

# Rumpke Sanitary Landfill Odor Complaint Summary/Analysis 2020 and 2021

**Hamilton County Public Health  
Department of Environmental Health Services  
Waste Management Division**



**For more information, please contact:**  
Hamilton County Public Health  
Department of Environmental Health Services  
250 William Howard Taft, 2<sup>nd</sup> Floor  
Cincinnati, Ohio 45219  
(513) 946-7800  
[www.hcph.org](http://www.hcph.org)

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## **Table of Contents**

Introduction.....	2
Results.....	3
Summary.....	6

## **Appendices**

### Appendix A – Figures

A1 – Rumpke Odor Data 2021 through 2013

A2 – Rumpke Odor Data 2012 through 2007

### Appendix B – Maps

B1 – Odor Surveillance Loop

B2 – 2020 Complaint Locations – with color indicating confirmed/unconfirmed

B3 – 2021 Complaint Locations – with color indicating confirmed/unconfirmed

B4 – 2020 Confirmed Odor Locations - with color indicating type of odor

B5 – 2021 Confirmed Odor Locations - with color indicating type of odor

## **Introduction**

The following report summarizes odor complaints received and odor surveillance activities during 2020 and 2021 related to Rumpke Sanitary Landfill, located at 10795 Hughes Road in Colerain Township.

Beginning in 2007, Hamilton County Public Health (HCPH) collaborated with Southwest Ohio Air Quality Agency (Air Quality) to respond to citizen odor complaints 24/7. In 2013 HCPH began using mobile devices to capture complaint investigation data. Utilizing the GPS-enabled mobile devices, geospatial data can be collected alongside the observations allowing for better mapping capability. Every complaint continues to be investigated and HCPH compiles complaint data into periodic reports to summarize and analyze the complex issue of odors and odor complaints at Rumpke Sanitary Landfill.

In addition to complaint response, HCPH conducts odor surveillance monitoring of the facility in accordance with Ohio Environmental Protection Agency (OEPA) Internal Operating Procedure and Odor Scale, outlined in Figure 1 below. A surveillance loop has been established which includes major roadways surrounding the facility through residential areas, see Map B1 in appendix B. An assessment of odor is made at all points along this loop, however only incidences of landfill-related odor and complaint locations are recorded. Periodic joint inspections with OEPA are conducted to “calibrate” assessment of odor and ensure consistency in applying the odor scale from Figure 1. The assumption can be made that if the surveillance loop was performed, no landfill-related odors were noted at all points along that route except where noted. Each record in the dataset is either a complaint location, a location where landfill-related odor was noted by the investigator, or a record that no odor was noted along the surveillance route.

**Figure 1**

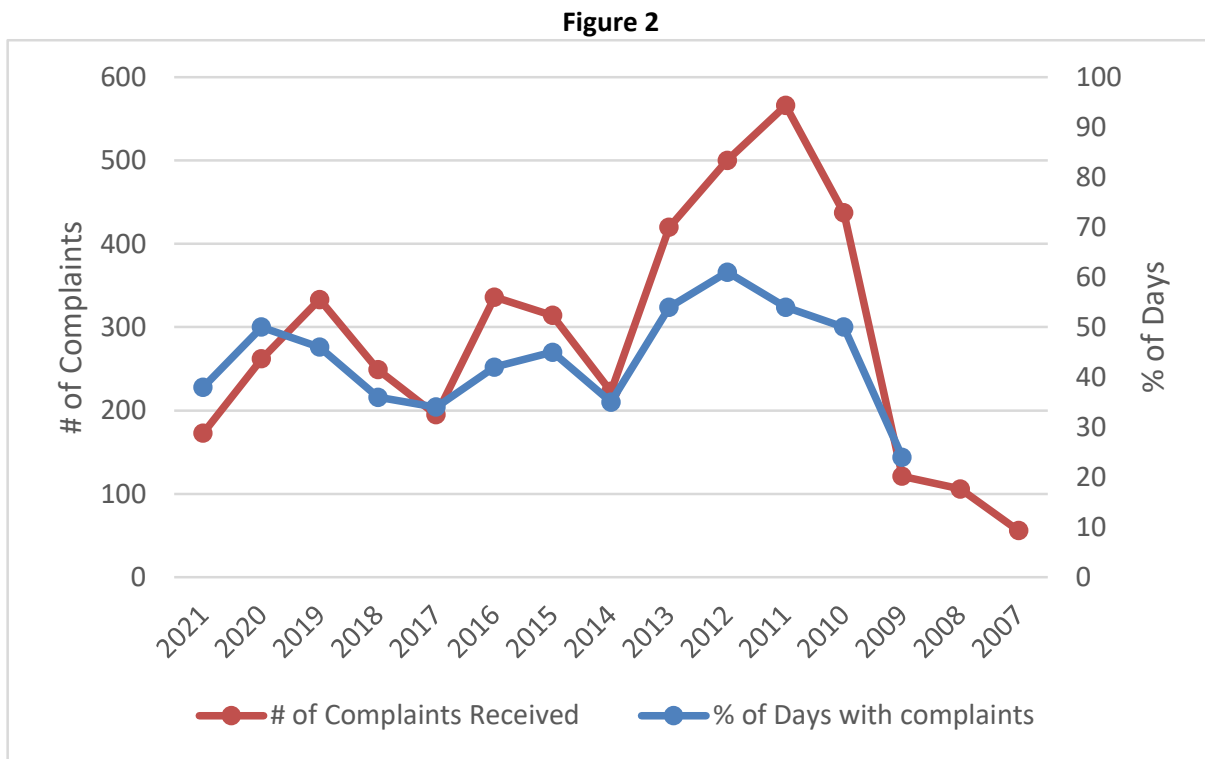
**Odor Scale from OEPA Internal Operating Procedure**

