Comprehensive Drainage Master Plan City of Bryant

Phase 1 Report

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March 2023

Garver Project No.: 20T20090



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1.0 Project Description

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

- Evaluate the existing drainage conditions of the City and Extra-Territorial Jurisdiction (ETJ), also known as the planning area;
- Identify current and future drainage problems;
- Generate proposed solutions to identified problems;
- Develop a Capital Improvement Plan (CIP); and
- Provide tools for managing future development.

The CDMP project is being performed in two (2) phases. Phases 1 and 2 will be divided into major tasks, with subtasks listed as applicable below these major tasks. **Figure 1** shows a flow chart of the overall project process.

- Phase 1: Data Collection and Initial Drainage Study Screening
- Phase 2: Survey Collection, Hydrologic and Hydraulic Modeling, Identification of Drainage Problems, Alternative Development, and CIP Development

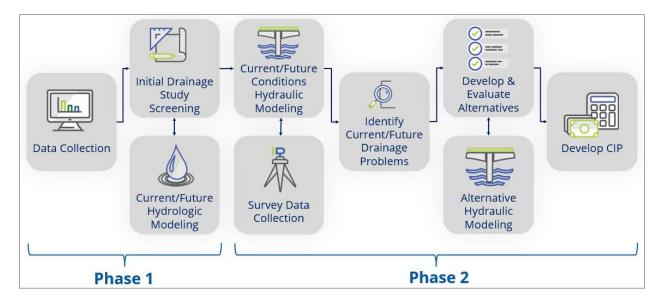


Figure 1. CDMP Project Process

This report discusses the processes and findings of Phase 1.





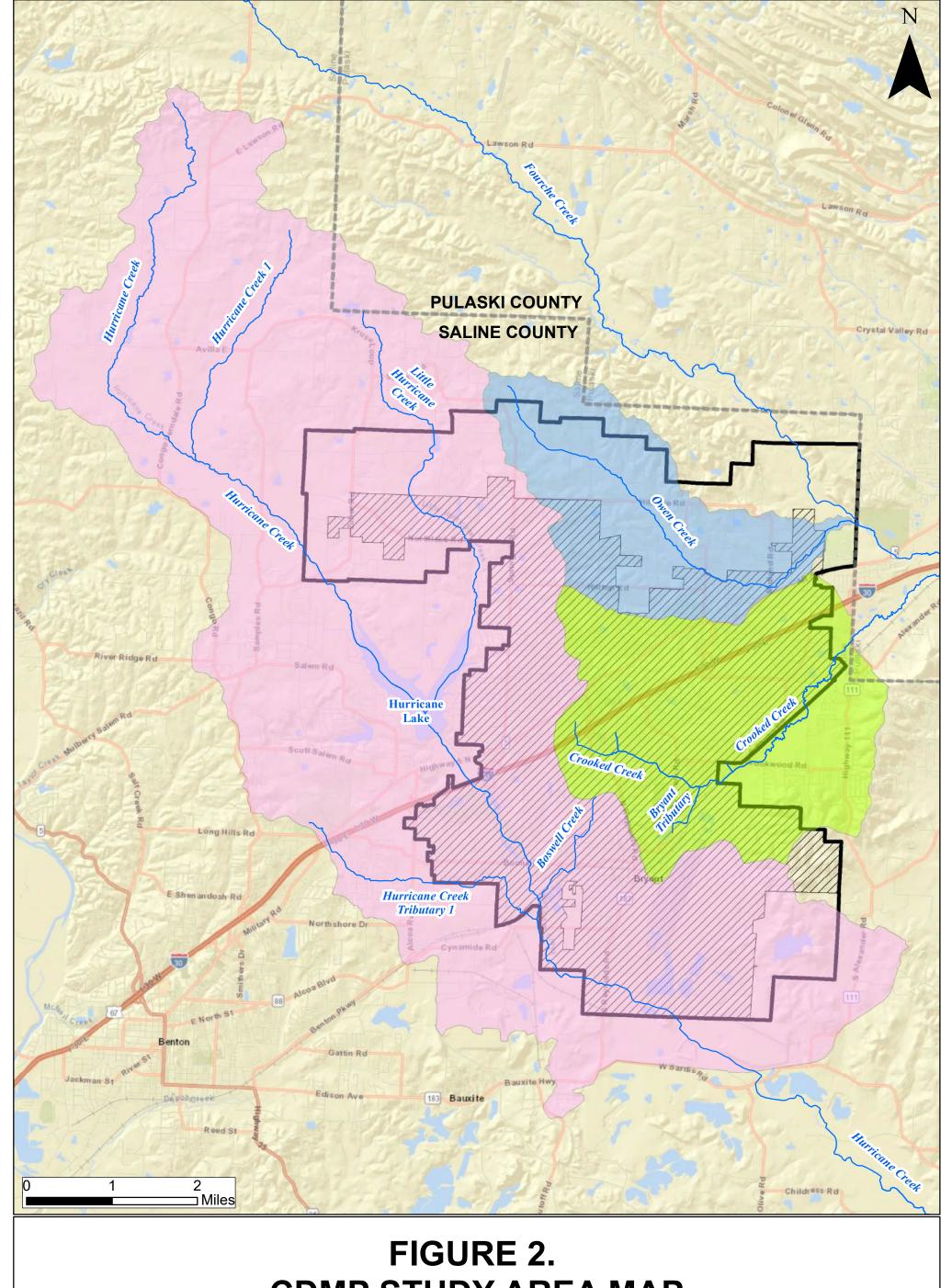
2.0 General Information

According to the project Request for Qualifications (RFQ), the City of Bryant is a homerule city with an incorporated population of 20,231, according to the 2020 census. The City has experienced rapid growth, especially over the past five years, and expects to continue this trajectory of growth in the future. The growth consists of both residential and commercial development, increasing the demand on the existing drainage infrastructure of the City and showing the need for updated and improved infrastructure.

The City of Bryant planning area includes three main drainage basins: Hurricane Creek, Crooked Creek, and Owen Creek. Hurricane Creek is the most western basin, draining approximately 52% of the Bryant planning area. Owen Creek receives approximately 23% of the drainage and is in the northeastern portion of the planning basin. The remaining 25%, located in the southeastern section of the planning area, drains to Crooked Creek. A map of the study area and the three main drainage basins is shown in **Figure 2**.

Since 2008, a number of large flooding events have occurred throughout the City. This recurrence of significant flood issues has led to the need for a comprehensive study and plan for drainage within the City and planning area. This plan, as described in Section 1.0, will provide the City with tools to improve existing drainage conditions and plan for future mitigation. Phase 1 of the CDMP involves Data Collection and an Initial Drainage Study Screening. The results of these tasks will lead to the identification of areas for further study and improvement. Following the completion of Phase 1, a detailed scope of Phase 2 will be developed.





CDMP STUDY AREA MAP



Crooked Creek Basin Streams **Bryant City Limits** Hurricane Creek Basin Bryant Planning Area Owen Creek Basin





2.1 Drainage Basin Characteristics

The City of Bryant is located along a large drainage divide between two United States Geological Survey (USGS) Hydrologic Unit Code 6 (HUC-6) watersheds, the Lower Ouachita and the Lower Arkansas – Fourche La Fave. The city limits and planning area are divided into three smaller drainage basins: Crooked Creek, Hurricane Creek, and Owen Creek. Hurricane Creek is located along the western portion of the city and contributes to the Lower Ouachita Watershed. The other two basins, Crooked Creek and Owen Creek, are located in the eastern portion of the city and contribute to the Lower Arkansas – Fourche La Fave Watershed. The three drainage basins are described below.

2.1.1 Crooked Creek Basin

The portion of Crooked Creek Basin studied for this CDMP is roughly 9.7 square miles. As mentioned in Section 1.0, Crooked Creek makes up approximately 25% of the planning area. When compared to the current city limits, Crooked Creek Basin accounts for approximately 36% of the area.

The headwaters of Crooked Creek are located within city limits, just west of the intersection of Highway 183 (Reynolds Road) and Highway 5. Runoff flows generally south from this area, draining to a ditch south of W. Commerce Street. This ditch then flows under I-30 and turns generally east-southeast. Crooked Creek Tributary begins just north of I-30 near Main Street and flows south under the interstate until its confluence with Crooked Creek at Dell Drive.

After flowing under Highway 183, Crooked Creek continues east under Mills Park Road. Approximately 1,800 feet downstream of Mills Park Road, Bryant Tributary flows into Crooked Creek. This tributary drains the area northwest of Saline County Airport and the Bloomfield Hills subdivisions. Approximately 1,300 feet downstream of the tributary confluence, Crooked Creek passes under the Union Pacific Railroad. Just upstream of this crossing, the terrain allows for some flow to leave Crooked Creek along the north (upstream) side of the railroad embankment. The ditch in this area is labeled as Trailer Park Ditch, which flows east for approximately 1,100 feet before also passing under the railroad. Trailer Park Ditch flows back into Crooked Creek just west of Linden Drive.

Crooked Creek flows northeast along the south side of the railroad embankment for approximately 8,800 feet before flowing back under the railroad. The portion of Crooked Creek and its drainage basin south of the railroad are outside of Bryant city limits and the planning area.





Crooked Creek reenters the city limits after passing back under the railroad approximately 1,200 feet east of S. Shobe Road. The creek then flows generally east-northeast through undeveloped land until leaving the city limits and planning area approximately 1,450 feet west-southwest of Highway 111 (Alexander Road). Crooked Creek continues flowing generally northeast until it drains into Fourche Creek near Pulaski Technical College in Pulaski County. Fourche Creek flows through the City of Little Rock and eventually drains into the Arkansas River.

2.1.2 Hurricane Creek Basin

Hurricane Creek Basin accounts for approximately 55% of the Bryant city limits and 52% of the planning area. The total study area analyzed for the CDMP, including portions outside the planning area, is approximately 44.9 square miles.

The headwaters of Hurricane Creek begin approximately 4,500 feet northwest of the intersection of W. Lawson Road and Congo Ferndale Road in rural Saline County. It flows generally south-southeast, eventually feeding into the western branch of Hurricane Lake. The lake is reported by the Encyclopedia of Arkansas as a 332-acre manmade lake constructed in 1942. Hurricane Lake is located within the City of Benton near the Bryant city limits. The eastern branch of Hurricane Lake is fed by Little Hurricane Creek. Little Hurricane Creek begins near the Saline County/Pulaski County line just north of Sparks Road. It flows generally south under Northlake Road before entering the lake. The confluence of the two branches of Hurricane Lake occurs approximately 2,100 feet upstream of the Hurricane Lake Dam.

Hurricane Creek continues downstream of the Hurricane Lake Dam outfall, flowing under Highway 5 and I-30. The creek then continues south through The Greens at Hurricane Creek, an 18-hole golf course and apartment community. Several small weirs create ponds in this area. Just south of the golf course, Hurricane Creek flows under Boone Road. Boone Road experiences frequent overtopping in the area of Hurricane Creek. Downstream of Boone Road, Hurricane Creek continues south-southeast under the Union Pacific Railroad and Cynamide Road. It then turns more southeast and flows under Highway 183 (Reynolds Road). The creek then flows out of the city limits and planning area. Hurricane Creek continues flowing south-southeast for over 35 miles before flowing into the Saline River near the Grant County/Dallas County line.

2.1.3 Owen Creek Basin

Owen Creek is the smallest drainage basin within the city limits, accounting for only about 9%. It makes up approximately 23% of the planning area. Overall, the studied drainage basin for Owen Creek is approximately 6 square miles.





The headwaters of Owen Creek begin just outside the planning area near the intersection of Springhill Road and Pamela Way. Owen Creek flows generally southeast through a mostly wooded area. It flows under Hilldale Road twice, entering the city limits at the more downstream crossing of the road. It then flows under Midland Road before turning northeast. Owen Creek flows into Fourche Creek approximately 3,000 feet upstream of the Fourche Creek crossing of Highway 5 (Stagecoach Road). Fourche Creek flows through the City of Little Rock before draining into the Arkansas River.

3.0 Data Collection

In order to complete the CDMP, an array of data was collected. The collected data and information are described in the sections below.

3.1 Historical Records of Drainage, Flooding, and Rainfall

3.1.1 City and Public News Records

The City has documented many past flood events. Historical flood data was compiled from various sources, including City personnel, local news stories, and official social media reports. Major flood events reported since 2008 are listed in **Table 1**. The events listed are based on available information; this is not a comprehensive list of all flood events affecting the City.





Table 1. Major Flood Events within the City of Bryant

Date	Location of Flood Issue	Flood Type		Total Event Precipitation (in)*
March 30-April 4, 2008	Forest Cove/Augusta Cove	Roadway, Yard, Residential	Shoal Creek	4.20
April 30-May 20, 2011	Boone Road	Roadway	Hurricane Creek	6.26
November 20- 22, 2011	Boone Road	Roadway	Hurricane Creek	7.02
March 20-23, 2012	Boone Road	Roadway	Hurricane Creek	5.53
April 29-30, 2017	Boone Road	Roadway	Hurricane Creek	5.14
February 19-24, 2018	Boone Road	Roadway	Hurricane Creek	8.44
April 18, 2019	Hilldale Road/Hilltop Road/Springhill Road/Midland Road	Roadway	Owen Creek	5.44
May 17-20, 2021	Oak Glenn Neighborhood	Roadway, Yard, Residential	Owen Creek Tributary	2.26
March 22, 2022	Boone Road	Roadway	Hurricane Creek	3.35

^{*}Total event precipitation from NOAA weather station at Adams Field at Little Rock National Airport.

3.1.2 Rainfall Data

3.1.2.1 Historical Rainfall Data

Historical rainfall data was available from the National Weather Service (NWS) for Adams Field at the Little Rock National Airport (LIT), which is located approximately 15 miles to the northeast of Bryant. This is the nearest National Oceanic and Atmospheric Administration (NOAA) weather station to the City of Bryant. **Figure 3** displays the daily total rainfall amounts record at LIT since 2000. This data was collected from the NOAA National Centers for Environmental Information website.





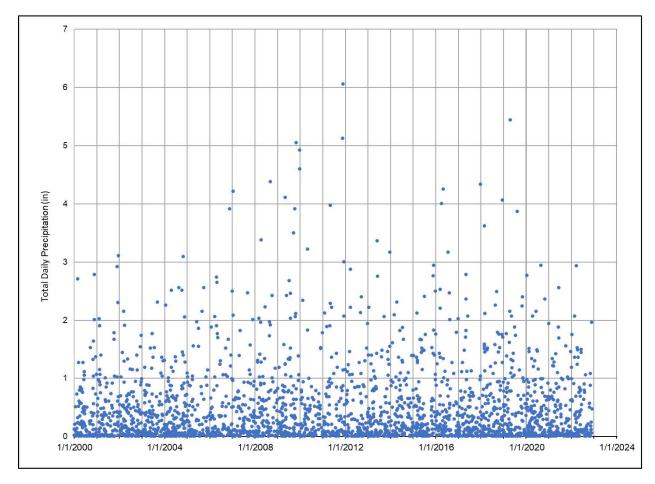


Figure 3. Daily Total Rainfall Data at Little Rock National Airport

Since January 1, 2000, over 2,400 days recorded at least 0.01 inches of rainfall. Of those days, 252 days recorded between 1 and 2 inches, 73 days recorded between 2 and 3 inches, and 27 days recorded greater than 3 inches of rainfall. The maximum recorded daily total rainfall was 6.06 inches, occurring on November 21, 2011.

3.1.2.2 Statistical Rainfall Data

Statistical rainfall data for the City of Bryant was collected from the NOAA Atlas 14 Precipitation Frequency Data Server (Atlas 14) website. Select data is presented in **Table 2**. This precipitation data represents average partial duration time series amounts for specific durations. Select durations and recurrence intervals were chosen based on data that planned for use during the hydrologic task of this project.





Table 2. Select Atlas 14 Precipitation Frequency Data (in inches) for Bryant,
Arkansas

Duration	Average Recurrence Interval (years)						
Duration	2	5	10	25	50	100	500
5 min	0.514	0.61	0.687	0.79	0.865	0.939	1.10
15 min	0.919	1.09	1.23	1.41	1.55	1.68	1.97
1 hr	1.82	2.17	2.44	2.82	3.10	3.38	4.00
2 hr	2.28	2.70	3.05	3.52	3.88	4.24	5.06
3 hr	2.56	3.04	3.44	4.00	4.43	4.87	5.91
6 hr	3.09	3.72	4.26	5.03	5.64	6.27	7.82
12 hr	3.70	4.55	5.28	6.35	7.21	8.11	10.4
1 day	4.37	5.43	6.35	7.71	8.81	9.97	12.9

3.1.3 Residential Drainage Issue Database

For this CDMP, a public comment period was issued to allow city residents to submit drainage issues. The comment period ran from April 10 to May 22, 2022. A total of 264 comments were received. **Table 3** gives a breakdown of the received comments by issue type.

Table 3. Resident Comments by Type

Issue Type	Number of Reported Issues
House or Business Flooding	37
Roadway Flooding	44
Yard Flooding	161
Other (includes erosion, storm sewer)	14

According to **Table 3**, over half of the issues reported by residents involved flooding issues in residential or commercial green space (i.e. yards). However, 14% of comments involved flooding that affected a building. Residents that chose the "other" category provided comments involving issues such as stream bank erosion or storm sewer issues.

Table 4 displays the number of comments within each of the three major drainage basins. Crooked Creek Basin reported just over 49% of the comments, and Hurricane Creek Basin reported 45%. Only 6% of the comments were located within the Owen Creek Basin.





Table 4. Resident Comments by Basin

Drainage Basin	Number of Reported Issues
Crooked Creek Basin	128
Hurricane Creek Basin	119
Owen Creek Basin	17

Table 5 provides the number of comments located within a Flood Emergency Management Association (FEMA) Special Flood Hazard Area (SFHA).

Table 5. Resident Comments by FEMA SFHA

Special Flood Hazard Area	Number of Reported Issues
Floodway	3
Zone A/AE (non-floodway)	14
Zone X, 0.2% Annual Chance Event	2
Zone X, Minimal Flood Hazard	245

The data presented above suggests that most drainage issues within the City occur outside of FEMA-mapped floodplains. All three comments within a mapped floodway occurred along Crooked Creek. The comments regarding issues within Zone A or AE floodplains occurred in all three basins, with the highest concentration of issues occurring along Hurricane Creek near Boone Road and the confluence with Boswell Creek.

Figure 4 shows the resident reported comments within Crooked Creek Basin. **Figure 5** displays the comments within Hurricane Creek Basin, and **Figure 6** shows the comments within Owen Creek Basin. All resident comments are available in Appendix A.

The resident comments were analyzed and later used to compare to hydraulic modeling results for verification of drainage issues. Appendix A includes information regarding the hydraulic modeling results and the identified potential drainage project locations corresponding to the resident comments.



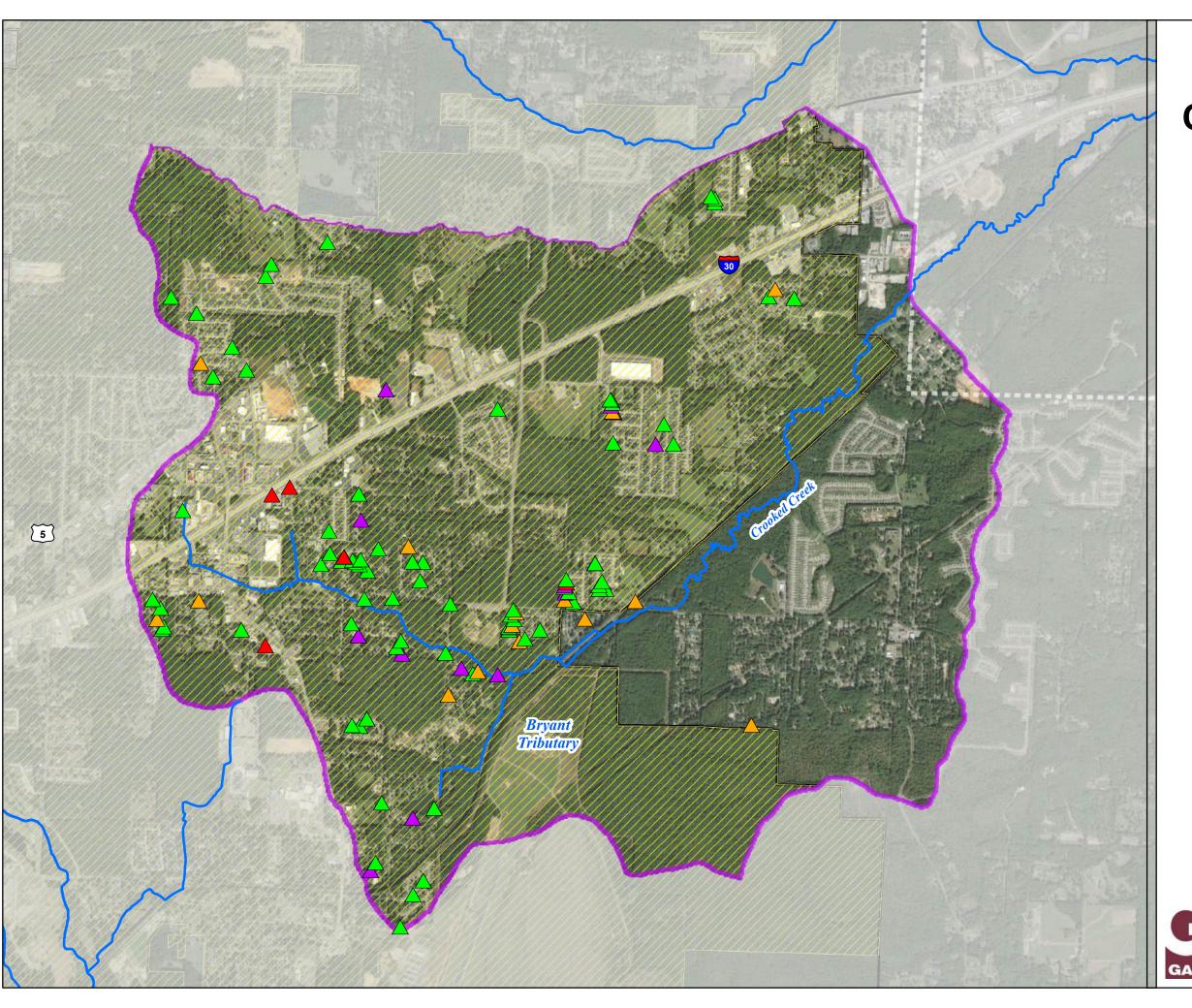


FIGURE 4. CROOKED CREEK BASIN ISSUE MAP

▲ House/Business Issue

Road Issue

Yard Issue

Other Issue

Streams

Bryant City Limits

Bryant Planning Area

0.5 1 Miles





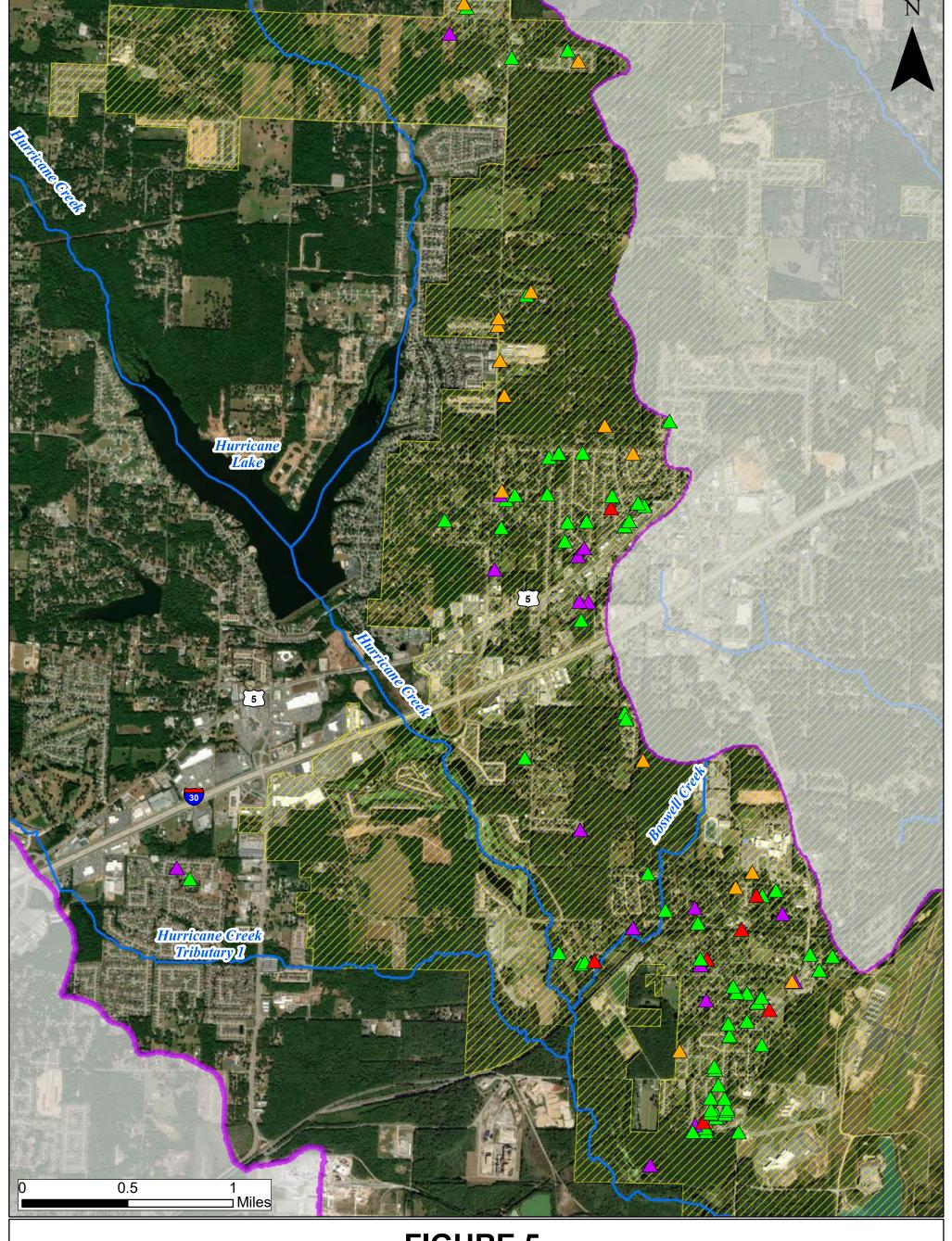


FIGURE 5. **HURRICANE CREEK BASIN ISSUE MAP**



House/Business Issue 🛕 Yard Issue -Road Issue





Other Issue **Bryant City Limits**



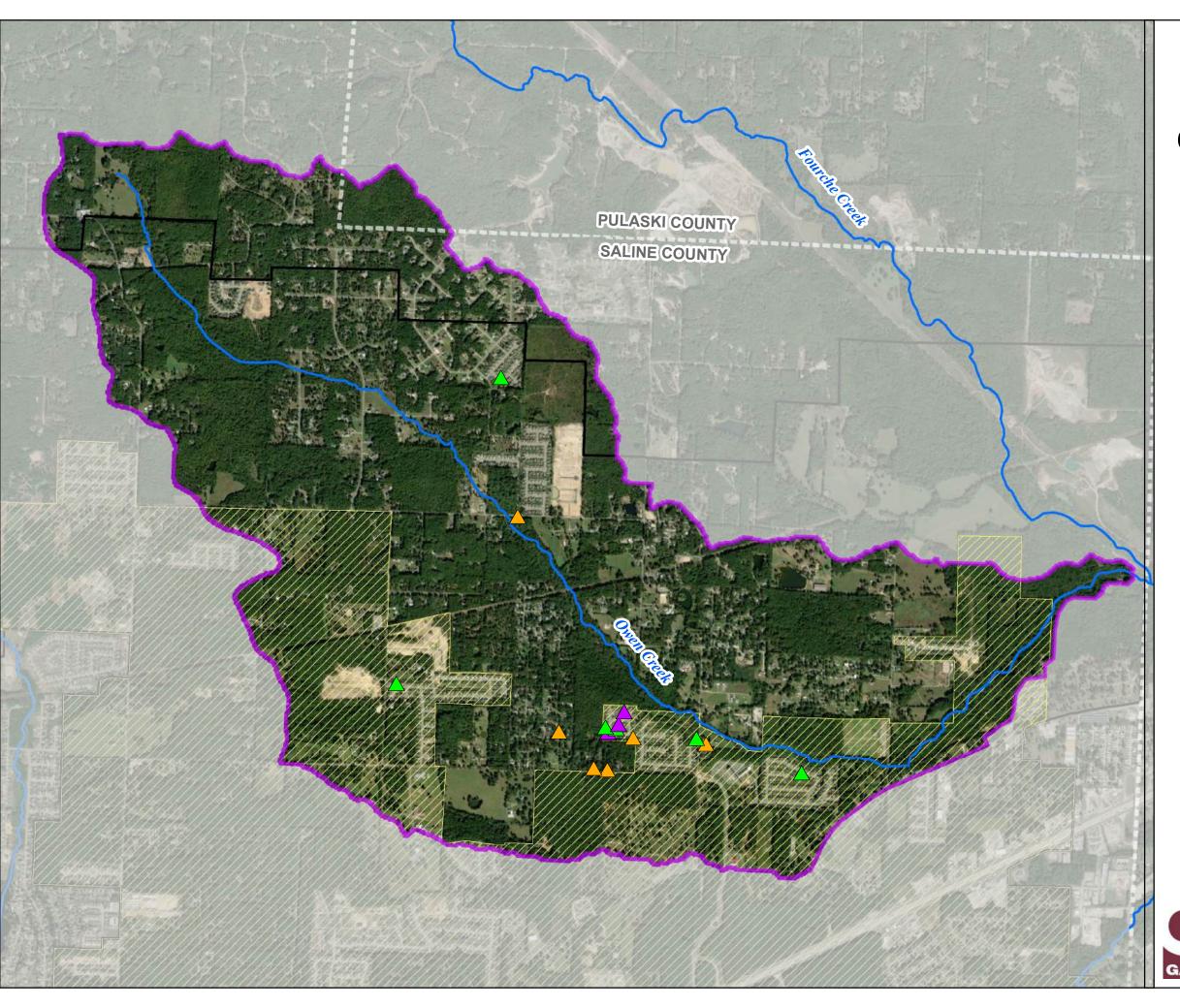


FIGURE 6. OWEN CREEK BASIN ISSUE MAP

▲ House/Business Issue

Road Issue

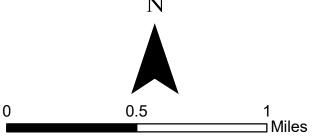
Yard Issue

▲ Other Issue

- Streams

Bryant City Limits

Bryant Planning Area









3.2 FEMA NFIP Data

3.2.1 FEMA Mapping and Data

The City of Bryant participates in the FEMA National Flood Insurance Program (NFIP). Current floodplain information and mapping is available in Flood Insurance Study (FIS) Report numbers 05125CV0001B and V0002B for Saline County, Arkansas, and Incorporated Areas. The City is mapped within Flood Insurance Rate Map (FIRM) Panels 0225E, 0240E, 0370E, and 0380E. The planning area has multiple streams that are mapped as Zone A or AE, which designates a 1% annual exceedance probability (AEP) (commonly known as 100-year) event boundary.

