

**McDowell Creek Watershed Management Plan Update
Final Report for Fiscal Year 2022**

Prepared by: Mecklenburg County Water Quality
Pollution Prevention Program
August 1, 2022

Purpose

The purpose of the Watershed Management Plan (WMP) is to guide restoration, retrofit and preservation efforts aimed at achieving specific goals for improving water quality conditions in McDowell Creek and McDowell Creek Cove such that these waters meet or exceed their State designated uses and are no longer rated as impaired on 303(d) lists. This WMP update documents activities from the completion of the WMP through August 1, 2022.

Background

The WMP was developed and implemented in 2006 and identifies several techniques which are being used to restore the watershed. These techniques include water quality monitoring, BMP construction, and stream restoration. This plan was written as a 'comprehensive roadmap for the management and restoration of surface waters in the entire watershed.' The NC Division of Water Resources recognized that the McDowell Creek watershed has a category 4b status, as long as Mecklenburg County maintains the Watershed Management Plan.

Policy Changes

The City of Huntersville adopted a Low Impact Development Ordinance in 2003. Post Construction Runoff Control was adopted on June 30, 2007.

On May 20, 2020, the Board of County Commissioners voted to adopt the revised Mecklenburg County Surface Water Pollution Control Ordinance which would include the portions of the McDowell Creek Watershed in Mecklenburg County and Huntersville. The Ordinance was updated to include a ban of the use of pavement products with high levels of polycyclic aromatic hydrocarbons (PAH).

Completed Capital Improvement Projects

The goal of Mecklenburg County's Water Quality Capital Improvement Program (CIP) is to stabilize stream channels and restore in-stream habitat conditions to promote stream designated uses.

CIP projects which have been completed in the McDowell Creek Watershed:

1. Stream Restoration. Stream Restoration activities have been conducted on several stream segments in the McDowell Creek Watershed:
 - a. The Park Huntersville Phase I (Completed July 1, 2013):
 - b. Torrence Creek Tributary #1 (Completed May 1, 2013):
 - c. Torrence Creek Tributary #2 (Completed 2009)

- d. Bud Henderson Road (Completed May 13, 2013 by a private mitigation bank):
 - e. McDowell Creek – Birkdale to Gilead Road (Completed July 1, 2016).
 - f. Monteith Park (Completed 2014 by a private mitigation bank).
 - g. Torrence Creek Trib #1 from Reese Boulevard East to I-77. Completed in Fall of 2018.
2. BMP Retrofits Several BMP retrofits were completed between 2006 and 2017.
- a. Monteith Park (Completed 2009):
 - b. North Cross Drive Executive Park (Completed 2009):
 - c. North Cross Shopping Center (Completed 2009)
 - d. Whole Foods Shopping Center (Completed 2009):
 - e. North Mecklenburg Recycle Center (Completed 2010).
 - f. Ange Property (Completed 2010).

Current CIP Projects

There are no active CIP projects in the McDowell Creek Watershed.

Stream Restoration Ranking System

Stream restoration projects typically address problems with vertical stability and lateral stability within the channel. Instability enlarges the channel through bank and bed erosion, thereby destroying the local aquatic ecosystem. To achieve ecological uplift, the three primary geomorphic variables (pattern, profile, and dimension) that dictate functionality of the stream must be considered. Pattern refers to the sinuosity or meander geometry of a stream channel. Profile is the longitudinal slope of the stream channel. Dimension is the two-dimensional cross section of a channel.

Restoration is the process of converting an unstable, altered, or degraded stream channel, including the surrounding riparian zone and flood prone areas, to a stable condition considering recent and future watershed conditions. Full stream restoration is often not possible because most projects have constraints, especially in urbanized stream systems. Stream enhancement is another option that includes facets of restoration. These activities may include in-stream or stream bank repairs, but in total fall short of restoring one or more of the geomorphic variables.

The Stream Restoration Ranking System (SRRS) was developed by Mecklenburg County Storm Water Services to prioritize which streams are restored based on the quality of the stream. In other words, the streams that need the most help and are the most impaired will be prioritized for restoration. SRRS uses a desktop scoring system to provide insight regarding which streams may need improvements. Staff then walk these stream reaches, collect data on geomorphology and aquatic habitat, and analyze the data to generate a SRRS score. The maximum and best score a stream can get is 300. Any stream that gets a score below 190 would be a good candidate for restoration or enhancement. The current

SRRS rankings and scores for major stream segments in the McDowell watershed can be found in the table below.

Table 1: McDowell Creek Watershed SRRS Scores

Stream	Project or Planning UID	Desktop Ranking (out of 316 segments countywide)	SRRS Score	Post-Construction Score
Torrence Creek	The Parks	116	149.45	264.75
Torrence Creek	McCoy Rd	N/A	N/A	N/A
McDowell Creek	Birkdale to Gilead	177	169.13	N/A
McDowell Creek	UID 163	184	169.68	N/A
McDowell Creek	UID 224	130	155.12	N/A
McDowell Creek	UID 189	166	166.34	N/A
McDowell Creek	UID 183	185	169.78	N/A
McDowell Creek	UID 160	229	194.30	N/A
Torrence Creek	UID 158	183	169.62	N/A
Torrence Creek Tributary 2	UID 177	174	168.37	N/A
Torrence Creek Tributary 1	UID 204	99	146.81	N/A

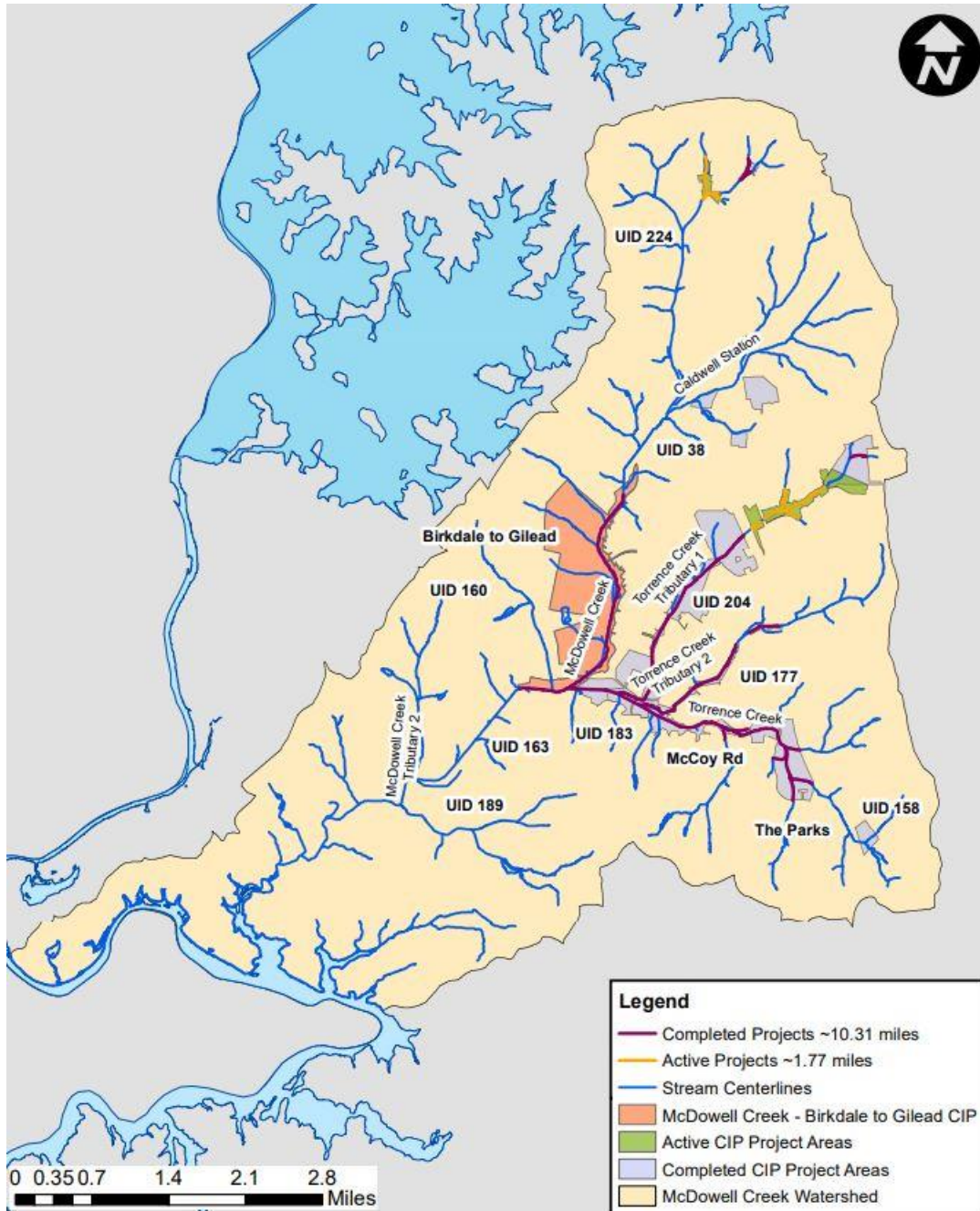


Figure 1. Map of Reaches with SRRS Scores

Development

Demographics

Table 2: McDowell Creek Watershed Demographics

2010 Population	2016 Population	2020 Population	Population Change	Percent Change
49,280	54,086	59,267	5,181	9.6% Increase

Impervious Area

When the WMP was completed, impervious areas were estimated based upon land use. This method of estimating impervious areas was inaccurate. In 2011, Mecklenburg County began digitizing actual impervious areas based upon aerial photographs. The increase of impervious areas in the McDowell Creek Watershed are shown below.