No Odor	Odor Not Detectable
Slight	Odor present in the air, which activates the sense of smell and the characteristics may or may not be distinguishable and/or definite, but not objectionable in short durations. This is characterized by occasional “whiffs” of odor, but is not persistent.
Moderate	Odor present in the air, which easily activates the sense of smell, is very distinct and clearly distinguishable, tends to be objectionable and/or irritating, and is persistent in the community.
Strong	Odor present in the air, which is objectionable and causes a person to attempt to avoid it completely.
Over-Powering	Odor present in the air, which is so strong that it is overpowering and intolerable for any length of time.

\*Increments have been added to allow description of odor between the criteria described above (No Odor to Slight, Slight to Moderate, etc.).

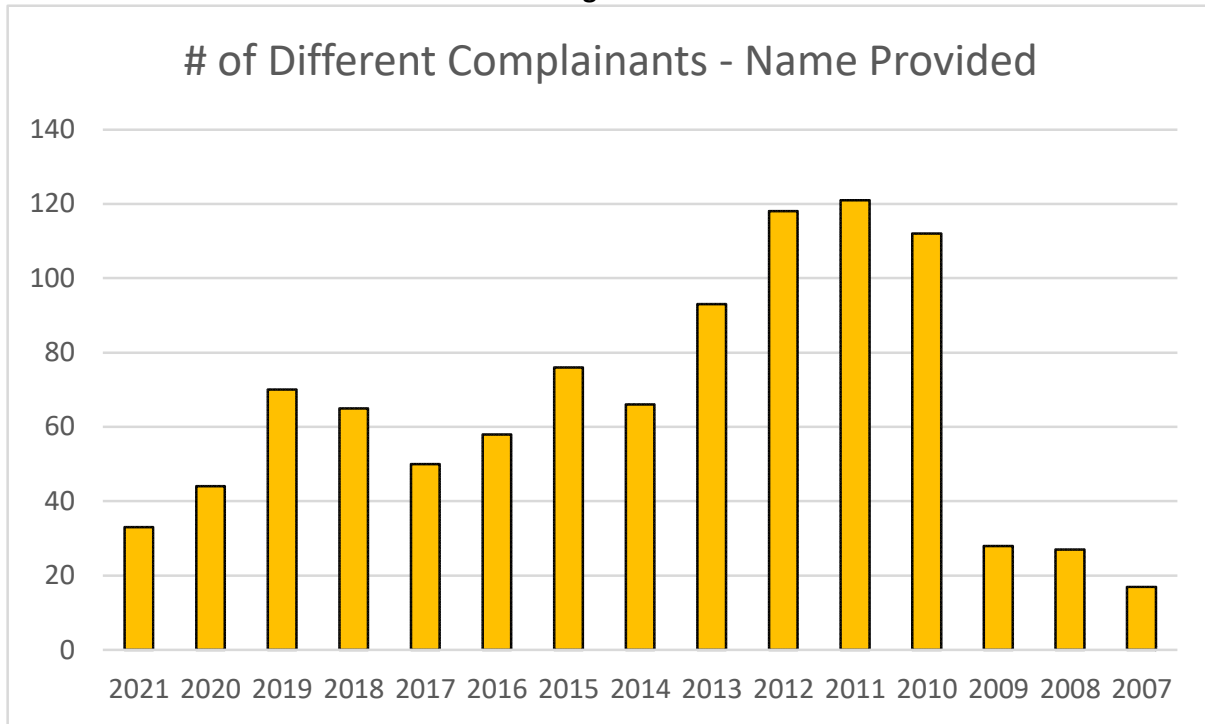
## Results

A table with a historical comparison of Rumpke odor data can be found in Figure A1 located in appendix A. In 2020, 262 complaints were received regarding odor from Rumpke Sanitary Landfill. In 2021, 173 complaints were received. The locations of complaints received in 2020 and 2021 is shown on Maps B2 and B3 found in appendix B. There has been a two-year decreasing trend after a recent high of 333 complaints were received in 2019. The most complaints received in a single year is 2011 when 566 complaints were received. Complaints were received on 39 percent of the days in 2021, down 11 percent from 2020's 50 percent. Figure 2 shows historical complaint numbers and percent of days with complaints.