Zone AE mapping indicates that a detailed hydraulic study has been performed on the mapped stream. Typically, Zone AE mapping includes a regulatory floodway, which represents the encroachment boundary along a stream that would increase the base flood elevations (BFEs) by up to 1 foot. The stream extents mapped as Zone AE with floodway are listed in **Table 6**.

Table 6. Effective Zone AE with Floodway Streams

Drainage Basin	Stream Name	Zone AE Mapped Stream Extents	
Hurricane Creek	Hurricane Creek	Approximately 2,400 feet downstream of Zuber Road (near upstream end of Hurricane Lake) to just downstream of Highway 183	
Basin	Little Hurricane Creek	Just downstream of Northlake Road to confluence with Hurricane Creek	
	Crooked Creek	Approximately 650 feet upstream of Highway 183 to confluence with Fourche Creek (confluence located in Pulaski County)	
Crooked Creek	Crooked Creek Tributary	Just downstream of I-30 to confluence with Crooked Creek	
Basin	Bryant Tributary	Just downstream of Arcadia Circle to confluence with Crooked Creek	
	Trailer Park Ditch	From flow diversion near Union Pacific Railroad crossing to confluence with Crooked Creek	
Owen Creek Basin	Owen Creek	Approximately 1,950 feet upstream of Hilldale Road to confluence with Fourche Creek	





Zone A mapping indicates an approximated 1% AEP floodplain boundary for a stream for which a detailed study has not been performed. These streams do not have a mapped floodway. The stream extents in the city limits and planning area that are mapped as Zone A are listed in **Table 7**. All Zone A mapped streams are in the Hurricane Creek Basin. Effective FEMA floodplain mapping for Hurricane Creek Basin, Crooked Creek Basin, and Owen Creek Basin is shown in **Figures 7**, **8**, and **9**, respectively.

Table 7. Effective Zone A Streams

Drainage Basin	Stream Name	Zone A Mapped Stream Extents
	Hurricane Creek	Approximately 1,000 feet downstream of W. Lawson Road to approximately 2,400 feet downstream of Zuber Road (beginning of Zone AE mapping)
	Hurricane Creek	Just downstream of Highway 183 (end of Zone AE mapping) to confluence with Saline River (in Grant County)
	Hurricane Creek 1	Approximately 6,700 feet upstream of S. Avilla Road to confluence with Hurricane Creek
	Hurricane Creek 1.1	Approximately 2,000 feet upstream of Samples Road to confluence with Hurricane Creek 1
Hurricane Creek	Hurricane Creek 1.2	Approximately 1,200 feet downstream of Cow Patty Trail to confluence with Hurricane Creek 1
Basin	Little Hurricane Creek	Just downstream of Hester Lake outfall to just downstream of Northlake Road (beginning of Zone AE mapping)
	Little Hurricane Creek A	Approximately 740 feet upstream of E. Worth Avenue to confluence with Little Hurricane Creek
	Little Hurricane Creek B	Just downstream of Seven Landing Road to confluence with Little Hurricane Creek
	Little Hurricane Creek C	Approximately 800 feet upstream of Springhill Road to confluence with Little Hurricane Creek
	Little Hurricane Creek C1	Just upstream of Humes Road to confluence with Little Hurricane Creek C
	Little Hurricane Creek D	Approximately 2,150 feet upstream of Springhill Road to confluence with Hurricane Creek C





Drainage Basin	Stream Name	Zone A Mapped Stream Extents
	Little Hurricane Creek E	Approximately 420 feet upstream of Northlake Road to confluence with Hurricane Creek
	Little Hurricane Creek F	Approximately 2,000 feet upstream of Northlake Road to confluence with Hurricane Creek (at Northlake Road crossing)
	Hurricane Creek Tributary 1	Approximately 970 feet upstream of Heritage Farms Drive to confluence with Hurricane Creek
HILITICANA I TAAK	Approximately 270 feet upstream of Bay Meadow Drive to confluence with Hurricane Creek Tributary 1	
	Boswell Creek	Approximately 2,000 feet upstream of Boswell Road to confluence with Hurricane Creek



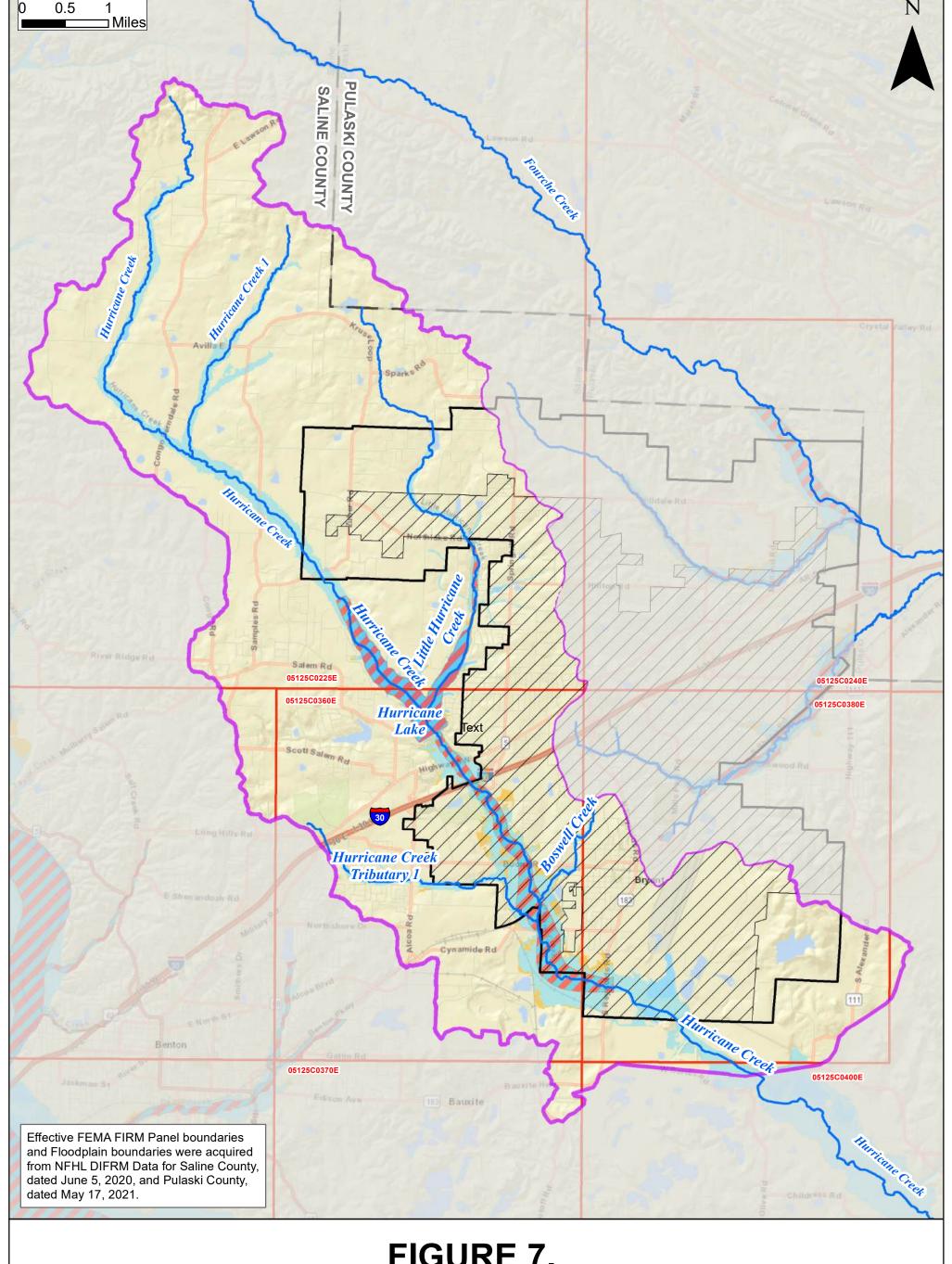
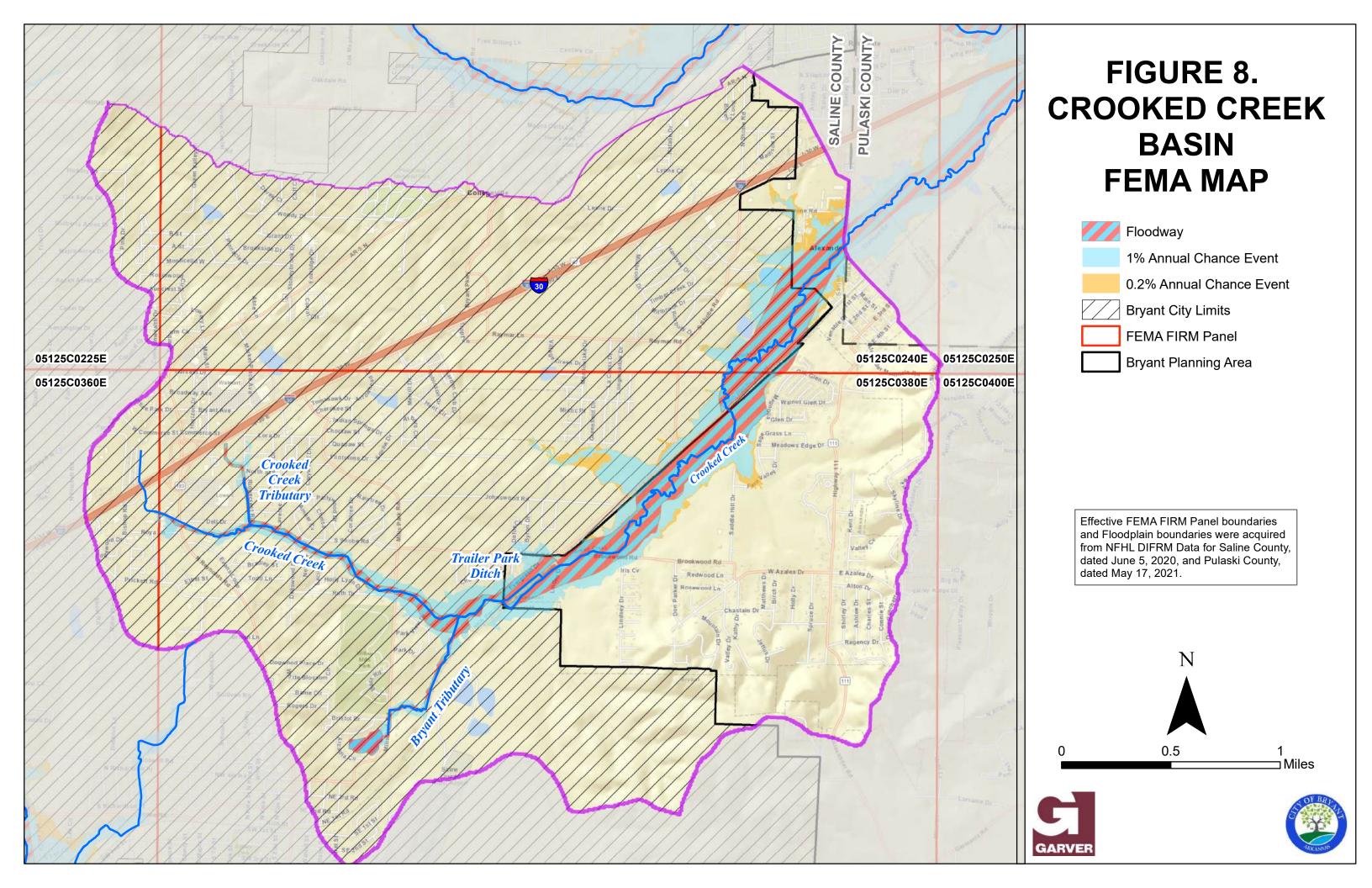


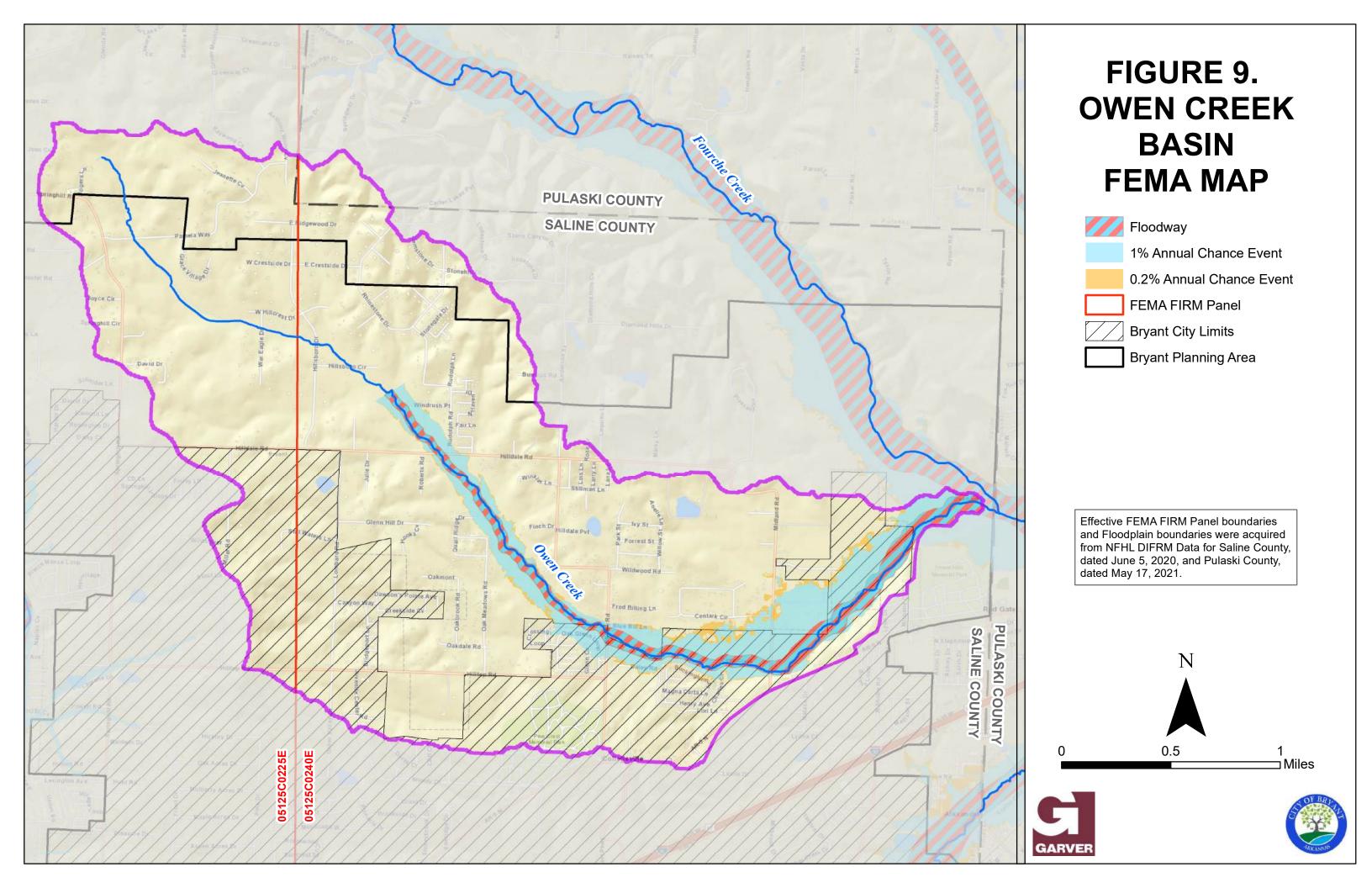
FIGURE 7. HURRICANE CREEK BASIN FEMA MAP













3.2.2 Flood Insurance Policies and Repetitive Loss Data

Flood insurance policy data and repetitive loss information for the City of Bryant was acquired from the State NFIP coordinator at the Arkansas Natural Resources Division (NRD) in June 2022.

A total of 67 flood insurance policies were issued in the City at the time of data collection. Policy data is provided in **Table 8**. Of the 67 policies, 11 covered locations are located within Zone A or AE floodplains. The remainder of the policies were for Zone X locations.

Parameter	Value
Policy Count	67
Premium Total (includes federal policy fee)	\$43,091
Total Building Coverage	\$14,050,700
Total Contents Coverage	\$4,276,000
Average Building Coverage	\$209,712
Average Contents Coverage	\$77,745

Table 8. Flood Insurance Policy Data

Repetitive loss data for the City is given in **Table 9**. Of the 14 claims made in the City, 6 of the properties have experienced repetitive losses.

Table 9. Repetitive Loss Data

Parameter	Value
Number of Property Losses	14
Repetitive Loss Properties	6
Total Building Payments	\$240,906
Total Contents Payments	\$66,925
Single Family Property Losses	6
Other Property Losses	0





Data relating to the insurance policies and repetitive losses in the City of Bryant is given in Appendix B.

3.2.3 Letters of Map Amendments

Though a structure may be located within a SFHA, the elevation of the structure, property, or portion of the property may be above the base flood elevation (BFE). In order to have the property removed and to lower or eliminate the need for its associated floodplain insurance, a Letter of Map Amendment (LOMA) can be applied for. The LOMA application requires that an Elevation Certificate (EC) be completed for the property to show record of its elevation. Currently, the FEMA Map Service Center has 35 LOMA documents on record for properties within the City of Bryant. Specific site information for the LOMAs in the City is given in Appendix C.

3.3 As-built Plans and Data for Existing Infrastructure

3.3.1 Roadway, Bridge, and Development Plans

The City of Bryant has many as-built drawings available for streets, structures, and subdivisions. Due to the volume of information available, as-built drawings will be requested for the CDMP as needed. These drawings will be utilized during the hydraulic modeling process to most appropriately represent the hydraulic system in the modeled areas. In addition, state highway structure drawings will be requested as needed from the Arkansas Department of Transportation (ARDOT).

3.3.2 Traffic Data

Average Daily Traffic (ADT) data is available for federal and state highways and other major roadways in Arkansas through ARDOT. The most current publicly available data is for 2021. **Figure 10** displays the 2021 map published by ARDOT and acquired from the ARDOT Traffic Information Systems website.

3.3.3 Roadway Functional Class

ARDOT provides functional classification for all state highways and interstates as well as some county and city streets. There are 65 roadways within the planning area with an assigned functional class. The classification identifies the type of service that the roadway is intended to provide. The ARDOT Roadway Drainage Manual defines the





design storm events for each type of classification, with design events ranging from 2-year to 50-year depending on the functional class and type of drain.

The roadways within the planning area with an identified functional classification are listed in Appendix D.

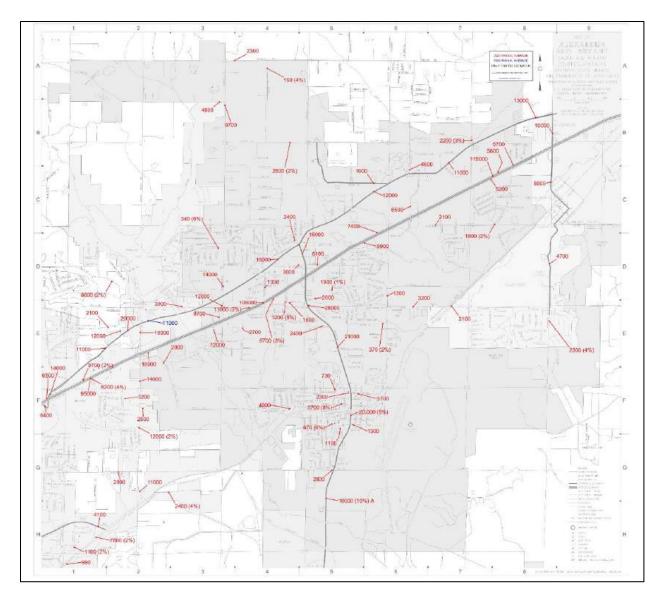


Figure 10. 2021 Average Daily Traffic Estimates for Bryant, Arkansas





3.4 Current Drainage Infrastructure

The City of Bryant has an extensive existing stormwater drainage system. The City provided Garver with a Geographic Information Systems (GIS) database for the stormwater system that included the following shapefiles:

- Stormwater points: inlets, outlets, grates, curb inlets, and other drainage features:
- Stormwater outfalls: points along the city boundary where drainage flows out of the City; and
- Stormwater flowlines: culverts, detention basins, open channels, proposed culverts, unchannelized flow, and streams.

Table 10 lists the types of stormwater points included in the received dataset. The stormwater points are displayed in **Figure 11**.

Number of Stormwater Points Stormwater Point Type Box 1,195 Box (no manhole) 13 **Curb Cut** 235 **Drop Inlet (no manhole)** 6 **End of Pipe** 1,816 Flow Break 760 Grate 258 **Proposed** 1 12 Stormwater Box (no access) **Not Assigned** 58

Table 10. Stormwater Point Data

Table 11 lists the number of stormwater outfalls owned by the City and by ARDOT. The stormwater outfall points are displayed in **Figure 12**.

Table 11. Stormwater Outfall Data

Outfall Ownership	Number of Outfalls
City of Bryant	199
ArDOT	17

Table 12 lists the stormwater flowline types and the number of each type. The stormwater flowlines are also displayed in **Figure 12**.





Table 12. Stormwater Flowline Data

Stormwater Flowline Type	Number of Flowlines	Length of Flowline Type (ft)
Culvert	2,337	215,727
Detention Basin	1	766
Open Channel	6,026	1,213,335
Proposed Culvert	1	61
Stream	108	53,090
Unchannelized Flow	75	3,825

The culvert lines were reviewed by Garver. In addition to the provided shapefiles for existing culverts within the city limits, Garver identified culvert locations throughout the planning area outside of the city limits. This data was utilized during the initial drainage screening model process that will be discussed later in this report.

According to the received data, the City's stormwater system includes approximately 215,727 feet (40.9 miles) of total culvert length. This dataset includes public roadway crossings, private driveway culverts, and longer underground storm sewer pipes. The provided data also shows over 1.2 million feet (approximately 230 miles) of open channels, which includes roadside ditches and other small channels. In addition to this line type, the data includes a separate category for streams, showing over 53,00 feet (10 miles) of streams within city limits.



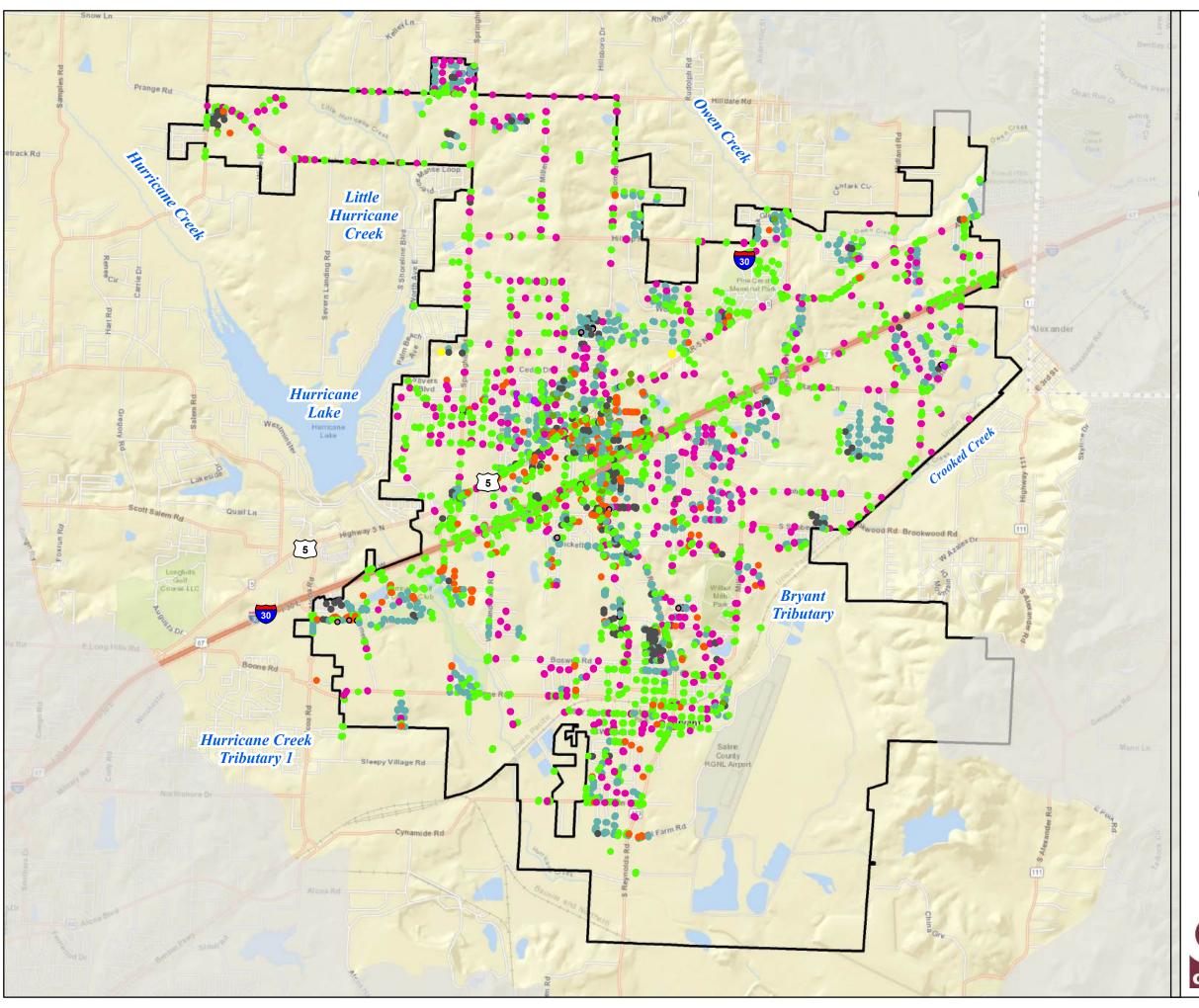
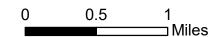


FIGURE 11.

