

Final Study Plan  
for the  
2010 Biological and Water Quality Survey  
of the  
Lower Great Miami River Basin  
Butler, Hamilton, Montgomery and Warren Counties, Ohio

May 07, 2010

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### **Geo-Referenced Site Labels**

The sites listed in the study plan table are coded with STORET station IDs. These STORET IDs link data across several tables. They must be included on all field, lab and sample sheets and reported with all data results. Because the ECOS database needs to be maintained until the transition to EA3 is complete, and because various tables in ECOS lack a field for STORET IDs, the river mile, in concert with the rivercode, acts as the key relational field; ergo, the **EXACT RIVER MILE** listed in the study plan table must accompany all field, sample and lab sheets, and be reported with all results!!! If for some reason you sample at a location other than the one listed in the study plan, and that location is a trivial distance away from the one listed in the table and is fully representative of the STORET station, use the river mile listed in the study plan, and simply record the location information separately. An exact river mile can be assigned later to an Absolute Location Point (ALP) if warranted. If the location is not representative of the site listed on the study plan due to distance or a confounding factor, it should probably not be sampled, but if it is, it should be separated as a new station.

### *Background*

The lower Great Miami River was comprehensively surveyed in 1995. That survey documented non-attainment of the Warmwater Habitat designated aquatic life use at approximately sixty percent of sites sampled in un-impounded segments due to a mix of stressors including contaminated sediments, combined sewer overflows (CSOs), toxicity from industrial point sources, ammonia loads from municipal wastewater treatment facilities, and urban stormwater. Seven of nine sites located in impounded reaches were impaired. Specific reaches where toxicity was noted included downstream from Owl Creek, and in the AK Steel 011 mixing zone.

### *Sentinel Sites*

To aid in the development of a TMDL model(s), sentinel sites have been established at 13 locations (Table 2). At each sentinel site, samples are collected monthly beginning prior to the more encompassing survey that starts on June 15th. The purpose of the sentinel sites is to establish a baseline of water chemistry values under varying flow conditions. Stream stage is to be measured to the nearest hundredth of a foot as given by the water line against a designated bridge piling or abutment. Sampling events at sentinel sites should cover the range of stream flow from the 10th to 90th percentiles.

### *Aquatic Life Use Designations*

Several streams (named and unnamed) within the study area have aquatic life use designations made prior to standardized approaches to the collection of physical habitat and biological samples. Consequently their aquatic life use designations are unverified. The Ohio EPA is obligated to review, evaluate, or recommend (where appropriate) beneficial uses prior to initiating any permitting actions to a water body. Waterbodies with unverified uses addressed by this survey include Browns Run, Clear Creek, Coldwater Creek, Gregory Creek, Little Bear Creek, and Pleasant Run.

