

Catchment Investigation Plan

Town of Walpole
Massachusetts

July 2023



FUSS & O'NEILL

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Catchment Investigation Plan Town of Walpole

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Purpose

The Town of Walpole maintains an extensive stormwater management system, comprising more than 400 outfalls, 6000 catch basins and drainage manholes, and over 90 miles of pipe. The Town's General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) (the Permit) requires that catchment investigations be completed in all outfall catchments by June 30, 2028. To assist the Town in developing an annual and total budget sufficient to meet its permit requirements for catchment investigations, Fuss & O'Neill has compiled this Catchment Investigation Plan. This Plan follows the Town's written catchment investigation procedures identified in its Illicit Discharge Detection and Elimination (IDDE) plan.

The Permit requires that the Town complete two analyses, one to identify System Vulnerability Factors (SVF), and one to identify Key Junction Structures (KJS). These two analyses are designed to balance the Permit intent to identify and remove all likely sources of sewer input against the Town's limited stormwater compliance resources. The SVF analysis identifies those outfalls where illicit discharges may be triggered during wet-weather conditions. The KJS analysis identifies those manholes and catch basins that must be inspected during dry-weather conditions to complete catchment investigation requirements. The Permit considers a catchment to be fully investigated after all Key Junction Structures have been inspected, any required wet-weather outfall sampling has been completed, and any illicit discharges have been eliminated, including all confirmatory sampling.

The approach and outcomes of each required analysis, and associated cost estimates are included in the following sections.

System Vulnerability Factor Analysis

Factors/Process

Per MS4 requirements, system vulnerability factors (SVFs) were screened for each catchment with an outfall in the MS4 regulated area in accordance with the screening factors identified in Section 2.3.4.8.c.i of the MS4 Permit, to the extent Town mapping includes such data. Catchments in Town were screened for the presence of:

Required Factors

- History of sanitary sewer overflows (SSOs)
- Common or twin invert manholes
- Common trench construction
- Storm/sanitary crossings (sanitary sewer located above stormwater system)
- Sanitary lines with underdrains
- Inadequate level of sanitary service
- Areas formerly served by combined sewers
- Sanitary infrastructure defects

Recommended Factors

- Known sanitary restrictions where power failures could result in SSOs
- Widespread code-required septic system upgrades
- Sewer/storm drain infrastructure >40 years old
- History of Board of Health actions addressing widespread septic system failures

Screening for SVFs began with a desktop GIS analysis of sanitary and storm sewer data, where available, to identify potential areas where sanitary sewer may cross above the stormwater system, increasing the potential for illicit discharges. Local knowledge from Town staff provided supplemental insight into potential areas in Town with a history of sanitary infrastructure defects, history of sanitary sewer overflows, and areas formerly served by combined sewers (none). One location with a twin invert manhole was separated approximately 20 years ago. Field observations of structures during catchment investigations can be used to provide additional information and confirm the presence or absence of SVFs.

Sanitary sewer invert elevation data is not available in the Town's GIS data, so intersecting storm drain lines and sanitary sewer lines on a plan view leads to an overestimate of the actual number of catchments with this SVF. To address this issue, we combined this GIS analysis with the Town's initial outfall priority ranking, to identify those outfalls with a higher likelihood of storm/sanitary crossing based on age of development, lower elevation, and density of development. Outfalls with an identified intersection of the storm and sanitary lines, which also have a high priority ranking, based on results of the initial dry-weather inspection and sampling, were inferred to have the highest potential for a sanitary sewer line crossing above a storm drain line.

Key Junction Structure Analysis

Identification of Structures

Pursuant to Section 2.3.4.8.c.ii, key junction structures² (KJS) were manually identified for each catchment with an outfall located in the regulated area.³ Where a given catchment does not contain any junction structures (i.e. where the alignment is straight and un-branching), the permit allows the previously conducted dry weather screening and sampling to be considered as meeting the manhole inspection requirement. Fuss & O'Neill added an attribute to the Structures layer of drainage mapping to indicate whether a manhole or catch basin is a KJS.