GIS STORMWATER POINT DATA

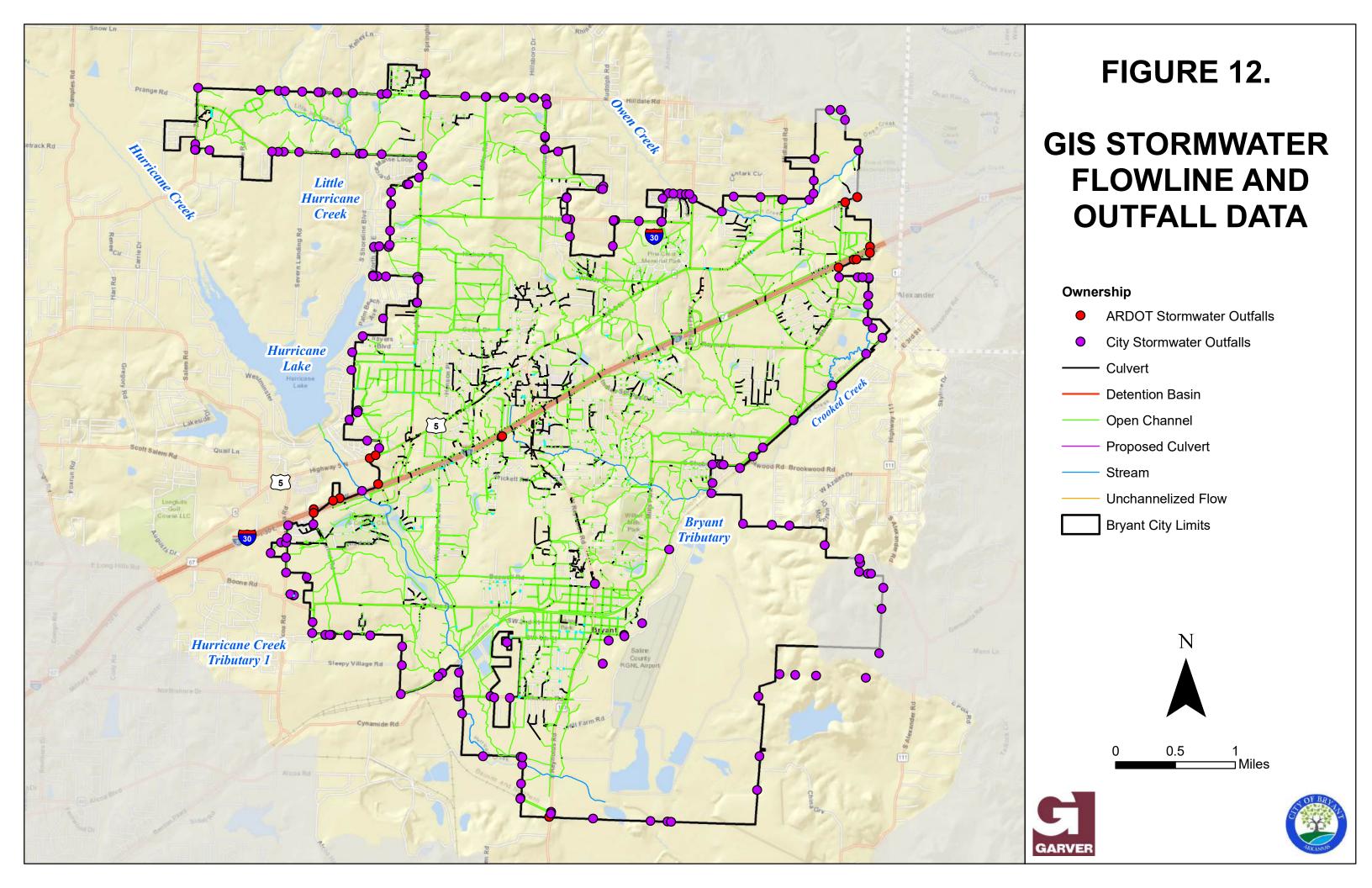
- BOX
- BOX (NO MANHOLE)
- CURB CUT
- DROP INLET (NO MANHOLE)
- END OF PIPE
- FLOW BREAK
- GRATE
- NOT ASSIGNED
- PROPOSED
- SW BOX NO ACCESS
- Bryant City Limits













3.5 GIS Data

The following table, **Table 13**, describes the GIS datasets collected for this CDMP, including those mentioned in previous sections of this report. Data was collected from a variety of sources, including the contracted GIS online platform, EFS GeoTechnologies (EFS) and publicly available websites, including the ESRI ArcGIS online platform.

Table 13. Collected GIS Datasets

Dataset	Description	Dataset Source
Bryant City Limits	Current city limit boundary	EFS
City Master Street Plan	Roadway lines and names	EFS
City Planning Area	Current planning area (ETJ)	EFS
City Proposed Zoning	Current proposed zoning map	EFS
City Special Zoning	Special zoning types	EFS
City Stormwater Outfalls	Drainage outfall locations along city limit boundary	EFS
City Stormwater Points	Drainage point locations throughout city limits	EFS
City Zoning Districts	Current existing zoning map	EFS
Saline County Parcels	Current parcel information for county	EFS
Subdivisions	Subdivision boundaries within city planning area	EFS
Average Daily Traffic Counts	Average Daily Traffic (ADT) information for roadways from ARDOT– dataset current through 2019	Arkansas GIS Office
HUC 8 Boundary	Hydrologic Unit Code (HUC) 8 watershed Boundary	USGS
Saline County DFIRM Data	Digital Flood Insurance Rate Map (DFIRM) data for Saline County, including floodplain boundaries, BFE lines, water lines, and other FEMA shapefiles	FEMA Map Service Center
Pulaski County DFIRM Data	Digital Flood Insurance Rate Map (DFIRM) data for Pulaski County, including floodplain boundaries, BFE lines, water lines, and other FEMA shapefiles	FEMA Map Service Center





Dataset	Description	Dataset Source
National Land Cover Data (NLCD)	Land cover dataset from 2019 from Multi- Resolution Land Characteristics Consortium (MRLC)	ESRI
Hydrologic Soil Group (HSG)	Hydrologic soil group (HSG) from Soil Survey Geographic Database (SSURGO)	ESRI
1-meter DEM lidar	1-meter Digital Elevation Model (DEM) lidar topography dataset for project area; data from 2016 USGS Ouachita dataset	Arkansas GIS Office

3.6 Existing Hydrologic and Hydraulic Models

Hydrologic and hydraulic studies have previously been performed for areas within the City of Bryant and the planning area. Available studies were collected and reviewed.

3.6.1 Hurricane Creek Basin Effective Studies

Since Hurricane Creek is a Zone AE mapped floodplain, Effective hydrologic and hydraulic (H&H) studies were available. A FEMA data request was submitted, and Effective data was received from FEMA on March 23, 2022. In addition to hydrologic and hydraulic models, Technical Support Data Notebooks (TSDN) for the Effective hydrologic and hydraulic studies were received. The hydrology TSDN was dated March 31, 2014, and the hydraulic TSDN was dated November 11, 2014.

The received hydrologic study for the Hurricane Creek Basin was performed in HEC-HMS version 3.5. The model extends from the headwaters of the drainage basin down to Highway 183 (Reynolds Road). The received model will be discussed in further detail in Section 4.1 of this report.

Multiple hydraulic models were received for streams in the Hurricane Creek Basin; received studies were both detailed and limited detail. According to the TSDN, detailed studies utilized survey data for structures, while limited detail studies utilized approximate structure data collected field visits. Additionally, while the 10-, 25-, 50-, 100-, and 500-year flood events were studied for the detailed study streams, only the 100- and 500-year events were studied in the limited detail studies. Detailed models were received for Hurricane Creek and Little Hurricane Creek. Limited detailed studies were received for Hurricane Creek Tributary 1, Hurricane Creek Tributary 1A, and Boswell Creek. All received models were performed in HEC-RAS version 4.1. **Table 14** describes the received models and their extents.





Table 14. Received Effective Hydraulic Models for Hurricane Creek Basin

Stream Name	Model Extents	Study Type
Hurricane Creek	From approximately 2,300 feet downstream of Zuber Road to Highway 183	Detailed
Little Hurricane Creek	From just downstream of Northlake Road to confluence with Hurricane Creek/Lake	Detailed
Hurricane Creek Tributary 1	Approximately 650 feet downstream of Winchester Drive to the confluence with Hurricane Creek	Limited Detail
Hurricane Creek Tributary 1A	Approximately 700 feet downstream of Boone Road to confluence with Hurricane Creek Tributary	Limited Detail
Boswell Creek	Just downstream of Boswell Road to confluence with Hurricane Creek	Limited Detail

3.6.2 Crooked Creek Basin Effective Studies

The Effective study for Crooked Creek was first described in the FIS Report for the City of Alexander, published on July 20, 1981. It explains that the Effective flows for Crooked Creek were calculated using NOAA Technical Papers 40 and 49, with the 500-year event extrapolated from the other values calculated.

The hydraulic study for Crooked Creek was performed using HEC-2, a hydraulic software that is now outdated. A FEMA data request was submitted, and data was received on April 22, 2022. The received information for Crooked Creek included scanned PDF documents with model input and output for portions of the creek. The scanned document received for Lettered Sections A and B was dated April 15, 1980. The document received for Lettered Sections C through F was dated May 25, 1993. The document received for the portion of Crooked Creek in Pulaski County was dated March 7, 1986.





In addition to scanned documents, a HEC-2 input file was received for the portion of Crooked Creek from Lettered Section C to F. This input file includes cross section geometry and flow data for the creek in this area. Though HEC-2 is an outdated software, the input file can be read in HEC-RAS for modeling purposes.

In addition to Crooked Creek itself, Crooked Creek Tributary, Bryant Tributary, and Trailer Park Ditch are also mapped as Zone AE, suggesting that detailed studies were performed for these streams as well. The 2020 FIS Report states that all three mapped tributaries to Crooked Creek were studied in 1996 using HEC-1 and HEC-2. No model files were received from FEMA for these three streams. The FIS Report only reports the 100-year flow rates; no other storm events are reported.

3.6.3 Owen Creek Basin Effective Studies

According to the 2020 FIS Report, Owen Creek was studied in April 2000 using HEC-1 to determine flow rates and HEC-RAS version 2.2 to determine floodplain extents and WSELs. A FEMA data request was submitted, and data was received on April 22, 2022. Two HEC-RAS models were received; one model includes a plan for running the 10-, 50-, 100-, and 500-year events, and the other models the floodway. The model geometries are not georeferenced. The FIS Report states that Owen Creek is modeled from approximately 1,000 feet upstream of Hilldale Road to the Pulaski County line.

No hydrologic model or data was received as part of the FEMA data request, but the 2020 FIS Report provides flow rates along Owen Creek.

3.7 City Master Plans and Regulations

The City has numerous master plans, regulations, and ordinances that affect drainage. These are described in the sections below.

3.7.1 Stormwater Management Manual

The City has a published Stormwater Management Manual that was adopted on December 17, 2019. According to the manual, its purpose is to "provide minimum standard for analysis, design, construction, and management of storm drainage facilities and pollution prevention" within the City. The general outline of the manual is as follows:

- Section 100: General Provisions
- Section 200: Drainage Planning and Submittal
- Section 300: Storm Water Management Policy
- Section 400: Storm Water Runoff





- Section 500: Open Channel Flow
- Section 600: Storm Sewer Systems
- Section 700: Street Drainage
- Section 800: Storm Inlets
- Section 900: Culverts and Bridges
- Section 1000: Detention Basins
- Section 1100: Sediment and Erosion Control

3.7.2 Stormwater Management Ordinance No. 2019-32/2020-23

The City of Bryant adopted Stormwater Management Ordinance No. 2019-32 and amended the ordinance as No. 2020-23. This ordinance provides minimum requirements for construction site erosion control and stormwater management for existing and future land development. The main purposes of this ordinance are as follows:

- 1. Protect and preserve waterbodies and their ecosystems from contaminants;
- 2. Ensure that Best Management Practices (BMPs) are used and maintained;
- 3. Mitigate flooding, erosion, and sedimentation;
- 4. Ensure illicit discharge detention and elimination;
- 5. Assure City compliance with state and federal requirements pertaining to the Federal Clean Water Act.

3.7.3 Saline County Hazard Mitigation Plan

The City of Bryant, along with other communities in the county, participated in the development of the Saline County Hazard Mitigation Plan (HMP), approved on September 14, 2017. The plan lists ways in which each community planned to incorporate the HMP into their own plans. It lists Bryant as anticipating the use of the HMP for the following areas related to stormwater and/or drainage: grant application documentation, subdivision management, budget, and building codes.

The plan lists potential mitigation projects for communities within the county. In order for a project to be receive FEMA funding, it must be included in this list. Two projects listed in the HMP that cover the City of Bryant are the following:





- F-26: Conduct drainage improvements at Stillman Loop, Union Pacific Railroad, and Hidden Creek;
- F-27: Conduct drainage projects in areas inside and outside the floodplain that require larger drainage improvements, elevation of roadway, or any other type of flood mitigation project.

F-27 covers any potential flood mitigation project that the City may want to receive FEMA funding for, including BRIC grant funding. The specific locations in F-26 will be investigated during the project identification task of Phase 1 of this CDMP.





4.0 Hydrology

In order to perform hydraulic analyses during Phase 1 and the subsequent Phase 2 of the CDMP, detailed hydrologic analyses were required throughout the city limits and planning area. The hydrologic analyses of each basin are discussed in the following sections.

4.1 Hurricane Creek Basin Hydrology

As was discussed in Section 3.6.1, the FEMA Effective hydrologic study for Hurricane Creek Basin was performed in HEC-HMS version 3.5. The model extends from the headwaters of the drainage basin down to Highway 183 (Reynolds Road).

Since the Effective model was performed in 2014, the model input was reviewed for ensure that it represents current conditions. It was found that the curve number (CN) and other parameters were still representative of the basin. However, the original model utilized TP-40 precipitation data, as the model was developed prior to the release of NOAA Atlas 14 data. Therefore, the model was updated to utilize Atlas 14 precipitation values. It was also run in the most recent version of HEC-HMS, version 4.10. When compared to the Effective FEMA flow rates, the updated flows were within 1.4% on average, with a maximum difference of 5.3%. **Table 15** provides the updated flows for Hurricane Creek Basin.





Table 15. Updated Summary of Discharges for Hurricane Creek Basin

		Drainage		Flo	w Rate (cfs)	
Location	on along Stream	area (sq mi)	10-yr	25-yr	50-yr	100-yr	500-yr
	Approximately 2,000 feet downstream of Congo Ferndale Road	5.69	2,021	2,612	3,055	3,510	4,606
	Immediately downstream of Samples Road	11.76	3,684	4,910	5,832	6,787	8,962
	Approximately 1,000 feet upstream of Zuber Road	13.85	3,908	5,242	6,250	7,300	9,765
Hurrican e Creek	Hurricane Creek (Upstream of Hurricane Lake)	17.73	5,152	7,013	8,519	10,17 4	14,13 8
e Creek	Hurricane Lake Outfall	24.88	8,684	11,69 7	14,07 6	16,59 3	22,63 3
	Immediately upstream of Interstate 30	28.05	10,41 0	13,96 7	16,68 1	19,49 4	26,55 0
	Immediately upstream of Boone Road	30.88	10,56 7	13,99 5	16,77 3	19,76 2	27,05 1
	Immediately upstream of Cynamide Road	34.55	10,92 6	14,72 4	17,68 7	20,81	28,51 1
	Immediately upstream of State Highway 183	36.83	10,82 7	14,82 5	17,95 1	21,25 6	29,35 3
Little	Just downstream of Northlake Road	4.11	2,673	3,431	3,981	4,534	5,798
Hurrican e Creek	Just upstream of Hurricane Lake	6.59	3,778	4,937	5,775	6,654	8,669





4.2 Crooked Creek Basin Hydrology

As described in Section 3.6.2, the Effective flows for Crooked Creek were calculated using NOAA Technical Papers 40 and 49, with the 500-year event extrapolated. However, Garver was contracted to perform an updated hydrologic analysis for the Bryant Parkway project. Garver developed an HEC-HMS model for Crooked Creek from the headwaters to the western Union Pacific Railroad crossing near Trailer Park Ditch. For the CDMP, this model was utilized and extended to the Effective FEMA extents at the Pulaski County line.

Table 16 provides the updated flows for Crooked Creek Basin. Flows determined in the updated Garver model were compared to Effective flows used in the Effective hydraulic model, which included only the 1% AEP event. By comparison, most locations were within 2% of the flow in the Effective model. However, two locations, near the Union Pacific Railroad (west crossing) and Linden Drive, were 10.8% and 17.3% different. The differences in these locations are likely due to the split flow between Crooked Creek and Trailer Park Ditch. Garver conducted a 2-dimensional (2D) hydraulic model of basin that provides a more representative flow distribution in this area. The 2D model will be discussed later in this report.





Table 16. Updated Summary of Discharges for Crooked Creek Basin

Crooked Creek At Unnamed Tributary 2 (n Crooked Creek Tributary Bryant Tributary	Location along	Drainage												
	Stream	Area (sq mi)	10-yr	25-yr	50-yr	100-yr	500-yr							
	~1,200 feet downstream of Reynolds Road (Hwy 183)	0.49	842	1,007	1,132	1,252	1,519							
	~630 feet upstream of Mill Park Road	1.40	2,221	2,687	3,025	3,363	4,151							
	At Union Pacific Railroad - West Crossing	2.38	2,834	3,548	4,073	4,598	5,846							
	At Linden Drive	3.30	3,494	4,469	5,191	5,923	7,628							
	At Brookwood Road	3.49	3,614	4,640	5,403	6,173	7,963							
	At Union Pacific Railroad - East Crossing	7.79	5,718	7,427	8,791	10,211	13,586							
	At Alexander Road (Hwy 111)	9.71	6,165	8,072	9,613	11,240	15,070							
	At Highway 5	0.65	848	1,034	1,172	1,309	1,610							
Unnamed	~2,100 feet downstream of I-30	1.45	1,885	2,285	2,579	2,870	3,561							
	Tributary at confluence with Crooked Creek (near Shobe Road)	2.68	2,461	3,023	3,442	3,898	4,976							
Creek	Tributary at confluence with Crooked Creek (at Dell Drive)	0.28	618	736	825	910	1,096							
	Tributary at confluence with Crooked Creek	0.64	780	993	1,156	1,309	1,659							
Trailer Park Ditch	Ditch at confluence with Crooked Creek (at Union Pacific Railroad)	0.21	270	351	414	477	617							





4.3 Owen Creek Basin Hydrology

According to Section 3.6.3, the Effective model for Owen Creek was developed in HEC-1. A model was not received as part of the FEMA data request. A new HEC-HMS was developed for the CDMP. **Table 17** provides the updated flows for Owen Creek.

Table 17. Updated Summary of Discharges for Owen Creek Basin

l costion clong	Drainage			Flo	w Rate	(cfs)		
Location along Stream	Area (sq mi)	2-yr	5-yr	10-yr	25-yr	50-yr	100- yr	500-yr
Just downstream of Hillsboro Road	1.45	841	1,17 0	1,45 4	1,84 6	2,147	2,450	3,127
At Hilldale Road (E-W)/ Midland Road	2.46	1,07 5	1,50 8	1,90 9	2,49 1	2,956	3,424	4,480
Just upstream of Owen Creek Tributary	3.12	1,118	1,60 0	2,02	2,64 0	3,131	3,666	4,894
Just downstream of Owen Creek Tributary	4.37	1,81 7	2,56 3	3,20 7	4,16 2	4,887	5,627	7,375
At Hilldale Road (N-S)	4.54	1,86 4	2,61 5	3,26 3	4,22 3	4,954	5,732	7,512
At Midland Road	5.26	2,16 2	2,94 8	3,55 2	4,45 1	5,174	5,924	7,872
Near confluence with Fourche Creek	5.93	2,10 3	2,90 7	3,58 1	4,50 9	5,257	6,078	8,095

Flows calculated in the HEC-HMS model were compared to those published in the Effective FIS Report for Owen Creek. Published flows for the 1% AEP were on average about 22% greater than Effective flows. All published flows were less than those calculated in the HEC-HMS model. Differences in calculated and published values are most likely due to a combination of reasons, including significant development in the drainage basin since the original calculations were performed and changes in calculation methodologies between HEC-1 and HEC-HMS.





5.0 Initial Drainage Study Screening

An initial drainage study screening was performed for the City and planning area. This was done by developing a simplified 2D hydraulic model of each subbasin. The purpose of these models was to understand the overall flow patterns of each basin, develop flood mapping for multiple storm events for the entire City, and quantify flood risk by developing a flood severity index. The results of the severity index were then combined with results from the resident drainage issue database to identify locations for further study in Phase 2 of the CDMP.

The initial screening models were developed for each major basin, with one model for each of the following basins:

- Little Hurricane Creek
- Hurricane Creek
- Crooked Creek
- Owen Creek

The modeling methods and assumptions are described in the following section.

5.1 Methodology

The initial screening models were developed using a 2D hydraulic modeling software generated in U.S. Army Corps of Engineers' (USACE) HEC-RAS software version 6.2. As the developed models are intended to understand overall drainage patterns and identify potential problem locations, the model geometries were simplified to meet this purpose. Therefore, the developed screening models utilize lidar topography to represent all hydraulic structures, and culverts and bridges were not explicitly modeled. This approach is common for watershed-based modeling; more detailed modeling will be conducted in Phase 2 for design purposes.

5.1.1 2D Mesh Development

The 2D mesh for each model was structured so that the elements are larger outside of the floodplain and in higher elevations, which are less likely to be inundated during the model simulations. The element density is generally the greatest at bridge openings, roadway embankments, and major streams. A finer mesh (more nodes and elements) will lead to longer model runtimes (the time it takes to process results). The mesh for each model was developed to produce acceptable results but minimize excessive runtimes. The mesh contains cells with a minimum cell size of 15 feet and a maximum cell size of 60 feet.





The main channels were represented with rectangular adaptive mesh elements that are generally elongated in the direction of flow along the channels. Likewise, roadway embankments are generally represented by quadrilateral elements. The remainder of the mesh is composed of hexagonal non-adaptive elements. Breaklines were drawn along the thalweg of smaller channels to ensure that the channels were represented in the mesh. Breaklines were also used to define significant changes in topography and to adjust the mesh density where appropriate.

5.1.2 Surface Terrain Data

The terrain data for the 2D model was built from 2016 USGS Ouachita dataset 1-meter Digital Elevation Model (DEM) lidar topography. This elevation data is publicly available through the Arkansas GIS Office. Because the models were built for screening uses and not design, detailed crossing structure data was not used. Instead, the terrain was modified to include channels through the roadway with the same structure width observed in aerial imagery. This allows flow to pass while still showing the ponding effects at crossings.

5.1.3 Curve Numbers

Since the model uses rain-on-mesh methodology, infiltration needed to be represented. The SCS Curve Number Method was utilized as the infiltration method. Curve numbers (CN) were determined using aerial imagery, USGS hydrologic soil groups, and the 2019 National Land Cover Database (NLCD), available from USGS. This dataset was checked against the most current aerial imagery and updated as needed to reflect any newly developed areas. A 10-foot resolution CN raster was used as an input for the model.

5.1.4 Manning's Roughness Coefficients

The roughness coefficients for the project domain were set using a Manning's n gridded dataset. The land use types and corresponding Manning's n roughness coefficients are listed in **Table 18**. The Manning's n values used for the non-channel areas were derived from the HEC-RAS Users' Manual as well as the modeler's previous experience with rain-on-mesh 2D models.





Table 18. Screening Model Land Use Types and Roughness Coefficients

Land Use Type	Manning's <i>n</i> Value
Channel	0.05
Developed, Low Intensity	0.0678
Emergent Herbaceous Wetlands	0.1825
Developed, High Intensity	0.0404
Cultivated Crops	0.037
Developed, Medium Intensity	0.0678
Developed, Open Space	0.0404
Deciduous Forest	0.36
Evergreen Forest	0.32
Mixed Forest	0.4
Herbaceous	0.368
Hay-Pasture	0.325
Shrub-Scrub	0.4
Woody Wetlands	0.086
Barren Land	0.0113

5.1.5 Boundary Conditions

The 5-, 10-, 50-, and 100-year storms were analyzed in unsteady flow conditions with rain-on-mesh precipitation. A 1-minute interval precipitation hyetograph for each storm event was generated in HEC-HMS using NOAA Atlas 14 data. The Atlas 14 rainfall values utilized for the City were discussed in Section 3.1.2.2, with values in **Table 2**. The downstream boundary conditions for each model were set to normal water surface elevation (WSEL) with a downstream energy-grade slope that was estimated from lidar data in the downstream channel bottom slope.

5.1.6 Model Controls

Each model was set to run for three days to allow the hydrographs to peak and reach their descending limb. The time step was controlled by courant condition. Arbitrary start dates and times were selected. Diffusion Wave was used for the governing 2D hydraulic equations.





5.2 Initial Screening Model Results

The results of the 2D models were reviewed to determine the existing flow patterns throughout the City. To identify existing drainage deficiencies, a flood severity index was developed based on the 2D model results. Flood depth and velocity were used to determine flood severity levels.

The hydraulic parameters were calculated in the HEC-RAS sub-program RASMapper and categorized using the flood severity index described in **Table 19** and **Figure 13**.