There were 33 named complainants in 2021, down from 44 a year ago and 70 in 2019 (Figure 3). A peak of 121 unique complainants occurred in 2011. Thirty-one percent and 34 percent of the complaints were made anonymously in 2021 and 2020 respectively. This is a noticeable increase compared to the previous eight years when anonymous complaints made up between 7-22 percent of the total complaints during a given year. In 2020 and 2021, 11 percent and 14 percent of all complaints were confirmed at the complainant's location respectively. This is similar to the percent confirmed on a yearly basis since 2015.

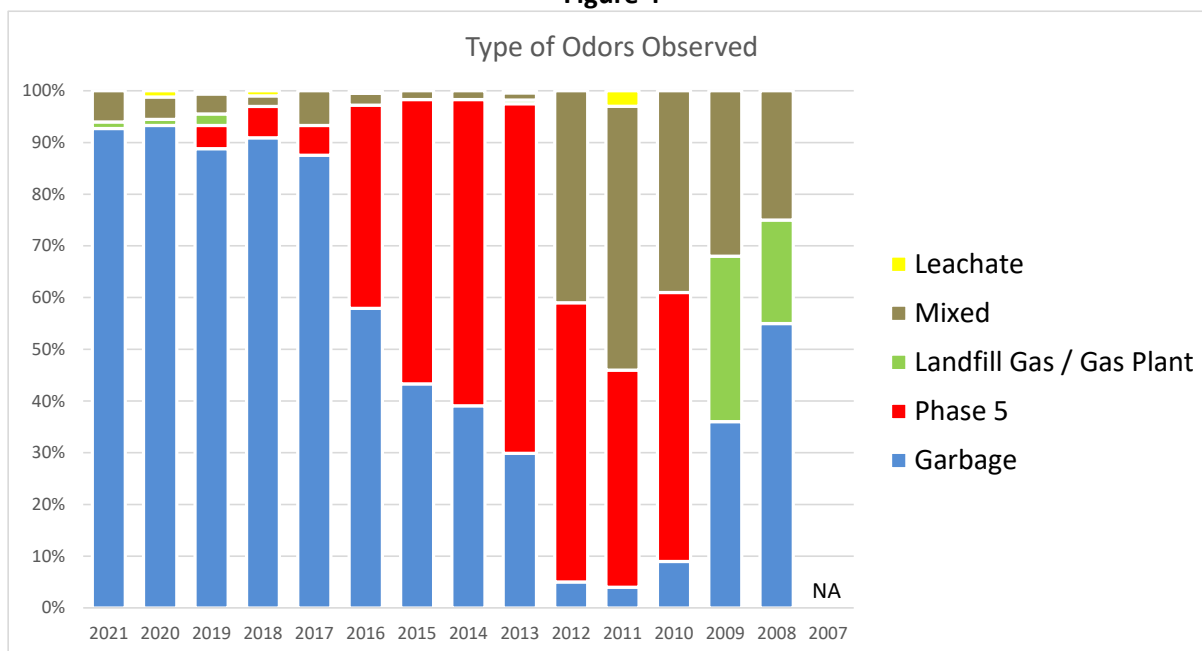
Figure 3



In 2020, complaints were responded to within one hour 19 percent of the time. Thirty-eight percent of the complaints were responded to within four hours and 79 percent of the complaints were responded to within 24 hours of receiving the complaint. In 2021, complaints were responded to within one hour 17 percent of the time. 35 percent of the complaints were responded to within four hours and 80 percent of the complaints were responded to within 24 hours. This response time has been consistent since 2013.

Odor was assessed on 52 percent (191) of the days in 2020 and 54 percent (197) of the days in 2021. For the past three years, HCPH has made observations on more than half of the days of the year. The percent of observed days in 2021 with odor noted was 62 percent. This statistic has been consistently between 61 percent and 63 percent for the last three years. Figure 4 shows the majority (>90 percent) of confirmed off-site odors in 2020 and 2021 were again garbage related. The percent of days with odor described as greater than slight was <1 percent of observed days in both 2020 and 2021. The location of confirmed odors is shown on Map B4 for 2020 and B5 for 2021 in appendix B.