Table 3: McDowell Creek Watershed Impervious Area

2011 Impervious Area (Acres)	2016 Impervious Area (Acres)	2017 Impervious Area (Acres)	2020 Impervious Area (Acres)	2021 Impervious Area (Acres)	2022 Impervious Area (Acres)	Impervious Acres Change 2021-2022 (Acres)	Percent Change 2021-2022
3,000	3,491	3,802	3,855.9	3,927.77	3,962.12	34.35	0.87% Increase

Service Requests

From June 30, 2020, through August 4, 2022, Water Quality staff have responded to 63 separate service requests in the McDowell Creek Watershed. These service requests were for a variety of problems include spills, erosion issues, sanitary sewer discharges, and buffer violations. A summary of the service requests is shown below. Additional information about each service request may be viewed by searching for the inspection number or the service request number in the Cityworks server.

Table 4: McDowell Creek Watershed Service Requests

SR#	Date Closed	Inspector	Location	Municipality	Activity Type	Incident Type	Land Use Type	Material Released
75699	8/24/20	Storosh	FMB6	Huntersville	Service Request	Flood Sensor Repair	Recreationa l	N/A
75793	9/4/20	Besier	19805 Deer Valley Dr	Cornelius	Service Request	Discharge/ Dump	Commervia l	Wash Water
76105	8/31/20	Spidel	18749 Daymark Dr	Cornelius	Service Request	Erosion Control	Single- family Residential	N/A
76133	9/11/20	Lawrence	13330 Stumptown Rd	Huntersville	Service Request	Discharge/ Dump	Single- family Residential	Wash Water
76204	9/14/20	Friday	11507 Grenfell Ave	Huntersville	Service Request	Discharge/ Dump	Single- family Residential	Trash
76724	9/25/20	Bradley	11507 Grenfell Ave	Huntersville	Service Request	Other – altering storm drain	Single- family Residential	N/A
78230	10/14/20	DeCristofaro	8315 Bridgegate Dr	Huntersville	Service Request	No Incident Identified	Single- family Residential	None
78391	10/20/20	Lawrence	6719 Tanners Creek Dr	Huntersville	Service Request	Accidental Spill	Single- family Residential	Other – Astroturf Pellets

79377	10/30/20	Rozzelle	501 Hillcrest Dr	Huntersville	Service Request	Watermain leak referred to CMU	Single-family Residential	Allowable Discharge
80038	11/12/20	Farmer	8535 Forest Shadow Cr	Cornelius	Service Request	Erosion Control	Single-family Residential	N/A
80126	12/1/20	Besier	9615 Northcross Center Ct	Cornelius	Service Request	No Incident Identified	Recreational	None
80583	11/24/20	Spidel	6715 Colonial Garden Dr	Huntersville	Service Request	Watermain leak referred to CMU	Single-family Residential	Allowable Discharge
80938	12/2/20	Barnes	13632 Swinton Rd	Huntersville	Service Request	Accidental Spill	Single-family Residential	Paint – Wash Water
82127	1/5/21	Moffitt	20008 West Catawba Ave	Cornelius	Service Request	Discharge/ Dump	Commercial	Wash Water
82405	12/29/20	Spidel	14438 Beatties Ford Rd	Huntersville	Service Request	Erosion Control	Single-family Residential	N/A
83333	2/12/21	Eubanks	15025 Oxford Hollow	Huntersville	Service Request	Buffer Inspection	Recreational	N/A
83738	1/27/21	Ferguson	Riverbend Stream Station CMU	Mecklenburg	Service Request	Accidental Spill	Industrial	Sewage – Private Commercial
83960	2/24/21	Friday	19204 Meridian St	Cornelius	Service Request	Discharge/ Dump	Single-family Residential	Sewage – Private Residential
85347	2/26/21	Lawrence	15245 Waterfront Dr	Huntersville	Service Request	Discharge/ Dump	Single-family Residential	Wastewater - Pool
85412	3/10/21	Meeler	1120 Rickard Dr	Huntersville	Service Request	No Incident Identified	Single-family Residential	None
86450	3/12/21	Caldwell	7515 McIlwaine Rd	Huntersville	Service Request	Erosion Control	Single-family Residential	N/A
86615	3/25/21	Besier	15652 Glen Miro Dr	Huntersville	Service Request	Discharge/ Dump	Single-family Residential	Allowable Discharge
87555	4/1/21	Vanhoy	I-77 South Exit 23	Huntersville	Service Request	Accidental Spill	Transportation Corridor	Petroleum Fuels
88171	4/15/21	Thao	14212 Statesville Rd	Huntersville	Service Request	Other	Commercial	None
88195	5/12/21	Santiago	11905 Vanstory Dr	Huntersville	Service Request	Discharge/ Dump	Industrial	Other – Beverage Flavoring Syrup
88294	4/19/21	Thao	7801 Hambright Rd	Huntersville	Service Request	Accidental Spill	Single-family Residential	Petroleum Fuels
88694	4/27/21	Phillips	10232 Bayart Wy	Huntersville	Service Request	No Incident Identified	Single-family Residential	None

90426	6/9/21	Besier	Kanawha Dr	Cornelius	Service Request	Accidental Spill	Single-family Residential	Allowable Discharge
91409	7/8/21	Roux	9121 Sam Furr Rd	Huntersville	Service Request	Discharge/ Dump	Commercial	Cooking Oil/Grease
91596	6/25/21	Ferguson	4901 Neck Rd	Huntersville	Service Request	Discharge/ Dump	Lake	Sewage - CMU
91788	6/17/21	Roux	12715 Hopewell Av	Huntersville	Service Request	Erosion Control	Commercial	Sediment
94025	7/14/21	Hawley	8301 Magnolia Estates Dr	Cornelius	Service Request	Discharge/ Dump	Commercial	Cooking Oil/Grease
94748	7/6/21	Burgett	16018 Stonemont Rd	Huntersville	SWO Site Maintenance	Stream Blockage	Recreational	N/A
94750	11/30/21	Ferguson	8301 Magnolia Estates Dr	Cornelius	Service Request	Discharge/ Dump	Commercial	Cooking Oil/Grease
94793	8/6/21	Meeler	I-77 North	Huntersville	Service Request	Accidental Spill	Transportation Corridor	Petroleum Fuels
98037	8/11/21	Eubanks	8520 Brentfield Rd	Huntersville	Service Request	Accidental Spill	Single-family Residential	Other - Pesticides
98244	8/6/21	Mebane	18631 Northline Dr	Cornelius	Service Request	Discharge/ Dump	Commercial	Unknown
105882	10/11/21	Eubanks	16627 Birkdale Commons Py	Huntersville	Service Request	Other	Commercial	Other – Leachate from Dumpster and Mop Bucket Water
112013	11/8/21	Kinson	8532 Fox Tail Ln	Huntersville	Service Request	No Incident Identified	Single-family Residential	None
114020	11/16/21	Spidel	13412 Binnaway Dr	Huntersville	Service Request	Watermain leak referred to CMU	Single-family Residential	Allowable Discharge
114021	11/16/21	Spidel	13418 Binnaway Dr	Huntersville	Service Request	Watermain leak referred to CMU	Single-family Residential	Allowable Discharge
114943	12/23/21	Bogdan	16641 Birkdale Commons Py	Huntersville	Service Request	Discharge/ Dump	Commercial	Other – Cooking Grease and Wash Water
116257	12/7/21	Kinson	8083 Hambright Rd	Huntersville	Service Request	Accidental Spill	Single-family Residential	Other – Chlorinated Pool Water
116675	12/6/21	Spidel	3705 Halcyon Dr	Huntersville	Service Request	Watermain leak referred to CMU	Single-family Residential	Allowable Discharge
122214	1/19/22	Thao	9711 Byndkrest Dr	Huntersville	Service Request	Discharge/ Dump	Single-family Residential	Other – Herbicides and Fertilizer

122515	1/14/22	Thao	9626 Hyghbough St	Huntersville	Service Request	Discharge/ Dump	Single-family Residential	Other – Herbicides and Fertilizer
129403	5/18/22	Bogdan	16641 Birkdale Commons Py	Huntersville	Service Request	Discharge/ Dump	Commercial	Cooking Oil and Grease
131774	3/24/22	Mebane	9519 Rosewood Meadow Ln	Huntersville	Service Request	Other – Stream Blockage, Turbidity	Single-family Residential	None
132504	3/23/22	Edwards	21075 Nannie Potts Ln	Cornelius	Service Request	Erosion Control	Single-family Residential	N/A
133387	In Progress	N/A	8900 Cumbria Ct	Huntersville	SWO Site Maintenance	Stream Blockage	Single-family Residential	N/A
135271	4/11/22	Spidel	402 Greenway St	Huntersville	Service Request	Stream Blockage	Single-family Residential	N/A
136352	4/26/22	Eubanks	10016 Tallent Ln	Huntersville	Service Request	No Incident Identified	Single-family Residential	Unknown
137790	8/2/22	Bogdan	11920 Vanstory Dr	Huntersville	Service Request	Accidental Spill	Commercial	Other – Energy Drink
138498	5/6/22	Thao	13513 McCoy Ridge Dr	Huntersville	Service Request	No Incident Identified	Single-family Residential	None
139667	5/11/22	Burgett	8929 Chagrin Dr	Mecklenburg	SWO Site Maintenance	Culvert Blockage	Transportation Corridor	N/A
144634	6/14/22	Burgett	14622 Stumptown Rd	Huntersville	SWO Site Maintenance	Stream Blockage	Homesite	N/A
145014	6/22/22	Friday	14211 Reese Bv	Huntersville	Service Request	Discharge/ Dump	Commercial	Other – AC Condensation
145677	6/21/22	Burgett	The Parks CIP – Torrence Ford Dr	Huntersville	SWO Site Maintenance	Stream Blockage	Industrial	N/A
146129	7/14/22	Edman	16632 Statesville Rd	Huntersville	Service Request	Other – Improper Storage	Commercial	Cooking Oil/Grease
146131	7/8/22	Edman	8101 Dunmore Dr	Cornelius	Service Request	No Incident Identified	Multi-family Residential	N/A
146132	7/8/22	Edman	9815 Sam Furr Rd	Huntersville	Service Request	Other – Improper Storage	Commercial	Cooking Oil/Grease
147708	7/28/22	Hattaway	10415 Blackstock Rd	Huntersville	Service Request	No Incident Identified	Single-family Residential	None
152034	8/3/22	Burgett	8928 Hunter's Pointe Dr	Huntersville	SWO Site Maintenance	Stream Blockage	Single-family Residential	N/A

Public Property Acquisitions

There were four (4) new public parcels purchased from July 31, 2021, through August 1, 2022.