Table 19. Flood Severity Index Classes

Class	Description	Depth <i>y</i> (ft)	Velocity <i>v</i> (ft/s)
FS0	Minimal severity	< 0.5	-
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0





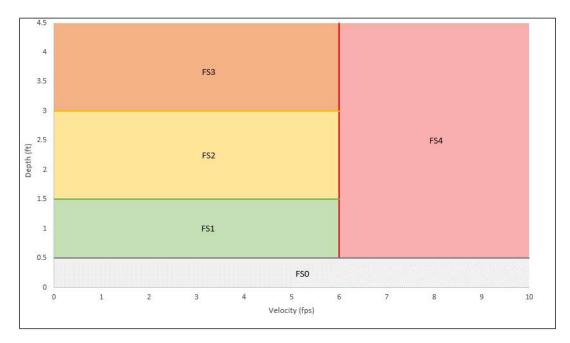
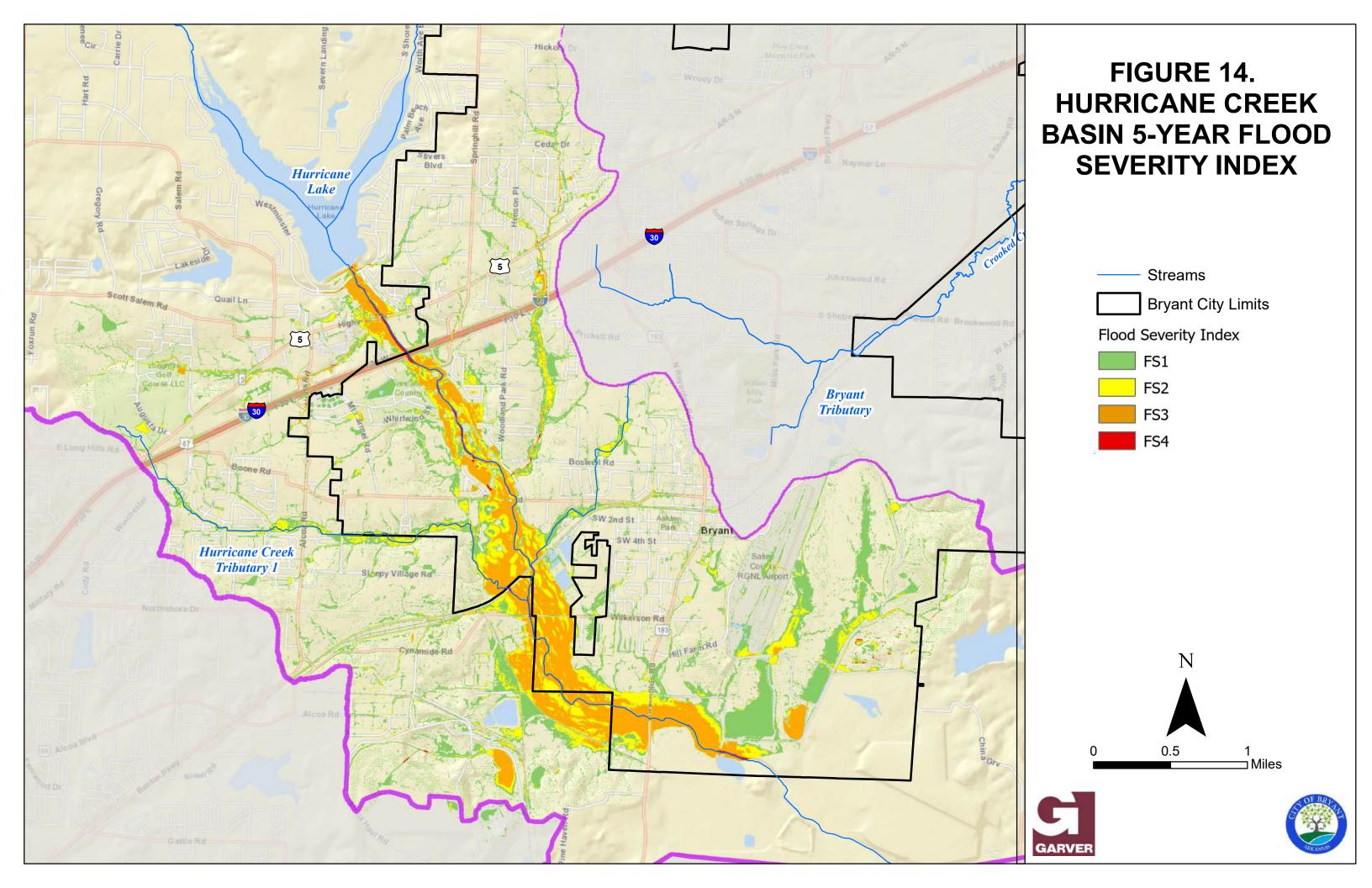
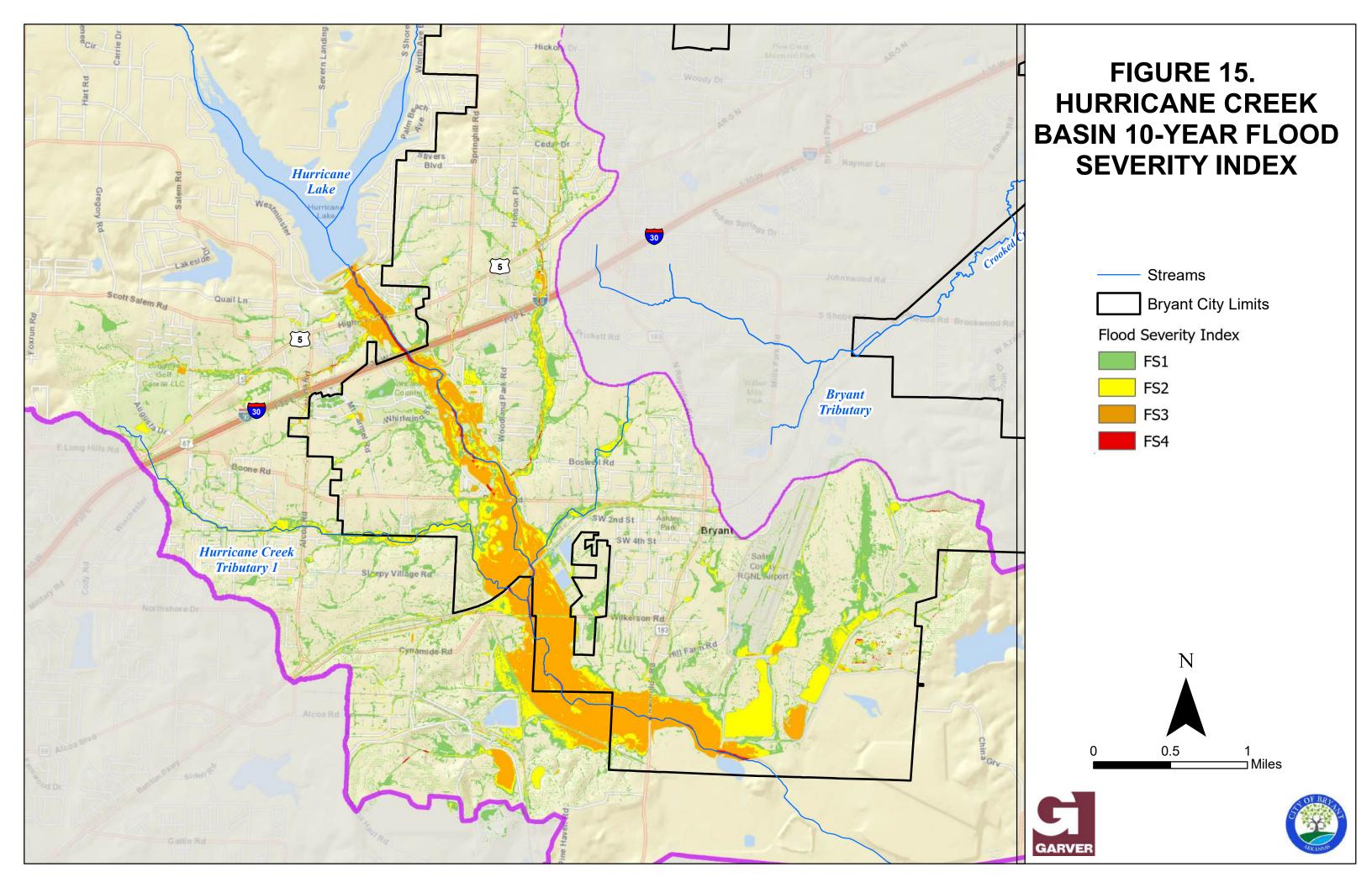


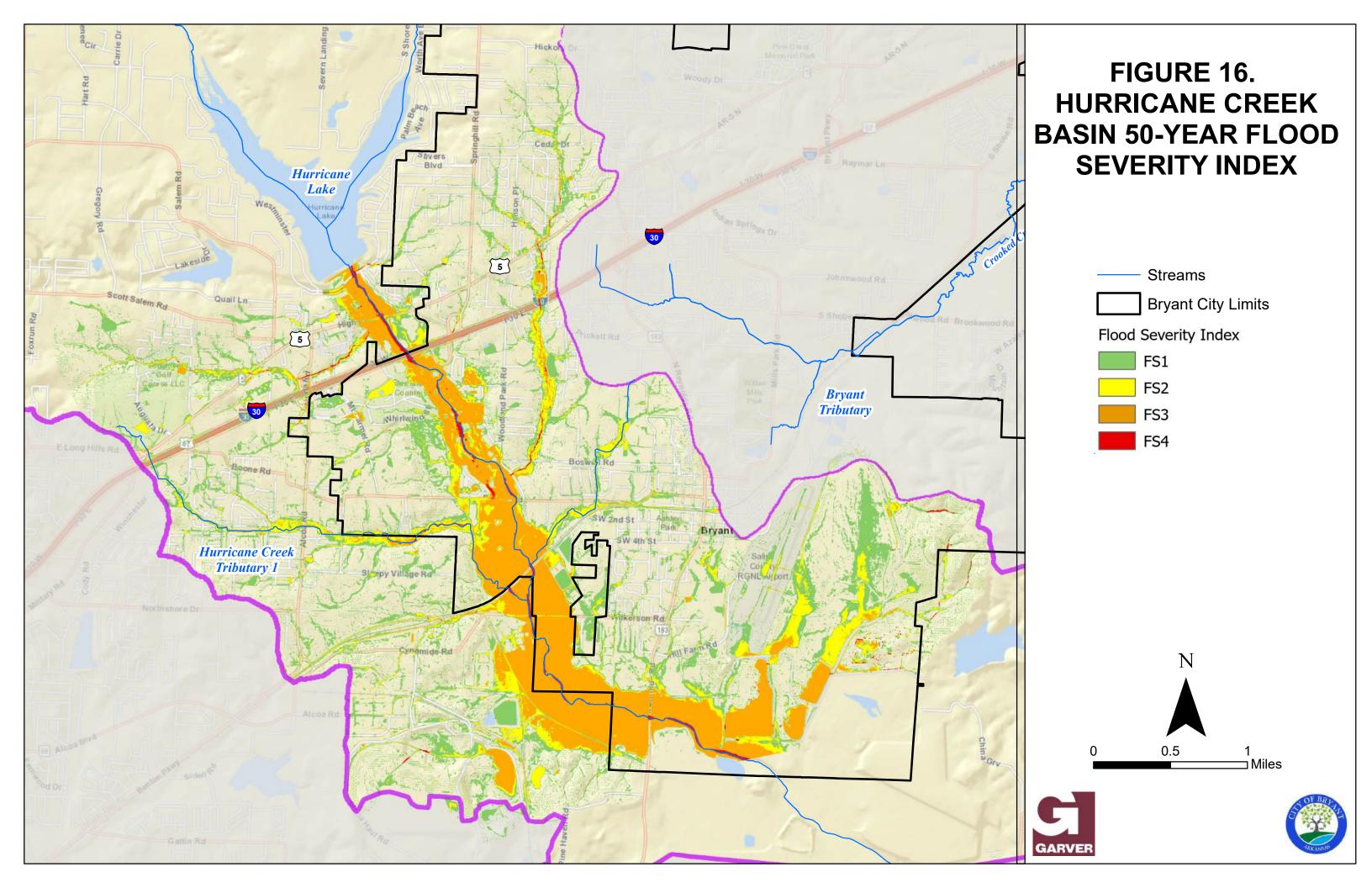
Figure 13. Flood Severity Index Graph

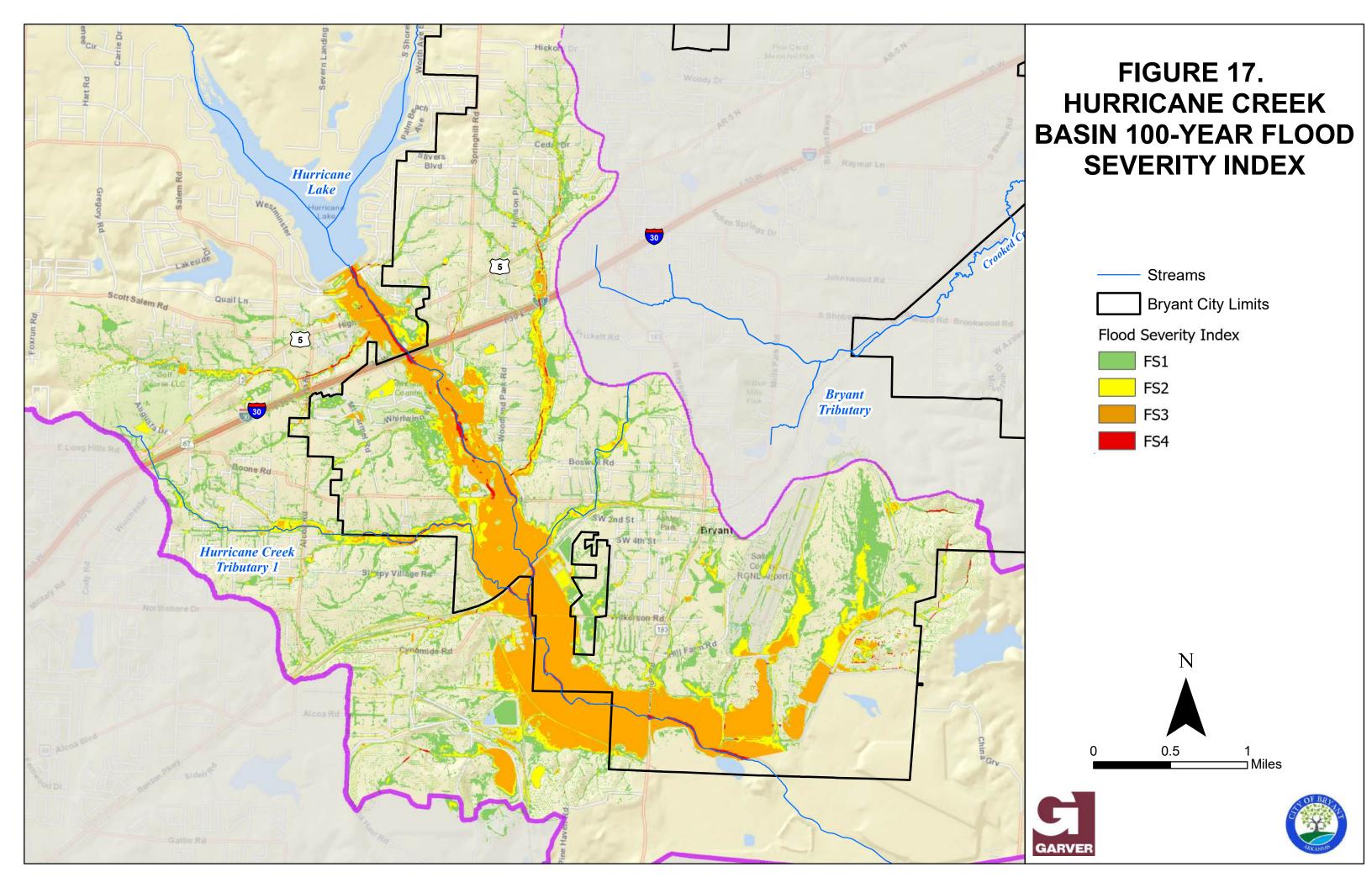
The flood severity for each basin was plotted for the 5-, 10-, 50-, and 100-year events. This allowed for severity to be plotted for more frequent events as well as the less frequent, larger storm events. The flood severity for the four analyzed events in the lower Hurricane Creek Basin are mapped in **Figure 14** through **Figure 17**. Because of the selected modeling boundary, Little Hurricane Creek Basin was modeled separately. The four analyst events for Little Hurricane Creek Basin are mapped in **Figure 18** through **Figure 21**. Crooked Creek Basin is mapped in **Figure 22** through **Figure 25**, and Owen Creek Basin in **Figure 26** through **Figure 29**.











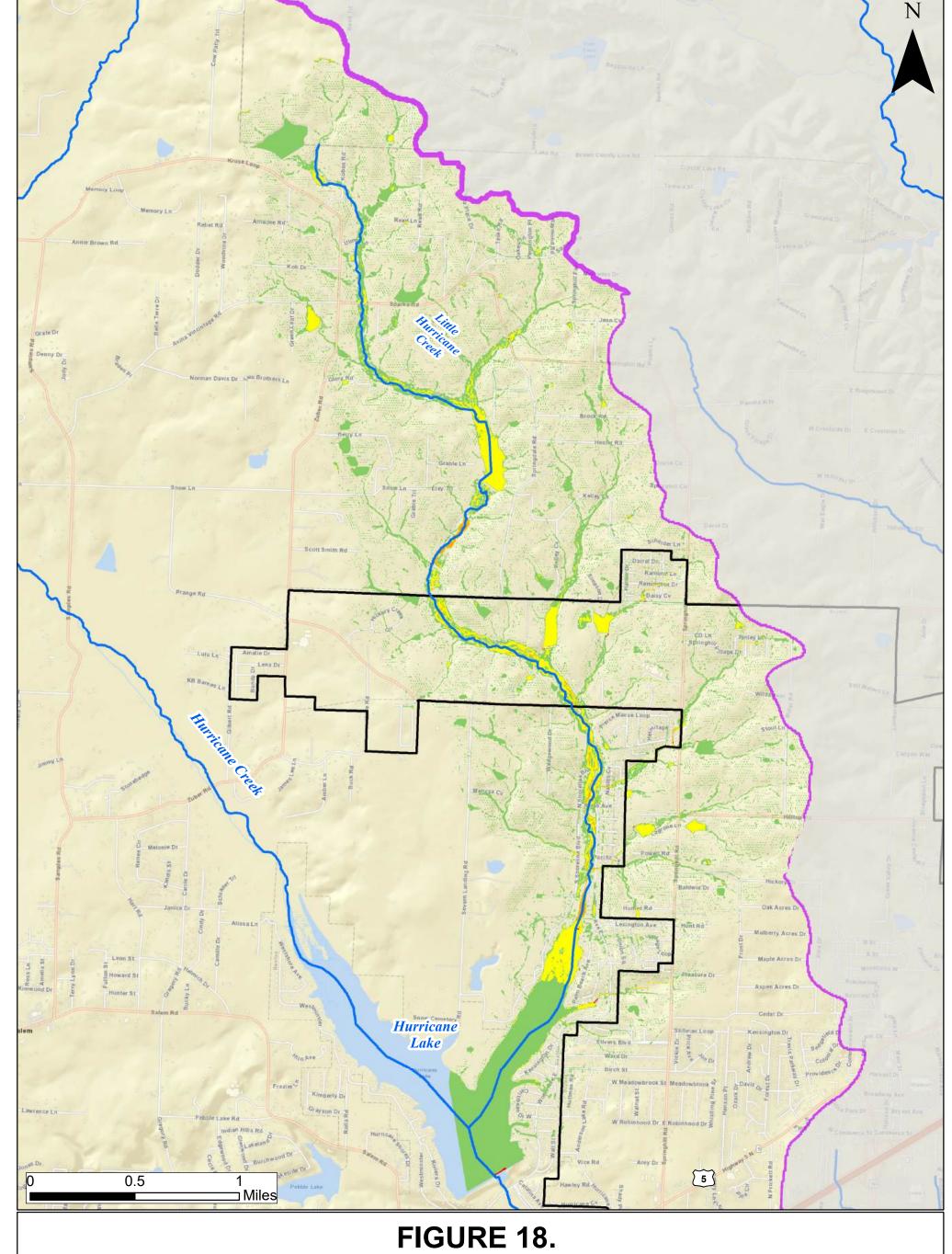
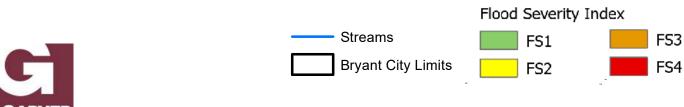
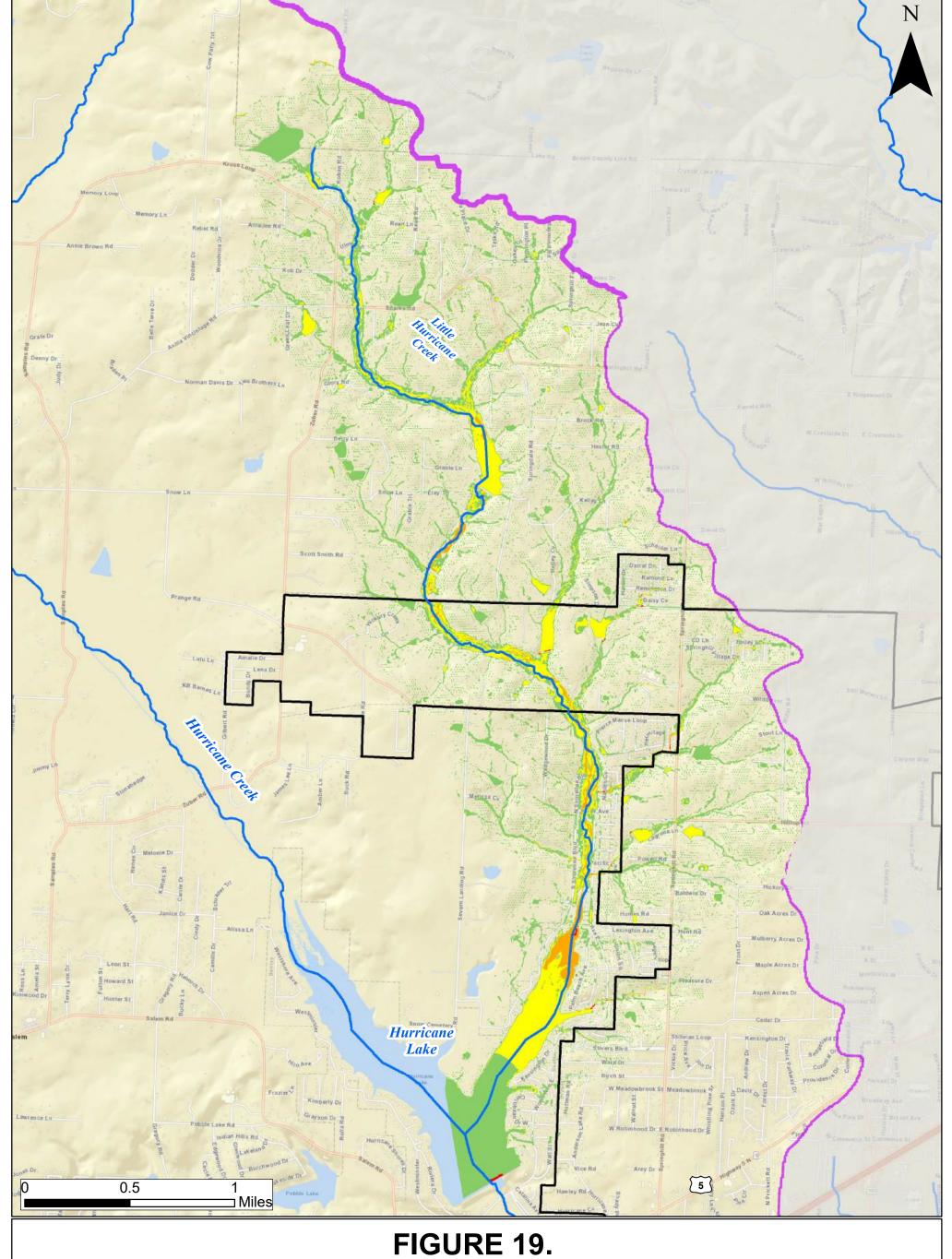