Where catchments do not contain junction manholes, the dry weather screening and sampling shall be considered as meeting the manhole inspection requirement. In these catchments, dry weather screenings that indicate potential presence of illicit discharges shall be further investigated pursuant to part

² As defined in Appendix A of the MS4 Permit: "Key Junction Manhole – For the purposes of this permit, key junction manholes are those junction manholes that can represent one or more junction manholes without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee's ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in immediate vicinity or that is serving a drainage alignment with no potential for illicit connection." A "Junction Manhole" is defined as "For the purposes of this permit, a junction manhole is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes." In the case of alignments with only catch basins and no manholes, catch basins were substituted in as key junction structures.

³ If pre-determined key junction structure was inaccessible, a structure directly upstream or downstream shall be substituted for investigation.

2.3.4.8.d. Investigations in these catchments may be considered complete where dry weather screening reveals no flow; no evidence of illicit discharges or SSOs is indicated through sampling results or visual or olfactory means; and no wet weather System Vulnerability Factors are identified.

Results

SVF Analysis

There are a total of 232 catchments that have an intersection between storm and sanitary lines. Of these, 83 also have a High priority ranking based on initial dry weather screening and sampling. It is recommended that these 83 outfalls be treated as containing at least 1 SVF. Results for the screening factors and the two options presented above are included in **Attachment 2**. The Town is required to inspect and sample all catchments with a minimum of one SVF identified, under wet weather conditions to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4. The Permit requires the Town to sample at the outfall for the same parameters required during dry weather screening⁴, and strongly recommends sampling during the spring (March through June) when groundwater levels are relatively high.

Table 1: Receiving Water-Specific¹ Outfall Sampling Parameters

Outfall Receiving Water	Pollutants of Concern ²	Number of Outfalls
Clark Pond	• E. coli	1
Diamond Pond	• E. coli	4
Mine Brook	• E. coli • Total Phosphorus • 5-day Biological Oxygen Demand	2
Neponset River	• E. coli • Total Cadmium • Total Phosphorus • 5-day Biological Oxygen Demand	32
Unnamed Tributary to Railroad Pond	• E. coli	1
School Meadow Brook	• E. coli	4
Traphole Brook	• E. coli	12
Unnamed Tributary	• None	27
Total		83

¹ MA 305B report 2018-2020

² MS4 Permit, Appendix G

⁴ Ammonia, chlorine, conductivity, salinity, E. coli, surfactants, temperature, and pollutants of concern

KJS Analysis

Based on the Key Junction Structure analysis and updated mapping, there are 196 junction structures to assess during dry weather conditions. These 196 KJS are connected to 124 outfalls. Many catchments have a single KJS, but some larger catchments may have three or more.

The permit requires that the Town conduct dry-weather screenings⁵ for each key junction structure. Each KJS must be screened for flow as well as visual or olfactory evidence of illicit discharges (e.g., excrement, toilet paper, gray filamentous bacterial growth, or sanitary products). The permit requires a sample to be taken anywhere flow is observed at a structure, and be analyzed for ammonia, chlorine, and surfactants, at a minimum. Where sampling results or visual and olfactory evidence indicate potential illicit discharges, the catchment must be flagged for additional upstream structure observation and source tracking. Since this additional observation and source tracking is inherently variable and unknown at this time, it was not included in this estimate. In accordance with the permit, samples are considered indicative of likely sewer inputs when all three of the following indicators are present: ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

Catchment Investigation Cost Estimate

Methods and Assumptions

Key Junction Structure Dry Weather Inspection and Sampling

To assist the Town with budgetary planning, Fuss & O'Neill compiled a cost estimate to complete the dry- and wet-weather sampling required by the permit to achieve compliance with Minimum Control Measure 3 (IDDE). Fuss & O'Neill also conducted two days of screening and sampling at KJSs, and incorporated the results of dry-weather outfall inspections, to verify the level of effort required to complete these permit requirements. Based on our experience, and additional verification in Walpole, we assume teams or individuals will be able to visit 15-20 key junction structures per day during catchment investigations and sample 8-10 outfalls per day during wet weather sampling.