Table 5: McDowell Creek Watershed Public Parcels

Parcel	Acres	Owner	Address	Sale Date
00521212	1.85	TOWN OF CORNELIUS	21348 CATAWBA AV	1/12/2017
00911258	0.439	U S GOVERNMENT	10407 BEVIN CT	1/30/2017
01532197	0.5088	UNKNOWN	MCCOY RD	2/17/2017
01532196	0.1841	UNKNOWN	MCCOY RD	2/17/2017
01742111	9.341	THE TRUSTEES OF CENTRAL PIEDMONT COLLEGE	11636 VERHOEFF DR	5/12/2017
01720401	5.227	THE TRUSTEES OF CENTRAL PIEDMONT COLLEGE	11700 OLD VERHOEFF DR	5/12/2017
00502210	0.61	TOWN OF CORNELIUS	CALDWELL TRACK DR	6/23/2017
00535275	1.876	TOWN OF CORNELIUS	CALDWELL TRACK DR	6/23/2017
01711617	0.252	TOWN OF HUNTERSVILLE	GILEAD RD	7/20/2017
01711611	0.035	TOWN OF HUNTERSVILLE	102 S OLD STATESVILLE RD	7/20/2017
01711699	0.263	TOWN OF HUNTERSVILLE	GILEAD RD	7/20/2017
00932231	7.12	MECKLENBURG COUNTY	SHADETREE ST	10/26/2017
00932232	5.14	MECKLENBURG COUNTY	SHADETREE ST	10/26/2017
00512343	0.001	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	WEST CATAWBA AV	12/5/2017
00535295	13.48	TOWN OF CORNELIUS	11000 BAILEY RD	6/23/2017
00525598	2.42	TOWN OF CORNELIUS	19110 MERIDIAN ST	4/30/1900
00521211	1.16	TOWN OF CORNELIUS	21440 CATAWBA AVE	2/10/1920
00520212	0	TOWN OF CORNELIUS	19502 SCHOOL ST	1/1/1975
01711606	0.24	TOWN OF HUNTERSVILLE	14521 OLD STATESVILLE RD	1/1/1975
01711804	0	TOWN OF HUNTERSVILLE	526 GREENWAY ST	1/1/1975
00516679	2.44	TOWN OF CORNELIUS	20300 FLORAL LN	1/1/1975
01711603	0	TOWN OF HUNTERSVILLE	HOLBROOK ST	1/1/1975
01712214	2	TOWN OF HUNTERSVILLE	14715 OLD STATESVILLE RD	1/1/1975
01712241	5.05	TOWN OF HUNTERSVILLE	100 SHERWOOD DR	6/27/1973
01711605	0	TOWN OF HUNTERSVILLE	14515 OLD STATESVILLE RD	9/7/1972
00538398	2.54	TOWN OF CORNELIUS	OAKHURST BLVD	12/30/1999
00538399	3.73	TOWN OF CORNELIUS	KANAWHA DR	12/30/1999
00538352	2.29	TOWN OF CORNELIUS	OAKHURST BLVD	12/30/1999
00509135	3.86	TOWN OF CORNELIUS	WILLOW LEAF LN	12/30/1999
00538621	1.46	TOWN OF CORNELIUS	BAILEY RD	12/30/1999
00538410	0.89	TOWN OF CORNELIUS	OAKHURST BLVD	12/30/1999
00538198	0.06	TOWN OF CORNELIUS	DELMAS DR	12/30/1999
00538312	0.97	TOWN OF CORNELIUS	KANAWHA DR	12/30/1999
00538170	1.46	TOWN OF CORNELIUS	OAKHURST BLVD	12/30/1999
00538698	1.44	TOWN OF CORNELIUS	OAKHURST BLVD	12/30/1999
00503223	0.7	TOWN OF CORNELIUS	BAILEY RD	12/30/1999
00925230	0	TOWN OF HUNTERSVILLE	16209 AMBER FIELD DR	12/20/1999
00925231	0	TOWN OF HUNTERSVILLE	16215 AMBER FIELD DR	12/20/1999
01514307	0	TOWN OF HUNTERSVILLE	7712 GOLDEN LAKE CR	11/30/1999
01514308	0	TOWN OF HUNTERSVILLE	7708 GOLDEN LAKE CR	11/30/1999
00317726	1.05	TOWN OF CORNELIUS	21445 CATAWBA AVE	8/5/1999
00519104	1	TOWN OF CORNELIUS	19635 SMITH CR	1/30/1998
01904206	0	TOWN OF HUNTERSVILLE	14614 S OLD STATESVILLE RD	10/29/1997
01903116	0.13	TOWN OF HUNTERSVILLE	HUNTERSVILLE-CONCORD RD	5/30/1995
00519103	7.78	TOWN OF CORNELIUS	19710 S FERRY ST	5/15/1995
01903115	0	TOWN OF HUNTERSVILLE	100 OLD STATESVILLE RD	12/29/1992
01715291	1.11	TOWN OF HUNTERSVILLE	CORDIAL LN	10/14/2002

01715599	4.52	TOWN OF HUNTERSVILLE	CORDIAL LN	10/16/2001
00521209	0.2	TOWN OF CORNELIUS	21450 CATAWBA AVE	2/6/2001
00504219A	1.52	TOWN OF CORNELIUS	STATESVILLE RD	12/29/2000
00504219B	7.51	TOWN OF CORNELIUS	STATESVILLE RD	12/29/2000
01715220	13.02	TOWN OF HUNTERSVILLE	RANSON PARK DR	7/24/2000
00529173	4.69	TOWN OF CORNELIUS	20100 COACHMANS WOOD LN	11/5/2004
01911115	4.5	TOWN OF HUNTERSVILLE	12000 OLD STATESVILLE RD	6/30/2004
00540189	9.35	TOWN OF CORNELIUS	MEADOW CROSSING LN	3/15/2004
00540185	8.15	TOWN OF CORNELIUS	10616 MEADOW CROSSING LN	3/15/2004
00540188	2.49	TOWN OF CORNELIUS	MEADOW CROSSING LN	3/15/2004
00540191	5.39	TOWN OF CORNELIUS	10402 GLENMEADE RD	3/15/2004
00540103	4.29	TOWN OF CORNELIUS	MEADOW CROSSING LN	3/15/2004
00540186	3.08	TOWN OF CORNELIUS	HERITAGE GREEN DR	3/15/2004
00511108	6	TOWN OF CORNELIUS	WEST CATAWBA AVE	12/30/2003
00503219A	4.04	TOWN OF CORNELIUS	STATESVILLE RD	6/19/2003
00503219B	8.35	TOWN OF CORNELIUS	STATESVILLE RD	6/19/2003
00503202	3.8	TOWN OF CORNELIUS	10160 BAILEY RD	1/13/2003
01711615	2.18	TOWN OF HUNTERSVILLE	105 GILEAD RD	10/16/2007
01711647	0.35	TOWN OF HUNTERSVILLE	HOLBROOK ST	10/16/2007
01742114	0.38	TOWN OF HUNTERSVILLE	OLD STATESVILLE RD	9/8/2006
01742105	1.39	TOWN OF HUNTERSVILLE	12811 OLD STATESVILLE RD	9/8/2006
00507185	13.58	TOWN OF CORNELIUS	WESTMORELAND RD	7/21/2006
00538929	4.12	TOWN OF CORNELIUS	18905 COACHMANS TRACE	3/10/2006
00538804	0.94	TOWN OF CORNELIUS	COACHMANS TRACE	3/10/2006
00515120	1.39	TOWN OF CORNELIUS	19715 S MAIN ST	5/6/2005
01931109	6.54	TOWN OF HUNTERSVILLE	OLD STATESVILLE RD	2/28/2005
01718506	2.81	TOWN OF HUNTERSVILLE	9630 JULIAN CLARK AVE	12/16/2011
00507197	0.17	TOWN OF CORNELIUS	WEST CATAWBA AVE	4/13/2011
00507118	14.36	TOWN OF CORNELIUS	8430 WESTMORELAND RD	4/13/2011
00507166	4.6	TOWN OF CORNELIUS	WESTMORELAND RD	4/13/2011
00909196	0.13	TOWN OF HUNTERSVILLE	14920 STUMPTOWN RD	2/16/2011
00518114	0	TOWN OF CORNELIUS	19628 SOUTH HILL ST	6/16/2010
00533117	4.16	TOWN OF CORNELIUS	18521 STARCREEK DR	4/15/2009
00540394	3.12	TOWN OF CORNELIUS	GLENMEADE RD	3/14/2008
00543314	0.18	TOWN OF HUNTERSVILLE	SAM FURR RD	1/7/2008
00317205	0.54	TOWN OF CORNELIUS	21041 CATAWBA AVE	12/30/2013
00538833	2.0	TOWN OF CORNELIUS	OAKHURST BLVD	8/14/2013
00538365	4.5	TOWN OF CORNELIUS	OAKHURST BLVD	8/14/2013
00517183	2.09	TOWN OF CORNELIUS	STATESVILLE RD	6/15/2013
00518233	0.17	TOWN OF CORNELIUS	20650 CATAWBA AVE	7/31/2012
00518234	0.13	TOWN OF CORNELIUS	20644 CATAWBA AVE	7/31/2012
00518238	0.17	TOWN OF CORNELIUS	19717 SOUTH HILL ST	7/31/2012
00518229	0.21	TOWN OF CORNELIUS	19713 SOUTH HILL ST	7/31/2012
00518105	0.36	TOWN OF CORNELIUS	20708 CATAWBA AVE	2/2/2012
01710502	0.84	TOWN OF HUNTERSVILLE	406 HOLBROOK ST	12/21/2015
01711645	1.06	TOWN OF HUNTERSVILLE	OLD STATESVILLE RD	12/7/2015
01901201	1.54	TOWN OF HUNTERSVILLE	OLD STATESVILLE RD	8/14/2015
01901213	0	TOWN OF HUNTERSVILLE	103 W CHURCH ST	8/14/2015
01901211	0	TOWN OF HUNTERSVILLE	321 N MAIN ST	8/14/2015
01901212	0	TOWN OF HUNTERSVILLE	101 W CHURCH ST	8/14/2015
01901210	0	TOWN OF HUNTERSVILLE	315 N MAIN ST	8/14/2015
01903114	0.39	TOWN OF HUNTERSVILLE	14706 OLD STATESVILLE RD	6/18/2015
00519302	0	TOWN OF CORNELIUS	19415 SMITHVILLE LN	2/3/2015
00518115	0	TOWN OF CORNELIUS	19624 SOUTH HILL ST	12/17/2014
00518222	0	TOWN OF CORNELIUS	19613 SOUTH HILL ST	11/10/2014