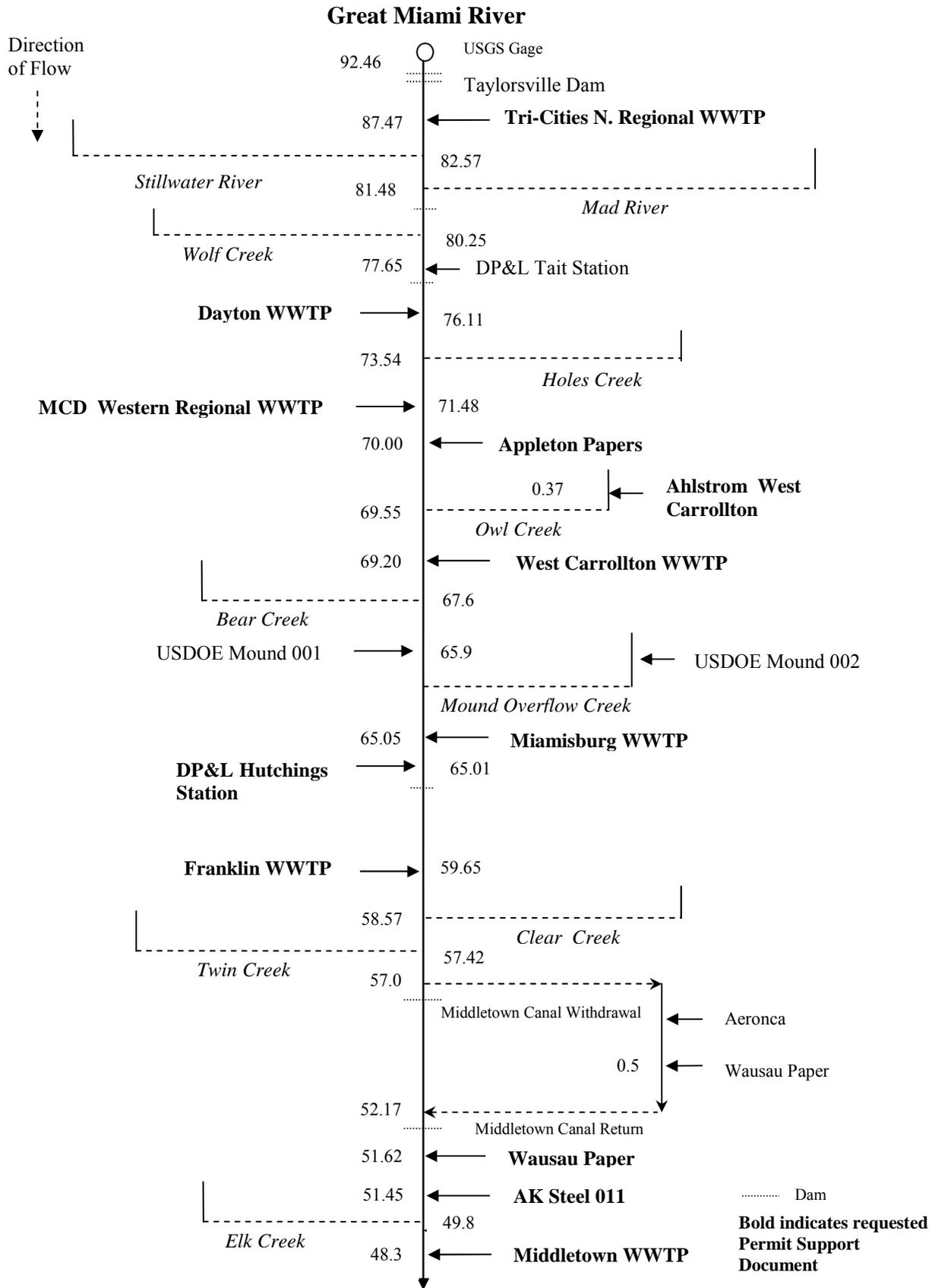
### *NPDES Permitted Facilities*

The lower Great Miami River Valley is an industrialized urban corridor, as such, it has numerous publicly owned treatment facilities serving the population centers, and several major permitted industrial facilities that discharge directly to receiving waters. Most of these facilities discharge directly to the Great Miami River mainstem. Table 1 lists specific NPDES permitted evaluated by this survey and includes summary information about each of those dischargers. Figure 1 is a schematic of the relative positions of major and minor mainstem NPDES discharges within the nested hydrologic hierarchy.

Table 1. NPDES dischargers covered by the 2010 Integrated Biological and Water Quality Survey of the lower Great Miami River basin.

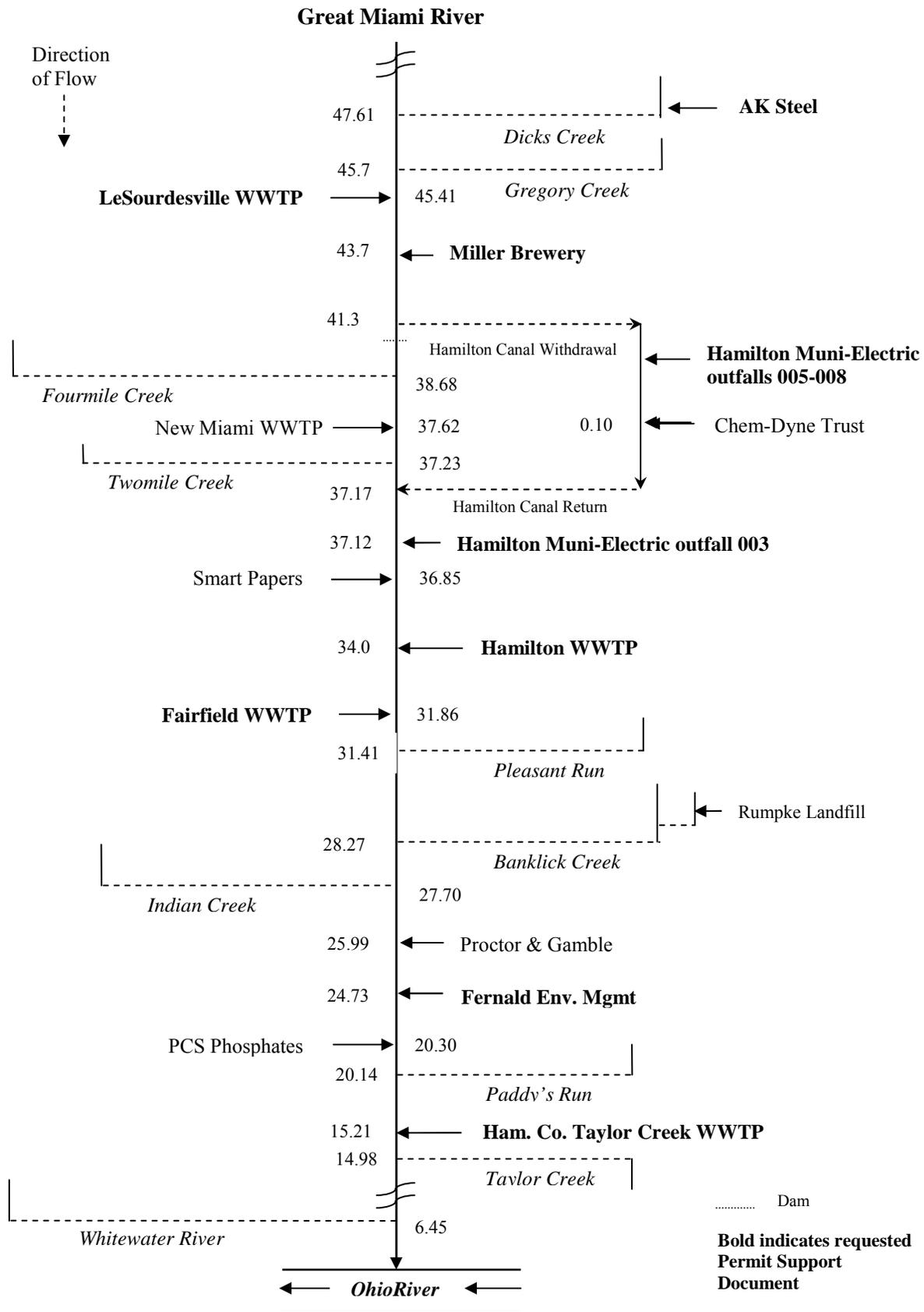
Permit	Name	Design Flow (mgd)	Discharge RM
Great Miami River			
OH0024881	Dayton WWTP	72.000	76.11
OH0026638	Montgomery Co Western Regional WWTP	20.000	71.48
OH0009377	Appleton Papers Inc West Carrollton Mill	7.000	70.00
OH0020133	West Carrollton STP	1.400	69.20
OH0026492	Miamisburg Water Reclamation Facility	3.000	65.05
OH0009261	Dayton Power & Light Co OH Hutchings Station	ND	65.01
OH0025275	Franklin Regional WWTP	4.500	59.65
OH0105228	Wausau Paper Towel & Tissue LLC\via canal	ND	52.17\0.5
OH0009997	AK Steel Corp	ND	51.45
OH0026522	Middletown WWTP	26.000	48.30
OH0049417	Lesourdsville Water Reclamation Facility	12.000	45.41
OH0072605	Miller Breweries East Inc	6.100	43.50
OH0010413	Hamilton Municipal Electric Plant	58.000	37.12
OH0025445	Hamilton Water Reclamation Facility	32.000	34.00
OH0025071	Fairfield WWTP	10.000	31.86
OH0108847	Nease Corp &	ND	20.25
OH0009211	PCS Purified Phosphates	ND	
OH0040983	Taylor Creek WWTP	5.500	15.21
Wolf Creek			
OH0020605	Brookville WWTP	1.200	14.90
Bear Creek			
OH0026697	New Lebanon STP	0.800	10.48
Owl Creek			
OH0045322	W Carrollton Parchment Co	0.888	0.40
Clear Creek via trib @ RM 7.1			
OH0027472	Springboro WWTP	4.000	7.1\0.26\0.1