Figure 4



The response/surveillance dataset for 2020 contains 413 observations or records (Figure 5). 263 records are in response to complaints while 150 are non-complaint locations where landfill odors were observed along the surveillance route.

Figure 5

Complaint Location	Odor Intensity						Total	Percent
	No Odor	No Odor to Slight	Slight	Slight to Moderate	Moderate	Strong		
No	17	83	50	0	0	0	150	36%
Yes	235	15	13	0	0	0	263	64%
Grand Total	252	98	63	0	0	0	413	100%

The response/surveillance dataset for 2021 contains 338 observations or records (Figure 6). 173 records are in response to complaints while 165 are non-complaint locations where landfill odors were observed along the surveillance route.

Figure 6

Complaint Location	Odor Intensity						Total	Percent
	No Odor	No Odor to Slight	Slight	Slight to Moderate	Moderate	Strong		
No	38	87	40	0	0	0	165	49%
Yes	149	16	7	1	0	0	173	51%
Grand Total	187	103	47	1	0	0	338	100%

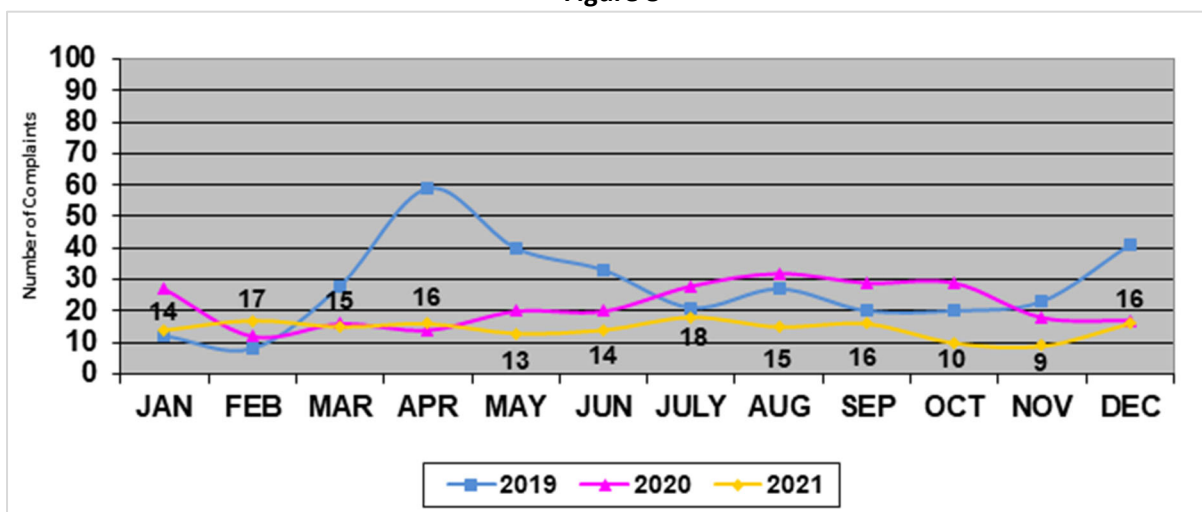
Rumpke utilizes deodorizer as part of the odor control plan. In 2020 and 2021, there were not a significant number of complaints received specifically concerning the deodorizer. As depicted in Figure 7, the presence of deodorizer was noted by HCPH during 64 observations during both 2020 and 2021 calendar years. This equates to approximately 15 percent and 19 percent of the total observations in 2020 and 2021 respectively. Deodorizer was generally observed with landfill odors as only 6 occurrences of deodorizer alone were noted by observers in both years.

Figure 7

Deoderizer Observed - 2020		Odor Intensity					Total
		No Odor	No Odor to Slight	Slight	Slight to Moderate	Moderate	
Yes		6	42	16	0	0	64
Deoderizer Observed - 2021		Odor Intensity					Total
		No Odor	No Odor to Slight	Slight	Slight to Moderate	Moderate	
Yes		6	45	13	0	0	64

Figure 8 shows the past three years of complaints plotted monthly. Monthly complaint totals from 2020 and 2021 have been mostly consistent.

Figure 8



### Summary:

The number of complaints received, percent of days with complaints, and number of different complainants all decreased when comparing 2021 to the previous year. This was preceded by a decrease in the number of complaints from 2019 to 2020. For the fifth year in a row, garbage odors were the dominant odor observed.

The sub-surface event occurring in the north end of the landfill contributed to off-site odors beginning as early as September 2009. From 2009-2016, gas odors from the sub-surface event were the predominant observed odor. Installation of the odor control blanket and collection of gases seems to have controlled these odors.