00518133	0	TOWN OF CORNELIUS	19709 S FERRY ST	8/12/2014
00535156	4.72	TOWN OF CORNELIUS	PSALMS ST	3/17/2014
00507734	1.20	TOWN OF CORNELIUS	ROBBINS CRESCENT DR	11/22/2016
00507625	1.08	TOWN OF CORNELIUS	ROBBINS CRESCENT DR	11/22/2016
00507676	3.12	TOWN OF CORNELIUS	ROBBINS RIDGE RD	11/22/2016
00541111	13.3	TOWN OF CORNELIUS	WESTMORELAND RD	6/10/2016
01710111	0	TOWN OF HUNTERSVILLE	510 DALLAS ST	3/30/2016
00535207	0.21	TOWN OF CORNELIUS	18021 CALDWELL TRACK DR	3/8/2016
00502201	0.18	TOWN OF CORNELIUS	18022 CALDWELL TRACK DR	3/8/2016
00502202	0.33	TOWN OF CORNELIUS	18004 CALDWELL TRACK DR	3/8/2016
01901207	0	TOWN OF HUNTERSVILLE	307 N MAIN ST	1/26/2016
01512115	9.51	TOWN OF HUNTERSVILLE	8824 MCILWAINE RD	1/26/2016
01901202	0	TOWN OF HUNTERSVILLE	109 W CHURCH ST	1/26/2016
01711611	0.04	TOWN OF HUNTERSVILLE	102 S OLD STATESVILLE RD	7/20/2017
00535295	13.48	TOWN OF CORNELIUS	11000 BAILEY RD	6/23/2017
00502210	0.61	TOWN OF CORNELIUS	CALDWELL TRACK	6/23/2017
00535275	1.88	TOWN OF CORNELIUS	CALDWELL TRACK	6/23/2017
00521290	1.02	TOWN OF CORNELIUS	CATAWBA AVE	1/12/2017
00517187	0.18	TOWN OF CORNELIUS	SOUTH HILL ST	12/7/2018
00517188	0.30	TOWN OF CORNELIUS	SOUTH HILL ST	12/7/2018
00517118	0.86	TOWN OF CORNELIUS	STATESVILLE RD	12/7/2018
01904505	0.17	TOWN OF HUNTERSVILLE	409 OLD STATESVILLE RD	11/14/2018
00519197	0.04	TOWN OF CORNELIUS	S FERRY ST	6/26/2018
00521292	0.009	TOWN OF CORNELIUS	KIMBROUGH LN	3/22/2021
00521299	0.06	TOWN OF CORNELIUS	AFTONSHIRE DR	3/22/2021
00517178	3.86	TOWN OF CORNELIUS	WILLOW POND RD	3/15/2021
01712213	1.007	TOWN OF HUNTERSVILLE	14707 N OLD STATESVILLE RD	2/12/2021
00906198	0.68	TOWN OF HUNTERSVILLE	WYNFIELD CREEK PY	10/28/2020
00512155	1.39	TOWN OF CORNELIUS	ONE NORMAN BLVD	6/19/2019
00512103	2.47	TOWN OF CORNELIUS	20030 JETTON RD	5/10/2019
01712113	30.12	CHAR MECK BOARD OF EDUCATION	200 GILEAD RD	1/1/1975
01747176	17	CHAR MECK BOARD OF EDUCATION	14550 RANSON RD	9/24/2002
00514225	6.11	CHAR MECK BOARD OF EDUCATION	9611 WESTMORELAND RD	1/8/2004
00514220	3.95	CHAR MECK BOARD OF EDUCATION	9605 WESTMORELAND RD	1/8/2004
00514229	3.27	CHAR MECK BOARD OF EDUCATION	WASHAM POTTS RD	1/8/2004
00514227	1.97	CHAR MECK BOARD OF EDUCATION	9611 WESTMORELAND RD	1/8/2004
00514228	0.82	CHAR MECK BOARD OF EDUCATION	WASHAM POTTS RD	1/8/2004
00514211	0.65	CHAR MECK BOARD OF EDUCATION	WESTMORELAND RD	1/8/2004
00514226	3.89	CHAR MECK BOARD OF EDUCATION	9611 WESTMORELAND RD	1/8/2004
01705112	41.6	CHAR MECK BOARD OF EDUCATION	12202 HAMBRIGHT RD	4/4/2018
00909109	71.85	CHAR MECK BOARD OF EDUCATION	15444 STUMPTOWN RD	5/6/2015
00520128	2.28	CHAR MECK BOARD OF EDUCATION	SMITH CR	1/11/2012
01308105	61	CHAR MECK BOARD OF EDUCATION	13345 BEATTIES FORD RD	1/11/2012

00520129	16.25	CHAR MECK BOARD OF EDUCATION	21126 CATAWBA AVE	1/11/2012
00934101	34.6	CHAR MECK BOARD OF EDUCATION	13832 STUMPTOWN RD	12/19/2008
00514210	0.55	CHAR MECK BOARD OF EDUCATION	9617 WESTMORELAND RD	6/21/2007
01303222	10.22	CITY OF CHARLOTTE	5121 NECK RD	6/11/1999
00938104	0.76	CITY OF CHARLOTTE	OLIVER HAGER RD	10/18/1994
00901198	0.46	CITY OF CHARLOTTE	OLIVER HAGER RD	10/4/1994
00901199	6.41	CITY OF CHARLOTTE	OLIVER HAGER RD	10/3/1994
02322206	0.15	CITY OF CHARLOTTE	NECK RD	4/29/1994
01303218	79.65	CITY OF CHARLOTTE	NECK RD	4/29/1991
00935101	151.3	CITY OF CHARLOTTE	7980 BABE STILLWELL FARM RD	11/15/1991
01323105	111	CITY OF CHARLOTTE	4901 NECK RD	3/25/1977
01510515	1.6	MECK COUNTY	HUNTERS POINTE DR	12/26/1990
01529301	7.56	MECK COUNTY	CLIFFCREEK DR	1/30/1990
01530299	15.44	MECK COUNTY	TWIN TRAIL DR	1/30/1990
01529351	0	MECK COUNTY	12843 MOORES MILL RD	1/30/1990
00527206	0	MECK COUNTY	19642 CHARTOWN DR	12/1/1989
01742110	38.13	MECK COUNTY	11836 VERHOEFF DR	6/23/1983
00911119	84.5	MECK COUNTY	16131 OLD STATESVILLE RD	1/1/1975
00516678	6.12	MECK COUNTY	20243 FLORAL LN	1/1/1975
01720403	25.05	MECK COUNTY	12100 STATESVILLE RD	6/18/1971
01909502	2.63	MECK COUNTY	OLD STATESVILLE RD	4/1/1925
00182123	11.1	MECK COUNTY	15901 NC 57	11/30/1989
01318101	64.44	MECK COUNTY	4598 NECK RD	12/27/1991
01323101	28	MECK COUNTY	NECK RD	12/27/1991
02322111	27.96	MECK COUNTY	NECK RD	12/27/1991
01323103	42.3	MECK COUNTY	NECK RD	12/27/1991
01323102	30.5	MECK COUNTY	NECK RD	12/27/1991
01318109	52.72	MECK COUNTY	NECK RD	12/27/1991
01532132	6.97	MECK COUNTY	CEDAR RIVER RD	12/30/1992
02303115	323.58	MECK COUNTY	SAMPLE RD	8/19/1992
02322104	54.1	MECK COUNTY	ARTHUR AUTEN RD	8/19/1992
01317101	668.38	MECK COUNTY	NECK RD	8/19/1992
01318112	145.21	MECK COUNTY	NECK RD	8/19/1992
01318111	1.83	MECK COUNTY	4198 NECK RD	8/19/1992
02322301	24.54	MECK COUNTY	5800 NECK RD	8/19/1992
01535245	11.7	MECK COUNTY	BRADFORD HILL LN	12/31/1993
01535199	13.08	MECK COUNTY	BRADFORD HILL LN	12/31/1993
01323104	1.7	MECK COUNTY	4431 NECK RD	3/9/1993
00918399	6.18	MECK COUNTY	TAYBROOK DR	12/30/1994
00918166	5.25	MECK COUNTY	CHILGROVE LN	12/30/1994
00918396	2.33	MECK COUNTY	SHARROW BAY CT	12/30/1994
01538197	14.8	MECK COUNTY	NEW OAK LN	12/29/1994
00918456	4.49	MECK COUNTY	OXFORD HOLLOW	11/29/1994
01302414	0	MECK COUNTY	5724 PAMELA ST	12/21/1995
01302417	0	MECK COUNTY	5712 PAMELA ST	12/21/1995
01302423	0	MECK COUNTY	5705 PAMELA ST	12/21/1995
01302425	0	MECK COUNTY	5713 PAMELA ST	12/21/1995
01302410	0	MECK COUNTY	5806 PAMELA ST	12/21/1995
01302409	0	MECK COUNTY	5810 PAMELA ST	12/21/1995
01302422	0	MECK COUNTY	5701 PAMELA ST	12/21/1995
01302451	2	MECK COUNTY	PAMELA ST	12/21/1995
01302433	0	MECK COUNTY	5817 PAMELA ST	12/21/1995
01302415	0	MECK COUNTY	5720 PAMELA ST	12/21/1995

