
856	859	historic	out - 2017	Indy Towing and Service		Nickle Plate Improvement Company	3350 Sutherland Ave		INDIANAPOLIS		



- Print out previous year excel tables of known and potential contaminant sources and hand annotate as drove around wellfield using a static map printout to estimate where the wellfield edges were.

# Prior MCWEC Data Management

	A	B	C	D	E	F	G
1	CWPName	SourceID	CWPStreet	CWPCity	CWPState	CWPZip	FacMapFig
2	#100727 SPEEDWAY LLC	INR10L657	3768 W MORRIS ST	INDIANAPOLIS	IN	46241 Y	<a href="https://echo.es">https://echo.es</a>
3	1234 PROSPECT MULTI FAMILY	INRA01730	1234 PROSPECT ST	INDIANAPOLIS	IN	46203 Y	<a href="https://echo.es">https://echo.es</a>
4	1425, 1425, 1423 & 1405 HANNA AVE. FILL PERMIT - PHASE TWO	INR10M015	1405 HANNA AVE	INDIANAPOLIS	IN	46217 Y	<a href="https://echo.es">https://echo.es</a>
5	1425, 1425, 1423, 1405 HANNA AVE FILL PERMIT	INR10H078	1405 HANNA AVE	INDIANAPOLIS	IN	46217 Y	<a href="https://echo.es">https://echo.es</a>
6	16TH AND MONON DEVELOPMENT 20TH STREET, ALVORD STREET, ALLEY 1050	INRA01920	950-1200 E 20TH ST	INDIANAPOLIS	IN	46202 Y	<a href="https://echo.es">https://echo.es</a>
7	E AND 1100 E	INR10P507	1901 E STOP 13 RD	INDIANAPOLIS	IN	46227 Y	<a href="https://echo.es">https://echo.es</a>
8	2131 NORTH	INR10K368	2131-2151 N MERIDIAN ST	INDIANAPOLIS	IN	46202 Y	<a href="https://echo.es">https://echo.es</a>
9	2157 STREET AND DEQUINY STREET WATER MAIN REPLACEMENT PROJECT	INR10I605	4600-5300 E 2157 ST	INDIANAPOLIS	IN	46238 Y	<a href="https://echo.es">https://echo.es</a>
10	2427 W WASHINGTON IMPROVEMENTS	INR10J258	2427 W WASHINGTON ST	INDIANAPOLIS	IN	46222 Y	<a href="https://echo.es">https://echo.es</a>
11	25TH STREET FROM CENTRAL AVENUE TO KEYSTONE AVENUE	INRA00801	500-2400 E 25TH ST	INDIANAPOLIS	IN	46205 Y	<a href="https://echo.es">https://echo.es</a>
12	370 S MITTHOEFFER RD - BUILDING #1	INR10J568	370 S MITTHOEFFER RD	INDIANAPOLIS	IN	46229 Y	<a href="https://echo.es">https://echo.es</a>
13	370 S MITTHOEFFER RD - BUILDING #2	INR10M683	370 S MITTHOEFFER RD	INDIANAPOLIS	IN	46229 Y	<a href="https://echo.es">https://echo.es</a>
14	37TH STREET AND LAFAYETTE ROAD DRAINAGE IMPROVEMENTS	INR10P681					