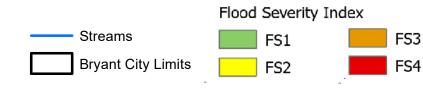
FIGURE 18. LITTLE HURRICANE CREEK BASIN 5-YEAR FLOOD SEVERITY INDEX





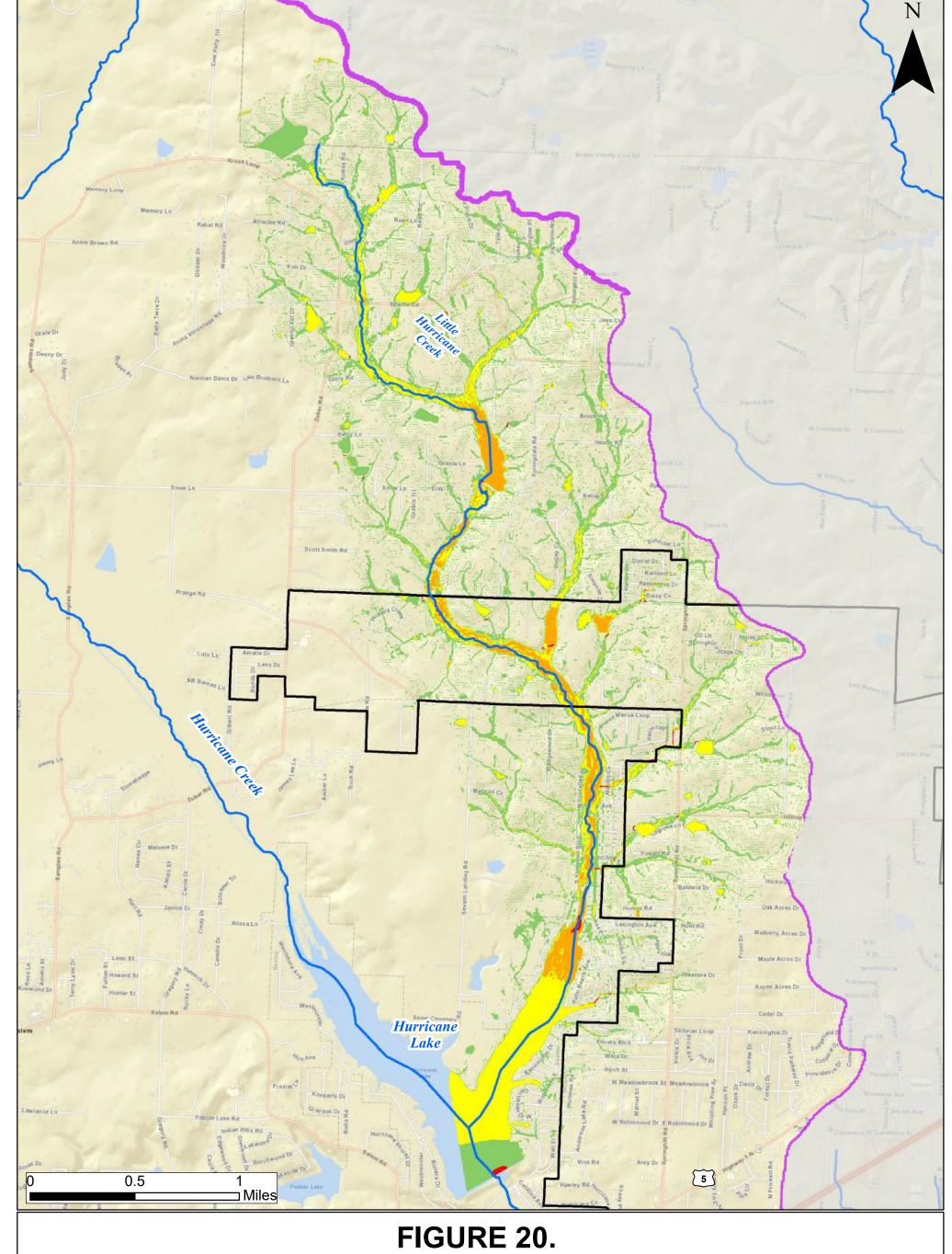


LITTLE HURRICANE CREEK BASIN 10-YEAR FLOOD SEVERITY INDEX







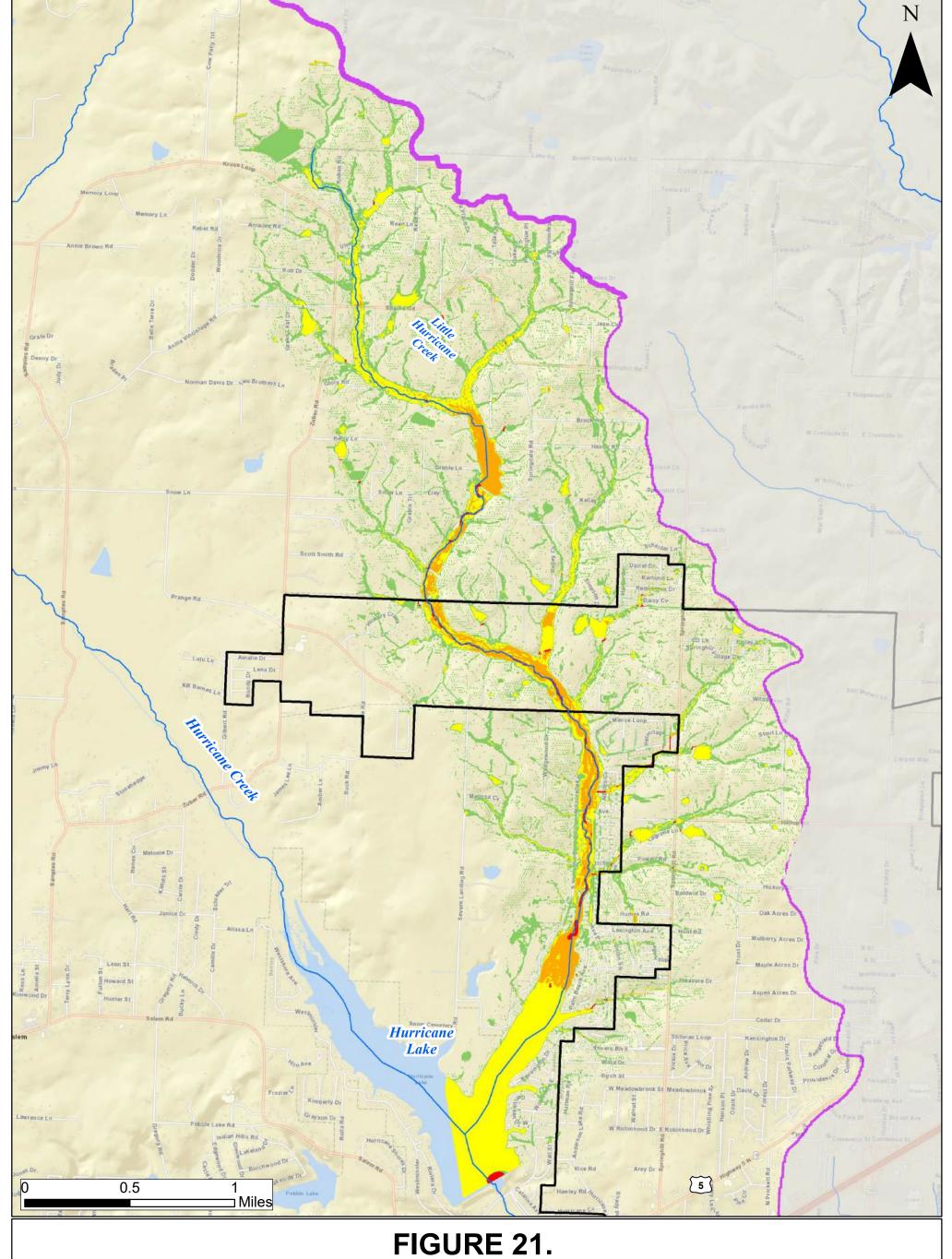


LITTLE HURRICANE CREEK BASIN 50-YEAR FLOOD SEVERITY INDEX

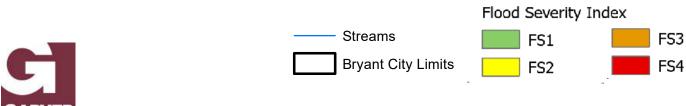




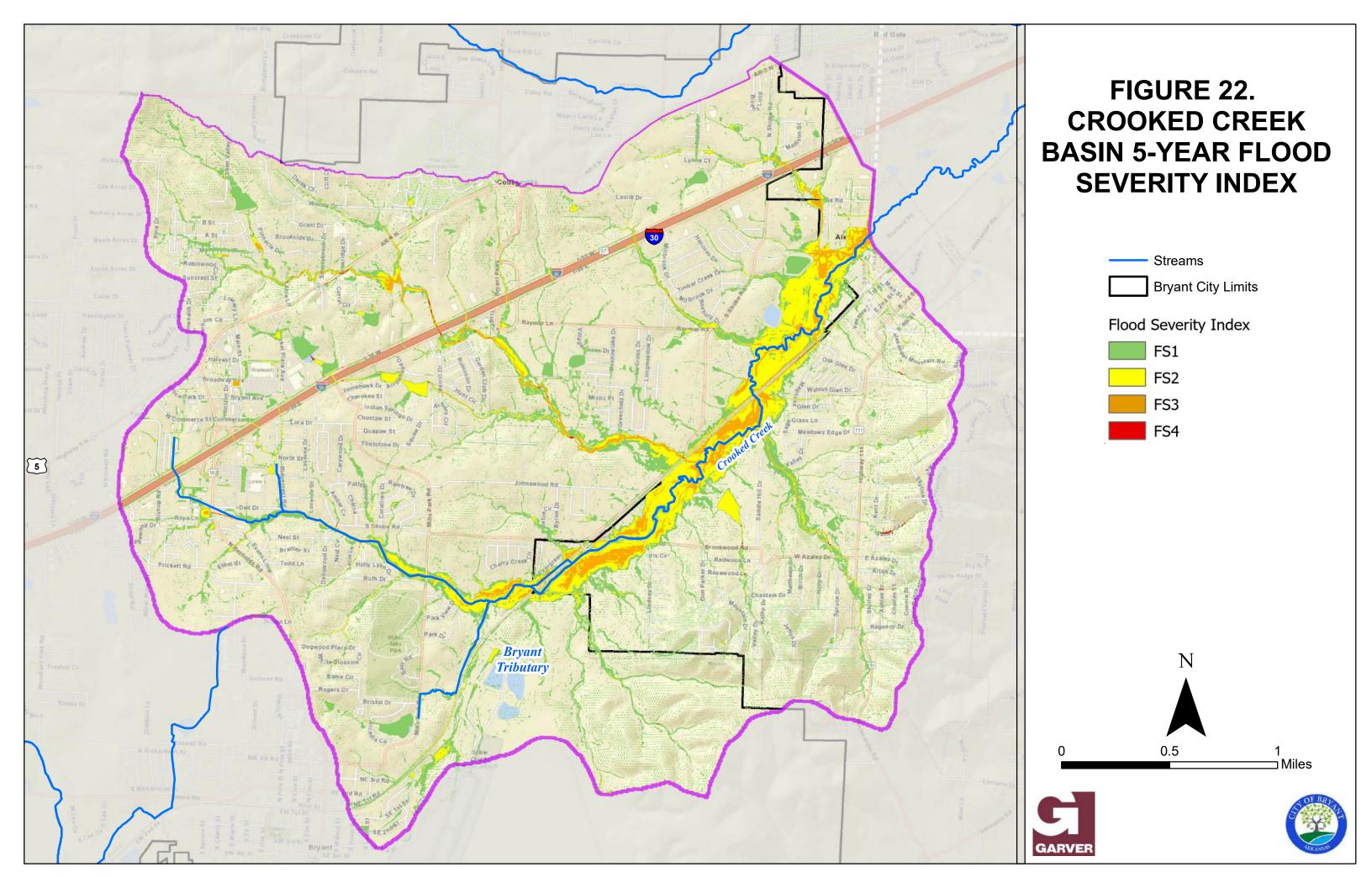


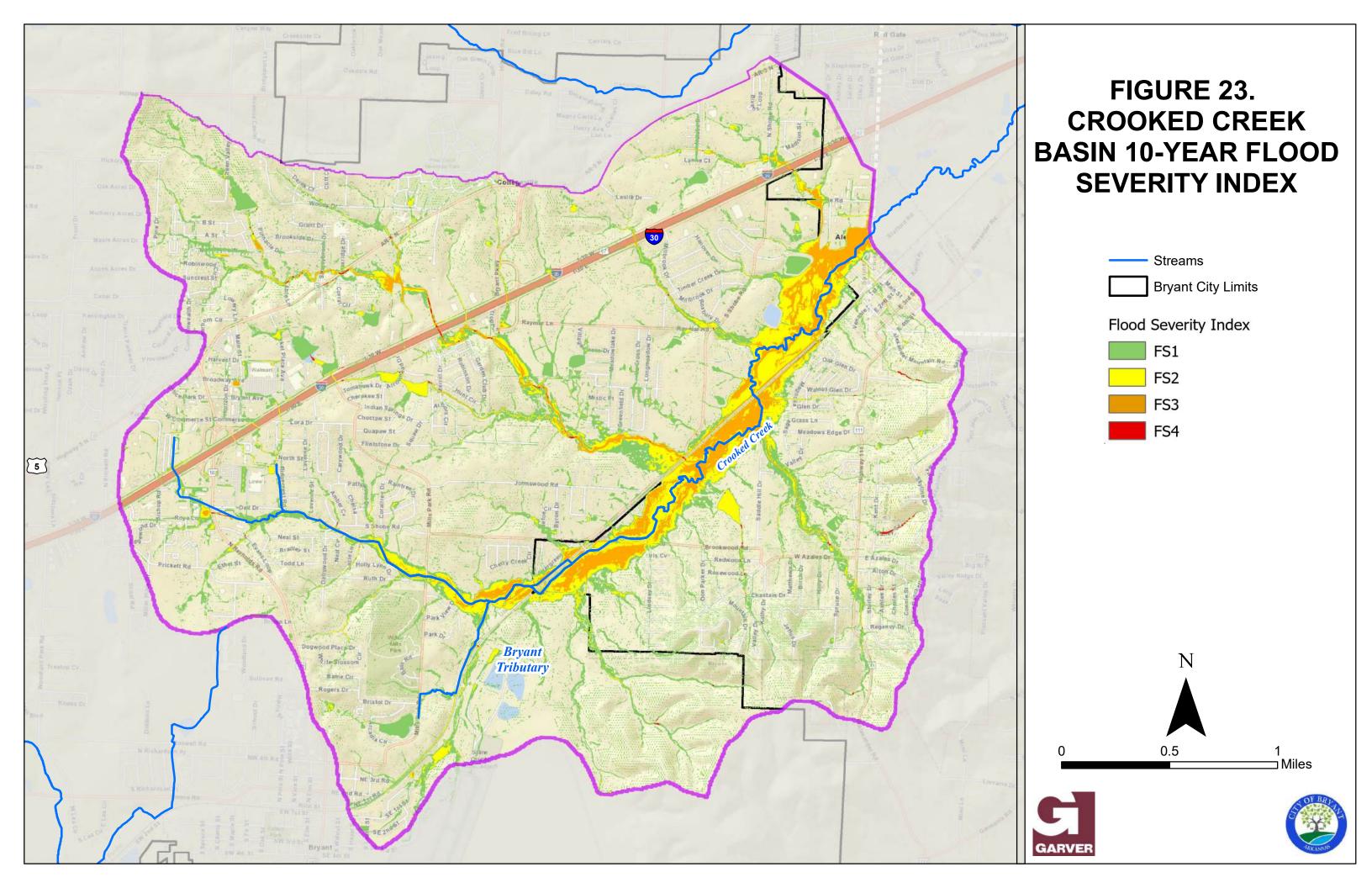


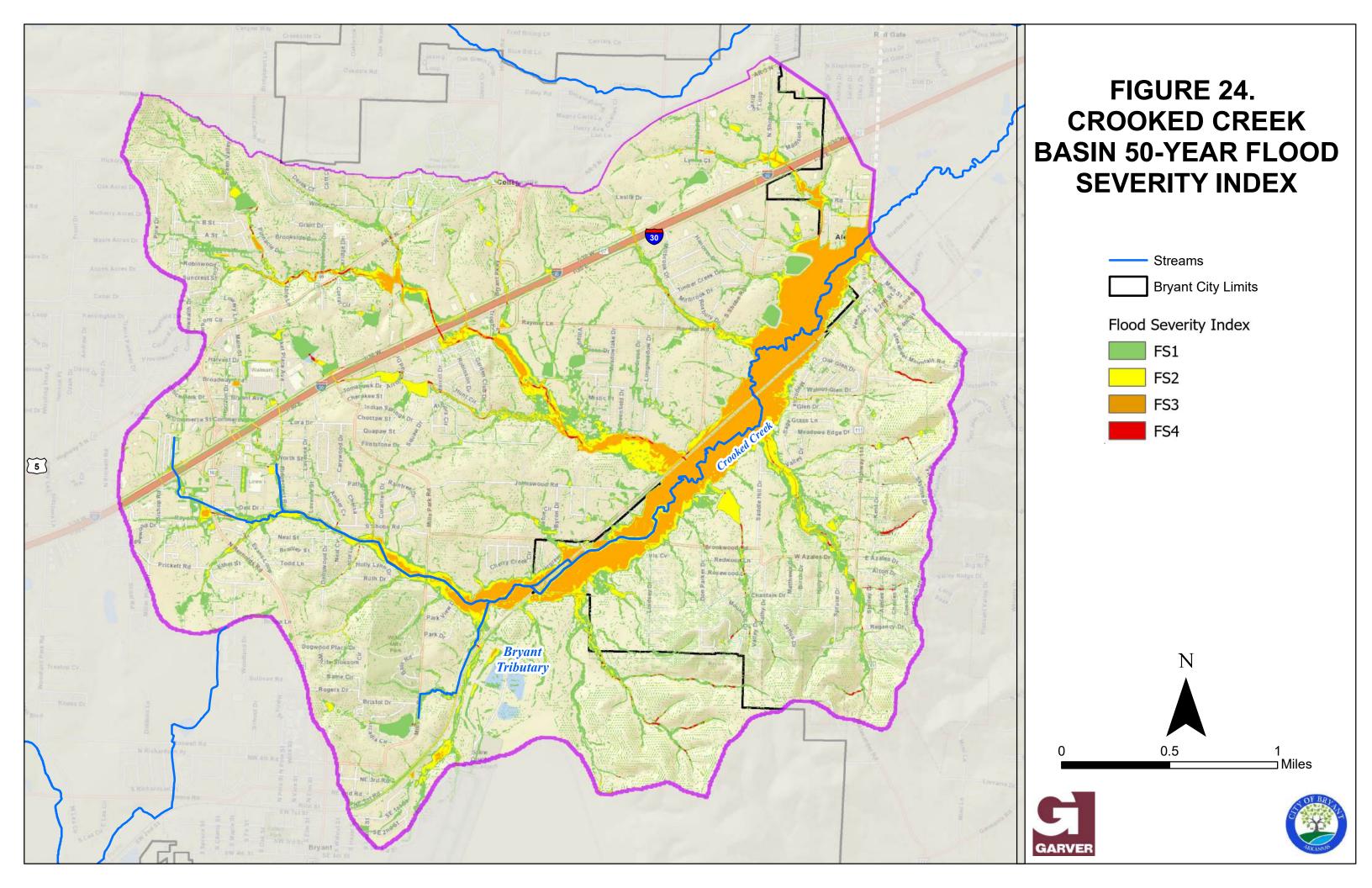
LITTLE HURRICANE CREEK BASIN 100-YEAR FLOOD SEVERITY INDEX

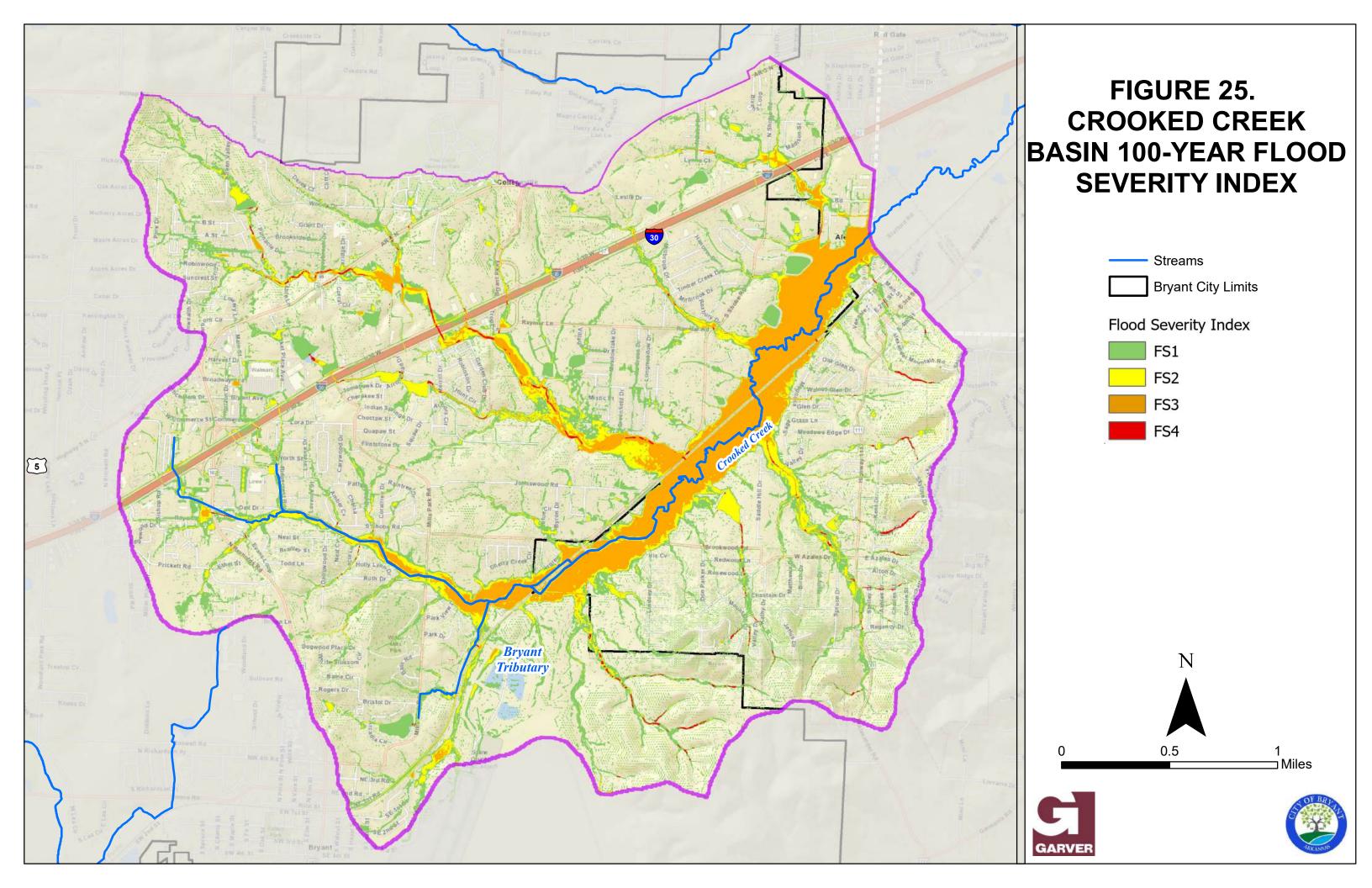


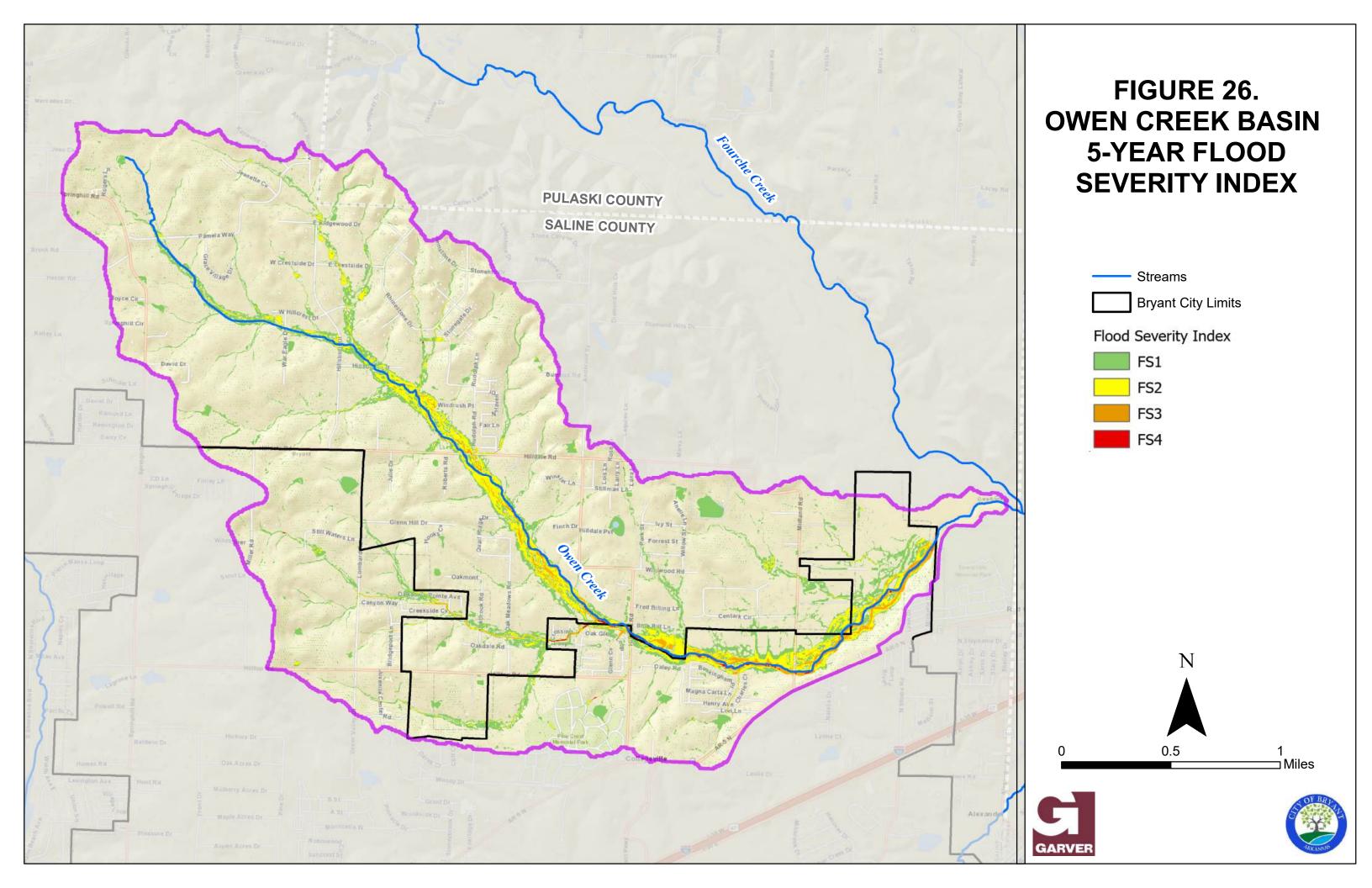


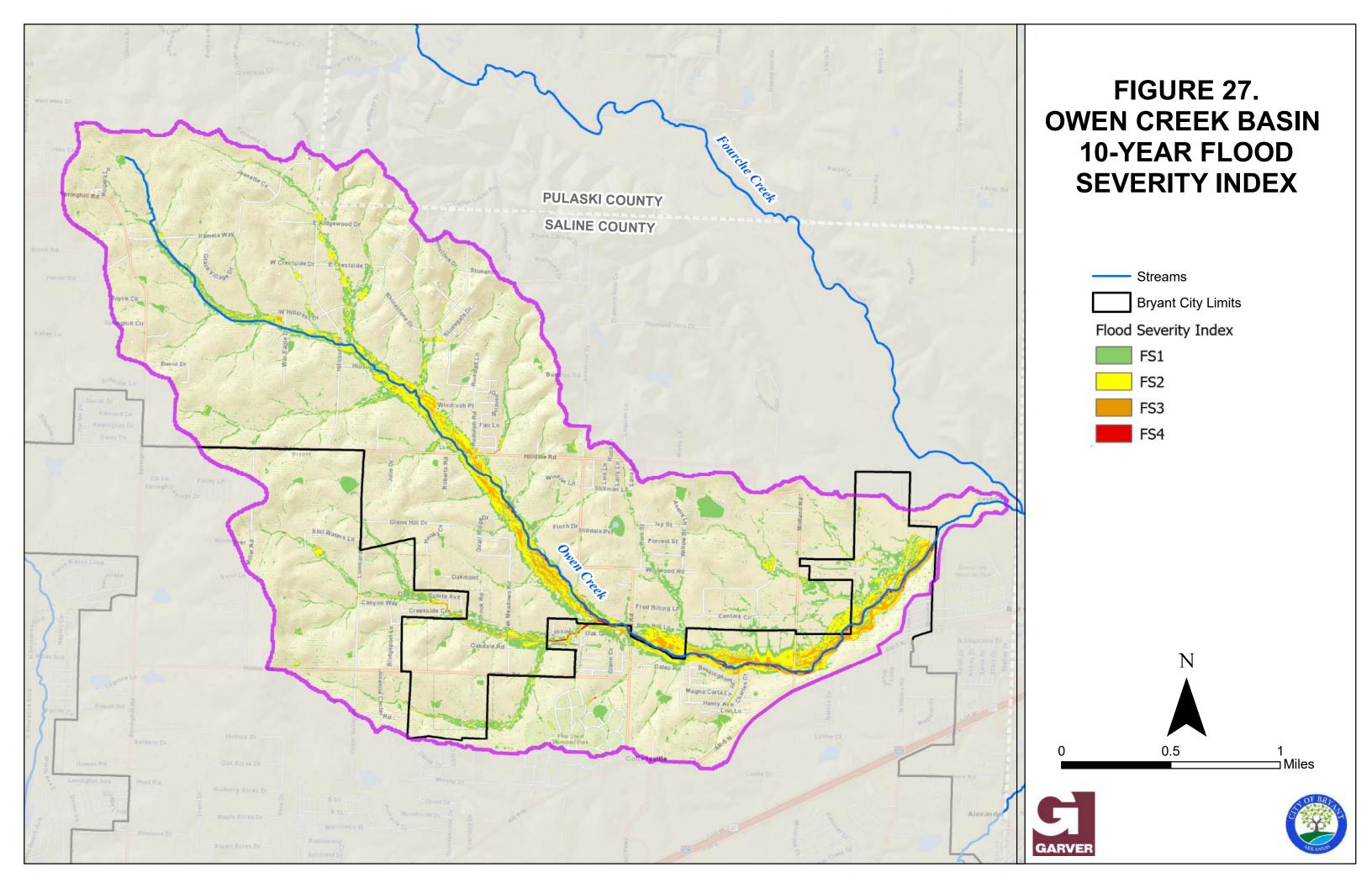


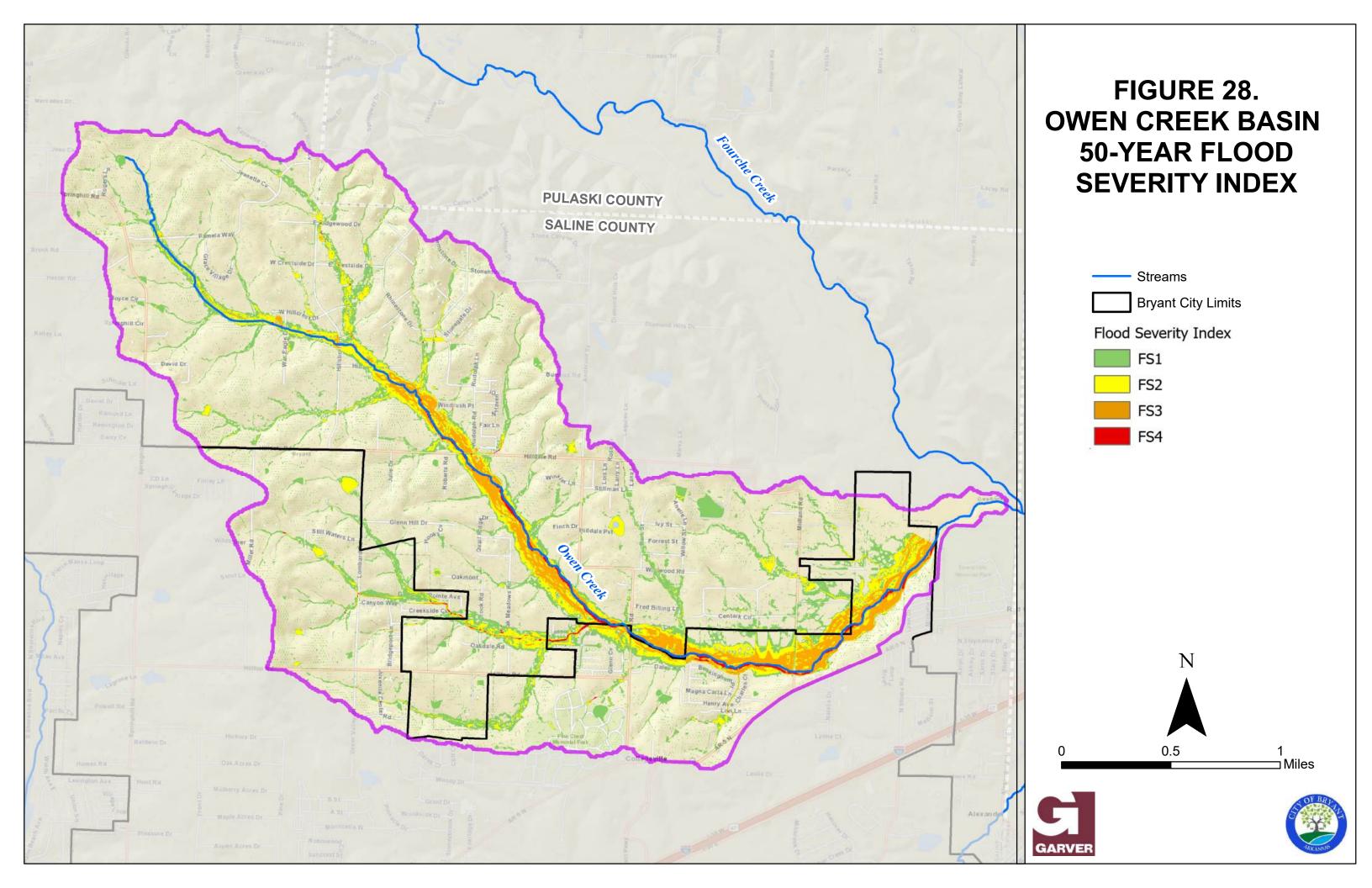


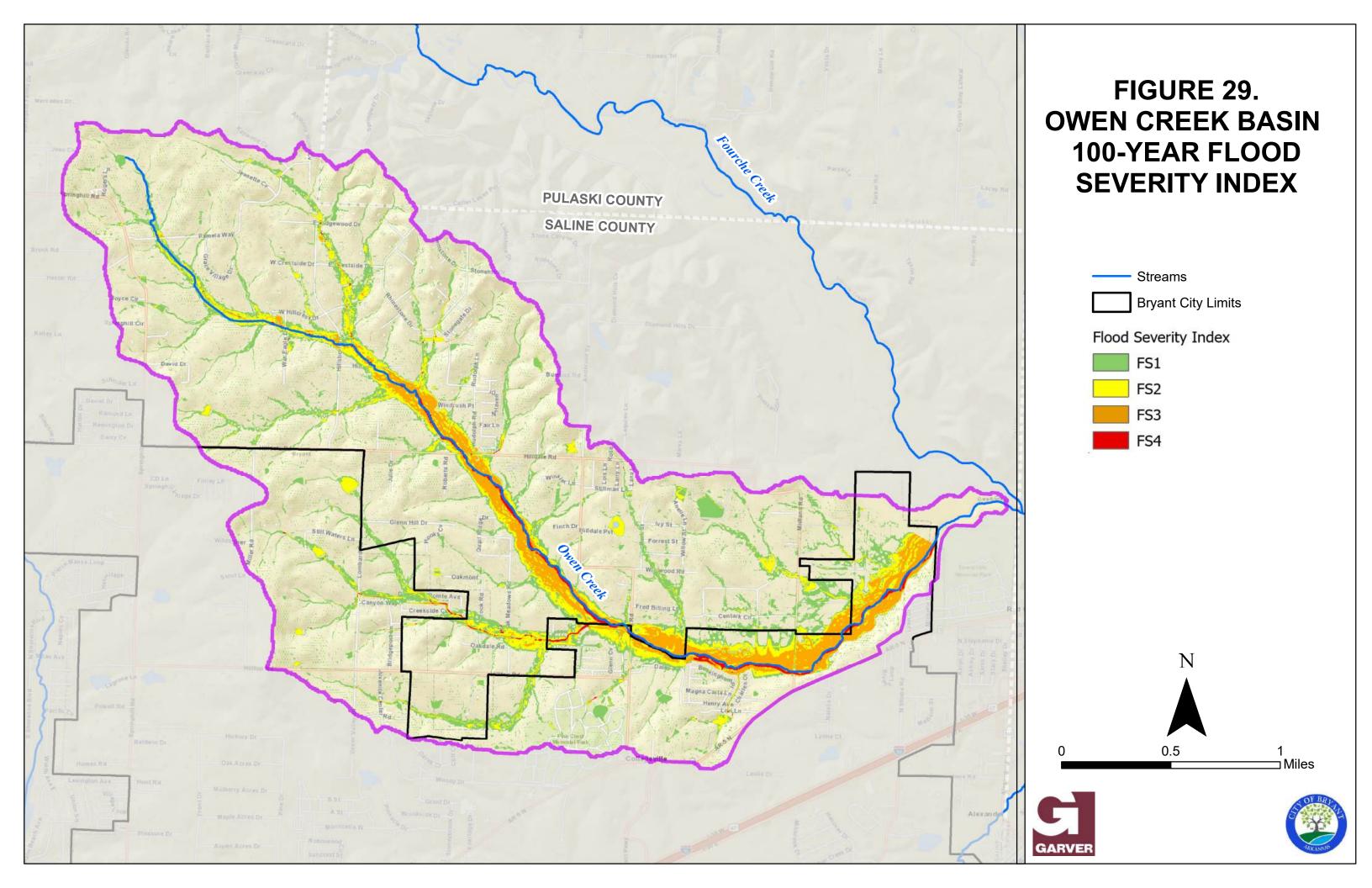














5.3 Areas For Further Study

The mapping provided in the previous section was reviewed to identify areas of concern. Locations within the flood severity mapping for all modeled storm events were reviewed against aerial imagery and lidar data. Parameters considered during the problem area identification process included the following:

- Roadway overtopping by any storm event;
- Inundation of home or other building by any storm event;
- Identification of drainage issue by resident comment;
- Documentation of historic flooding, as discussed in Section 3.1.1 of this report;
- Roadway or home/building located within a FEMA flood hazard mapped area.