Figure 1. Great Miami River Study Area (not to scale).



continued on next page

Figure 2. Great Miami River Study Area - Continued.



### **Total Maximum Daily Load (TMDL)**

Information collected as part of this survey will support TMDL development for the study area. The objectives of the TMDL process are to estimate pollutant loads from the various sources within the basin, define or characterize allowable loads to support beneficial uses, and to allocate pollutant loads among different pollutant sources through appropriate controls (e.g., NPDES permitting, storm water management, 319 proposals, NPS controls or other abatement strategies).

The components of the TMDL process supported by this survey are primarily the identification of impaired waters, verification (and redesignating if necessary) of beneficial use designations, gathering ambient information that will factor into the wasteload allocation, and ascribing causes and sources of use impairment. These data are necessary precursors to the development of effective control or abatement strategies (e.g., NPDES permitting, storm water management, 319 proposals, NPS controls or other abatement strategies).

### **Special Issues**

#### *Nutrients*

Based on information reported in the 1995 TSD, nutrient enrichment was listed as a cause of impairment to the lower GMR. To help evaluate the potential for continued, new, or abated nutrient impairment, additional analyses are being requested. Specifically, water column chlorophyll a samples should be collected twice during the summer during stable baseflow conditions. Optimally, those samples should be collected in concert with the deployment of automated data loggers that record hourly dissolved oxygen, pH, temperature and conductivity. Additionally, samples for analysis of 5-day biological oxygen demand and alkalinity should, at a minimum, accompany the chlorophyll a samples collected from the GMR mainstem, and optimally be collected during each of the chemical sampling runs. Based on field reconnaissance, benthic chlorophyll a samples will be collected from suitable riffle and run habitat from the GMR mainstem. Benthic chlorophyll samples are to be collected at designated wadeable and headwater sites noted in Table 2. Alkalinity is requested at these sites, but 5-day BOD is not necessary.

#### *AK Steel*

AK Steel is currently implementing a RCRA Facility Investigation at the Middletown Works facility under a Consent Order with USEPA, Ohio EPA, and other parties. AK Steel has contracted with Environcorp to coordinate sampling effort in the vicinity of AK Steel's Outfall 011. AK Steel has requested to observe Ohio EPA when sampling, and may want to split samples. For fish tissue samples collected bracketing the 011 outfall, whole body and fillet samples are to be collected. The Environcorp contact for AK Steel is:

Phyllis Fuchsman | Manager

ENVIRON | [www.environcorp.com](http://www.environcorp.com)  
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Heather Lauer (PIC)	614-728-0039

## Projected Sample Totals

Bacteria E. coli	Water column chemistry & field parameters	Water column organic scan 18 sites x 2 runs	Sondes	Fish (passes)	Bugs Quant	Bugs Qual	Sediment (assumes 1 sample per site)  Metals Organics TOC Particle Size	Tissue (sites)	Chla 19 wc x2 filters x2 passes 18 rock x 3 filters 8 field blanks
260	504	42	33	117	52	28	27	16	138
	(ortho P 45)								

## Wildlife Officers in the Study Area

Butler Aaron Ireland  
(937) 372-5639 X5207

Hamilton Reid Van Cleve  
(937) 372-5639 X5217

Montgomery Trent Weaver  
(937) 372-5639 X5211

Warren Rick Rogers  
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Table 2. Sampling locations for the 2010 biological and water quality survey of the lower Great Miami River.