ECHO Data


1	A	B	C	D	E	F	G	H	I	J	K
1	UST FACILITY ID	INCIDENT NUMBER	FACILITY NAME	STREET ADDRESS	CITY	STATE	ZIP	COUNTY	PRIORITY	DISPOSITION	
15	4025 LLC REDEVELOPMENT	INR10L470									
16	42ND ST & GERMAN CHURCH RD ROUNDABOUT	INR10L444	7 Eleven 36947	8990 Penfleton Pike	Indianapolis	IN	46226	Marion	Medium	NFA-Unconditional Closure	
17	4300 WICKER ROAD	INR10M177	Turbular Sales Division of Taylor	1901 Linden St	Indianapolis	IN	46203	Marion	Low	NFA-Unconditional Closure	
18	5625 EAST 86TH BUILDING ADDITION	INR10H776	M & M Beverages LLC	5337 W 78th St	Indianapolis	IN	46268	Marion	Medium	NFA-Unconditional Closure	
19	56TH STREET MULTI PURPOSE TRAIL INDIANAPOLIS	INR10P974	Mum and Pops Auction	1348 W 16th St	Indianapolis	IN	46202	Marion	Medium	NFA-Unconditional Closure	
20	58 BAHR AT CENTRAL STATE	INRA01660	Noble Centers Incorporated	2406 N Tibbs Ave	Indianapolis	IN	46222	Marion	Low	NFA-Unconditional Closure	
21	6000 MADISON AVENUE APARTMENTS	INR10J599	Reds Corner	Rocklane & Action Rd	Indianapolis	IN	46259	Marion	Low	NFA-Unconditional Closure	
22	6125 S FRANKLIN ROAD	INR10I994	Marathon Oil 8501	12114 E Washington St	Cumberland	IN	46229	Marion	Medium	NFA-Unconditional Closure	
23	75TH AND HAGUE RD DRAINAGE IMPROVEMENTS DPW SD 06 003	INRA01653	Marathon Oil 8501	12114 E Washington St	Cumberland	IN	46229	Marion	Low	NFA-Unconditional Closure	
24	7600 ROCKVILLE ROAD	INR10N258	Amoco 499	4508 Harding St	Indianapolis	IN	46217	Marion	Medium	NFA-Unconditional Closure	
25	77TH AND HOOVER SEPTIC TANK ELIMINATION PROJECT (STEP)	INR10J550	Keystone Food Mart	3950 S Keystone Ave	Indianapolis	IN	46227	Marion	Low	NFA-Unconditional Closure	
26	82ND STREET PROJECT HAGUE ROAD TO LANTERN ROAD	INR10M411	Keystone Food Mart	3950 S Keystone Ave	Indianapolis	IN	46227	Marion	High	NFA-Unconditional Closure	
27	82ND STREET PROJECT LANTERN ROAD TO FALL CREEK ROAD	INR10N738	Amoco Ss 00572	4025 E Southport Rd	Indianapolis	IN	46227	Marion	Medium	NFA-Conditional Closure	
28	82ND STREET PROJECT LANTERN ROAD TO FALL CREEK ROAD	INR10N738	Amoco Ss 10058	3799 N Post Rd	Indianapolis	IN	46226	Marion	Medium	NFA-Conditional Closure	
29		9992	Floral Park Cemetery	3659 Connel Rd	Indianapolis	IN	46222	Marion	Medium	NFA-Unconditional Closure	
30		9993	Pain Enterprises Incorporated	1441 Bates St	Indianapolis	IN	46201	Marion	Low	NFA-Unconditional Closure	
31		9994	U Haul Corporation International	7027 E 86th St	Indianapolis	IN	46250	Marion	Low	NFA-Unconditional Closure	
32		9995	Indiana Lighting Center	3790 Lafayette Rd	Indianapolis	IN	46222	Marion	Medium	Active	
33		9996	Par Lance Ambulance Garage	9th & Biwells	Indianapolis	IN	46290	Marion	High	NFA-Unconditional Closure	
34		9997	35 United Oil Service	2627 E 30th St	Indianapolis	IN	46218	Marion	Low	NFA-Unconditional Closure	
35		9998	Nardini Development	Kentucky & Troy	Indianapolis	IN	46225	Marion	Low	NFA-Unconditional Closure	
36		9999	Nardini Development	Kentucky & Troy	Indianapolis	IN	46225	Marion	Low	NFA-Unconditional Closure	
37		0000	Kims Auto Repair	3721 E 21st St	Indianapolis	IN	46218	Marion	Low	NFA-Unconditional Closure	
38		0001	Kims Auto Repair	3721 E 21st St	Indianapolis	IN	46218	Marion	Low	NFA-Unconditional Closure	
39		0002	Kmart 7431	5101 E Thompson Rd	Indianapolis	IN	46237	Marion	Low	NFA-Unconditional Closure	
40		0003	Village Pantry 592	2535 N Tibbs Ave	Indianapolis	IN	46222	Marion	Medium	NFA-Unconditional Closure	
41		0004	White Drywall Company Incorporated	8081 Crawfordsville Rd	Indianapolis	IN	46224	Marion	Medium	NFA-Unconditional Closure	
42		0005	Amoco Ss 00808	3196 W 16th St	Indianapolis	IN	46222	Marion	Medium	NFA-Unconditional Closure	

IDEM LUST Data

- State and Federal data sources of known and potential contaminants were available to there was no way to incorporate them with each other field data collection.