A subset of structures are likely to require additional traffic control, or sampling effort based on invert inundation, or inaccessibility. We estimate that these KJSs will require up to two additional days of effort during dry weather to inspect all structures. Because many of these structures are located within the road right-of-way, we included a two-person team in the cost estimate, as well as the cost of a police detail.

Wet Weather Sampling Based on System Vulnerability Factor Analysis

Since we estimate a sampler can collect 8-10 samples per full wet-weather day, we estimate it will take up to 10 person-days of effort. E. coli samples must be delivered to the laboratory for analysis within 6 hours of sample collection, which limits the number of samples that can be collected by a single person during a storm event. We recommend that the Town follow the EPA guidance to conduct wet-weather sampling during spring, though there may be a limited number of wet-weather events of sufficient duration in that timeframe, so it may be necessary to sample outside of that recommended window.

⁵ Less than 0.1 inches of precipitation in the past 24 hours and not during significant snowmelt

Budget Considerations

Based on the results of the KJS and SVF analyses and the assumptions above, we estimated the cost associated with conducting dry-weather and wet-weather sampling at \$120,000 if all work is conducted in 2023. This includes the cost of field testing required for dry-weather sampling and laboratory analysis for wet-weather sampling, as well as a brief summary memorandum for each sampling type. Because the field work includes opening structures in the roadway, we have also included the cost of a police detail for all field days.

These budgetary cost estimates reflect Fuss & O'Neill's rates for 2023. If the Town wishes to achieve compliance by spreading the effort over the remaining years until the permit deadline in 2028, we assume a 4% per annum increase, for a total cost of \$142,000.

Task	Complete all work in 2023	Complete all work by 2028
Key Junction Structure Inspections	\$67,500	\$80,000
Wet-Weather Outfall Sampling for System Vulnerability Factors	\$52,500	\$62,000
Total	\$120,000	\$142,000