Additional efforts and odor control technologies continue to be evaluated to better target identified odor sources. Unannounced inspections and odor surveillance continue in order to monitor the facility. Periodic joint inspections between agencies are conducted to “calibrate” assessment of odor and ensure consistency in applying the odor scale from Figure 1. The 24-Hour Odor Complaint Hotline and complaint response continues to allow for the rapid investigation of odor complaints associated with Rumpke Sanitary Landfill.

## **Appendix A - Figures**



**Figure A1 – Rumpke Odor Data 2021 - 2013**

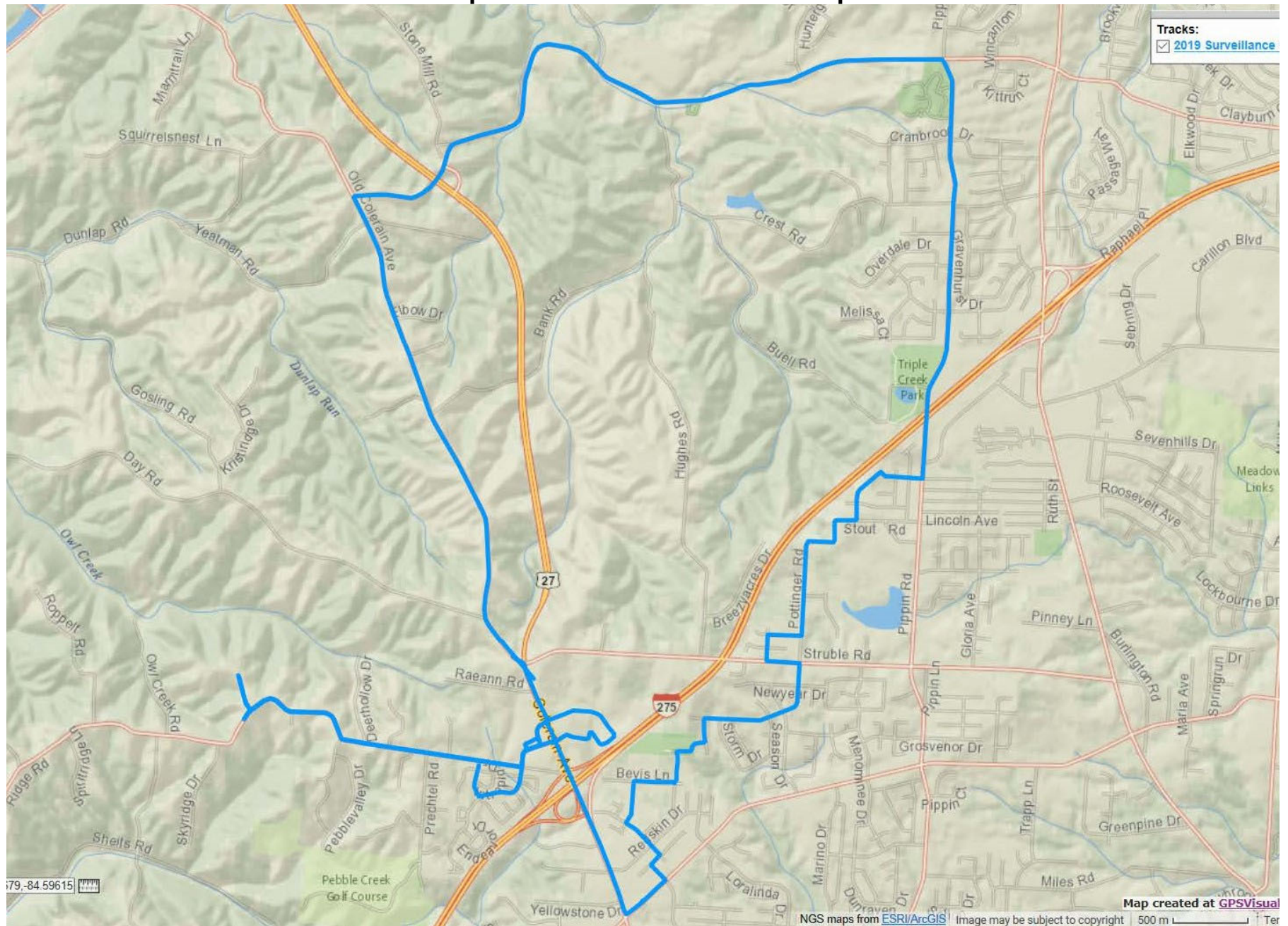
		2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Complaints</b>	# of Complaints Received	173	262	333	249	195	336	314	223	420
	% of Days with Complaints	39	50	46	36	34	42	45	35	54
	# of Different Complainants - Name Provided	33	44	70	65	50	58	76	66	93
	% Anonymous Complaints	31	34	13	18	22	21	15	7	11
	% Confirmed By Responder at Complaint Location	14	11	15	8	18	13	18	21	16
<b>Responder Observations</b>	% of Days Observations Made	54	52	51	43	45	55	53	60	55
	% of Observed Days with No Odor Noted	38	37	39	51	56	14	24	35	30
	% Observed Days with Odor Noted	62	63	61	49	44	86	76	65	70
	% Observed Days with Intensity greater than slight	0.5	0	2.7	1.3	3.1	3.5	3.7	1	3
	% Observed Days with Garbage Odor noted	60	60	57	44	41	47	31	21	30
<b>Response Time</b>	% Less than one Hour	17	19	22	14	19	23	22	22	20
	% Less than four Hours	35	38	45	38	45	45	40	52	39
	% Less than 24 Hrs	80	79	73	76	79	80	78	78	75