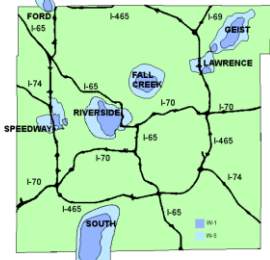
# Prior MCWEC Reports

- Yearly reports for the public and the water utilities were static PDFs with fixed maps and no interactive elements.







**Marion County**  
Wellfield Education Corporation  
[www.mcwec.org](http://www.mcwec.org)

**2018 Wellfield Protection Activities Report**

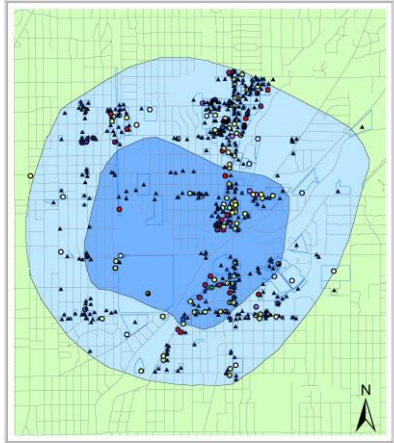


Marion County Wellfield Protection Areas

Drafted by MUNDELL & ASSOCIATES, INC. on behalf of the Marion County Wellfield Education Corporation.

**Fall Creek Wellfield - Business Types**  
Annual Report 2018



0 0.25 0.5 1 Miles

**Legend**

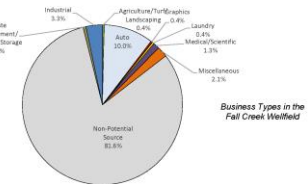
<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #e0e0ff; border: 1px solid black; margin-right: 5px;"></span> Fall Creek Parcels</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #d0e0ff; border: 1px solid black; margin-right: 5px;"></span> W-1 Wellfield</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #c0e0ff; border: 1px solid black; margin-right: 5px;"></span> W-5 Wellfield</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #a0e0ff; border: 1px solid black; margin-right: 5px;"></span> Marion County</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px solid black; margin-right: 5px;"></span> Interstates</li> <li><span style="display: inline-block; width: 10px; height: 10px; border-bottom: 1px solid black; margin-right: 5px;"></span> Roads</li> </ul>	<p><b>Business Type</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ffff00; border: 1px solid black; margin-right: 5px;"></span> Auto</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ffcc00; border: 1px solid black; margin-right: 5px;"></span> Graphics</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ff9900; border: 1px solid black; margin-right: 5px;"></span> Industrial</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ff6600; border: 1px solid black; margin-right: 5px;"></span> Laundry</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #cccccc; border: 1px solid black; margin-right: 5px;"></span> Medical/Scientific</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #999999; border: 1px solid black; margin-right: 5px;"></span> Agricultural/Turf/Landscaping</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #666666; border: 1px solid black; margin-right: 5px;"></span> Waste Management/Chemical Storage</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #333333; border: 1px solid black; margin-right: 5px;"></span> Miscellaneous</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> Non-Potential Source</li> </ul>
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**ATTACHMENT 1**

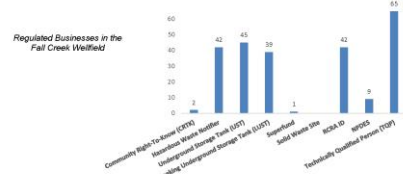
**Fall Creek Wellfield**

Within the Fall Creek Wellfield, there are 547 active (non-historic and non-vacant) nonresidential sites, of which 156 are potential contaminant sources and 691 are considered low to no risk as potential sources of contamination. The potential sources include: 85 auto-related sources, 28 industrial sources, eleven (11) medical/scientific-related sources, three (3) commercial laundry sources, five (5) waste management/chemical storage-related sources, three (3) graphic production-related sources, three (3) agriculture/landscaping-related sources and 16 miscellaneous sources (see Table 1).