STORET	RM	Samples	DRNAREA	LOCATION	X	Y	ISSUE
Great Miami River 14-001-000							
	80.70			Monument Ave. Dam	-84.201108	39.763924	
H09W02	78.85	Ec, C <sub>N</sub> O, D, F, M, S, Ortho P, chl	2583.0	Stewart St., Dst. Wolf Creek	-84.193137	39.740121	Dst Wolf Creek; Sentinel
	77.50			DP&L Tait Dam	-84.211169	39.730287	
H09W67	77.24	Co, F, M, S, Ortho P	2591.0	Dryden/Broadway Rd.	-84.215800	39.731100	Ust Dayton WWTP, Dst. DP&L Dam
H09W73	75.70	Co, F, M, S, SedVOC, Ortho P	2595.0	Adj River Rd	-84.228561	39.713872	Dst Dayton WWTP/ust GM Moraine
610130	73.77	VOC, SedVOC	2602.0	Sellars Rd	-84.2311	39.6875	Dst GM Moraine/groundwater VOCs
	72.60			West Carrollton Dam	-84.246506	39.680061	
H09W56	72.40	Ec, Co, D, F, M, S, SedVOC, chl, Ortho P	2637.0	Ust Appleton Paper	-84.248885	39.682532	Ust Appleton Paper
H09K15	71.70	Ec, Co, F, M, S, T, Ortho P	2637.0	dst. Appleton Paper	-84.250246	39.689396	Dst Appleton Paper/Ust Montgomery Western Regional
600070	69.90	Ec, Co, F, M, S, Ortho P	2647.0	Farmersville-West Carrollton Rd.	-84.261902	39.674702	Dst Montgomery Western Regional
201902	69.30	Ec, Co, F, MLR, S, Ortho P	2651.0	Dst Owl Creek	-84.266128	39.667555	Dst Owl Creek/Ust West Carrollton WWTP
H09K21	68.70	Ec, Co, F, M, S, Ortho P	2650.0	Dst West Carrollton WWTP	-84.275573	39.661106	Dst West Carrollton WWTP
H09S13	66.90	Ec, Co, D, F, M, S, Ortho P, chl	2713.0	Linden Ave, upst. Miamisburg WWTP	-84.292200	39.640600	Ust Miamisburg WWTP; Sentinel
600050	64.80	Ec, C, D, F, M, S, T, Ortho P chl	2715.0	Chautauqua Rd.	-84.292503	39.611900	Dst Miamisburg WWTP
	64.40			DPL Hutchings Dam	-84.286715	39.607353	
H09K11	64.10	C <sub>N</sub> O, F, M, S, h	2719.0	dst. DPL Hutchings Dam & Ust Crains Run; hobo @ 39.60623722, -84.28607778	-84.286103	39.603597	Dst DPL Hutchings Dam, Temperature Hobo
H09W68	62.58	C, F, M	2725.0	Chautauqua Dam	- 84.2883	39.5875	Dst Chautauqua Dam/Ust Franklin WWTP
H09S31	60.58	Ec., C, Ortho P	2727.0	SR 123	-84.305000	39.563100	Ust Franklin WWTP
H09K07	59.10	Ec, Co, D, F, M, T, Ortho P, chl	2729.0	dst. Franklin WWTP, Ust Clear Creek	-84.329378	39.556669	Dst Franklin WWTP
H09W77	58.20	Co, F, M, S, Ortho P	2791.0	Adj. SR 73, Ust Twin Creek	-84.340618	39.547174	Dst Clear Creek
600040	52.64	Ec, Co, F, M, D, S, Ortho P, chl	3134.0	Central Ave. (SR 122)	-84.412600	39.520103	Ust AK Steel Complex; Sentinel
	51.70			Middletown Dam	-84.417634	39.507845	
300940	51.60	Ec, C <sub>N</sub> O, D, F, M, S, Ortho P, chl	3137.0	dst. New Middletown Dam	-84.417353	39.506418	Dst new Middletown Dam, Dst Wausau Paper /Ust Verity Relief Overflow
H09G01	51.44	Ec, C <sub>N</sub> O, D, Fmz, M, S, T, O&G, Phenolics	3137.0	Dst. Verity Relief Overflow	-84.417582	39.504249	Ust AK Steel 011