01302419	0	MECK COUNTY	5706 PAMELA ST	12/21/1995
01302442	0	MECK COUNTY	5928 PAMELA ST	12/21/1995
01302440	0	MECK COUNTY	5915 PAMELA ST	12/21/1995
01302411	0	MECK COUNTY	5802 PAMELA ST	12/21/1995
01302441	0	MECK COUNTY	5932 PAMELA ST	12/21/1995
01301810	0	MECK COUNTY	12141 FLATBUSH DR	12/21/1995
01302416	0	MECK COUNTY	5716 PAMELA ST	12/21/1995
01302420	0	MECK COUNTY	5704 PAMELA ST	12/21/1995
01302424	0	MECK COUNTY	5709 PAMELA ST	12/21/1995
01302443	0	MECK COUNTY	5924 PAMELA ST	12/21/1995
01302421	0	MECK COUNTY	5700 PAMELA ST	12/21/1995
01302449	0	MECK COUNTY	5900 PAMELA ST	12/21/1995
01301809	0	MECK COUNTY	12137 FLATBUSH DR	12/21/1995
01302426	0	MECK COUNTY	5717 PAMELA ST	12/21/1995
01302450	14.7	MECK COUNTY	PAMELA ST	12/21/1995
01301811	0	MECK COUNTY	12145 FLATBUSH DR	12/21/1995
01302418	0	MECK COUNTY	5708 PAMELA ST	12/21/1995
01302432	0	MECK COUNTY	5813 PAMELA ST	12/21/1995
01302444	0	MECK COUNTY	5920 PAMELA ST	12/21/1995
01747131	10.16	MECK COUNTY	STAWELL DR	12/30/1999
01510499	18.11	MECK COUNTY	SHEPPARTON DR	12/30/1999
01747172	0.51	MECK COUNTY	GILEAD RD	12/30/1999
01510498	2.14	MECK COUNTY	HILLSTON RIDGE RD	12/30/1999
01510484	4.32	MECK COUNTY	HILLSTON RIDGE RD	12/30/1999
02303118	4.47	MECK COUNTY	BEATTIES FORD RD	9/14/1999
02303108	194.62	MECK COUNTY	BEATTIES FORD RD	9/8/1999
00317401	0.98	MECK COUNTY	21105 CATAWBA AVE	9/17/1998
01537148	3.33	MECK COUNTY	SUMMERFIELD LN	6/20/1996
00911130	11.82	MECK COUNTY	OLD STATESVILLE RD	3/12/1996
01325549	15.62	MECK COUNTY	WINDING RIDGE RD	12/27/2000
01325599	13.52	MECK COUNTY	12517 BEATTIES FORD RD	12/27/2000
01325548	7.53	MECK COUNTY	BEATTIES FORD RD	12/27/2000
01505199	17.65	MECK COUNTY	GLENWYCK LN	12/27/2000
01510104	5.06	MECK COUNTY	13440 NORSEMAN LN	1/12/2000
01543103	19.13	MECK COUNTY	8147 MCILWAINE RD	10/12/2001
00507112	90.48	MECK COUNTY	17702 WEST CATAWBA AVE	9/19/2001
00507190	0.81	MECK COUNTY	WEST CATAWBA AVE	9/19/2001
00507188	7.95	MECK COUNTY	WEST CATAWBA AVE	9/19/2001
00507193	0.09	MECK COUNTY	WEST CATAWBA AVE	9/19/2001
01309101	42.13	MECK COUNTY	BEATTIES FORD RD	9/19/2001
01320108	72.52	MECK COUNTY	JIM KIDD RD	9/19/2001
01509104	24.14	MECK COUNTY	8200 GILEAD RD	9/19/2001
02322103	28.87	MECK COUNTY	ARTHUR AUTEN RD	8/17/2001
02322202	5.02	MECK COUNTY	11704 ARTHUR AUTEN RD	7/12/2001
02322201	32.85	MECK COUNTY	5516 NECK RD	6/28/2001
01303221	0.15	MECK COUNTY	NECK RD	5/31/2001
00904105	74.97	MECK COUNTY	ERVIN COOK RD	10/28/2005
00904103	72.47	MECK COUNTY	ERVIN COOK RD	10/28/2005
02304216	18.45	MECK COUNTY	BEATTIES FORD RD	10/18/2005
01747550	6.70	MECK COUNTY	LYON HILL LN	10/5/2005
01308127	0.38	MECK COUNTY	BEATTIES FORD RD	1/25/2005
02302299	2.7	MECK COUNTY	HAYES RIDGE CT	9/17/2003
00537162	2.36	MECK COUNTY	CRANLYN RD	7/1/2003
00537196	2.26	MECK COUNTY	SAM FURR RD	7/1/2003
01539198	30.41	MECK COUNTY	LEISURE LN	12/31/2002

01509107	13.03	MECK COUNTY	7700 GILEAD RD	9/20/2002
01510443	0	MECK COUNTY	9110 CULCAIRN RD	12/4/2006
01747177	2.16	MECK COUNTY	GILEAD RD	12/4/2006
01510445	0	MECK COUNTY	9102 CULCAIRN RD	12/4/2006
01747171	3.10	MECK COUNTY	GILEAD RD	12/4/2006
00901108	43.78	MECK COUNTY	OLIVER HAGER RD	4/7/2006
00901132	1.65	MECK COUNTY	OLIVER HAGER RD	4/7/2006
00525599	5.04	MECK COUNTY	10313 DANESWAY LN	2/9/2006
01516120	26.41	MECK COUNTY	BEATTIES FORD RD	1/20/2006
01516133	49.85	MECK COUNTY	11530 BEATTIES FORD RD	1/20/2006
00911131	0.40	MECK COUNTY	OLD STATESVILLE RD	1/12/2006
01506292	3.45	MECK COUNTY	ROLLING MEADOWS LN	10/4/2007
01506291	6.73	MECK COUNTY	ROLLING MEADOWS LN	10/4/2007
01506290	7.75	MECK COUNTY	ROLLING MEADOWS LN	10/4/2007
01714598	5.40	MECK COUNTY	STUMPTOWN RD	5/31/2007
01714597	6.59	MECK COUNTY	N 177	5/31/2007
01714577	1.59	MECK COUNTY	ERIC KYLE DR	4/26/2007
02322113	7.59	MECK COUNTY	5324 NECK RD	12/9/2009
01304101	184.4	MECK COUNTY	3701 NECK RD	10/22/2009
01715808	3.38	MECK COUNTY	TRIBUTE PLACE DR	12/31/2008
02302269	3.35	MECK COUNTY	NECK RD	12/11/2008
02302270	0.008	MECK COUNTY	NECK RD	12/11/2008
00906119	15.66	MECK COUNTY	GILEAD RD	7/29/2008
00906120	14.78	MECK COUNTY	GILEAD RD	7/29/2008
01507101	138.01	MECK COUNTY	8137 MCILWAINE RD	7/25/2012
00923298	0.06	MECK COUNTY	BRETON BROOK ST	6/25/2012
00926299	2.29	MECK COUNTY	PRISTINE CT	6/25/2012
00926298	1.05	MECK COUNTY	GLADE CT	6/25/2012
00923397	7.23	MECK COUNTY	OAKHAM ST	6/25/2012
00926194	0.18	MECK COUNTY	STUMPTOWN RD	6/25/2012
01537133	2.24	MECK COUNTY	TATEBROOK LN	12/8/2010
00926198	2.42	MECK COUNTY	DEERLAND CT	8/23/2010
01505108	60.28	MECK COUNTY	7120 BUD HENDERSON RD	4/21/2010
00502109	41.09	MECK COUNTY	18121 OLD STATESVILLE RD	12/27/2013
01509114	1.44	MECK COUNTY	8010 GILEAD RD	10/18/2013
01509113	1.49	MECK COUNTY	7926 GILEAD RD	10/18/2013
00907660	3.49	MECK COUNTY	STANDERWICK LN	8/14/2013
00503209	4.53	MECK COUNTY	10000 BAILEY RD	7/29/2014
00538385	0.15	MECK COUNTY	10051 BAILEY RD	7/29/2014
00503288	7.16	MECK COUNTY	BAILEY RD	7/29/2014
01303223	13.19	MECK COUNTY	5201 NECK RD	6/12/2014
00905104	1.15	MECK COUNTY	8031 GILEAD RD	5/14/2014
01302429	0	MECK COUNTY	5801 PAMELA ST	3/11/2014
01302430	0	MECK COUNTY	5805 PAMELA ST	3/11/2014
01302428	0	MECK COUNTY	5725 PAMELA ST	3/11/2014
01302427	0	MECK COUNTY	5721 PAMELA ST	3/11/2014
01302431	0	MECK COUNTY	5809 PAMELA ST	3/11/2014
00932231	7.12	MECK COUNTY	SHADETREE ST	10/26/2017
00932232	5.14	MECK COUNTY	SHADETREE ST	10/26/2017
01706212	14.75	MECK COUNTY	STATESVILLE RD	12/31/2018
01706210	16.95	MECK COUNTY	HAMBRIGHT RD	12/31/2018
00502111	0.46	MECK COUNTY	18211 OLD STATESVILLE RD	11/29/2018
00502112	0.46	MECK COUNTY	18219 OLD STATESVILLE RD	11/29/2018
00502113	0.92	MECK COUNTY	18239 OLD STATESVILLE RD	11/27/2018
01706207	22.8	MECK COUNTY	12201 HAMBRIGHT RD	10/21/2020