**Figure A2 – Rumpke Data 2012 - 2007**

		2012	2011	2010	2009	2008	2007
<b>Complaints</b>	# of Complaints Received	500	566	437	121	106	56
	% of Days with Complaints	61	54	50	24	-	-
	# of Different Complainants - Name Provided	118	121	112	28	27	17
	% Anonymous Complaints	13	41	37	45	44	0
	% Confirmed By Responder at Complaint Location	27	45	33	28	24	-
<b>Responder Observations</b>	% of Days Observations Made	-	-	-	-	-	-
	% of Observed Days with No Odor Noted	-	-	-	-	-	-
	% Observed Days with Odor Noted	-	-	-	-	-	-
	% Observed Days with Intensity greater than slight	-	-	-	-	-	-
	% Observed Days with Garbage Odor noted	-	-	-	-	-	-
<b>Response Time</b>	% Less than one Hour	94	92	84	76	84	-
	% Less than four Hours	-	-	-	-	-	-
	% Less than 24 Hrs	-	-	-	-	-	-

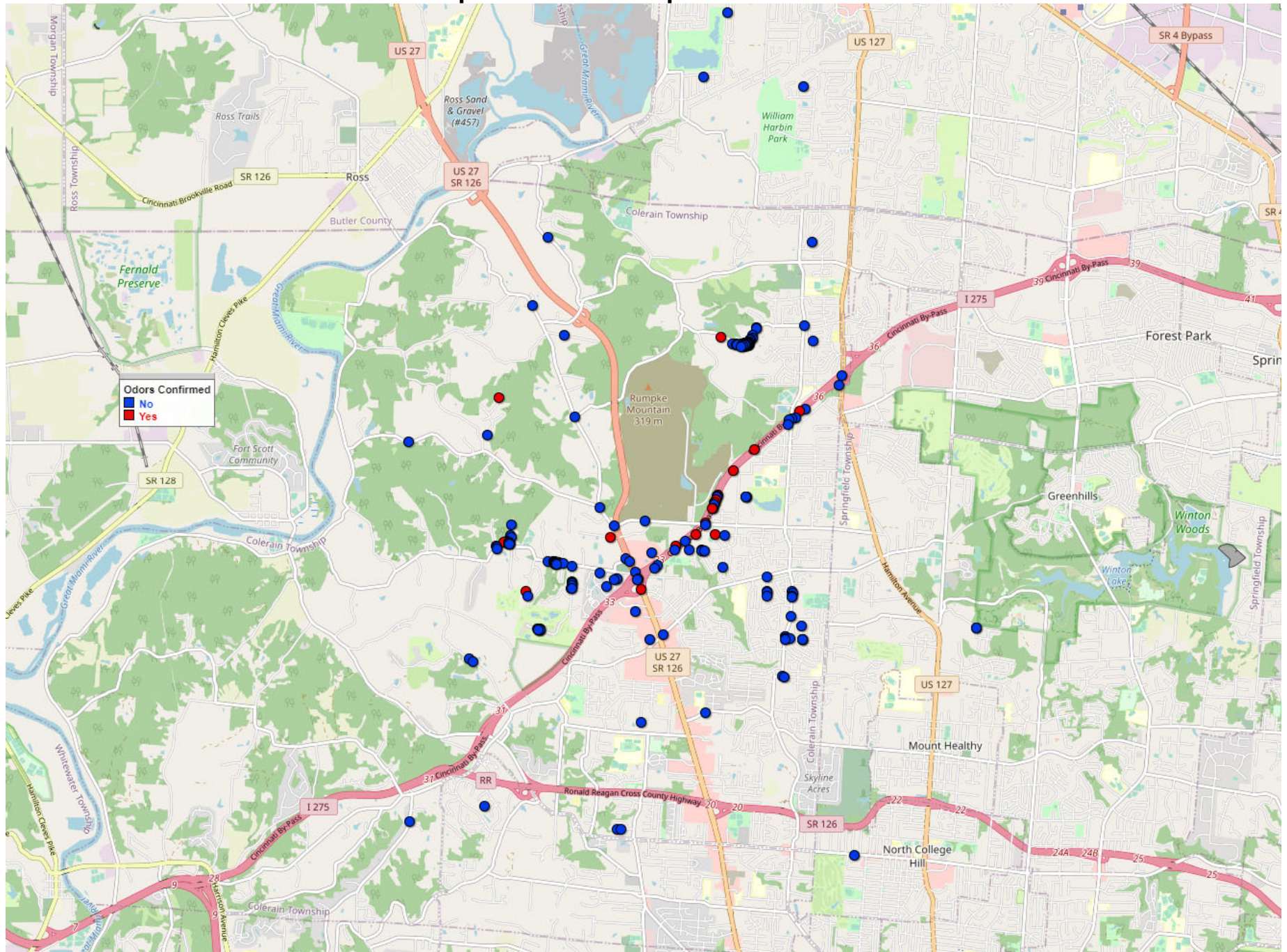
## **Appendix B - Maps**

## Map B1 – Odor Surveillance Loop



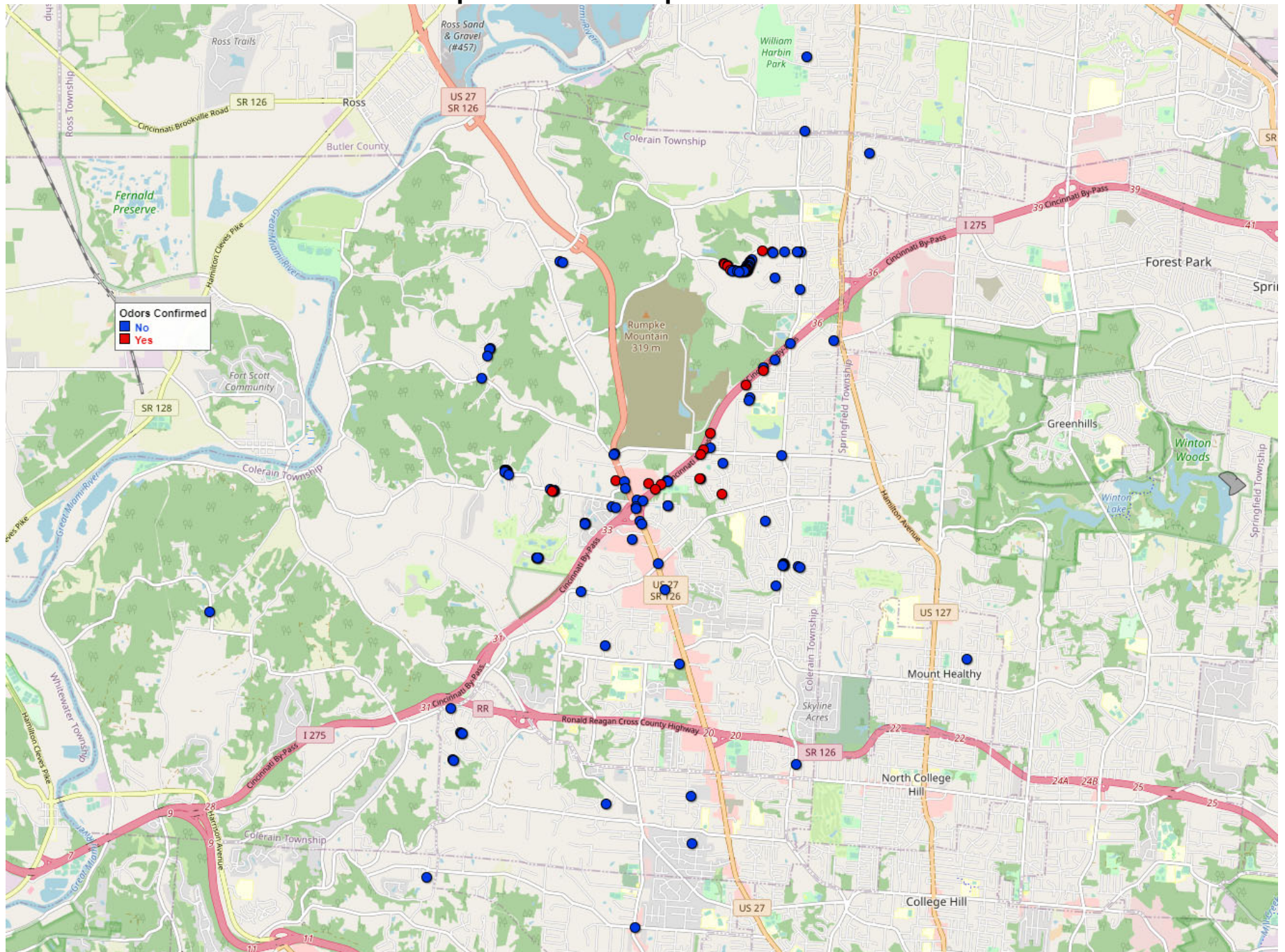


Map B2 – 2020 Complaint Locations



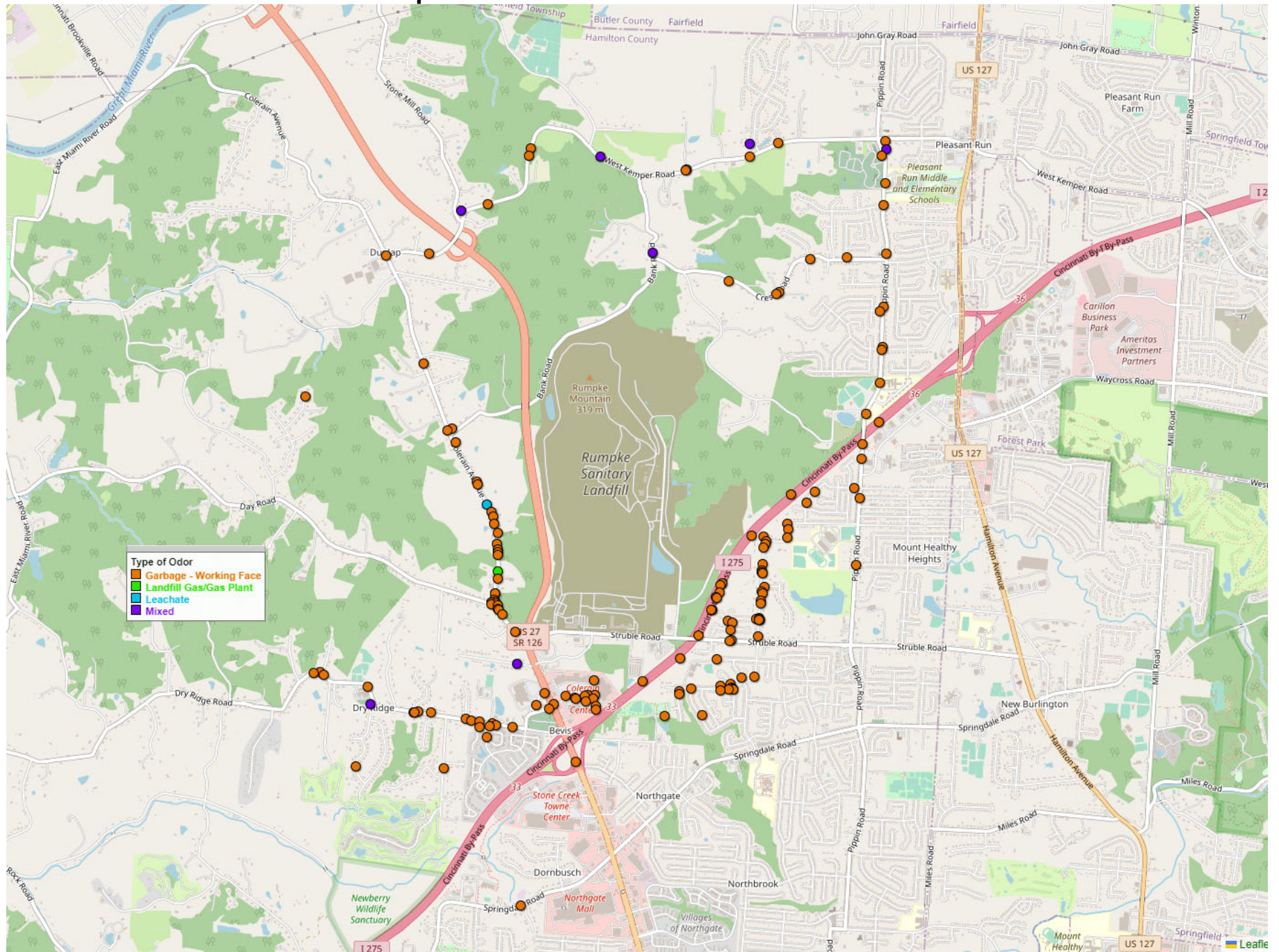


# Map B3 – 2021 Complaint Locations





# Map B4 – 2020 Confirmed Odor Locations





## Map B5 – 2021 Confirmed Odor Locations