Based on the information maintained by IDEM, the U.S. EPA and MUNDELL, there are 129 regulated sites within the wellfield (including active, historic and vacant, with some sites noted within multiple databases). The regulated sites include two (2) sites within Community Right to Know (CRTK) databases, 42 sites noted as hazardous waste roofers, 42 sites within the underground storage tank (UST) database, 39 sites within the Leaking UST (LUST) database, one (1) Superfund site, 42 sites with Resource Conservation and Recovery Act (RCRA) identification numbers, nine (9) sites with NPDES identification numbers, and 65 sites identified through the Marion County Improvement Location Plan Technically Qualified Person (TQP) program that impose design requirements on the development of new building within the wellfields (see Table 2).



**Business Types in the Fall Creek Wellfield**



**Regulated Businesses in the Fall Creek Wellfield**



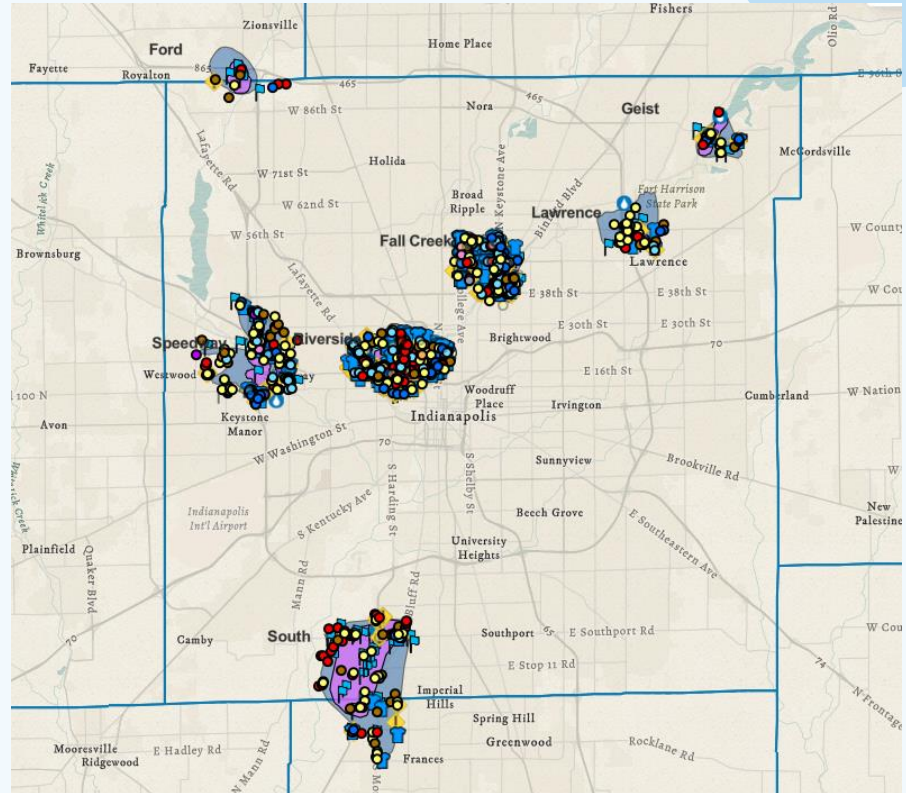
03

# The New Approach

# Using ArcGIS Online tools for Source Water Protection

Field + State + Federal data loaded to ArcGIS Online enabled multiple front-end improvements

- ArcGIS Navigator: Turn-by-turn directions for Business driving survey
- Field Maps: collect business data
- Story Map: interactive Public Report
- Dashboard: interactive data map and status indicators for water utilities to use
- Web App: "Am I in a wellfield?" on MCWEC website