Appendix 1

Key Junction Structures Table

Key Junction Structures by Outfall

Outfall	Structure ID	Outfall	Structure ID	Outfall	Structure ID
02-0000-0001	DMH-5531	25-0000-0012	DMH-175	44-0000-0008	DMH-1141
02-0000-0002	DMH-5421		DMH-176	45-0000-0002	DMH-2681
02-0000-0004	DMH-3011	25-0000-0016	DMH-3285		DMH-2687
05-0000-0003	DMH-1444		DMH-113	46-0000-0006	DMH-2698
05-0000-0004	DMH-1448		DMH-116	46-0000-0008	DMH-2653
06-0000-0001	DMH-3025		DMH-1326	46-0000-0010	DMH-835
07-0000-0001	DMH-3067		DMH-3233	47-0000-0007	DMH-717
	DMH-3073	26-0000-0004	DMH-1267	52-0000-0002	DMH-2565
08-0000-0001	DMH-3036	26-0000-0006	DMH-1277	53-0000-0003	CB-617
08-0000-0006	DMH-26	26-0000-0007	DMH-1265	53-0000-0008	DMH-745
	DMH-29	26-0000-0008	DMH-1288		DMH-756
	DMH-36	26-0000-0010	DMH-1261	53-0000-0011	DMH-731
	DMH-5461	26-0000-0013	DMH-1208		DMH-733
09-0000-0005	DMH-3031	26-0000-0017	DMH-1256		DMH-767
09-0000-0008	DMH-3088	26-0000-0018	DMH-695	53-0000-0012	DMH-917
10-0000-0003	DMH-2960	26-0000-0022	DMH-928	53-0000-0013	DMH-389
10-0000-0005	DMH-1386	26-0000-0023	DMH-306	54-0000-0002	DMH-760
10-0000-0007	DMH-5594	26-0000-0026	DMH-930	55-0000-0002	DMH-1119
	DMH-5595		DMH-2866		DMH-2606
	DMH-5597		DMH-2872	55-0000-0004	DMH-2612
10-0000-0008	DMH-2943		DMH-2874		DMH-2614
	DMH-2944		DMH-2894	55-0000-0005	DMH-814
	DMH-5539		DMH-5519	56-0000-0001	DMH-1116
	DMH-5567		DMH-5522	56-0000-0004	DMH-2559
	DMH-5607		DMH-953	58-0000-0002	DMH-2587
12-0000-0003	DMH-12	27-0000-0011	DMH-2780		DMH-2588
	DMH-3054	27-0000-0020	DMH-2451	Unresolved10	DMH-5487
12-0000-0004	DMH-1361	28-0000-0002	DMH-2800	Unresolved106	DMH-1247
	DMH-19	28-0000-0004	DMH-193	Unresolved17	DMH-1344
	DMH-3305	28-0000-0007	DMH-643	Unresolved170	DMH-2419
12-0000-0005	DMH-3045		DMH-2798		DMH-2422
12-0000-0011	DMH-3302	28-0000-0013	DMH-2804		DMH-2425
12-0000-0013	DMH-47		DMH-5521	Unresolved20	DMH-646
12-0000-0021	DMH-1340	28-0000-0014	DMH-2833	Unresolved276	DMH-3218
13-0000-0001	DMH-3125	29-0000-0005	CB-3841	Unresolved286	DMH-2980
	DMH-3132	31-0000-0004	DMH-796		
13-0000-0002	DMH-3105	32-0000-0003	DMH-2732		
	DMH-3108	32-0000-0004	DMH-2978		
	DMH-3114	33-0000-0002	CB-1637		
13-0000-0003	DMH-3118		CB-3969		
	DMH-3090		DMH-1102		
	DMH-3154		DMH-2543		
	DMH-3197		DMH-2546		
	DMH-68		DMH-863		
17-0000-0002	DMH-2921		DMH-865		
17-0000-0004	DMH-3209	33-0000-0011	DMH-1060		
17-0000-0014	DMH-157	33-0000-0013	DMH-1063		
17-0000-0022	DMH-150	33-0000-0017	DMH-3335		
17-0000-0024	DMH-3216	34-0000-0001a	DMH-688		
18-0000-0002	DMH-3184	34-0000-0004	CB-556		
18-0000-0003	DMH-148	34-0000-0005	DMH-685		
18-0000-0004	DMH-139	34-0000-0009	DMH-2531		
	DMH-141		DMH-684		
18-0000-0012	DMH-3191		DMH-2487		
19-0000-0002	DMH-2455	34-0000-0012	DMH-2513		
	DMH-247		DMH-963		
	DMH-941	34-0000-0013	CB-565		
19-0000-0006	DMH-2464	34-0000-0014	DMH-983		
19-0000-0007	DMH-3181		DMH-986		
19-0000-0008	DMH-2478	34-0000-0017	DMH-2527		
20-0000-0010	DMH-2439		DMH-884		
20-0000-0016	DMH-2480	35-0000-0001	DMH-679		
20-0000-0022	CB-1492	35-0000-0002	DMH-2504		
20-0000-0023	DMH-2429	38-0000-0006	DMH-2670		
	DMH-2430	40-0000-0007	DMH-1185		
	DMH-2834	41-0000-0001	DMH-861		
	DMH-2843	42-0000-0002	DMH-1075		
	DMH-2851	42-0000-0005	DMH-2539		
	DMH-2854	43-0000-0001	DMH-970		
24-0000-0004	DMH-2738		DMH-971		
24-0000-0014	DMH-3328	44-0000-0004	DMH-1156		
25-0000-0010	DMH-3273	44-0000-0005	DMH-1164		