If a location was initially identified by one or more of the parameters listed above, the area was then reviewed further to determine if it warranted further study. Initially, 38 locations were identified. These locations were provided to the City for discussion, including verification of potential drainage problems. After City verification, the list was reduced to 16 locations for further study. These locations are listed in **Table 20**.





Table 20. Identified Potential Drainage Problem Locations

						Sev	od erity dex	,	Re Con
ID	Location	Stream Name	Basin	Potential Drainage Issue	5 yr	10 yr	50 yr	100 yr	Resident Comments
5	Sherwood Estates/ Northridge Ph 2/Forest Cove/Springhill Manor	Unnamed Tributary to Shoal Creek	Hurricane Creek	Neighborhood flooding	1	1	1	2	7
6	Forest Cove/Sunset Meadows	Shoal Creek	Hurricane Creek	Neighborhood flooding	1	1	2	2	10
7	Hidden Creek Drive	Shoal Creek	Hurricane Creek	Roadway overtopping; home flooding	1	1	2	2	3
8	Rodeo Drive	Shoal Creek	Hurricane Creek	Home flooding	1	2	2	2	1
10	Boone Road	Hurricane Creek	Hurricane Creek	Roadway overtopping; home flooding	2	3	3	3	0
12	Boone Road (near Richardson Place)	Boswell Creek	Hurricane Creek	Roadway overtopping; home flooding	1	1	2	2	1
13	Lea Circle	Boswell Creek	Hurricane Creek	Roadway overtopping; home flooding	3	3	3	3	3
14	Cynamide Road	Hurricane Creek	Hurricane Creek	Roadway overtopping	0	2	2	3	0
18	Meadowlake	Unnamed Tributary to Crooked Creek	Crooked Creek	Neighborhood flooding	2	2	2	2	5





					,	Sev	od erity lex	,	Re Cor
ID	Location	Stream Name	Basin	Potential Drainage Issue	5 yr	10 yr	50 yr	100 yr	Resident Comments
19	Meadowlake	Unnamed Tributary to Crooked Creek	Crooked Creek	Neighborhood flooding	1	1	1	2	0
21	S. Shobe Road	Unnamed Tributary to Crooked Creek	Crooked Creek	Roadway overtopping	1	1	2	3	0
27	Hilldale Road N-S (near Hilltop)	Owen Creek	Owen Creek	Roadway overtopping; home flooding	1	2	2	2	2
28	Midland Road	Owen Creek	Owen Creek	Roadway overtopping	0	0	1	1	0
29	Oak Meadows\ Roman Heights\ Dawsons Pointe	Owen Creek Tributary	Owen Creek	Neighborhood flooding	1	2	3	4	2
30	Oak Glenn	Owen Creek Tributary	Owen Creek	Neighborhood flooding; home flooding	1	2	2	3	6
32	Richardson Place	Boswell Creek	Hurricane Creek	Roadway Overtopping	1	1	1	1	2





6.0 Phase 2 Recommendations

The following tasks will be performed in Phase 2 of the CDMP:

- Detailed existing conditions hydraulic analysis of selected study areas;
- Development of improvement alternatives for identified drainage issues;
- Hydraulic analysis of improvement alternatives;
- Development of Capital Improvement Plan with project prioritization and conceptual costs.

The locations identified in Table 20 were grouped as applicable for modeling purposes in Phase 2. Table 21 lists the recommended models to develop in Phase 2. Phase 2 deliverables will include drainage study reports for each model listed above, along with conceptual layouts of the selected mitigation alternatives and planning level opinions of project costs.

Table 21. Recommended Hydraulic Models for Phase 2

Stream/Location	Model Extents	Model Type
Shoal Creek	confluence with Hurricane Creek up to Kensington Drive	1D HEC-RAS
Shoal Creek Tributary	confluence with Shoal Creek up to Kensington Drive	1D HEC-RAS
Hurricane Creek	Highway 183 to Hurricane Lake	1D and 2D HEC-RAS (Boone Road portion performed during Phase 1)
Boswell Creek	Confluence with Hurricane Creek to Boswell Road	1D HEC-RAS
Meadowlake Subdivision	Meadowlake neighborhood	XPSWMM
Unnamed Tributary to Crooked Creek	Confluence with Crooked Creek to southwest corner of Meadowlake neighborhood	1D HEC-RAS
Owen Creek	Confluence with Fourche Creek to 1,000 ft upstream of Hilldale Road (East-West)	1D HEC-RAS
Owen Creek Tributary and Tributary A	Confluence with Owen Creek to upstream of Roman Heights Ave; Lombard Road	1D HEC-RAS (downstream reach performed in Phase 1)





Appendix A

Resident comments were collected through an online geoform from April 10 to May 22, 2022. The received comments are listed on the following pages.



ID	Name	Email Address	Drainage Issue	Issue Frequency	Phone Number	Contact Address	Preferred Method of Contact	Repetitive Loss or Insurance Claims	Photo Release	Description of Issue	х у	Nearest Garver Problem Area (if applicable)	Neighborhood/Subdivision	Basin	5yr FSI	l0yr 50yr FSI FSI	100yr FSI	yrV 5yrl	0 10yrV	10yrD 50	yrV 50yrD	100yrV 100yrD
170	Katherein Myres	bananion@gmail.com	Road	Every time it rains	8186249632	3412 Village Green Drive, Bryant, AR 72022	Email	No	Yes	We recently moved to Village Green Drive off Raymar Rd. The tw storm drains in front of the house next to ours and the house across the street from it do not drain, and the street floods there every time it rains, even a little bit. I have attached photos from	2.46820552 34.62567	7698 18	Meadowlake	Crooked Cree	k 1	2 2	2).4 1.5	0.4	1.6 0	.6 1.9	0.7 2.0
171	Kristin Higgins	khiggins@uada.edu	Yard	Every heavy rain	4797996058	406 Sanders Lane Bryant, AR 72022	Email	No	Yes	today and from March 22nd Water overtops storm ditch on Sanders Lane and flows west into our yard, submerging the southern half of our yard to the back of our properly line during most heavy rains. Water has been as high as three inches along our privacy fence. I contacted the city the last time this happened this year. The city's stormwater employee said the culvert pipe under the neighbor's driveway is too small to handle the volume of stormwater. This causes water to dam up ar overtop the ditch.	2.49537767 34.59106	6588 N/A	Bryant Meadows	Hurricane Creek	0	0 0	0	0.0 0.0	0.0	0.0	.0 0.0	0.0 0.0
172	Pris Sinclair	Sinclairpris@gmail.com	Yard	EveryMulti	501-912-8759	701 Ruth Drive, Bryant	Email	No		There is NO drainage on Ruth Drive so my yard and my neighbor gets flooded every time it rains. The road slopes down to our yard and the rain water floods our yards to the point that we cannot mo until it drys up. My neighbors installed a French drain but it doesn help.	2.48497081 34.61045	5254 23	Park Hill	Crooked Cree	k 0	0 0	0	0.0	0.0	0.0	.0 0.0	0.0 0.0
173	GAREY B SCOTT	topretired@gmail.com	Road	EveryMulti	8702675348	2124 Cherry Creek Circle, Bryant, AR 72022	Email	No		As I do my walking around Cherry Creek Circle, I've notice several drainage issues where the water seems to be running at all times. Some of this is drainage issues, but i believe the city has several water leaks in the street	2.47540672 34.61086	6703 N/A	Cherry Creek neighborhood	Crooked Cree	k 0	0 0	0	0.0	0.0	0.0 0	.0 0.0	0.0 0.0
174	Amy Zom	Amsmall2002@yahoo.com	HouseBusiness	EveryMulti	501-519-2177	2403 Carywood Dr Bryant 72022	Email	No		My property & home is inundated with storm water drainage from Richland Park in the front & from Richland Park & Laverne from the back. My entire property is wet year round. My home has flooded more times than we can count now. The last time, there was knee deep water IN MY HOUSE. There is a permanent ditch cutting across the entire middle of my yard running into the neighbor's yard where It stays blocked so there's always stagnant water in my yard. The water is toxic & always has an oil sheen even when flowing. The ground is toxic from all the runoff just over the last 20 years that I've lived here. All of my food gardening has to be done in risade beds as to avoid the toxic soil. We constantly fill sinkholes & now there's an 8' deep pit in my yard that's starting to sink the ground around it. The city has already destroyed my curtiside lawn. I'll NEVER be able to mow it again because it's full of #2 gravell! They dug this hole 2 weeks ago & haven't been back I have no faith in you.	2.48905948 34.61624	4435 37	Carywood/Raintree Acres area	Crooked Cree	k O	0 0	0	0.0	0.0	0.0 0	.0 0.0	0.0 0.0
175	Thelma P. Poole	thelmapoole@gmail.com	HouseBusiness	Every5	5018375115	1721 Augusta Cove	Email	Yes		I see a lot of infrastructure for storm water drainage put in place in the form of underground pipes. The dithes and holding areas that storm water spills out into are often ignored for long periods of time allowing weeds and trees to grow and prohibit flow thus backing up the water. A prime example is between Augusta Cove and Hwy § - 52. Also, a few years ago, the ditches behind the Hidden Creek area were not kept cleared and it caused the water to build up in the deep cemented bridges and even knock the railing over. Severa houses were flooded.	2.50846226 34.62062	2234 5	Forest Cove	Hurricane Creek	2	2 4	4	1.8 2.4	5.2	2.6	.1 3.0	6.4 3.1
176	Chalsie Sublett	Thesubletts@yahoo.com	Yard	EveryMulti	501-529-2169	807 Allyson Avenue Bryant Ar 72022	Email	No		We were told our neighbors have a city drain in their back yard. our yard is supposed to slope and drain into that but it floods out our yard is supposed to slope and drain into that but it floods out our yard is yet	2.49565745 34.58764	4024 N/A	Bryant Meadows	Hurricane Creek	0	0 0	0	0.0 0.0	0.0	0.0	.0 0.0	0.0 0.0
177	Paula Power	Paulajpower56@gmail.com	Yard	EveryMulti	903-497-6083	2313 Carywood Bryant AR 72022	Email	No		Storm water comes over curb into yard causing the yard and curb to continue to sink. Storm drain is close but most water doesn't get -92.4 there because it collects and flows over sunken curb			Carywood/Raintree Acres area	Crooked Cree	k 0	0 0	0	0.0	0.0	0.0	.0 0.0	0.0 0.0
178		lady.lz@att.net adcarroll1908@gmail.com	Yard HouseBusiness	EveryMulti Every2	501-454-2523	1300 Crossing Loop, Bryant AR 72022	Email Email	No	Yes	West & South Lea Circle property and street drainage & flooding issues We purchased a new construction home Oct 2016 (1300 Crossing Loop), Approx 6mths later, April 29, 2017, we experienced major flooding in our yard and home. Bryanf TierResvue were called to the scene that night. We were displaced for 3 days. We were told this was a 100 year flood and debris clogged the creek. Residents in the older phase mentioned knowing of flooding issues. One went to the City about concerns when they learned houses would be built. April 17, 2019 our home flooded again. We repaired the fence that was knocked down and cleaned the floors again. May 3 -92-backyard flooded/flence repaired a second time. We built a breakwary on one side and an extra opening on the other to release water into the creek. May 29 backyard flooded. On May 18, 2021 backyard and home flooded Each time we estimate at lease 2ft in yard. Water was come above my knee. KTHV measured approx -381 tushing water in the backyard backyard back off waterline on fence in 2021. I've been in contact with CorpEng & City.			Near Boone Road Oak Glenn	Creek Owen Creek	3							3.3 1.8
180	Stephanie Guzman	stephbrisa12@gmail.com	Yard	EveryMulti	5014721736	1316 Crossing Loop, Bryant, AR 72022	Phone	No	No	Our neighborhood has unfortunately been the victim of severs flood events within the 2 years of owing this home. The creek this runs directly through the neighborhood has flooded or nearly flood every time there is more than just a few inches of rain. The houses 922 in the back half of our neighborhood closest to the creek flood severely, while the waters have neared our home up to the garage doors.	2.48078186 34.64481	1951 30	Oak Glenn	Owen Creek	0	1 2	2	0.0	1.7	0.8 2	.8 1.5	3.1 1.8
181	Felicia Hayes	mizhayes1@yahoo.com	HouseBusiness	EveryMulti	5019525088	1407 Oak Glenn Court Bryant, AR 72022	Email	Yes	No	Flooding almost every time it is heavy rain in Oak Glenn neighborhood. Especially in the crossings area. The mayor, and even local news reporters have been out several times. This hasn damaged our property but it has our neighbors a few times.	32.4806359 34.64506	6317 30	Oak Glenn	Owen Creek	0	0 0	1	0.0 0.0	0.0	0.0 1	.0 0.8	1.1 1.1
182	Lisa Kennedy	lme1977@hotmail.com	Road	EveryMulti	5735291962	5860 Pierce Manse Loop, Benton 72019	Phone	No	No	There are a few spots on Springhill Road that always collect wait during heavy rains. The road is so busy, it is dangerous to drive into the other lane to avoid the water but it can be dangerous to drive into the water. One spot is on the northbound lane of Springhill between the storage unit complex and the side entrance to Hurricane Lake Estates. Sory I don't remember the precise location; I drive the road so often it becomes a blur. The second area is the dip on northbound Springhill near the Northlake intersection. That often is so bad that safety cones/signs have to be out out.	2.51502831 34.63404	4162 N/A	Springhill Acres	Hurricane Creek	0	0 0	0	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
183	Jared Butler	Jbutler1975@yahoo.com	HouseBusiness	EveryMulti	5015803483	49 Neal Cove	Phone	No	Yes	These photos were taken on April 12, 2022, one day after a thunderstorm passed through on 4/11/22. The interior pictures ar from our basement, a small amount of water after a night of running fans and de-humidifier. The discoloration of the basement floor is a result of a lot more rain and water intrusion after lengthly amounts of rain. We put in a French drain to alleviate this about 6 years ago, but I suspect is clogged at this point. One of the bigger problems as we see it is the busted up concrete in the middle of the street on Neal Cove and in front of our bouse, see attached photo of busted concrete on storm drain in front of 49 & 51 Neal Cove. This causes excess water to nu beneath our foundation where water can be seen (attached photos) draining under our back patio. I'll be happy to submit additional ones following heavier rain, expected to occur 4/12-4/13	2.48795066 34.61118	9719 N/A	Bryant Oaks	Crooked Cree	k 0	0 0	0	0.0	0.0	0.0	.0 0.0	0.0 0.0

18	14	Lisa Mundy	danzrs3@att.net	HouseBusiness	Every5	501-786-4130	4 Arcadia Circle, Bryant, 72022	Email	Yes	No	When the city laid new asphalt on the road, the asphalt now butt up to my driveway. My neighbor noticed they had also blocked they the drain. They came back to cut away from the drain. With the culvert now under asphalt, water uns doom my driveway instead to the drain. The first major event of flooding was May 2017. Water built up at our garage door and was also along the side of the house. Since then, we had a drain put in at the bottom of the driveway that connects to the small concrete runoff my dad built many years ago. Since 2017, we had a major issue in May 2021 A true flash flood that came in from the side of the house where the addition of the downstairs bedroom meets the original flooting (water coming in from under a tub). Water also was able to come in under the garage door. We had at least 2 inches of water downstairs. (Lon send photos later if needed. I do not have an of the water run-off as it has been at night.)	-92.48364806	34.59945363	35 Bloomfield Hills	Crooked Creek	(O	0	0	0 (0.0	0.0	0.0	0.0	.0 0.0	0.0
18	t5 Cas	isey Callahan-Jarvis	caseyscrap@hotmail.com	Yard	EveryMulti	3105254063	1302 pleasant pointe Cir	Email	No		Any time it rains the backyard floods. It takes days to dry up. It's basically a mall river in the yard that ends on a giant puddle at or end of the yard. Neighbors are having the same issues with the ones at the back of the road having to open up their backyard gates on theirs houses don't flood.	-92.49724124	34.58339329	N/A Pleasant Pointe/Cedarwood	Hurricane Creek	0	0	0	0 (0.0 0.0	0.0	0.0	0.0	0.0	0.0
18	17 An	ngela and John Hall	ar_lowery@yahoo.com	HouseBusiness	EveryMulti	5019026615	1809 Pleasant Pointe Crl. Bryant Ar 7202	Phone	No	Yes	, My name is John Hall, I live at 1809 Pleasant Point in the Pleasant Point subdivision in Bryant At. My wife and I moved in our resident Dee of 2015, since moving in our residence we have experienced extensive drainage issues in our back yard along wit several other neighbors. We had a French drain installed hoping eleveate this issue, but was advised that we needed to contact a city official in hopes that we can come up with a resolution to this problem. Since moving in we have experienced major problems flooding which has damaged our storage unit, mosquitoes, havin to treat one of our dogs for heart worms and with vet bills in the thousand of dollars. I'm contacting you to see if there is anyway we can please receive help on resolving this problem. We look frows to hearing from you. I can be reached any time at 501-902-6615.	-92.4985	34.58152	N/A Pleasant Pointe/Cedanwood	Hurricane Creek	0	0	0	0 (0.0 0.0	0.0	0.0	0.0	.0 0.0	0.0
18	18	Jacob Brady	Jacobbrady027@gmail.com	Yard	EveryMulti	5012139928	705 Bryant Meadows Dr. Bryant, AR 72022	Phone	No		Several inches of standing water in backyard after any amount o rain. Water flowing into streets contains in large puddles at entrance to Bryant Meadows and Martin streets off Griffith.		34.58868097	N/A Bryant Meadows	Hurricane Creek	0	0	0	0 (0.0 0.0	0.0	0.0	0.0	.0 0.0	0.0
18		.ance N Bonvillain	bovie2002@yahoo.com	Yard	EveryMulti	5013267814	1520 Pleasant Pointe Circle	Email	No	Yes	Every year when we get a heavy rain the road and our yard (neighbors yards) floods. You can see an example on this facebook link https://www.facebook.com/karen.borwillain/videos/101574061704 278 This has occurred multiple time a year over the past 12 years of thing here. There are time that I feel that I F we do not take acido to open our privacy fence gate and clear the debris from the chal link fence in the back yard that the water will raise high enough the get into the house. I spoke several years ago with the city engineer. He indicated (and had a crew come out) that the out! (which is NOT on city land) needed to be cleaned out. The past wo years that I have reported this to the current administration thonly response that I received was that they could NOT GO ON To private land to clear the debris from the outlet.	n n -92.49757627 o t e o			Hurricane Creek	0								.0 0.0	
19	10 L	ance N Bonvillain	bovie2002@yahoo.com	Yard	EveryMulti	5013267814	1520 Pleasant Pointe Circle	Email	No	Yes	additional informationfrom todays rain 4-13-2022; I have a video of it but it will not load Water is flowing from Raymar Rd to Village Green Drive through		34.58106618	N/A Pleasant Pointe/Cedarwood	Hurricane Creek	0	0	0	0 0	0.0	0.0	0.0	0.0	.0 0.0	0.0
19	н н	lerbert and Shirley Keller	shirley_105@hotmail.com	Road	EveryMulti	501-607-8996	3502 Village Green Drive Bryant, AR 72022	Phone	No	Yes	water is lowing iron in daymar No to vising Getern Drive inough neighboring property. Our yard as well as both neighbors yard or each side experience water flow and backup water from this issult the water continues to flow to the street of Village Green Drive where it floods the street as the street drains are not working properly. The flood water then flows over the sidewalk to a ponol located approximately 200 feet from the street. The water has caused the concrete of the street to buckle and crack.	92.4682382	34.62570234	18 Meadowlake	Crooked Creek	ς 1	1	2	2 ().3 1.2	0.4	1.4	0.6 1	7 0.6	1.8
19	12	Nate Martin	nmartin@wddarchitects.com	Road	EveryMulti	5013766681	1509 Quail Ridge Dr Alexander AR, 72002	Phone	No	Yes	The entrance to the Oak Meadows subdivision is blocked by floodwaters after 3" of rain on 4/13/22. Regular flooding is also destroying the existing culverts at Oak Meadows Rd crossing. Increased stormwater appears to be coming from the recent phases of Magonial Village Subdivision to the west, and has mad this problem worse in the past several months.	-92.48479445	34.64463305	29 Oak Meadows	Owen Creek	1	1	2	2 (0.7 0.6	i 1.0	0.9	1.4 1	.6 1.6	1.9
19	13 C	Caroline Robertson	Cianna4hym@att.net	Yard	EveryMulti	5018374755	719 Pattywood Dr. Bryant	Email	No	Yes	When we get a fair amount of rain. Mainly my backyard runs like fast moving creek. It has weaked the topsoil up to the foundation on one side of the house while on the other the topsoil has washe out and my foundation is uncovered. Water gets in my garage and I am praying it doesn't start coming through the top of my foundation. I can not put up a new privacy fence because of the water issues.	-92.4864425	34.61679471		Crooked Creek	c 0	0	0	0 (0.0 0.0	0.0	0.0	0.0	0.0	0.0
19	14	Jan Butram	janteachu@msn.com	Yard	EveryMulti	5014089786	1004 Silktree Dr	Email	No	Yes	Creek/drainage line that runs through the back of our property overflows into our yard with each heavy rai Stormwater drain ditch on the south side of the property does no		34.61594659	36 Carywood/Raintree Acres	Crooked Creek	0	0	0	0 0	0.0	0.0	0.0	0.0	.0 0.0	0.0
19	15	Steven Long	Long.stevene@outlook.com	Yard	EveryMulti	5012496905	3024 Cedar Park St Youngbeom.ahn@gmail.com	Email	No	Yes	Sommwater drain dich on the south stee of in the property does on properly distribute rainwater, leading to flooding of the entire road obscuring it from view, as well as serious flooding of the front and backyard. Poses a major threat to homes foundation	. 00 54050500	34.6230372	4 Sherwood Park/Sherwood Estates	Hurricane Creek									0.0	
19		Youngbeom Ahn Brandy Nickolson	Youngbeom.ahn@gmail.com brandyhelton9@icloud.com	Yard Yard	EveryMulti EveryMulti	9086162135	Heoma6602@gmail.com 2400 east meadowbrook street Bryant	Email Email	No No	Yes	Yard The creek that runs beside my house over flows and causes		34.64488691 34.62445996		Hurricane									0.0 2.0	
		Joyce Koozer	harp4711@gmail.com	Yard	EveryMulti	469-471-5608	ar 72022 2805 Barbara Court Bryant, Ar. 72022	Email	No		Following the rains of 4-11 through 4-13, large amounts of runoff from the vacant property that borders the backyard of my house came through and left standing water in my yard for days. This is an ongoing problem. I walked the area with a neighbor and there a ditch that appears to drain some of the runoff. but not nearly all it. This standing water, both in the ditch and my yard, is a haver for mosquitoes at the least. Is there something the city can do the will help this problem?	-92.46060805 it			Creek Crooked Creek										
19	19	Lisa Roberts	Lisafrognurse@yahoo.com	Road	EveryMulti	501-786-8425	6118 Oak Meadows Rd , Alexander, AR	Email	No	Yes	Hilltop Rd between Bryant Partway and Oak Meadows Rd gets rushing water over the roadway in 2 separate places with heavy rainfall making it dangerous for traffic to cross. Also, our road ha a drainage ditch dug, but it still overflows at this area making the road impassible. As noted on 4/13/22.	1 -92.48234827	34.64253341	31 Hilltop Rd	Owen Creek	0	0	1	1 (0.0 0.0	0.0	0.0	0.4	0.4	0.8
20	10	Langdon Jones	Buhjonesband@gmail.com	Yard	EveryMulti	903 286 5117		Email	No	Yes	When a big rain comes, my back yard (3508 Village Green) flood all the way up to the back porch. My next door neighbors have a river through their yard. My street and sidewalk are entirely unde water every time it rains heavy just one house over. Please come check out!	-92.46816793	34.62569429	18 Meadowlake	Crooked Creek	2	2	2	2 (0.4 1.5	0.4	1.7	0.6 1	.9 0.7	2.0
20)1	Tracy kirby	Kirbybills@att.net	Yard	EveryMulti	5012136874	812 hilldale rd Alexander ar72002	Email	No	Yes	check out! Covert running from the roundabout to the creek is overflowing with heavy rainfall's because of the debris inside of it it needs to be cleaned out.	e -92.4752022	34.64428088	27 Hilldale Road	Owen Creek	0	0	1	2 (0.0	0.0	0.0	2.1 1	.2 2.6	1.5
20	12	Dianne Falls	Fallsd47@sbcglobal.net	Yard	EveryMulti	5015390183	3858 Patriot Cove Benton Ar 72015	Email	No		cleaned out Flooding in my backyard. Paying someone to fix the flooding will not help. The ditch on Boone road next the Legacy Village need be deeper for the runoff from the yard	o-92.54062379	34.59828448	N/A Outside City Limits	Hurricane Creek	0	0	0	0 (0.0 0.0	0.0	0.0	0.0	0.0	0.0
20	13	Judy Parson	Judyp tab2@gmail.com	Yard	EveryMulti	501 681-5839	3823 Commonwealth Drive Bryant	Maii	No		The water drains straight into my front yard which faces Commonwealth (3823) and flows into the back so there's barely any real plantable soil back there. It seems to pool in front and IV added a French drain but I don't think It helps much either. The front yard stays constantly musty & soggy. Im 75 yrs. old, been here 4 yrs. Every year I try to dig out thatch help drainage. This year I bought a delhatcher but practically kill myself trying to use it! It's also severe drainage between the houses facing Commonwealth & the houses facing Robinwood. There's is a manhole across Commonwealth at 3820 with no culvert and there is a culvert on Robinwood but apparently none that relieves the problems. The sidewalks along Robinwood are constantly wet and the runoff from yards look like there's iron in it I can and will take photos to send. It happens everytime it rains at appreciable amount.	e o -92.50092341 vf	34.62993024	N/A West Pointe	Crooked Creek	c 0	0	0	0 (0.0 0.0	0.0	0.0	0.0 (.0 0.0	0.0