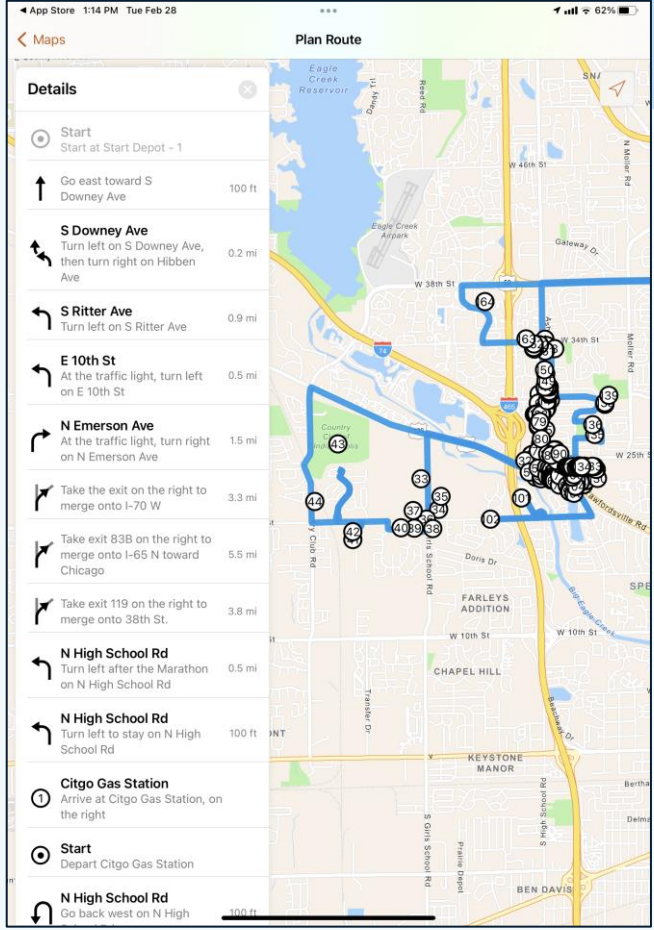
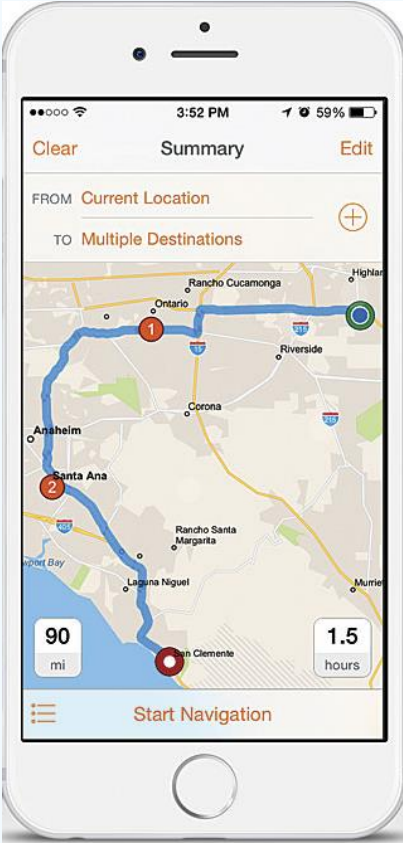


# Using ArcGIS Online tools for Source Water Protection

## Collecting Data in the Field



- Create custom driving routes out of existing PCS data. This makes repeat surveys easier to navigate, especially in wellfields that have a large number of businesses.