01303225	6.08	MECK COUNTY	NECK RD	3/13/2020
00911133	0.17	MECK COUNTY	OLD STATESVILLE RD	10/2/2019
00911127	1.01	MECK COUNTY	OLD STATESVILLE RD	10/2/2019
00911120	2.01	MECK COUNTY	16047 OLD STATESVILLE RD	10/2/2019
01509115	1.56	MECK COUNTY	8018 GILEAD RD	9/6/2019
01302412	0	MECK COUNTY	5732 PAMELA ST	4/25/2019
01302435	0	MECK COUNTY	5831 PAMELA ST	8/4/2021
00541115	0.27	TOWN OF CORNELIUS	8617 WESTMORELAND RD	10/21/2021
01903113	1.34	TOWN OF HUNTERSVILLE	104 OLD STATESVILLE RD	4/26/2022
00938101	6.94	TOWN OF HUNTERSVILLE	8114 OLIVER HAGER RD	6/24/2022

Progress Toward Goals

Table 6: McDowell Creek Watershed In-Stream Water Quality Goals

In-Stream Water Quality Goals	
1.	TSS \leq 0.3 tons/ac/year
2.	Benthic Macroinvertebrates = Fully Supporting
3.	Fish = Fully Supporting
4.	Fecal coliform standard (400 CFU/100 ml)

Continued Monitoring of the McDowell Creek Watershed

Water quality monitoring has been conducted in the McDowell Creek watershed since the 1970s. Monitoring has included the following data collection efforts:

- a. Fixed Interval Monitoring. Fixed interval monitoring was conducted at MC4 (McDowell Creek at Beatties Ford Road) on a monthly basis throughout the fiscal year.
- b. Macroinvertebrate Samples. Macroinvertebrate samples and MHAP data were collected at MC4 and MC2A-1.
- c. Figures 3 and 4 below show graphically Fecal Coliform Sampling results at the MC4 site. Figure 2 shows the location of the sampling sites mentioned in this report (MC4 and MC2A1).

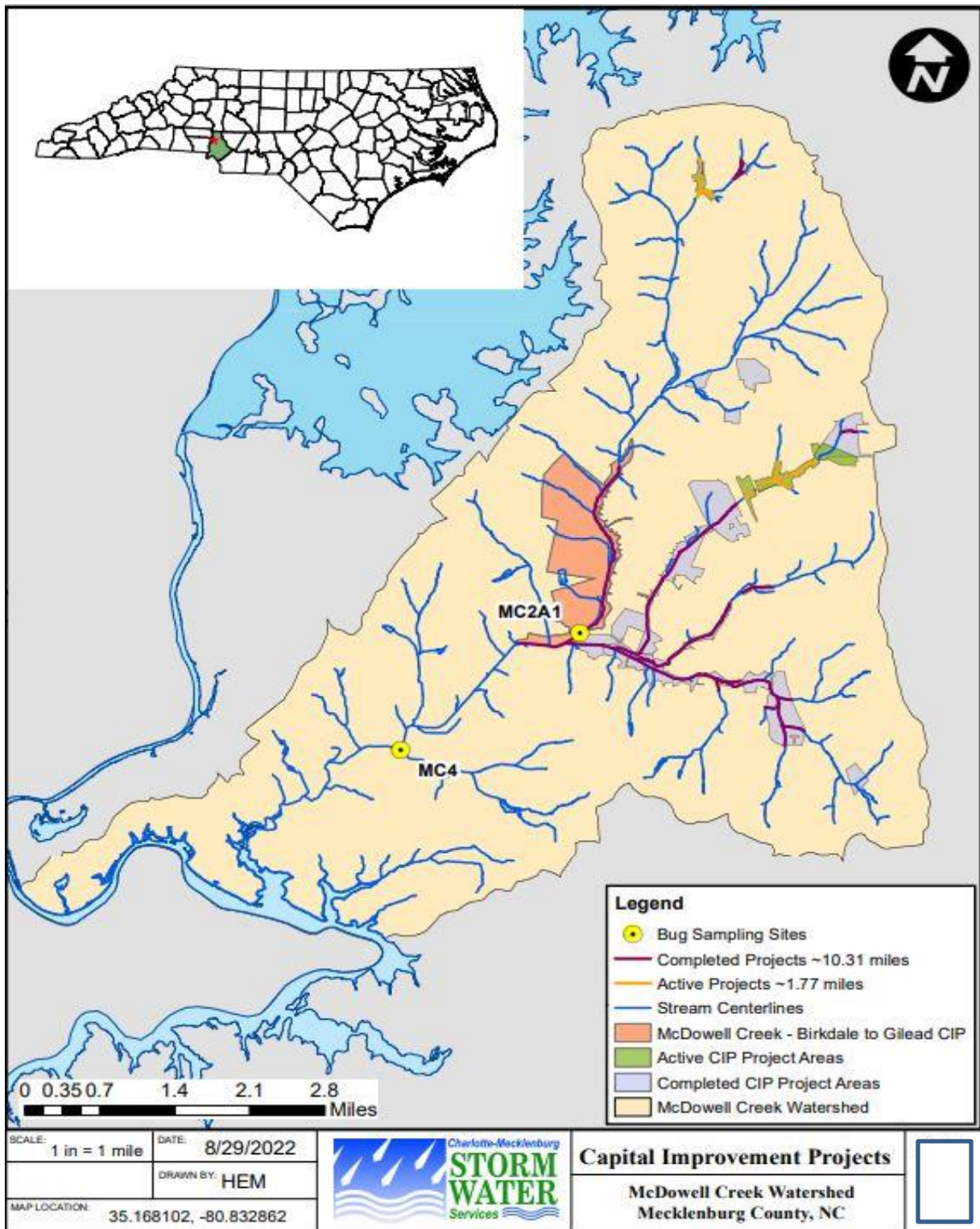


Figure 2. Map of the Sampling Sites and Capital Improvement Projects within the McDowell Creek Watershed

A section of McDowell Creek is subject to a fecal coliform TMDL. According to the approved 2020 305(b) report, McDowell Creek is currently meeting the fecal coliform criteria. Mecklenburg County has been assigned responsibility for this TMDL on behalf

of the Phase I and Phase II jurisdictions in Charlotte-Mecklenburg. Table 7 below show details of the fecal coliform data collected at MC4 overtime. Figures 2 and 3 provide a visual comparison of fecal coliform data collected over time and indicate an improvement in fecal coliform for the McDowell Creek Watershed. Note that FY2022 only provides data through July and is not a complete picture of the results. Sampling data is based on the calendar year, not the fiscal year.