Appendix 2

System Vulnerability Factor Matrix

OutfallID	1	2	3	4	5	6	7	8	9	10	11	12	Summary
	History of SSOs	Common or Twin Invert Manholes	Common Trench Construction	Likely Storm/Sanitary Crossings (Sanitary Above)	Sanitary Lines with Underdrains	Inadequate Sanitary Level of Service	Areas Formerly Served by Combined Sewers	Sanitary Infrastructure Defects	Sanitary Sewer Restrictions Where Power Failure/Blockage Could Result in SSOs	Sanitary Sewer and Storm Drain Infrastructure Greater than 40 Years Old	Widespread Code of Septic System Upgrades at Property Transfers	History of Widespread Septic System Failures	Has Min 1 SVF
01-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
02-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
02-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
02-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
02-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
04-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
04-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
04-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
04-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
04-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
05-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
05-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
05-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
05-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
06-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
06-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
07-0000-0001	No	No	Yes	No	No	No	No	No	No	N/A	No	No	Yes
08-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
08-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
08-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
08-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
08-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
08-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0008	No	No	No	No	No	No	No	No	No	N/A	No	No	No
09-0000-0009	No	No	No	No	No	No	No	No	No	N/A	No	No	No
10-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
10-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
10-0000-0003	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
10-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
10-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
10-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
10-0000-0007	No	No	No	No	No	No	No	No	Maybe	N/A	No	No	No
10-0000-0008	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
12-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0008	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0009	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0010	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0011	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0012	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0013	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0014	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0015	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0016	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0017	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0018	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0019	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
12-0000-0020	No	No	No	No	No	No	No	No	No	N/A	No	No	No
12-0000-0021	No	No	No	No	No	No	No	No	No	N/A	No	No	No
13-0000-0001	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
13-0000-0002	No	No	No	No	No	No	No	No	Maybe	N/A	No	No	No
13-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
13-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0008	No	No	No	No	No	No	No	No	No	N/A	No	No	No
14-0000-0009	No	No	No	No	No	No	No	No	No	N/A	No	No	No
16-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
16-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
16-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
16-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
16-0000-0005	No	No	No	No									

OutfallID	1	2	3	4	5	6	7	8	9	10	11	12	Summary
	History of SSOs	Common or Twin Invert Manholes	Common Trench Construction	Likely Storm/Sanitary Crossings (Sanitary Above)	Sanitary Lines with Underdrains	Inadequate Sanitary Level of Service	Areas Formerly Served by Combined Sewers	Sanitary Infrastructure Defects	Sanitary Sewer Restrictions Where Power Failure/Blockage Could Result in SSOs	Sanitary Sewer and Storm Drain Infrastructure Greater than 40 Years Old	Widespread Code of Septic System Upgrades at Property Transfers	History of Widespread Septic System Failures	Has Min 1 SVF
44-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
44-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
44-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
44-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
44-0000-0008	No	No	No	No	No	No	No	No	No	N/A	No	No	No
44-0000-0009	No	No	No	No	No	No	No	No	No	N/A	No	No	No
45-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
45-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0008	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0009	No	No	No	No	No	No	No	No	No	N/A	No	No	No
46-0000-0010	No	No	No	No	No	No	No	No	No	N/A	No	No	No
47-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
47-0000-0002	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
47-0000-0003	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
47-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
47-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
47-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
47-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
47-0000-0008	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
48-0000-0001	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
48-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
48-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
51-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
51-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
51-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
52-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
52-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0001	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
53-0000-0002	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
53-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0008	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0009	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0010	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0011	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0012	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
53-0000-0013	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0014	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0015	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0016	No	No	No	No	No	No	No	No	No	N/A	No	No	No
53-0000-0017	No	No	No	No	No	No	No	No	No	N/A	No	No	No
54-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
54-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
54-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
55-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
55-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
55-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
55-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
55-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
55-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
55-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0004	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0005	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0006	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0007	No	No	No	No	No	No	No	No	No	N/A	No	No	No
56-0000-0008	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
57-0000-0001	No	No	No	Yes	No	No	No	No	No	N/A	No	No	Yes
58-0000-0001	No	No	No	No	No	No	No	No	No	N/A	No	No	No
58-0000-0002	No	No	No	No	No	No	No	No	No	N/A	No	No	No
58-0000-0003	No	No	No	No	No	No	No	No	No	N/A	No	No	No

Total "Yes" 1 0 0 77 0 0 0 0 0 0 0 0 0 77