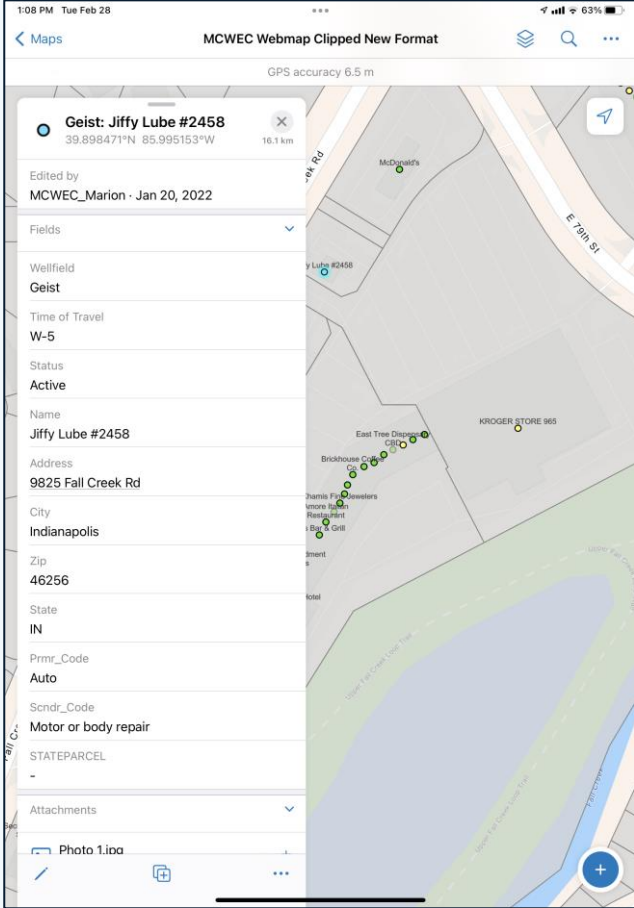
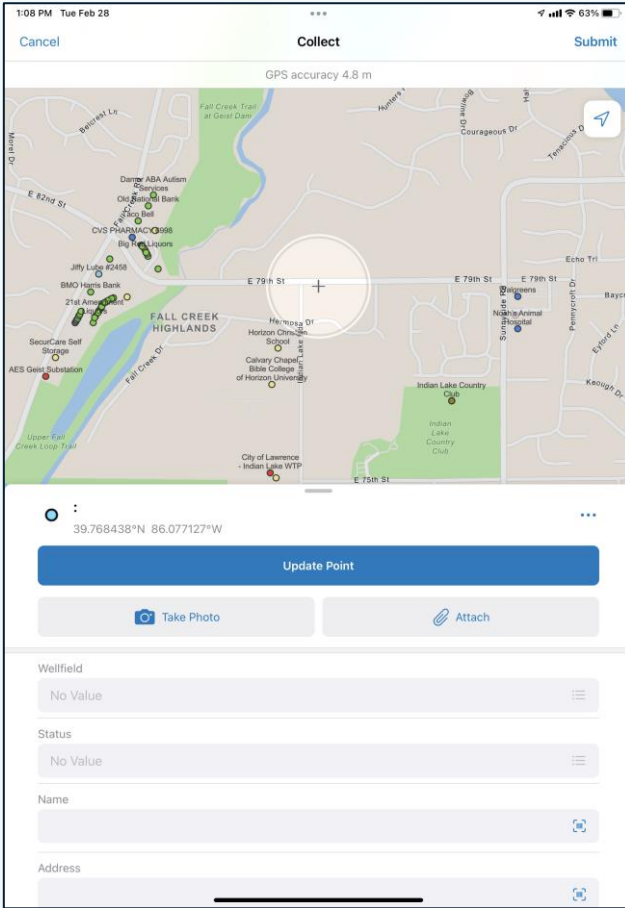


# Using ArcGIS Online tools for Source Water Protection

## Collecting Data in the Field



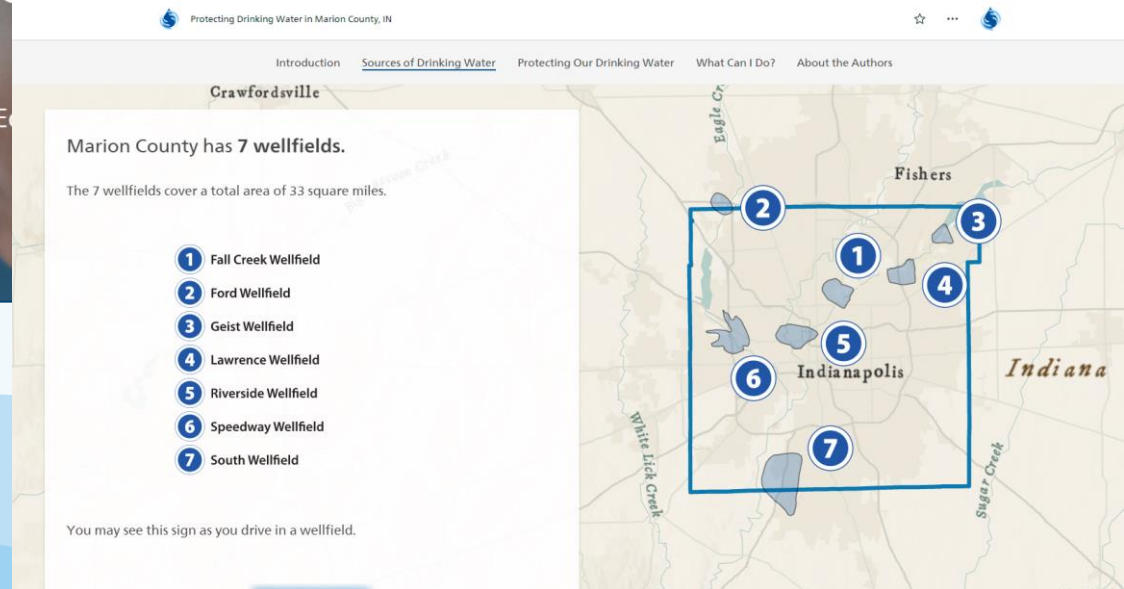
- Pin new businesses to the exact location. Confirm existing or view historic businesses in real-time.