STORET	RM	Samples	DRNAREA	LOCATION	X	Y	ISSUE
Great Miami River (14-001-000)							
H09W78	51.24	Ec, C <sub>N</sub> O, F, M, S, T, O&G, phenolics	3137.0	Dst AK Steel 011, Ust 15th Ave CSO	-84.419216	39.501482	Dst AK Steel, Between 14th & 15th Ave CSOs
600330	49.10	Ec, C <sub>N</sub> O, D, F, M, S, h, Ortho P, chl, O&G, phenolics	3189.0	dst. St. Rt. 73; hobo 39.48176333, -84.44192139	-84.442200	39.480598	Trends [impaired reach in 1995]
H09W79	48.00	Ec, Co, D, F, M, S, T, Ortho P chl, O&G, phenolics	3191.0	0.3 mi. upst. Dicks Creek	-84.424400	39.474998	Dst Middletown WWTP
201888	47.10	Ec, C <sub>N</sub> O, D, F, M, S, T, chl, O&G, phenolics	3240.0	dst. Dicks Creek	-84.429262	39.462449	Dst Dicks Creek, Ust LeSourdsville WWTP
H09K02	45.30	Ec, C, D, F, M, T, Ortho P, chl	3271.0	dst. Lesourdsville WWTP	-84.444843	39.444622	Dst LeSourdsville WWTP
610090	43.23	C, D, F, M, S, T, Ortho P, chl	3278.0	Liberty-Fairfield Rd.	-84.4764	39.4293	Trends [impaired reach in 1995]
	37.25		Hamilton Municipal Power Dam		-84.555869	39.412908	
H11W47	37.00	h, T, C, Ortho P	3626.0	Black Street; Ust 39.41055194,-84.5566525 Dst 39.40673752,-84.5618997	-84.558706	39.409501	Temperature hobos, dst Hamilton Canal, & dst Smart Paper
	34.65		Hamilton Recreational Dam		-84.567549	39.379439	
H11W35	34.20	Ec, C <sub>N</sub> O, D, F, M, S, , Ortho P, chl	3636.0	0.2 mi. upst. Hamilton WWTP, Chem at RM 34.52 dst dam	-84.568604	39.373299	Ust Hamilton WWTP [Water Reclamation Facility] ; Sentinel
H11K18	33.60	Ec, Co, F, M, S, T, Ortho P	3639.0	0.4 mi. dst. Hamilton WWTP	-84.575302	39.366402	Dst Hamilton WWTP [Water Reclamation Facility]
201881	32.70	Co, F, M, S, Ortho P	3641.0	Dst old sludge field Hamilton WWTP	-84.586824	39.355733	Ust Fairfield WWTP
201879	31.40	Ec, Co, F, M, T, Ortho P	3662.0	Dst Fairfileld WWTP	-84.592796	39.340302	Dst Fairfield WWTP, Dst Pleasant Run
H11W51	28.70	Ec, C, D, F, M, chl	3670.0	Adj. East Miami River Rd	-84.609954	39.316898	Trends [impaired reach in 1995]
H11W14	26.10	Ec, C, F, M, S	3789.0	SR 126, (Old Colerain Ave)	-84.643111	39.303288	Trends [impaired reach in 1995]
H11W54	23.40	C, D, F, M, chl	3803.0	Adj. East River Road	-84.654404	39.285599	Trends [impaired reach in 1995]
H11S29	20.00	Ec, Co, F, M, S, Ortho P, chl	3831.0	0.2 miles Dst Paddys Run	-84.693900	39.263300	Dst PCS Purified Phosphates
H11W20	15.49	Ec, Co, D, F, M, S, Ortho P, chl	3838.0	Harrison Road	-84.703500	39.216100	Ust Taylor Creek WWTP; Sentinel
H11W55	14.80	Ec, C <sub>N</sub> O, D, F, M, S, Ortho P, chl	3865.0	dst. U.S. Rt. 52, Dst Taylor Creek	-84.697197	39.208099	Dst Taylor Creek WWTP
H11K14	9.70	T	3872.0	Ust US 50	-84.748100	39.179700	Tissue
H11W57	8.20	Ec, Co, D, F, M, S, T, Ortho P, chl, O&G	3878.0	Dst US 50	-84.760526	39.166030	Trends
610070	3.90	T, Co, S, Ortho P, chl	5357.0	Ust Shawnee boat ramp	-84.804200	39.131700	Tissue
H11W59	1.75	T	5370.0	Brower Road	-84.818900	39.121100	Tissue

STORET	RM	Samples	DRNAREA	LOCATION	X	Y	ISSUE
Wolf Creek 14-037-000							
H09W81		16.70 , Co, F, M, , chl	3.5	Upper Lewisburg-Salem Rd	-84.424202	39.846699	Huc assessment & Brookville WWTP
H09W82		15.30 Ec C, D, F, M, Ortho P, chl	5.5	ust. Brookville WWTP, Westbrook Rd	-84.411125	39.831427	Huc assessment & Brookville WWTP
H09K25		14.85 Ec, C, F, M, S, Ortho P chl	5.6	dst. Brookville WWTP	-84.410221	39.825829	Huc assessment & Brookville WWTP
203503		10.40 Ec, C, D, F, M, chl	14.0	Nolan Road	-84.359200	39.801399	Huc assessment & Brookville WWTP
300818		2.49 Ec, Co, D, F, M, S, Ortho P, chl	66.6	Wesleyan Nature Center @ foot bridge	-84.247299	39.770370	Sentinel, Huc assessment
H09W99		1.00 C, F, M	71.0	Rosedale Ave	-84.225300	39.760300	Huc assessment
Dry Run 17-038-00							
203504		0.20 C, F, M	7.8	Free Pike			Huc assessment
North Branch Wolf Creek 14-039-000							
301022		4.00 F, M, C	13.9	Westbrook Rd.	-84.335997	39.832458	HUC assessment
600230		0.69 Ec, C, Ortho P, chl, F, M	23.7	Union Rd.	-84.311521	39.804060	HUC assessment
Trib. to N. Branch Wolf Creek 14-039-001							
301025		0.4 F, M, C	6.3	Shilo Springs Rd	-84.325200	39.818016	HUC assessment
Holes Creek 14-036-000							
300652		3.37 Ec, Co, D, S, Ortho P, chl, F, M	18.7	Mad River Rd	-84.195681	39.654385	Sentinel, HUC assessment
301027		8.59 C, F, M	7.3	Lyons Road	-84.20136	39.625698	HUC assessment
Owl Creek 14-001-008							
H09S11		0.70 Ec, C	3.7	Adj. West Gibbons Rd	-84.250723	39.667914	Ust West Carrollton Parchment
H09S07		0.20 Ec, Co, S, Ortho P, F, M	3.8	Dst Central Avenue	-84.261231	39.668098	Dst West Carrollton Parchment
Opossum Creek 14-035-000							
300942		1.40 C, F, M, S	7.0	Pinnacle Rd	-84.270347	39.695161	Huc assessment
300943		0.10 Ec, C, F, M	8.7	Soliders Home-West Carrollton	-84.270775	39.681598	Huc assessment