Table 7: CMSWS Fecal Coliform Data for Site MC4 on McDowell Creek

Year	Geometric Mean	# Compliant	# Non-Compliant	Total Samples	% Compliant	% Non-Compliant
2005	173.71	10	2	12	83	17
2006	147.76	17	1	18	94	6
2007	292.03	18	8	26	69	31
2008	262.35	21	4	25	84	16
2009	321.12	14	4	18	78	22
2010	421.34	7	7	14	50	50
2011	500.15	5	8	13	39	61
2012	624.47	6	9	15	40	60
2013	427.64	8	7	15	53	47
2014	505.88	10	6	16	63	37
2015	520.63	9	7	16	56	44
2016	423.19	11	6	17	65	35
2017	339.98	11	4	15	73	27
2018	659.82	6	10	16	38	62
2019	381.70	11	7	18	61	39
2020	466.88	9	5	14	62	38
2021	421.42	7	6	13	54	46
2022*	438.75	4	2	6	67	33

*Note that 2022 is not complete

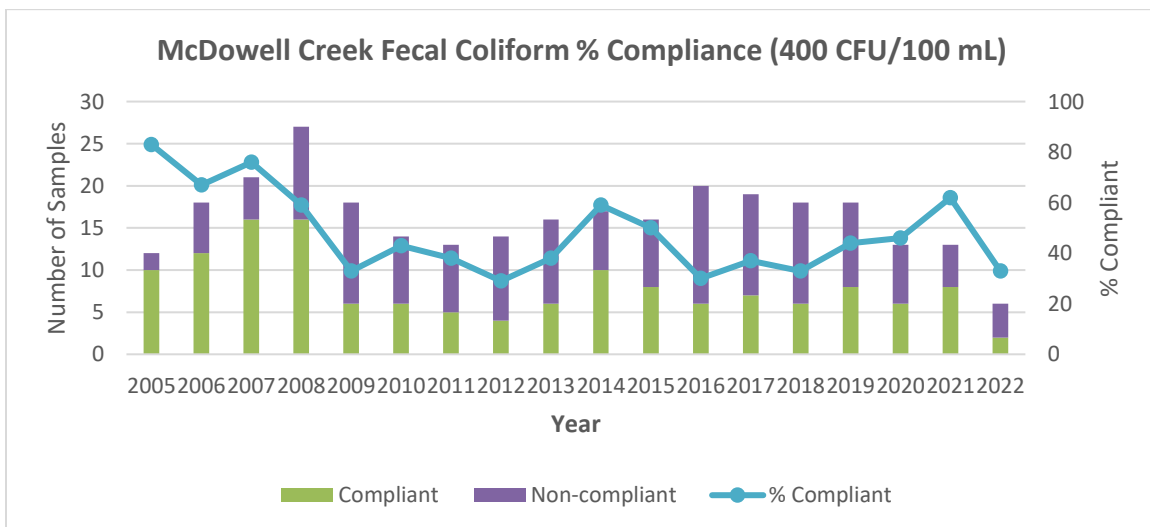


Figure 3. Fecal Coliform Compliance

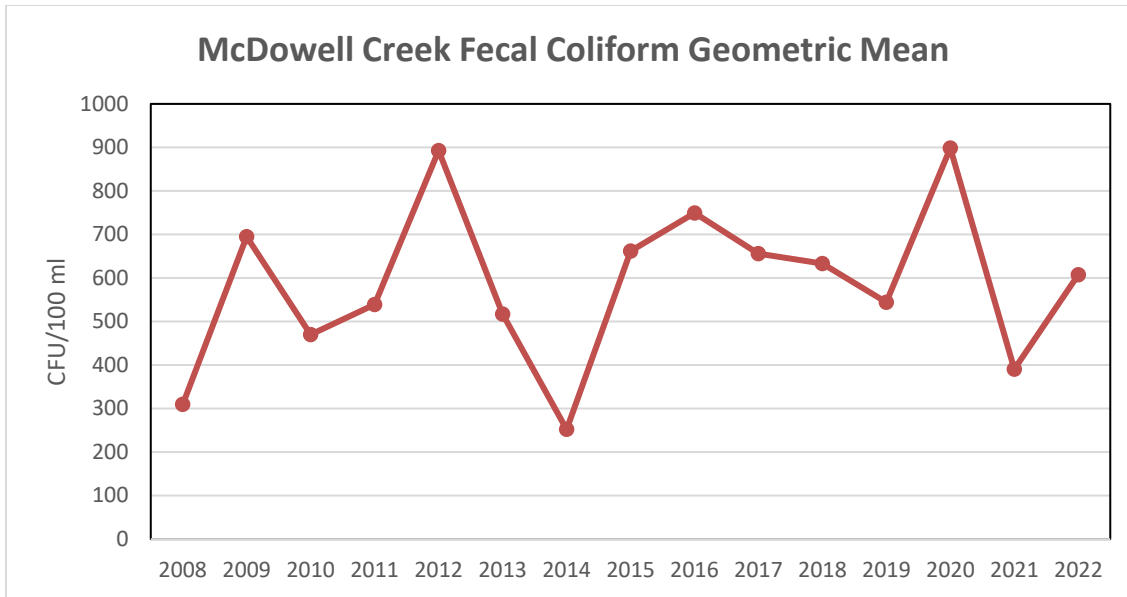


Figure 4. Fecal Coliform Geometric Mean

Mean fecal coliform levels in McDowell Creek exhibited a decrease from 2020 to 2021. We do not have the complete dataset from FY2022 to assess the most recent trends. The existing BMPs for these watersheds appear to be effective at identifying and eliminating pollution sources in compliance with TMDL requirements. These BMPs will continue to be implemented in FY2023.

Benthic Macroinvertebrates

Benthic macroinvertebrate surveys are conducted on an annual basis to assess the abundance and diversity of the biological community. Table 8 summarizes the benthic macroinvertebrate data that has been collected from site MC4 from July 2000 – July 2021.

Table 8: Benthic Macroinvertebrate Summary Data from MC4

Date	NCBI	EPT Species	Total Taxa	# of Organisms	Bioclass
7/14/00	6.41	7	24	209	Fair
2/19/01	6.38	7	26	207	Fair
5/11/01	6.79	7	28	146	Fair
8/20/02	6.76	7	40	314	Fair
7/25/03	6.16	10	35	314	Fair
6/4/04	6.75	10	38	245	Fair
8/16/05	6.57	7	37	467	Fair
7/7/06	6.88	4	23	171	Fair
7/6/07	6.73	7	37	332	Fair
7/25/08	6.60	7	38	273	Fair
7/24/09	6.43	5	31	243	Fair
7/23/10	6.39	8	28	186	Fair

7/1/11	6.60	9	38	374	Fair
7/6/12	6.55	8	34	389	Fair
8/14/13	6.79	9	37	340	Fair
7/4/14	6.39	8	27	273	Fair
7/17/15	6.72	8	44	348	Fair
7/13/16	6.72	8	38	262	Fair
7/20/17	6.59	13	48	511	Fair
7/30/18	6.64	10	40	319	Fair
7/9/19	6.71	8	40	529	Fair
7/10/20	6.01	13	42	489	Good-Fair
7/14/21	6.25	15	55	531	Good-Fair

The North Carolina Index of Biotic Integrity (NCIBI) is a measure of the structure and “health” of a stream’s biological community. The NCIBI integrates data about species richness and composition, trophic composition, species abundance, and habitat condition. The general trend for NCIBI at MC4 is Fair for macrobenthic invertebrates. In recent years, the Bioclass has increased to Good-Fair.

In 2022, Mecklenburg County Water Quality Department did a more up-to-date and in depth look into the macrobenthic data for sites MC4 and MC2A1 within the McDowell Creek Watershed. This was prompted by the State of North Carolina reclassifying MC4 from “Fair” to “Good-Fair” in 2017 and the bioclassification jumping to “Good-Fair” in 2020 based on improved NCBI scores. While there were no clear trends noted in the NCBI and EPT data for sites MC2 and MC3E, there were notable trends for MC2A1 and MC4 that supported the State’s findings. These four sites were chosen of the 15 sites within the McDowell Creek Watershed because we have long-term data for them that goes back to the early 2000s. The State of North Carolina also does routine sampling at MC4 and they use the EPT Method to determine bioclassification scores. In 2017, the State EPT for MC4 was 15 (Good-Fair) and Mecklenburg County’s EPT was 13 (Fair). The State reported that in 2017, “the stream [McDowell Creek at MC4] is likely affected by degraded macroinvertebrate habitat and its mostly developed catchment, and substrate substrate present.” MC4 represents data from unrestored stream sections within the watershed and MC2A1 is representative of restored stream reaches. The results of the analyses are summarized below:

MC4

The average EPT counts are higher since 2016 and appear to be trending upward. NCBI was significantly lower (which is good) in 2020 but did not show a similar upward trend like the EPT. Bioclassification remained “Fair” in the last decade, jumping to “Good-Fair” in 2020 based on improved NCBI scores. While there appears to be an upward trend in EPT data, it may be too early to jump to a conclusion based on the still limited data. Figures 5 through 7 below represent the data analyzed.