# 2022 MCWEC StoryMap (Public Outreach)



- [www.MCWEC.org/yearly-report](http://www.MCWEC.org/yearly-report)



# Interactive Dashboard for utilities

## Potential Source Sites

Details: Current year and historical data

### Choose Filters

Choose any of the filters to change the map and statistical data.

#### WELLFIELD BOUNDARIES

All **Fall Creek** Ford Geist  
Lawrence Riverside South  
Speedway

All **W-1** W-5 Hide

Show 1/4 mi buffer **Hide**

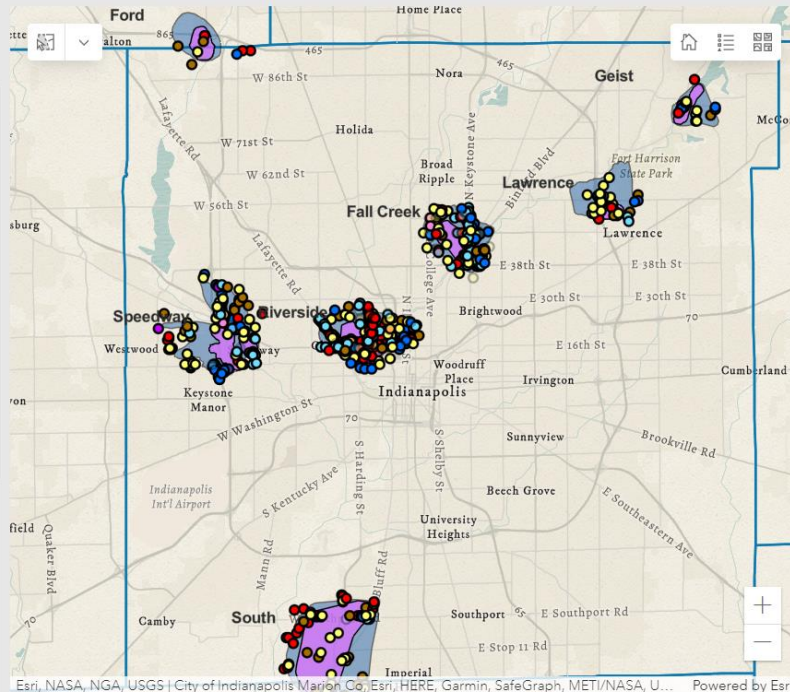
#### BUSINESS SURVEY: Potential Sources

All **Active** Historic  
New Records Hide

#### BUSINESS SURVEY: Non-Potential

Show **Hide**

ADDITIONAL DATA LAYERS



MAIN MAP

Informational Data

Disclaimers

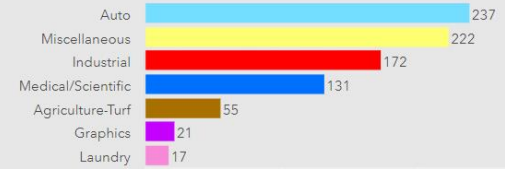
## Businesses

All Wellfields

### Potential Sources (Active & Historic)

**855**  
63 newly identified

Additionally, 843 businesses have been catalogued as non-potential sources



- NEW** **McNeeley Owned** 3607 Orchard Ave
- NEW** **Unknown business** 2223 E 44th St
- NEW** **Unknown business** 2203 E 44th St
- NEW** **Nu Look home services** 2211 E 44th St
- NEW** **Unknown business** 2102 CLAY ST
- NEW** **Demolition Debris Removal Service** 4075 Millersville Rd
- NEW** **New Construction** 1121 E 46th St
- NEW** **Idlewood** 3543 Idlewood Terrace
- NEW** **Runaway Bay** 2030 Runaway Bay Dr

Businesses



Contamination

Waste

Other Potential

# Web App: “Am I in a Wellfield?”

[www.MCWEC.org/wellfields/am-i-in-a-wellfield/](http://www.MCWEC.org/wellfields/am-i-in-a-wellfield/)