STORET	RM	Samples	DRNAREA	LOCATION	X	Y	ISSUE
Bear Creek 14-029-000							
H09W88	12.10	C, F, M, Ortho P, chl	6.7	Old Dayton & Clayton Rd.	-84.394997	39.763901	Huc assessment & Ust New Lebanon WWTP, Reference
H09P06	9.70	Ec, C, D, F, M, Ortho P, chl	12.7	Dst U.S. Rt. 35	-84.369137	39.744951	Huc assessment & Dst New Lebanon WWTP
203509	6.40	C, D, F, M, chl	20.8	Lutheran Church Rd	-84.346897	39.711686	Huc & Dst New Lebanon WWTP
H09S01	0.24	Ec, Co, D, F, M, S, Ortho P, chl	53.3	Miamisburg Soldiers Home	-84.289618	39.652987	Status & Trends; Sentinel
Little Bear Creek 14-030-000							
H09P07	1.00	C, F, M	9.9	Huffman Rd	-84.334769	39.720287	Huc assessment
Clear Creek 14-024-000							
203516	11.10	C, F, M, chl	8.6	0.6 mi. Dst US 48	-84.185303	39.528900	Huc assessment
H09W49	7.60	Co, D, F, M, Ortho P, chl	28.0	St. Rt. 741	-84.234703	39.541901	Huc assessment, Ust Springboro WWTP
203514	6.90	Ec, Co, D, F, M, Ortho P, chl	35.0	Weidner Rd.	-84.244700	39.544900	Huc assessment, Dst Springboro WWTP
203513	2.50	C, F, M, chl	47.0	end of lane, at municipal park	-84.294998	39.551102	Huc assessment
300812	0.77	Ec, Co, D, F, M, S, Ortho P, chl	52.0	Baxter Rd	-84.317557	39.550311	Huc & Springboro WWTP; Sentinel
Elk Creek 14-022-000							
300944	10.10	C, F, M	15.0	Shurz Rd	-84.520285	39.563846	Huc assessment
H09W89	3.70	C, F, M	37.5	ust. Dry Run, Off Elk Cr. Rd, Sebald Park	-84.467499	39.527500	Huc assessment, Reference
H09P01	1.49	Ec, Co, D, F, M, S, Ortho P, chl	50.9	Howe Rd	-84.459485	39.501308	Huc assessment; Sentinel
Browns Run 14-023-000							
300945	2.50	C, F, M	8.6	Adj. Browns Run Rd	-84.411360	39.567400	Huc assessment
300946	1.10	Ec, C, F, M	10.4	Adj. Browns Run Rd	-84.400186	39.548789	Huc assessment
Dicks Creek 14-018-000							
H09W66	0.93	Ec, C <sub>N</sub> O, D, F, M, S, Ortho P, chl	48.5	Middletown @ Main St.	-84.420001	39.477848	Mainstem Support; Sentinel
Coldwater Creek 14-017-000							
300947	0.60	C, F, M	3.7	Roden Park Drive	-84.427691	39.440057	Huc assessment
Gregory Creek 14-016-000							
H09P02	5.30	C, F, M	10.0	Princeton Rd (Adj. Maud-Hughes Rd)	-84.410513	39.386370	Huc assessment
300811	0.98	Ec, Co, D, F, M <sub>q</sub> , S, Ortho P, chl	21.7	Lesourdville West Chester Rd	-84.435576	39.431589	Huc assessment; Sentinel

STORET	RM	Samples	DRNAREA	LOCATION	X	Y	ISSUE
Pleasant Run 14-013-000							
300948		3.80 C, F, M	4.7	End of Sir Lancelot Ln	-84.550995	39.326358	Huc assessment
300949		2.20 Ec, C, F, M	16.5	End of Sandy Road/ust US 127	-84.557570	39.341384	Huc assessment
trib to Pleasant Run 14-013-001							
300950		0.13 C, F, M	3.0	@ Chesapeake Way	-84.544771	39.329446	Huc assessment
Paddys Run							
H11C02		4.9 C, F, M	6.0	Morgan Ross Rd	-84.701900	39.320000	401, Sloans Crayfish
H11C03		3.3 C, F, M	10.3	old RR grade off Paddys Run Rd	-84.700300	39.303300	401, Sloans Crayfish
Taylor Creek 14-004-000							
H11K20		3.50 Ec, C, F, M	5.0	Off Johnson Rd (near address 6032), ust Briarly Creek	-84.658374	39.198004	Huc assessment & unsewered area
H11K19		1.60 Ec, C, F, M	14.3	Ust I-275, Adj Harrison Rd	-84.676053	39.212616	Huc assessment & unsewered area
300902		0.82 Ec, Co, D, F, M, S, Ortho P, chl	27.2	Wessleman Road	-84.686006	39.216555	Huc assessment; Sentinel
Briarly Creek 14-004-002							
H11K22		0.20 Ec, C, F, M	6.9	Ust West Fork Rd, adj Sheed Road	-84.659487	39.200496	Huc assessment & unsewered area
S Fk Taylor (Wesselman) Creek 14-004-001							
300951		3.00 Ec, C, F, M	2.6	Adj Wessleman Road, Ust Taylor Rd & unnamed trib	-84.682123	39.180539	Huc assessment & unsewered area
H11K21		0.40 Ec, C, F, M	8.5	Adj Wessleman Road	-84.684200	39.211094	Huc assessment & unsewered area

Ec - E. coli; C - conventional water column chemistry and field parameters; Co - water column organics, C<sub>N</sub> - water column + free cyanide, D - automated data logger, chl - chlorophyll (+ BOD5 & alkalinity at GMR mainstem sites, + alkalinity at tributary sites); F - fish; M - macroinvertebrates (assume qualitative samples at sites with drainage areas < 20 mi<sup>2</sup> except Gregory Creek where noted); S - sediment including organics and metals; T - fish tissue; h - temperature hobos; O&G - oil and grease; SedVOC - reminder to ensure this parameter is analyzed due to RCRA investigation; VOC - volatile organic compounds.