204	Lorraine Pope	Lpope0222@gmail.com	Yard	EveryMulti	501-837-8522	1313 Ruth Belle Court Bryant	Phone	No	Yes		-92.50440157	34.60943339	8	Miller Place	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
205	Bart Walker	bartjwalker@yahoo.com	Yard	EveryMulti	5013373998	2802 Barbara Ct Bryant AR	Phone	No		The drainage culver is not large enough to handle all of the water There is a large empty field that the water runs off as well. It come in and gets out of the banks floods my yard and between two houses it has been more than a knee deep. Plus the neighbor or the opposite side drains across my back yard as well. A church owns the property behind us and they would let the city do something to help us. We should not be forced to leave like this every time it rains. Please help do something so it is not a conce every time it rains. We should have to worry about damage to our property. I have see it very high. There are some things that the city could do to help with this concern and then put it on the mast improvement plan. I have some photos that I could share but they are on my camera and it was dark and didn't show up the best.	-92.46033002	34.63920074	39	East Ridge	Crooked Creek	0 0	0	0	0.0 0	.0 0.0	0.0	0.0 0.0	0.0 0.0
206	Robyn Davis	Jrobyndavis@gmail.com	Yard	EveryMulti	501-749-7142	905 Woodside Cove	Email	No	Yes	There is almost always water flowing across the cul-de-sac of Woodside Cove. It begins between 904 Woodside Cove and 1004 Woodside Cove them flows across to a drain located between 905 Woodside Cove and 903 Woodside Cove. Also, in the most eastern part of the backyard of 905 Woodside Cove, there is always a lot of standing water after a heavy rain. Heavy rain will cause water to build up in my front yard which sometimes goes in my garage. I don't know how deep the water gets in my garage, b it comes about two feet inside.	-92.50339422	34.61290548	N/A	Edgewood	Crooked Creek	0 0	0	0	0.0 C	.0 0.0	0.0	0.0 0.0	0.0 0.0
207	JESSICA	Jessica.scott61310@gmail.com	Yard	EveryMulti	501-909-4814	1412 Katrina Drive	Email	No		The drainage ditch that runs between the houses and the Valero across from the Jr high. Everytime it rains the ditch overflows and it's like a river running through the backyards of those houses.		34.58105723	N/A	Pleasant Pointe/Cedarwood	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
209	Yesenia Solis	Yeseniasalazar731@gmail.com	Yard	EveryMulti	5016127502	1716 Augusta Cv Bryant AR 72022	Phone	No	Yes	Entrance to the drain needs to be cleaned out. There is a lot yard debris and it prevents the water from flowing out of my yard.	-92.50958276	34.62164666	5	Forest Cove	Hurricane Creek	3 3	3	3	3.4 3	.7 3.8	3.9	4.6 4.2	5.0 4.4
210	Erick Martin	eamartin304@gmail.com	Yard	EveryMulti	501-353-5420	1406 Katrina Dr. Bryant, AR, 72022	Email	No	Yes	All the backyards that face the Dollar general and Valero ga station flood whenever there is rain, due to when the sewer was installed in the easement behind the business and our homes, the ditch was dug up and was not properly created again, it's one hugh flast surface so the water that is supposed to be in the drain connects with out yard and creates a huge river in all of our backvards.		34.58253888	N/A	Pleasant Pointe/Cedarwood	Hurricane Creek	0 0	0	0	0.0 0	.0 0.0	0.0	0.0 0.0	0.0 0.0
211	Sherry Williamson	sherrywilliamson.106@comcast.net	Yard	EveryMulti	(501) 831-3896	106 Cedar Drive Bryant, Ar 72022	Email	No	Yes	My backyard stays horribly wet until July every year. We have added trees and a French drain. But it has not helped since flood waters go right through our yard	-92.49676934	34.62829155	17	West Pointe	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
212	Jack Pritchett	jpritch2@sbcglobal.net	Yard	EveryMulti	5012312338	208 N. Hazel St.	Email	No	No	Our neighbor hood has no gutters on the streets. When it rains m property becomes basically a lake. Same for many of my neighbors. Some of the culverts are completely clogged. Some were skipped last time they cleaned them out about a year ago.	00 40054005	34.59655748	N/A	Original Town	Crooked Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
213	CHRISTY M SIMONS	irisofmyeye@yahoo.com	Yard		5019123518	2223 Defoe Cir Bryant, AR 72022	Phone	No		My backyard floods when it rains hard. There is a drain in m	-92.4719413	34.61437896	22	Cambridge Place	Crooked Creek	1 1	0	0	2.0	.5 2.2	0.6	0.0 0.0	0.0 0.0
214	Howard Tucker	tuckertsr@yahoo.com	Road	EveryMulti	501-940-4365	2412 Raintree Dr., Bryant, AR 72022	Phone	No	Yes	Water constantly stands at the end of our driveway and does not were drain. We have a pool of water with leaves and debris constantly. We have trouble checking our mall because of the water always in front of our mailbox. During winter months, snow and ice become a haract when freezing. We have contacted the cit hazard when freezing. We have contacted the cit hazard when freezing. We have contacted the cit hazard when freezing.	, -92.48408308	34.61695916	36	Carywood/Raintree Acres	Crooked Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
215	Robert Shaw	reneeshaw@earthlink.net	Yard	EveryMulti	5019200876	4206 Pine Drive Bryant. AR. 72019	Email	No		big culverts drain into our property combine in our backyard can get to 10 to 15 ft wide then flows into courtyard cottages and flood them. We have been here for over 30 years and the years of flooding has eroded our property.	-92.50269014	34.63296464	16	Stoneybrook/Springhill Acres	Crooked Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
216	Bob McKeon	salinecoww@sbcglobal.net	Road	EveryMulti	15019444528	15250 Hwy111, P.O. Box 390	Email	No		Anytime it rains water from Bryant flows into Crooked Creek an FLOODS out Brookwood Road and our Sewer plant. The BIG ditch that flows across Shobe Road from Bryant's Housing Developments under the Railroad Tracks backs up Crooked	-92.4663666	34.61348737	N/A	WWTP - Outside City Limits	Crooked Creek	0 1	2	2	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
217	Lloyd Kassler	lloyd.kassler@dillards.com	Yard	EveryMulti	501-580-2217	804 Shobe Rd, Bryant, AR 72022	Phone	No		Tree ditch between my home and 808 Shobe Rd was repaired/filled with a concrete pixe approx early 2000s to keep my house from falling into the open ditch at that time. During the last big storm a few years ago that caused all off the flood issues, it washed out where the pixe opens to a ditch and has left a huge hole/open pix. When there is a big rain, the water washes over the ground, as we as through the pixe. It has washed away all of the topost through this area over time. The road also floods briefly during the runoff. There appears to be a sewer pixe across the ditch in this area, and that creates obstruction to the floor walso.	-92.48530675	34.6136196	36	Carywood/Raintree Acres	Crooked Creek	2 2	2	2	3.6 1	.7 3.8	2.0	4.5 2.6	4.8 2.
218	Andrea Clark	andrea@andreasschoolofdance.net	HouseBusiness	EveryMulti	5012311383	211 NE 2nd St Bryant, AR 72022	Email	No		For the past 15 years our building has flooded at least 3x per year Pretty much every time there is a Flash Flood warning issued. Our road level is higher than our gravel parking lot so water from the road flows directly around our building. We also have water comin from the roof with nowhere to go. We've had to instail new gutter systems on the building as well as a sump pump to pump water further down the lot. We've also just had \$1,000 worth of termite damage to fix, in part because there is just so much water in their swarning season. When we flood it has risen to a max of an inch or so. Sometimes making it throughout the whole siab portion of the building to the crawl space. We have spent countless hours and even had to close our business for the day to shop vac all the water up. And our clients have to walk through standing water to get to our door, sometimes up to 3 or 4 inches.	r 92.48692622	34.59606362	N/A	Original Town	Crooked Creek	0 0	0	0	0.0 0	.0 0.0	0.0	0.0 0.0	0.0 0.
219	Debbie Fannon	Fannondebb@yahoo.com	Yard	EveryMulti	501-366-3111	1723 Kensington Dr Bryant At 72022	Phone	No		Serious erosion problem due to no culvert installed on my end c the street. All storm water drains into my hard. Paid thousands of dollars to fix problem. Still has flooding				Forest Cove	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
220	Nan Ring	Nanettering@gmail.com	Yard	EveryMulti	5018403987	1415 Katrina Dr, Bryant	Phone	No	Yes	The back yard floods within 1/4' of getting in our shed. It takes WEEKS to dry out to be usable and then muck boots are required	-92.49677253	34.58205059	N/A	Pleasant Pointe/Cedarwood	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0	0.0 0.0
221	John williams	jp4williams@gmail.com	Yard	EveryMulti	5014828836	1300 Katrina dr	Email	No		Most of the houses on the east side of Katrina get flooded back yards when it rains a loa from the run off of the property behind the privacy fences. I think that land belongs to the school. If a small ditch was cut 15 foot from the property line all that water would drain south to the detention area behind dollar general and big re instead of washing through the yards. It gets pretty bad when there is a big rain. Thank you	-92.49606643 d			Pleasant Pointe/Cedarwood	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
222	Zetha Bone	z.bone@yahoo.com	Road	EveryMulti	5015190810	3405 Stillman Loop Bryant 1403 Katrina dr	Email	No	Yes	The street in front of my house retains water after rains- near the comer of Stillman and Vickie Dr				Springhill Manor	Hurricane Creek								0.0 0.0
223	jeffrey neel	neelworld2001@yahoo.com	Yard	EveryMulti	501-416-5172	1403 Katrina dr Bryant, AR 72022	Email	No	Yes	Back yard standing water over 1 foot Behind my home is a area that needs attention, they need some	-92.496	34.5823	N/A	Pleasant Pointe/Cedarwood	Hurricane Creek	0 0	1	1	0.0	.0 0.0	0.0	1.0 0.5	1.1 0.6
224	Shannon Sims	Smsims76@yahoo.com	Yard	EveryMulti	5015173371	2719 Johnswood Village Bryant Arkansas It floods behind all houses on this row behind fence into the yards. The yard stays wet almost all year unless it hasn't rained in a while. See below	Email	No	Yes	type of a large pipe for the water to drain into and take the water the retaining pond behind the maliboxes. The water does not drain correctly and Landers builder was supposed to address it years ago. When we have lost of rain you can see water sitting on too the ground all the way to the tree in the yard behind me. My yard will stay wet almost halfway un my backyard causing a huge muddy mess for my dog. Please look into putting drainage pipes at the way behind the subclivision this has been a major complaint for everyone in this subdivision for as long as I have been here. I have taken photos in the past I will have to find them on a hard drive if you actually need them left we know! will look for them.	o n f -92.469185 all or			Johnswood Village	Crooked Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.6
225	Matt cochran	Jm_cochran@yahoo.com	Yard	EveryMulti	5019401371	2620 johnswood village drive	Email	No	Yes	The houses in back of subdivision yards flood when it rains and so do the street Drainage ditch that runs across Augusta Cove has had an upgrad				Johnswood Village	Crooked Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
226	Roger Poole	rogerover3dot@gmail.com	HouseBusiness	EveryMulti	5018375116	1721 Augusta Cove Bryant, AR 72022	Email	No		Drainage ditch that runs across Augusta Cove has had an upgrad recently but the down stream ditch that it feeds into is choked with thick vegetation including what some would call small trees. It needs a clean up	02 50706873	34.62116988	6	Forest Cove	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0
227	Rosie Norman	Rosienorman@hotmail.com	HouseBusiness	EveryMulti	661-221-3978	3201 Independence Circle Bryant AR. 72022	Phone	No	No	Every time it rains a corner of our backyard floods	-92.48588949	34.62704709	6	West Pointe	Hurricane Creek	0 0	0	0	0.0	.0 0.0	0.0	0.0 0.0	0.0 0.0

228	Brooks Channell	Brooks.channell@yahoo.com	Yard	EveryMulti	5012135191	3413 LaCross Drive Bryant, AR 72022	Phone	No	No	This entire neighborhood is suffering from extreme standing water and saturated tols after rain. I know that my house has standing water that pools against my foundation and is slowly eroding the land. I have talked to many of the residents on my street and also with the family who owns the large plot of land behind us and they all agree that the city needs to do something about the vater issue or this neighborhood is going to go downhill structurally fast. There exceeds the second of th	Meadowlake	Hurricane Creek	0 (0 0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
229	Donna Rice	donna.rice1937@sbcglobal.net	Other	EveryMulti	501-580-3957	518 Lora Dr Bryant, AR	Phone	No	Yes	Almost all of the culver's ohn my side of the street, even number houses, are blocked and the dilch ian't deep enough for the rain run off, with power poles, once is learning), and water meters in the dilch it can't be dug deeper, this causes yards, carports, my garag and the street in front of the old Fire Station to flood. Answered "other" in below question didn't give all the above option. I haven't made an insurance calm, paid out of pocket for repairs do not know if neighbors have filled claims. Have sent pictures to Street Department.	Pikewood	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
230	Jeffrey Hartsell	jhart2399@gmail.com	Yard	EveryMulti	5014252137	3820 Robinwood Circle Bryant, AR 72022	Phone	No	Yes	The end of the storm drains in our neighborhood terminate in our backyard. The storm drain has began to erode the ground in my backyard. In periods of heavy rain my entire backyard floods out to 30–40 feet. Also in periods of heavy rain, the storm drain system does not carry the entire load and overflows through my direveay -92.49789167 and my fence gate between mine and my neighbors house. This has caused several thousand dollars worth of damage from a storm on April 30, 2017. I am attending a video from a storm on May 18, 2021.	West Pointe	Crooked Creek	1 .	1 2	2	2.4 1.3	2.6	1.5 3.4	1.8	3.6 1.9
231	Kenneth Bunn	kbunn1950@yahoo.com	Yard	Every	15019437098	1813 Pine Circle	Email	No	Yes	Watershed (I think) located at 130 Frontage and N. Prickett Rt overflows and is constantly flooding back yards that back to the vatershed watershed watershed.	Hidden Creek	Hurricane Creek	2 5	3	3	1.1 2.3	1.1	3.1 0.8	4.3	0.8 4.6
232	Katherine Roberts	Krob467@yahoo.com	Yard	EveryMulti	5014137791	2301 Chelsea dr Bryant, AR 72022	Phone	Yes	Yes	During a regular rain water accumulates in back and front yard causing mosquito problem and yard stays wet and soft almost all -92.48727843 34.6153653 37 year long. Water has come into the house on several occasions:	Carywood/Raintree Acres area	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
233	Erick Martin	eamartin304@gmail.com	Yard	EveryMulti	5013535420	1406 Katrina Dr. Bryant, AR, 72022	Email	No	Yes	When the sewer was installed for the new dollar general an Valero, the ditch in the easement was never fixed so there is a ton of standing water that it's black and creating a mosquito breeding 32.49585379 34.58266941 N/A	Pleasant Pointe/Cedarwood	Hurricane Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
234	Brenda Gregory	Jbgreg@aol.com	Yard		501 847 1513	1312 Ruth Belle Ct Bryant,AR 72022	Email	No	Yes	ground. Backyard has a huge hold ue to run-off from streets behind me also yard fills with water and dead grass from streets behind me	Miller Place	Hurricane Creek	1	1 1	1	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
235	Traci Baker	Supermom2two14@yahoo.com	Yard	EveryMulti	5015807441	1001 Edgewood Dr Bryant, AR 72022	Email	No	Yes	Whenever it rains my side yard floods which moves into my garage92.50400477 34.61346914 N/A		Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
236	Ronnie E Kettles	r.kettles@yahoo.com	Yard	EveryMulti	501-680-4288	2754 Mountain View Road Benton, AR 72019	Email	No		Drainage ditch between house and street overflows every time it rains. Ditch has standing water most of the time -92.49089488 34.61577178 37	Carywood/Raintree Acres area	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
237	Jay Sweningson	Speedwagonj@yahoo.com	HouseBusiness	Every	5016265111	300 Crossing Court Bryant, AR 72022	Email	Yes	Yes	It is a well known issue. The creek in The Crossings at Oak Hill (within the Oak Glenn subdivision area) has flooded 2-3 homes in out neighborhood since the community was built. The creek needs to be cleaned out and restructured. The first big storm we had, a adjoining property had cut trees, but didn't remove them, they washed into one of our bridges and dammed it up. Resulting in massive erosion and washing away of protective rocks and such Since then we have had beavers dam further down creek on another person's property as well. And growth needs to be removed as well so flow can be smooth.	Oak Glenn	Owen Creek	3 3	3 3	3	4.0 4.6	4.6	5.1 5.4	5.9	5.6 6.2
238	Carol Alkire	calkire2@sbcglobal.net	Road	Every10	501-847-3434	1014 Cedar Dr. (Springhill Acres)	Email	No	No	The creek can overflow onto the roadway during heavy rain events.	Springhill Acres	Hurricane Creek	2 2	2 3	3	3.2 2.4	3.5	2.7 4.1	3.2	4.4 3.4
239	DANIEL DELLORTO	dangaild@att.net			501-352-8200	301 DOGWOOD PLACE DR	Email		Yes	This is an erosion issue from the storm drain/ditch between 301 and 305 Dogwood Place Dr. We have live here for 20 years and the ditch has eroded several feet on both sides. A sewage manho separated due to erosion in Oct. 2013 (see pictures) and was taken out. There is also all it station at the back of the lots. Rocks and some concrete has been put down but the ditch sides are still solwing eroding. We were low then we move of 120 years ago that the city plan was to put in a large culvert pipe from the street the lift station and cover it level with dirt and grass. This erosion we eventually encroach the fences on both sides of the ditch.	Dogwood Place	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
240	Casey McCarthy	caseymc2011@gmail.com	Yard	EveryMulti	5015907880	2807 Johnawood Village Drive	Email	No		The South side of our neighborhood floods horribly when it rains and remains wet for days afterwards. There is a shallow creek bed behind our fience that does nothing to help move the water. Ve seen the water stand there for many days so it doesn't even get soaked up by the ground. My backyard is mostly unusable for many months during the year.	Johnswood Village	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
241	Mary Beth Brewer	beth.brewer@sbcglobal.net	HouseBusiness	EveryMulti	2143540657	17 Eastwood Dr	Email	Yes		Development of new housing on off MIIIs Park Road increased runoff during mid to heavy rains: resulting in flooding on Eastwood Dr., specifically in front of 16 Eastwood. Bryant widened the drainage (titch between MIIIs Park Rd and Eastwood Dr., however they did not install drain all the way to the creek behind subdivision, nor did they replace/enlarge the drain going under the street in 1-92.47991568 front of 16 Eastwood Dr. Because there is so much water coming into the ditch now that the underground drain cannot handle the volume and overflows into the street and into the house at 16 Eastwood. This house has flooded several times over the past few years due to this issue.	Eastwood	Crooked Creek	0 (0 0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
242	William Brent Jones	wbjones1@gmail.com	Yard	EveryMulti	5014254290	212 Dogwood Place Dr	Email	No	Yes	Pve lived at this address since 2006 and the backyard on my sid of the street all the way down to the bottom of the hill is a lake when we have heavy rain. It loos up at each privacy fence. I am -92.48841636 attaching a photo from April 13 and still have some standing water	Dogwood Place	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
243	Courtney Johnson	Crjohnson@uams.edu	Yard	EveryMulti	501-909-3225	305 Dogwood Place Dr	Phone	No	Yes	Ever time there is heavy rainfall or extended days of rainfall the ci owned ditch floods our yard 92.48725764 34.60582431 38	Dogwood Place	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
244	Steven Wise	steven.wise@irsd.org	Other	EveryMulti	5013501410	104 RICH ST	Email	No	No	Storm water in this part of Bryant drains to the railroad tracks and that is where it stays. These areas near the railroad do not drain and produce millions of mosquitose during the summer months. The railroad property is not maintained at all by anyone. The last time the area was cleared and dredged was over 40 years ago. The railroad has been uncooperative in keeping the area maintained. Previous mayors have also been unable to address the issues blaming the railroad instead. Surely the city and our attorney can get the railroad to comply with this maintenance issue.	Railroad	Crooked Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
245	Olga Williams	olga@markpettersen.com	Yard	EveryMulti	501-847-4857	718 Elkhart Loop Bryant, AR 72022-3956	Email	No	Yes	Small river flows through this section of the Bryant Meadows neighborhood during heavy rains, most recently was 2022-04-13 -92.49685953 34.58535288 N/A Flooding of one or more homes over the years has occurred here.	Bryant Meadows	Hurricane Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
246	Rosalyn Poole	rosalyn0430@gmail.com	Yard	EveryMulti	501-428-8778	19 Arcadia Circle Bryant AR 72022	Email	No	Yes	Along our property line in the backyard there is standing water yet round. It is worse when it rains. It keeps the neighboring yard wet and boggy. It is wet enough to constantly rot our fence boards92.48606481 34.60042383 35 A tree with rotten roots fell into our backyard destroying the fence in 2019	Bloomfield Hills	Crooked Creek	1	1 1	2	0.8 0.9	0.8	1.0 0.8	1.5	0.8 1.7
247	Charisma Keith	charismakeith@icloud.com	Yard	EveryMulti	5012135112	505 Martin Ln Bryant, AR 72022	Email	No		When it is warm. the mosoultoes are awfu I live in Bryant Meadows. Every time it rains our street (Martin) floods where there is a drianage ditch. My backyard and front yard flood every time it rains to the point that you cannot walk on it for days after the rain and is almost always softwet when it doesn' rain. In the street the water can be several inches deep. My water -92.49302548 meter stays under water most of the time. I have contacted the city and they will not fix the issue. I know my yard is not the only one flooding. I see neighbors that have standing water in their front yards every time it rains. I can only imagine the back is the same.	Bryant Meadows	Hurricane Creek	0 (0	0	0.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0

248	Courtney Johnson	courtney3980@gmail.com	Yard	EveryMulti	5019093225	305 Dogwood Place Dr.	Phone	No	Yes	The run-off is full of weeds, some growing as tall as our house. think this is a safety concern because it very well could be bedding snakes.	-92.48725764	34.60582431	38 Dogwood Place	Crooked Creek	: 0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
249	Gunner Miller	gunnermiller9@gmail.com	Yard	EveryMulti	4798835836	3309 Longmeadow Drive Bryant, AR, 72022	Email	No	Yes	2. This run-off is causing land erosion to my propert I have nearly continual standing water in my yard except for in th hottest of summer months. The sub division was barely built up when it was constructed and is at a lower elevation then the road leading in. Anytime it rains, all runoff flows from the top of the road' through all of the streets and yards in the neighborhood. Everyone	-92.46345245	34.62364448	19 Meadowlake	Hurricane Creek	0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
250	Branon Fryar	fryarfamily@yahoo.com	HouseBusiness	EveryMulti	5016900368	4 Huntington Estates Bryant AR 72022	Phone	Yes	Yes	has the same issue Drainage issue I would like to submit is for Crooked Creek flash flooding. I live at 4 Huntington Estates and the creek flash floods ever yapidly and becomes dangerous multiple times a year. Water can be seen several feet high into Parkview cut de sac as well into my property bordering both sides of Crooked creek. Plans for Bryant Parkway and a walking trail are to cross crooked creek in the area I am reporting. This is a major public safety issue with all the planned development. I know houses on Eastwood flood during major rain events due to tributary drainage issues into crooked creek.	-92.47706759	34.6087106	23 Eastwood	Crooked Creel	: 3 3	3	3	3.3	4.5 3.5	4.9	3.9	6.0 4.1	6.5
251	Kelly McLarty	kellymclarty@ymail.com	Yard	EveryMulti	501-425-7081	1609 Davis Dr. Bryant, AR 72022	Email	No	No	The drainage creek behind my house continues to plug up. This is the drainage section from Andrew Dr. to Forest Dr. The backyard of 3017 Forest Dr. gets flooded during hard rains.			6 Forest Cove	Hurricane Creek	1 1	1	1	2.6	0.8 2.8	0.9	3.2	1.1 3.4	1.2
252	Sandra Powell	sandi_1212@sbcglobal.net	Yard	EveryMulti	5015531011	3349 Garden Club Drive Bryant, AR 72023	Phone	No	Yes	When raining a flow of water travels down my back yard with about 3" of water in yard		34.62585073	N/A Andres Place	Crooked Creel	. 0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
253	carolann boone	kjboone1@gmail.com	Road	EveryMulti	5016802335	24 tanglewood	Email	No		with the extended building of the school there is an ever increasing amount of water run off when there is a heavy rainfall- there is now standing water on the road in front of 24 tanglewood- it is suspected that future development (denouement of vegetation, the addition of concrete and leveling of ground) will exacerbate the problem. thanks kathy boone		34.59787885	11 Tanglewood Acres	Hurricane Creek	0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
254	Jessica Ross		Yard	EveryMulti	4799700174	3009 Andrew Dr. Bryant, AR 72022	Email	No		The back yards in my neighborhood (Forest Cove) flood horribly. river literally runs through the middle of my yard and just stays wet. Same with the side yard of my house. Having bought my house at the end of winter, the flooding issue wasn't evident until spring. It's so frustrating when it comes to mowing and just walking around my yard not to mention the mosquito problem it creates.	-92.50935779	34.62293596	5 Forest Cove	Hurricane Creek	0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
255	Joanne Griggs	jwgriggs56@gmail.com	Yard	EveryMulti	5015293009 or 501 672-9714 (Terry Griggs)	814 - 811 Lindy Cove	Email	No		The cul de sac has no storm drain. It ponds up on east side (se addresses above). The water runs through the back yard like a	-92.49299128	34.58706069	N/A Bryant Meadows	Hurricane Creek	0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
256	William Pennington	Cliffandjessp@yahoo.com	Yard	EveryMulti	8708185719	2312 Richland Prak Dr	Email	No	Yes	I li e on the west side of Richland Park and several home including mine have spots in our back yards that retain water. The do not drain properly at all. It stays so wet that you can't cut the grass not even get close with a weedeater without si king into the		34.61792588	37 Carywood/Raintree Acres	Crooked Creek	. 0 0	1	1	0.0	0.0 0.0	0.0	1.8	0.6 2.0	0.7
257	Kristan Hendricks	krhendricks4546@gmail.com	Yard	EveryMulti	5015078318	13 Parkview Dr Bryant,AR 72022	Email	Yes	Yes	ground 2017-in garage about 1.5 ft of water Yard has flooding multiple times every yea	-92.47901492	34.60878378	23 Eastwood	Crooked Creel	: 0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
258	Doris Sloan	dorisloanj@gmail.com			5015168152	300 Dogwood Place Drive, Bryant.	Email	No		At this address more than 20 years and have had on-going issue with sinkholes at the drain at the SE corner of our back yard.	-92.48780657	34.60534511	38 Dogwood Place	Crooked Creel	. 0 (0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
										There is one forming now, about 3' x 3' across Water comes from north of the interstate, under I-30 and the access roads and is flooding the back of World Wide Weapons													
259	Marshall Peters	marshall@mpire.biz	Other	EveryMulti	5014148340	Marshall Peters & Associates 2020 W 3rd St, Suite 201 Little Rock, AR 72205-4463	Email	No	Yes	and the parking lot of Boryant Plaza. With each moderately heavy rain, this is causing exponentially more erosion of the land on both sides of the dicht. In the filteen years of my association with these properties, water has never once stopped flowing!	-92.49474866	34.62023874	N/A Interstate service road	Crooked Creel	0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
260	Tim and Lesa Vandiver	tivandiver1983@gmail.com			501.554.1511	3816 Logan Ridge Dr. Bryant AR 702222	Email			No damage. I just understood from the card in the mail that this was where poor drainage issues could be discussed to improve drainage: There is a retention pond at the end of the street (Logan Ridge Dr.) next to Hwy 5. We were told that this was a retention pond to hold water to slow drainage before emptying into the dich alongside Hwy 5. It is nothing but a frog and snake reservoir. During the new construction of Hwy 5 could this pond be eliminated? Simply connecting the intake from the street drainage to the exit spillway with a large pipe and then filling in the pond and covering the pipe with dirt would solve the problem. Then the homeowners could just mow that area instead of dealing with the hazard. Come look at it. thanks. Tim	-92.48946552	34.62990826	N/A Hunter Crossing	Crooked Creel	: 0 (0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
261	Jeannie Telford	Telfordjeannie@gmail.com	Road	EveryMulti	501-773-9178	812 Providence Drive Bryant 72022	Phone	No	Yes		-92.50393612	34.62767942	6 West Pointe	Hurricane Creek	0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
262	Jason Baertlein	Jasonbaer79@gmail.com	Yard	EveryMulti	414-379-0655	1300 Johnswood rd Bryant AR 72022	Phone	No		Would be great to have better drainage on mills park rd and shot rd, being how much tax revenue will be coming from the new development of Bryant Parkway and the future expansion it would be great to get a jump start to keep this area expanding and generating more revenue for the cit, Whenever it rains a few inches the ditches in front of my houst	-92.48080995	34.61326006	N/A Mills Park/Shobe Road	Crooked Creek	. 0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
263	Peggy Wilson	pegofmyheart99@gmail.com	Yard	EveryMulti	501-231-2206	210 SE Second Street Bryant AR 72022	Email	No		whenever it rains a tew inches the dictnes in front or my house and across the street from my house stay full of water for weeks. When it rains a lot the ditch across the road from my house will flood and cover the road and flood my front yard. The flood water does not reach the house, but has come close a couple of times. The city has dug out the ditches, but that has not seemed to help the problem.	-92.4871563	34.59318553	N/A Original Town	Hurricane Creek	0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
264	Gail Cliff	gmcliff52@aol.com	Yard	EveryMulti	15015800061	802 Boone Road Bryant	Phone	No	No	Ditch stays full of water since the City dug around in it several years ago. the water level is below the culvert to drain. The city w not keep it mowed and it is too boggy for us to mow. This had been going on and complaints have been made since Dabbs was mayor. We have lived here 46 years and have always been able to keep it clean. Please again it needs to be looked at.	-92.49833634	34.59542797	11 Boone Road	Hurricane Creek	0 0	0	1	0.0	0.0 0.0	0.0	0.0	0.0 1.4	0.5
265	Ashley Copple	Ancopple@gmail.com	Yard	EveryMulti	5012099795	1804 Briarwood Cove Bryant, AR 72022	Email	No	Yes	Back and front yard floods up to 3-4 inches when it rains. Never in garage or home. The backyard sees more flooding and it seems flow like a very small creek from 1802 to 1806 which has caused damage to my wooden privacy fence.	-92.50327537	34.61153993	N/A Edgewood	Crooked Creel	: 0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
266	Johnny Bragg	Jbragg4@aol.com	Road	EveryMulti	501-690-0175	1 Parkview Dr Bryant, AR. 72022	Email	No		Parkview Dr connects with Mills Park Rd. The southeast corner at this connection holds water. The original street was concrete and it had a "drainage channel" there to allow all the water coming down the hill on Mills Park Rd to continue down to the creek. Several years ago the city paved Parkview Dr with saphatl and covered the draining channel. Then last year Mills Park Rd was redone with a new layer of asphalt and it is even worse. There is no way for all the water to drain. A depressed area if you will, or area lower that the asphalt road exists and remains filled with water long after rain has gone, days. Even in winter it remains a thin sheet of ice there Over the years I have talked to so many different people with the city about it, even shown some of them in person. All said they would get that remedied, that it was bad. To this date nothing don The area catches leaves, trash, twigs, cans, and they stay there until I go clean it up. The city never even does that.	-92.48090667	34.6073973	N/A Eastwood	Crooked Creel	: 0 0	0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0
267	David Skinner	sharking41@hotmail.com	Yard	EveryMulti	15018471031	2410 Cherry Creek Circle	Email	No	Yes	Cherry Creek Circle sub-division has major drainage issues that's been overlooked ever since it was developed. Water backups in the road, in individual lots, and is a health issue with all the mosquitos it brings to the neighborhood. I live in the corner lot ne to Shobe and Bryant Parkway. Rainwater from every backyard, east of my lot, flows around all sides of my house and has made my yard a total swamp. The rainwater from all the other backyards can't drain to the ditch along Shobe road because of the long brick wall. There needs to be drainage ditches between each lots of the water will run to the road. The entire northside of Cherry Creek Circle has no storm drains, so the water backs-up in numerous yards and in the street. Storm drains are needed to allow proper drainage and prevent so many yards from being saturated with water/swampy/boggy mushy messes. This issue happens every time it rains, but especially bad in the spring and early summer.	-92.47609448	34.61258164	N/A Cherry Creek neighborhoo	d Crooked Creel	. 0 (0	0	0.0	0.0 0.0	0.0	0.0	0.0 0.0	0.0