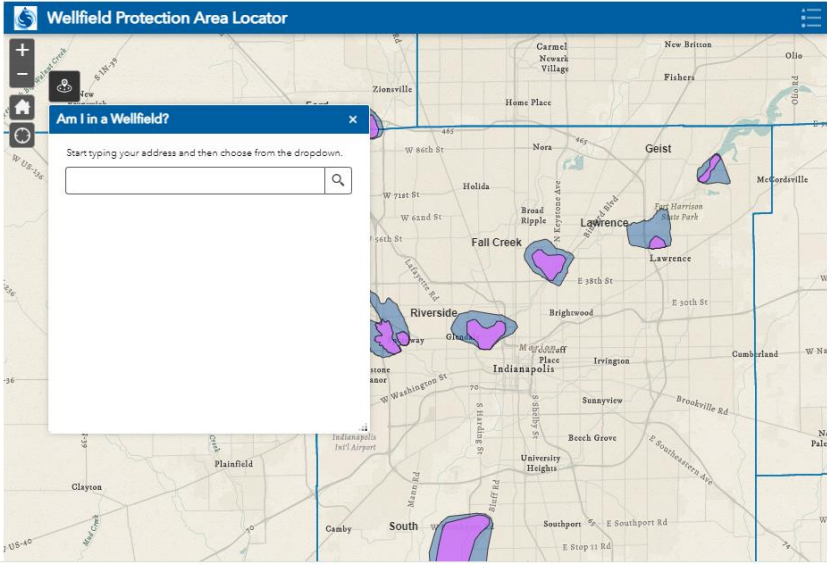
MCWEC    FAQ    FOR BUSINESSES    FREE ASSESSMENTS    WASTE DISPOSAL    REPORTS    NEWS    CONTACT        

## Interactive Wellfield Maps – Indianapolis Area

Please be patient while the map is loading. [Below the map](#) are the wellfield PDFs or you can find proximity to wellfields outside of Indianapolis.

[Click here to view on mobile / fullscreen](#)

### Wellfield Protection Area Locator



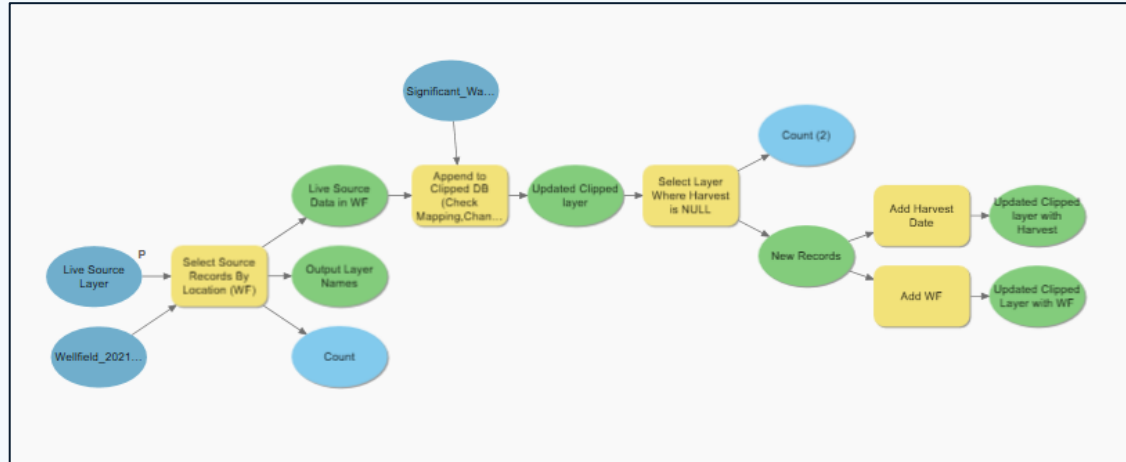
Am I in a Wellfield?

Start typing your address and then choose from the dropdown.

# Using ArcGIS Pro tools for Source Water Protection

Working with data sources from ArcGIS Online in ArcGIS Pro for multiple back-end improvements

- Created processes with Model Builder to pull updated state and federal sources each year.
- Arcade / Python provide easy ways to find differences in data whether in ArcGIS Pro or other applications such as Dashboards.
- Program managers can view statuses of drive surveys in real time.





# Old Approach vs New Approach

## Old

- Handwritten Field Notes and messy excel files
- Static PDF report
- Public unlikely to read it
- Maps and data static and not able to be live updated
- Difficult to integrate disparate data sources

## New

- Easy updating of PCS during wellfield drive surveys
- Interactive Story Map for public outreach
- Live web maps and dashboards for utility access
- Integrate multiple data sources into one location