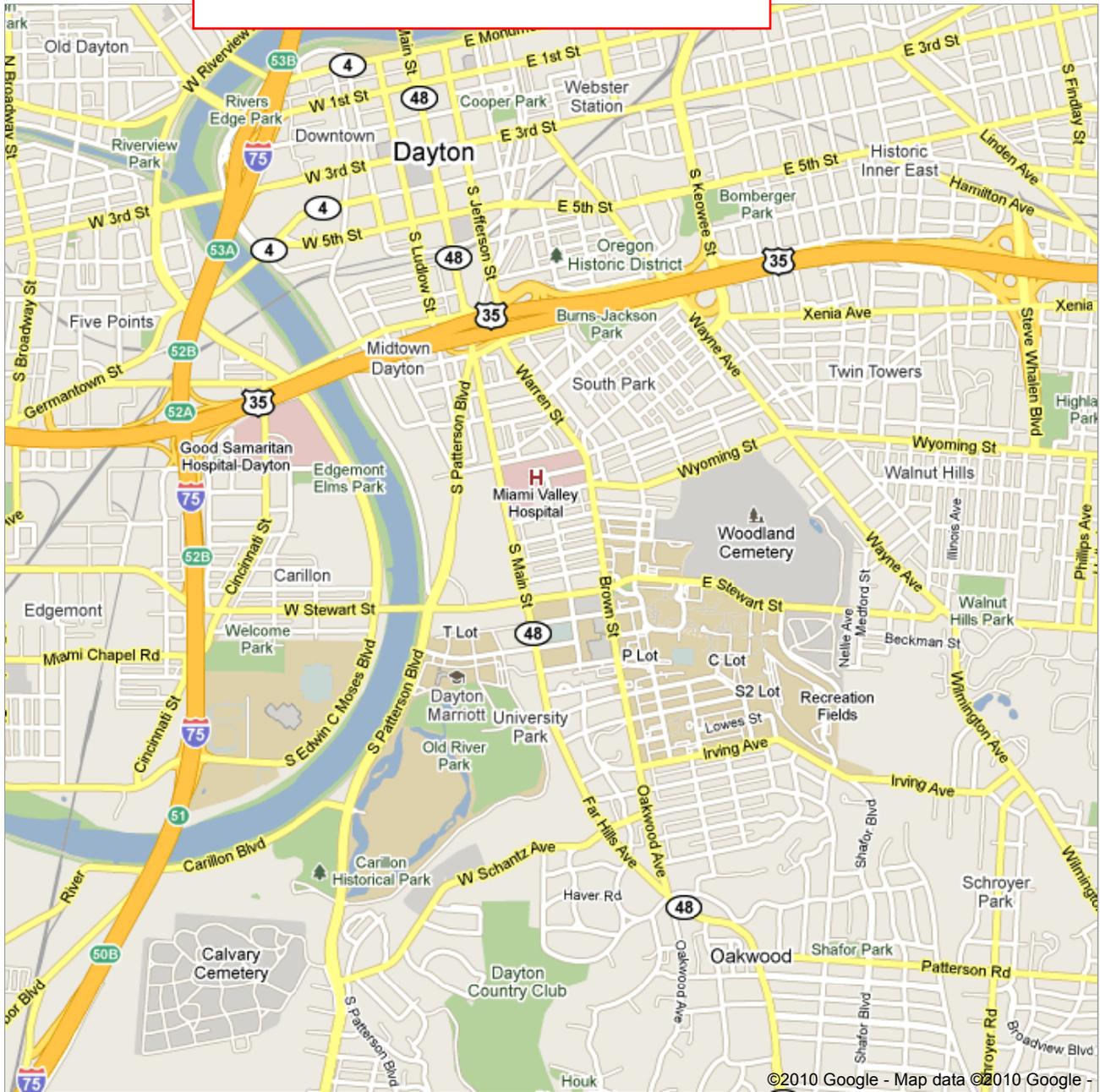


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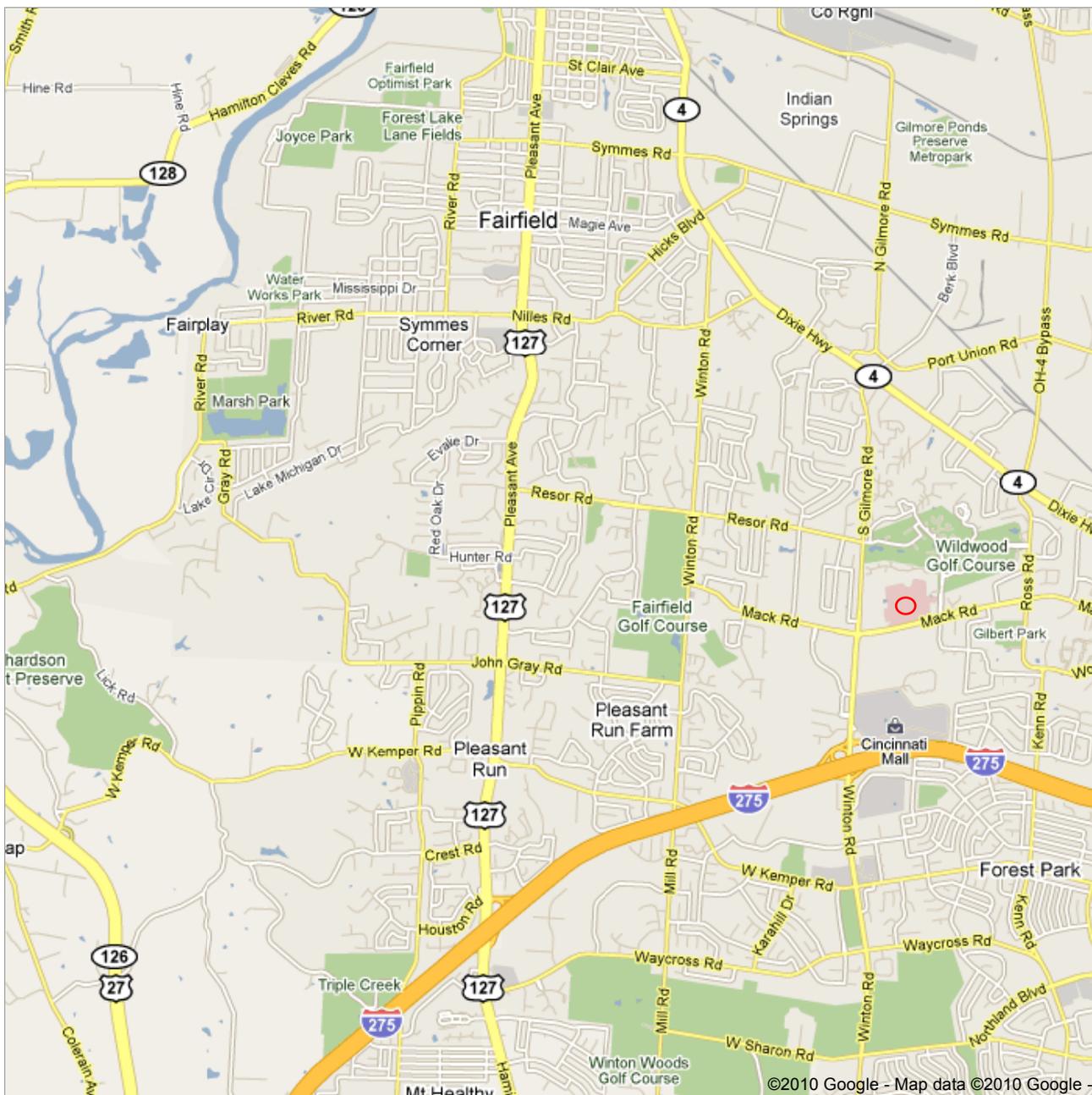