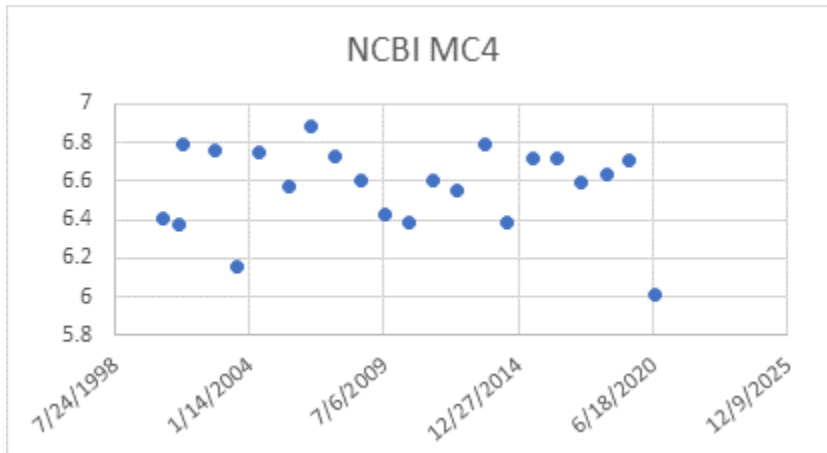


Figure 5. NCBI Trends for MC4

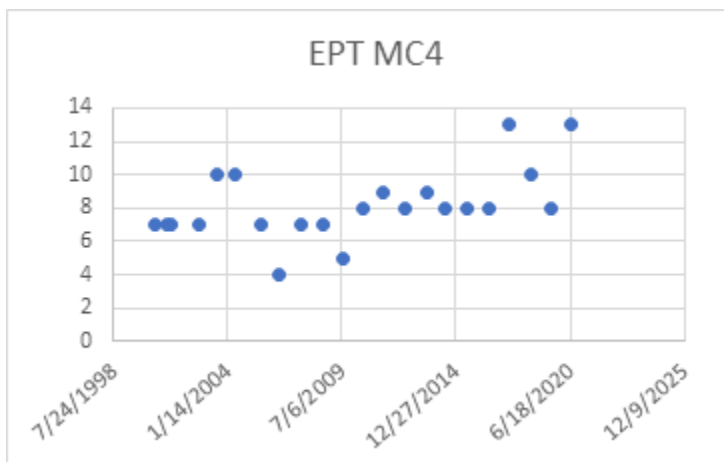


Figure 6. EPT Trends for MC4

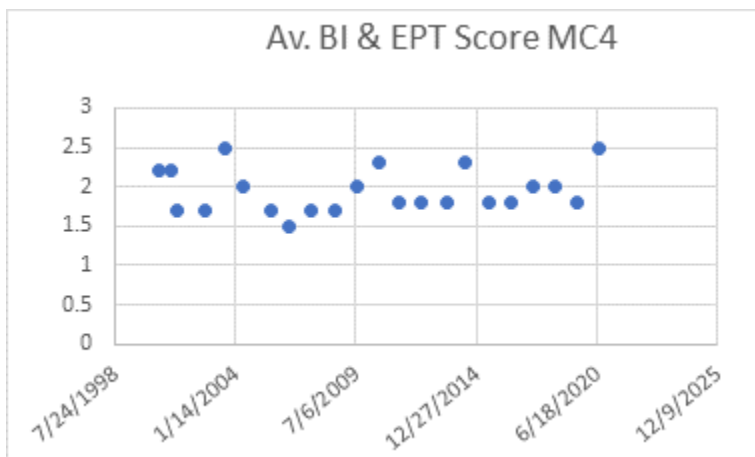


Figure 7. Average Bioclassification Index and EPT Scores for MC4

MC2A1

This site appears to show the clearest trends in improvement in both NCBI and EPT numbers. 2017 seems to be a turning point where we see NCBI scores go down and EPT scores go up. The combined NCBI and EPT scores are trending upward, which led to a “Good-Fair” classification in 2020. The habitat scores also saw a significant change from <100 prior to 2017 to an average of 155 since 2017. The restoration projects within the reach were completed prior to 2017, which could explain the improved habitat scores. Figures 8 through 10 below represent the data analyzed.

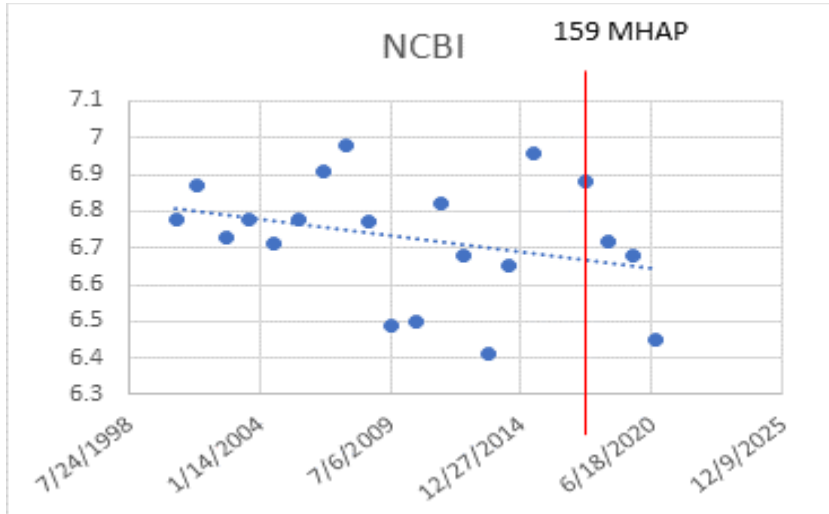


Figure 8. NCBI Trends for MC2A1

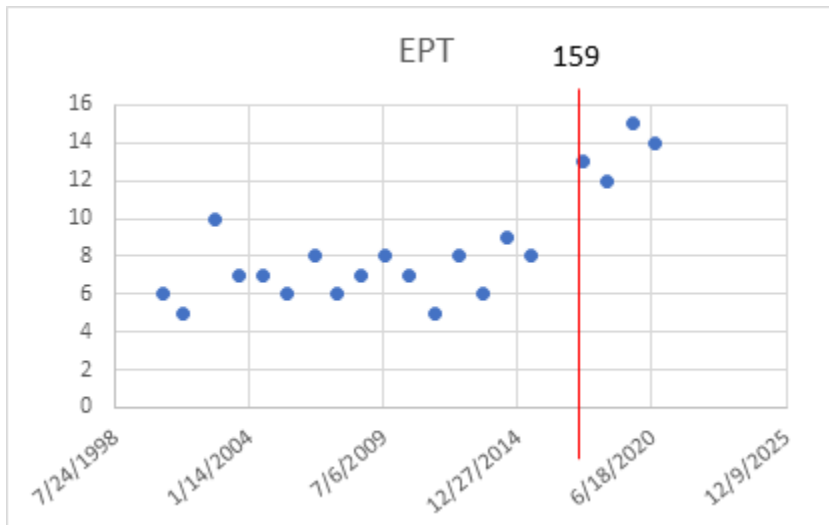


Figure 9. EPT Trends for MC2A1

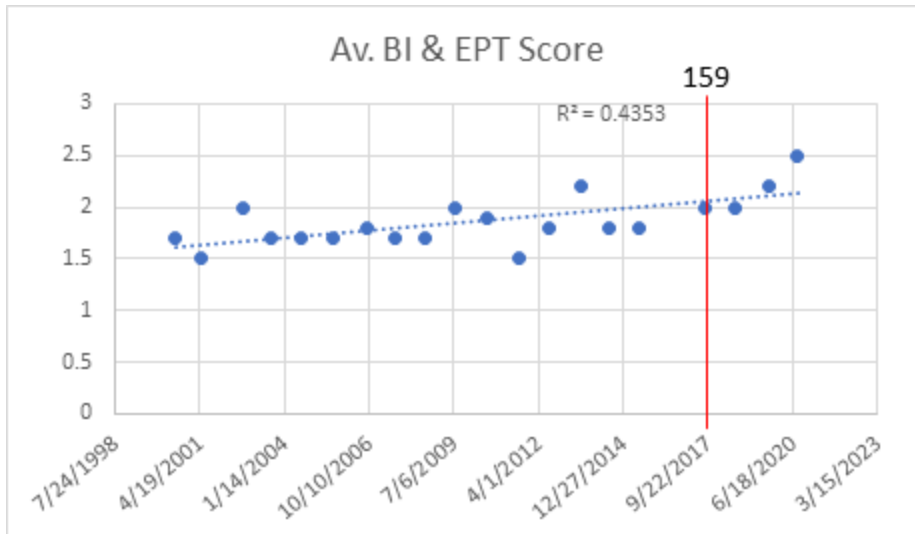


Figure 10. Average Bioclassification Index and EPT scores for MC2A1

Fish

Fish community surveys are conducted on a 3-year and 4-year rotation at sites throughout the County. Table 9 summarizes the fish community data that has been collected at MC4 from May 1996 through April 2019.

Table 9: Fish Summary Data from MC4

Date	NCBI	NCBI Rating	# of Species	# of Fish
5/7/96	28	Poor	10	102
9/20/05	42	Good-Fair	13	306
9/4/09	38	Fair	17	349
9/11/12	30	Poor	12	308
4/28/16	30	Poor	12	242
4/30/19	42	Good-Fair	16	159

Additional BMPs Implemented for the McDowell Creek TMDL in FY2022

During FY2022, the following actions were completed to reduce fecal coliform bacteria levels and enhance water quality in this watershed:

1. Health Department records were reviewed, and no failed septic systems were identified in the watershed between June 30, 2021, and August 1, 2022, which suggests that failing septic systems are not a chronic problem in this area.
2. Fecal coliform samples were routinely collected at various locations within the McDowell Creek Watershed. These samples showed no significant elevation in fecal coliform levels within the Watershed.
3. Beginning on November 1, 2021, and concluding on April 25, 2022, CMSWS staff walked approximately 127.7 stream miles in the Phase II jurisdictions, including 15.58 miles (3 basins) in the McDowell Creek Watershed. There was one (1) dry weather flow noted, but the flow was too low to collect fecal coliform

and total phosphorus samples. Twelve (**12**) outfalls were inspected, five (**5**) stream blockages were noted, and two (**2**) beaver dams were located.

Adaptive Management

The Water Quality Program should continue implementing the Watershed Management Plan. Fixed Interval Monitoring, Benthic and Fish Monitoring, and stream walks could be expanded to other sections of the watershed. Stream restoration and enhancement opportunities are challenging due to the inability to obtain easements. Opportunities to partner with other government agencies and the towns to implement stream restoration projects should be investigated. The McDowell Creek Watershed Management Plan will be updated in FY2024.