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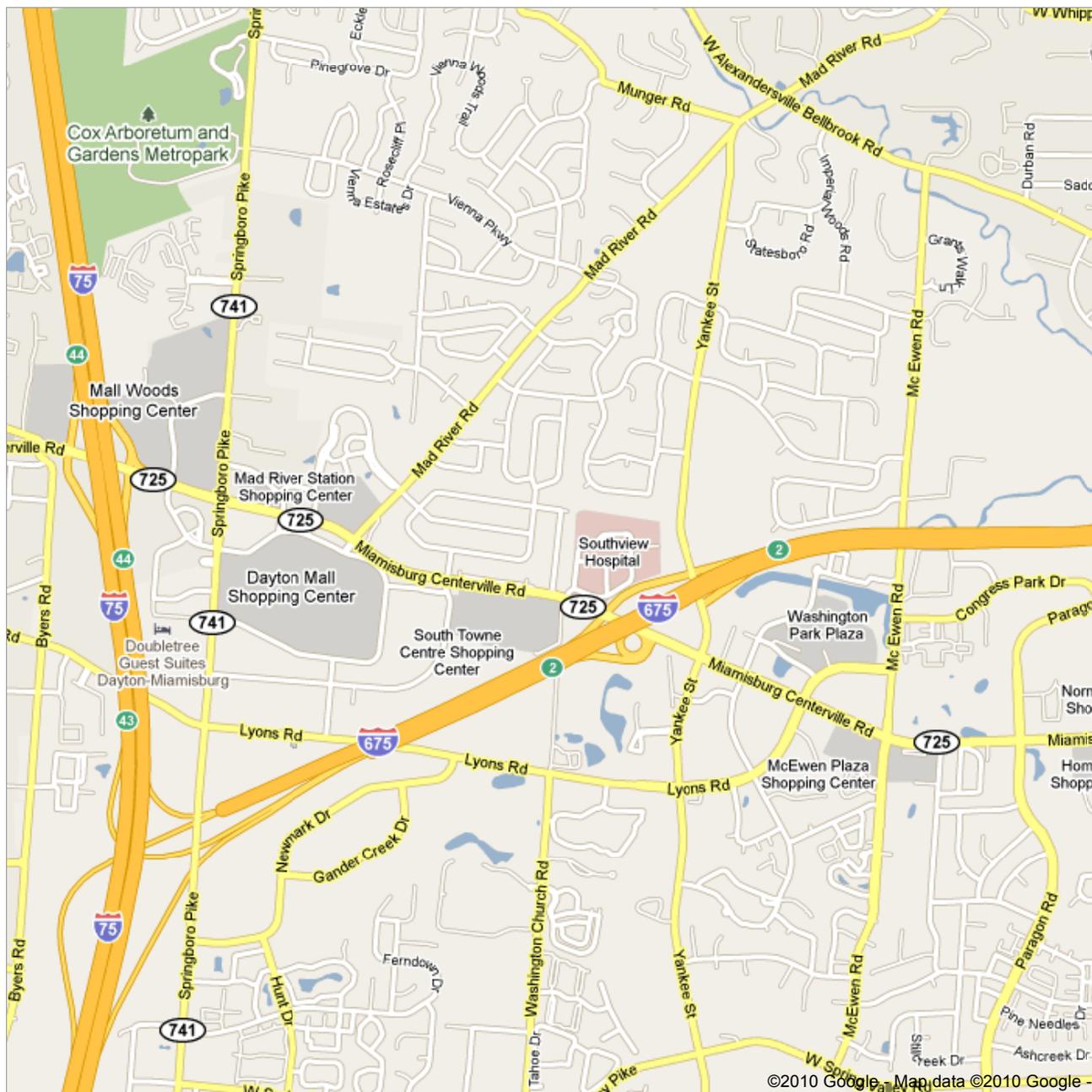
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