268	Larry Edwards	ldonedwards@gmail.com	Yard		918-853-2266	2405 Cherry Creek Circle	Mail	No	Yes	Rainwater backs up into the south side of my yard creating a swampy area and causes a mosquito problem. The water runs from neighboring backyards and from the road. The area is so -92.47581425 34.61228223 N/A swampy it can not be mowed during the spring and early summe This is a problem at least 4 months out of the year.	Cherry Creek neighborhood	Crooked Cree	k 0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.	0 0.0
269	James Fowler	jamesrfowler@hotmail.com	Road	EveryMulti	5019090997	3413 Village Green Drive Bryant, AR 72022	Email	No	Yes	The storm drain on Village Green Dr, that is meant to drain int Meadowlake pond, sits below water line at times and is filled with sand and gravel that has been transported by stormwater. The street & neighboring yards flood ever time it rains. There is a sinkhole forming in street and shoreline erosion continues to worsen. I've already repaired one dangerous hole near the pond after witnessing three different children and two dogs fall in on separate occasions.	Meadowlake						0.5 1.5			
270	Bill james Greg Bowman	Bill.d.james@gmail.com Budlers@att.net	Yard Yard	EveryMulti EveryMulti	5012090286 5015170486	2115 Hickory Drive	Email Email	No No	Yes	Flooding in back yard and side do to water drainage issue. -92.51285815 34.63855011 N/A A contractor re-poured the curbs in front of my house. These curb are higher than the ones that were replaced. I was talking to the contractor and he told me that the necessary dirt work would be done to bring my yard back up to curb level and re-sod the fresh dirt. Also, on the south side of my house, I speal of the back neighbors water. There was a hole in the original curb to drain this water. I asked for a hole for drainage and he said he would try to something. This way the water hackup, floods my water meter box and keeps this aret backup, floods my water meter box and keeps this aret way muddy. This curb schalley lavenes as a dam by hold the water back. This has been quite awhite and i'm sure it has slipped his mind. During all have been looking for the contractor to come back. This has been quite awhite and i'm sure it has slipped his mind. During all of the utility we, my oldectine savinch has been interrupted several times. Since he talt time, my lights ficker. I have been unsuccessful get them out to look at it.	Hickory Hill Springhill Manor	Hurricane Creek					0.0 0.0			
272	Brent Coney	brentconey@gmail.com	Yard	EveryMulti	5016905877	2616 Finley Loop Bryant, AR 72022	Phone	No	Yes	Between my house and my neighbors house has pooling water that was originally supposed to drain behind our houses into the culvert, however now the water is flowing to the front of my house that is at the very 'bottom' of the hill and the drain is more up the hill so the water never gets to drain. -92.50952199 34.65540387 2 When we get a really bad rain there will be 6 inches to a foot of ra standing still between mine and my neighbors house. If we could get water to drain out the back of the property like it originally did, I think the issue would be resolved.	Springhill Village	Hurricane Creek	0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0
273	Carolyn Geffken	c.geffken@sbcglobal.net	Road	Every	(501) 749-5234	3003 Chapman Ct	Email	No	Yes	During flash floods of 3-4 inches , the sewer drains in front of my house can not drain. It is at a base of hills. Water at top of Finley Loop near Chapman Ct also covers the road. Excess water circles my house, draining down my side into the back yard to exit to Roset Ln, on the way to the drainage into the creek. This occurred in Spring 2018, twice 2019, April 4, 2020, May 19, 2021. In 2019, stood in the back yard to have water up to my hips. I put in retaining walls, nativerain garden, French drains. The water marks can be seen on front maliboxes, along fence, and debris on driveways. I noticed Chapman Ct road pavement is cracking more each year. It fills with grasses which It my to pull out. During these flooding events, the road becomes a bowl of water, goes up driveways limits and neighbor across streel) but never entered the house, but close to. Excess water escapes to my back yard. When it recodes, it does so quickly. Depth of water in back fence it has been between 1-2 feet.	Springhill Village	Hurricane Creek	0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.1	0.0
274	James Easterling	jameseasterling83@gmail.com	Road	EveryMulti		2306 Cherry Creek Cir	Email	No	Yes	There are no culverts so water goes everywhere instead of th drains Also this causes the asphal to constantly be destroyed and never gets fixed,can you please look into this, thank you,some of the vards look like a swam. The back yard floods every time it rains. Always standing water. It = 22.49676942 34.68227556 N/A	Cherry Creek neighborhood	Crooked Cree	k 0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.	0 0.0
276	Mark Mathis Brigham Barefoot	Mwm1904@sbcglobal.net	Yard Yard	EveryMulti EveryMulti	501-350-7227 5012912850	1409 Katrina Dr Bryant At, 72022 3204 Independence Circle Bryant, AR 72022	Phone Email	No No	Yes	Almost each and every rain, flooding occurs in backyard of 320 Independence Circle due to runoff from shopping center on Hwy and water runoff from Independence Circle between 3204 and 3210. Drainage fills detention pond behind 3204 Independence Circle92.5029691 During heavy rains, detention pond gets 3-5 feet deep. Culverts are not large enough and Detention pond does not dry out until June thru. Sectember and not is dry if there is approximately 7	Pleasant Pointe/Cedarwood West Pointe	Hurricane Creek Hurricane Creek		1			0.0 0.0			
278	Jesse	Tahoehenson@yahoo.com	Yard	EveryMulti	Henson	608 shobe road Bryant Arkansas 72022	Email	No	Yes	straight days of sunshine. Detention pond stays saturated from October till Mav. April 13th 2022 rainfall caused the "drainage ditch" behind our house to flood and rage extremely fast. This "ditch" is somewhere around 10ft deep and is dangerous, causing our home and yard to 92.48750692 be pulled towards this now creek. I have a video of before and aft	Carywood/Raintree Acres - on Crook Creek	ced Crooked Cree	k 0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.	0.0
279	Dan Wright	wright_dan@sbcglobal.net	Yard	EveryMulti	(501) 249-7067	2313 chelsea dr Bryant Arkansas 72022	Phone	No	Yes	the rainfall as comparison that I will be happy to provide. I have had standing water in my backyard and on the south side c my house. Its been there since the beginning of march. It sometimes covers about half my yard. It's a slout 3 to 4 inches deep and runs along my back fence. Grass has never grown there- since i bought the home in 2013. My metal storage buildings are on blocks to keep the floors from rotting out. Mosquitoes are termibel	Carywood/Raintree Acres	Crooked Cree	k 0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.	0 0.0
280	Jean Martin	smartin8234@yahoo.com	Yard	EveryMulti	501786-7669	608 SE 1st St	Email	No	Yes	I bought my house 6 years ago. My back yard floods every time it rains. It holds at least inch to two inches of water. My neighbor pa for contractor to look at issue. They said french drains with pump. They said orinage the city has implemented behind house that they pipe is out of ground. I have emailed my alderman and he responded with neighborhood is on the list for help. The water has never entered my house but has been very close.	Hidden Forest	Crooked Cree	k 0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.	0.0
281	Darby Jackson	jacksondarby@yahoo.com	Yard	EveryMulti	501-766-5516	2808 Carywood Drive Bryant, AR 72022	Phone	No		Our entire Carywood/Raintree Acres Neighborhood. We live very near the Lora/Carywood Drive intersection. There is one house on Lora that is uphill from us. The rainwater rolls off their property down a slope into our yard. Our garage has flooded at least 2x/ye since we moved here in Fall 2012. Usually once in the Spring and once in the Fall. Water of about 1-2 inches seeps in and stands in the garage for 2448 hours. Our front and back yards both have low spots where the water drains and stands. The water runoff, from our upper neighbor is ending our yard on that side becoming a steep slope. More than ourselves, everyone downhill from us he major flooding issues which have led to foundation issues and thousands of oldlars in repairs from flooding interiors. The current plan does not look to expand a culvert drain down the length of Carywood but should from top of hill all Lora down to bottom. A drainage ditch or culvert needs to be put in for the houses betwee Chelsea and Amber Cove	Carywood/Raintree Acres	Crooked Cree	k 0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.	0.0
282	Angela Moore	angelamoore918@gmail.com	Yard	EveryMulti	501-707-4591	1613 S Lea Cir Bryant, AR 72022	Email	No	Yes	Every time it rains hard, our neighborhood floods. The water floods to our side yard and back yard and pushes debris all over our back years fence. S years ago with the floods in April, water came up within 3 inches of coming in our house. Also, our next door neighbors used to get lots of sewage in their yard from the cap coming off the sewer cover in the middle of Lea Circle. That problem was fixed with a new cap that is botted on, but now the past two large rains in AprilMay I have tired to use my washing machine the day after the rain and it seems the drains are not large cloudly to handle the water. Video when my washer was on the draining water cycle, water starts trying to come out of the pipes connected to my washer. We need a better/bigger pipe and drainage system.	Near Boone Road	Hurricane Creek	2 2	3	3	0.8 2.1	0.9 2.7	0.9	4.2 1.	3 4.8
283	Mark Smith	stephaniesmith0725@gmail.com	Road	EveryMulti	5013505220	1909 Pine Circle	Phone	No	Yes	We have had drainage issues for years right by our driveway it mail boxes it's so had we can't even mow our grass in this area & ealt the water company to look at it but they still never do anything about it & it has oil in it and has odor in	Hidden Creek	Hurricane Creek	0 (0	0	0.0 0.0	0.0 0.0	0.0	0.0 0.	0.0

284	s Amy Zorn	Amsmall2002@yahoo.com	Other	EveryMulti	501-519-2177	2403 Canywood Dr 72022	Email	No		My entire property is inundated with stormwater runoff from Richland Park (Thanks James Ballew & cronies) every time it rains. My home has flooded up to knee deep multiple times. Stormwater covers my entire property & flows through the entire width of my back yard to reach the ONLY ditch between the "retention" pond (SW comer of Richland Park) & the only drain on Carywood. The "ditch" is non-existent or filled in outside of my property leading to stagnant water. Water also jumps the front cup & flows up my driveway towards the house before flowing not the neighbor's property. My ground is toxic. I'm afraid the runoff is making my dogs sick. To answer the next question EVERTINING FLOODS HERE!	Carywood/Raintree Acres area	Crooked Creek	¢ 0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
286	Cariton Anderson	anderson.corky@currently.com	Yard	EveryMulti	(501) 840-1276		Email	No	Yes	The ditches that are on the back and the side of my property have not been dug out and needs leveling so the water can run through them. The new drain that was put in are higher then the ditches, with the new directing more water to the ditches.	Carywood/Raintree Acres	Crooked Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
287	Butch Higginbotham	mtnfork@yahoo.com	Yard	EveryMulti	(501) 350-2088	400 NW 3rd St Bryant, AR 72022	Email	No		Yard and crawl space flooded after virtually every ra Excess runoff from school never addressed Study by Ted Taylor on original city area open ditches and culvert found numerous issues with filled ditches, covered and undersized culvers. NEVER addressed I've had to repair foundation twice last five years because of continued flooding Loan provide pictures upon reques Drainage issues at SE Gra draund electric substatio	Original Town	Hurricane Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
288	Butch Higginbotham	mtnfork@yahoo.com	Yard	EveryMulti	(501) 350-2088	400 NW 3rd St Bryant, AR 72022	Email	No	Yes	Stir water from area drains there with no storage or detention. Floods numerous back yards on SE 2nd st Ted Taylor and Tim Fournier have both been to area in past 3 vears. Nothino done to date to resolve issue	Original Town	Hurricane Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
289	Jeremy Withers	Withersjeremy@yahoo.com	Yard	EveryMulti	5016267547	5331 Buckingham PI Bryant, AR 72022	Email	No	Yes	Poor drainage on Buckingham road in Kings Crossing. Several houses experience flooded yards during rain storms. In extreme cases the roads are flooded and impassable. N/A	Kings Crossing	Owen Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
290	Jeremy Withers	Withersjeremy@yahoo.com	Yard	EveryMulti	5016267547	5331 Buckingham PI Bryant, AR 72022 406 NW 3rd	Email	No	Yes	Poor drainage on Buckingham road in Kings Crossing, Several houses experience flooded yards during rain storms. In extreme cases the roads are flooded and impassable. Flooding from overflowed ditches off NW 4th, storm water from extractional control and overflowed ditches of NW 4th, storm water from extractional disches off NW 4th, storm water	Kings Crossing	Owen Creek		0 0				0.0 0.0		
291	Butch Higginbotham	mtnfork@yahoo.com	Other	EveryMulti	(501) 350-2088	Bryant, AR. 72022	Email	No	Yes	SCHOOL, AND OVERHOWED DICHES ON IN THE C	Original Town	Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
292	Adria Tacker	atacker6006@gmail.com	Yard	EveryMulti	(501) 681-7771	2306 Amber Cove Bryant AR 72022	Phone	Yes	Yes	2/2018 Front and back yard and stree -92.48822072 34.61590635 37	Carywood/Raintree Acres area	Crooked Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0
293	Kathryn F Whittamore	kwhittamore@gmail.com	Road	EveryMulti	5018134679	PO Box 1355, Benton, AR 72018		No	No	cul-de-sac on Parkview Drive floods when there is lots of rain -92.47862747 34.60893169 23	Eastwood	Crooked Creek	2	3 3	3 2.	4 2.7	2.6	3.0 2.8	4.0	2.9 4.4
294	DEBBIE BROADWAY	debbiebroadway@sbcglobal.net	Yard	EveryMulti	5017657178		Email	No	No	Flooding in the open ditched in original Bryant from SE 1st-SE 3rd -92.48900015 34.59330074 11	Original Town	Hurricane Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
295		cj7thomas@yahoo.com	Yard	EveryMulti	501-463-3132	1003 Sunset Gardens East. Bryant Ar.	Phone	No		-92.50423753 34.62306345 6	Sunset Meadows/Gardens	Hurricane		0 0						
296		travis.gasnier@gmail.com	Road	EveryMulti	8705409469	72022 607 Crestwood Cove Bryant, AR 72022	Email	No	Yes	May 5th, 2022 - Latest event but typically floods any time there i heavy rain. The drain along Commonwealth Rd backs up and water completely covers Commonwealth Rt	West Pointe	Creek Crooked Creek								
297	Thomas W. Woodall	thomaswoodallsr@comcast.net	HouseBusiness	EveryMulti	501 772-1194	1613 Rodeo Drive Bryant 72022	Email	Yes	Yes	This time the water did not make it up to my house but 6 or more times in the last 4 years and it continues to be a problem. I understand that whem the house was built in 1998, the builder was supposed to raise the house level with the road but it is 2 feet below that and the City let him get away with it for these 3 houses on the end of Rodeo Drive. Storm water drains to our houses and -92.50816781 has no good way to drain from here and floods every time 2 inches or more falls. Several surveys have been done of the problem will title to no effort by the City to fix. There is a Sewer system in th drain area and I have been told by the CDE that if it is declared a flood zone the sewer will have to be moved.	Woodland Park	Hurricane Creek	0	0 1	1 0.	0.0	0.0	0.0 2.3	0.9	2.8 1.1
298	Joseph Slater	andyslater76@hotmail.com	Yard	Every5	501-804-4187	109 Monticello West Bryant, AR 72022	Email	No	Yes	Concerns regarding runoff from nearby pond. A developer has installed some concrete and stone in the area to allow water to overflow in close proximity from the pond. The water that flows out of the pond goes between the homes on Plinnade Drive and Abbie Lane in all richannel. The vater is eroding the soil and there's concern that if anything clogs the waterway, the water will be redirected into the surround homes and back yards We have seen major flooding in the backyard before and the work done by the contractor has helped but the waterway that flows out of the pond needs to be reinforced with rock or gravel to ensure proper runoff into nearby retaining pond in Monticelio West.	Midtown	Crooked Creek	(O	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0
299	Tiffany Flowers	tiffany_tipp@yahoo.com	Yard	EveryMulti	501-837-3873	511 Martin Ln Bryant, AR 72022	Email	No	Yes	Flooding of street and yards92.49338556 34.58996548 N/A	Bryant Meadows	Hurricane Creek	1	1 1	2 0.	1 1.2	0.1	1.3 0.1	1.5	0.1 1.6
303	Robert Graves	robt.graves1952@gmail.com	Road	EveryMulti	5018477003	3404 village green drive	Email	No		With every light rain, the road at the curve on Village Green D floods. It has gotten worse since the business has gone in at Raymar Road, I 30 South Frontage Road and the new cut through just north of the Bryant Partikvay overpass 18	Meadowlake	Crooked Creek	2	2 2	2 0.	4 1.5	0.5	1.7 0.6	2.0	0.7 2.1
304	i Laura Cheak	licheak@att.net	Yard	EveryMulti	501-425-6355	3601 Dearborn Cir Bryant, AR 72022	Email	No	Yes	Our yard floods every time it rains. From February to August, we are unable to use our backyard because of the water running through it. We moved into this house in 1999. We started having problems when the houses were built behind us. At which time we were told by the city that upon completion of that neighborhood they would be putting in junction boxes and tying the storm drains into a lage if the first havould take excess rain water further away. Then it continued to get worse after the neighbors to our east and west installed french drains. Numerous calls to the city each time being told the budget was tight and they were working on drainage in neighborhoods to the west of us where people were actually getting water in their homes not just standing in their yards for weeks and months. The storm drain by our house just dumps out behind our fence. We were told they had plans to remedy that. Then there was drainage work in the neighborhood behind us and we talked to the the contractor but	West Pointe	Crooked Creek	c 0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
305	Peter Cunningham (First Southern Baptist Church)	Peter@fsbcbryant.org	Other	Every10	5018473014	604 S Reynolds Rd, Bryant, AR 72022	Email	No	Yes	I will attach a picture. The storm water issue we had most recently was last summer after a HUGE rain / flash flood. There is a run off ditch that enters the church properly from Bryant Meadows, the drainage area has a concrete bottom, for quite a distance. The drainage ditch was dup by the city years ago when the neighborhood was built. In this instance, there was so much rain, so fast that the ditch became full and could not handle the water volume from the property. It did not allow the water to leave through normal flow. Thus it backed up into various parts of our building, entering under doors. It cost the church about \$1500 in expenses related to renting fans and dehumidifiers and a about 40 hours of volumteer hours.	Bryant Meadows	Hurricane Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0
306	Nancy S Phillips	newyarkie@gmail.com	Yard	EveryMulti	5013267680	1903 Mayapple Drive, Bryant, AR, USA	Email			The drainage along the western portion of Cherry Creek Circle i not good. Water stands in the gutters, and the yards on both sides of the street stay VERY muddy for days after periods of heavy of 34.61174997 N/A	Cherry Creek neighborhood	Crooked Creek	0	0 0	0 0.	0.0	0.0	0.0 0.0	0.0	0.0 0.0
307		markr@daniellabel.com	Yard	EveryMulti	501-838-0408	1004 Ruth Drive Bryant, AR 72022	Email	No		Every time it rains, the comer of Ruth priva and Mills Park Roa holds water for days (some times weeks) Even after the drainage dich recedes from overflowing, the water in the road renains because the area between the drainage dich and Ruth Drive is higher and there is no curb inlet from the road to allow the water to go anywhere. Now that Mills Park has been repaved and is higher than Ruth Drive, the water now floods my yard much worse than it did before - the sidewalk at the corner stays full of water (and this is the cross walk that everyone is tryin to use daily).	Mills Park Road	Crooked Creek	c 1	1 2	2 0.	7 0.8	1.0	1.1 2.2	1.6	2.5 1.9

308 Connie Elder	connie@taxshelterinc.com	HouseBusiness	EveryMulti	501-944-9700	2407 Raymar Road, Bryant, AR 72022	Email	No	Yes	When developer built subdivisions that surround this property ther was insufficient storm drainage in the plan. This property has bee flooding my indiaws property for years. It crosses property and has no exit point other than the sitting in the back yards of our neighbors living on Lacross Street. We purchased our property in -92.46484276 March 2016 and reached out to Ted Taylor, City of Bryant Project. Engineer in 2019. He toured property and brought along Vermon Williams of GarNat Engineering. Mr. Williams provided us with a \$51,000 estimate of what it would take to property remove the storm water. I'm not sure if we were ever added to the project list.	Meadowlake	Hurricane Creek	0	0 (0 0	0.0	0.0	0.0 0.0	0 0.0	0.0 0) 0.0
309 Doris Sloan	dorisloan@gmail.com	Yard	EveryMulti	501 516 8152	300 Dogwood Place, Bryant 72022	Email	No		My backyard has a storm drain in the SE corner. In heavy rain the yard floods and the ground is undermined at the drain, causing sink holes. I have had drainage gravel installed over what was -92.48780657 and once grass, but was being eroded by the river that ran through it during heavy rains.	Dogwood Place	Crooked Cree	ek O	0 (0 0	0.0	0.0	0.0 0.0	0.0	0.0 0	0.0
310 Horace. Henderson	henderson7485@yahoo.com	Road	EveryMulti	501 213 5515	1025 Prickett Rd. Bryant At 72022	Phone	No	Yes	Standing water that is a real problem for people walking or jogging 92.50298419 at .60658762 N/A	Miller Place	Hurricane Creek	0	0 /	0 ر	0.0	0.0	0.0 0.0	0.0	0.0	0.0 ر
311 Yesis Reyes	yesis.reyes@gmail.com	Road	EveryMulti	5015293057	1813 Briarwood cove	Email	No	Yes	I've noticed that when it rains I have a pool of water at the end of my drive way. Pretty much our whole cul de sac is like that. I do n have a way of getting if of I easily since I do not have anywhere to put the water in. I hope this helps get it fixed. N/A	Edgewood	Crooked Cree	ek O	0	0 0	0.0	0.0	0.0 0.0	0.0	0.0 0	0.0
312 Joseph Loghry	Cjloghry@gmail.com	Road	EveryMulti	5016588303	2307 Pleasure Dr Bryant, AR 72019	Email	No	Yes	Water standing in street and ditches for days after rain. Standin water in ditches never dries up. Repair crews made the ditches —92.51467476 34.63164293 N/A worse about 2 years ago	Crystal Valley	Hurricane Creek	0	0 (0 0	0.0	0.0	0.0 0.0	0.0	0.0	0.0
313 Angel Murphy	guardianangel042000@yahoo.com	Road	EveryMulti	5012135267	465 Windrush Point Alexander, AR	Email	No	No	The intersection of Rudolph and Hillidale floods. The water cover the road making it impassable. It seems as if the storm drain is full -92.48773139 34.6570108 25 of debris and overgrowth of the woods	Hilldale Road	Owen Creek	k 0	0 1	1 1	0.0	0.0	0.0 0.0	0 3.0	1.1 3	1.5
314 Tracy Kirby	tracykirby@att.net	Road	EveryMulti	5012136874	812 Hilldale Rd	Phone	No	No	Covert across from house is not large enough to handle drainag from road and roundabout. Need to replace covert similar to the one going into the neighborhoo 34.64394768 27	Hilldale Road	Owen Creek	k 0	0 1	1 2	0.0	0.0	0.0 0.0	0 1.7	1.1 1.	9 1.6
315 Garey Scott	topretired@gmail.com	Road	EveryMulti	870 267 5348	2021 Cherry Creek Circle Bryant, AR 72022	Email	No		I walk most days about 4 times around the Circle and I see watt flowing into the drains, water in the streets and yards that look to be floodec. N/A	Cherry Creek neighborhood	Crooked Cree	ak 0	0 (0 0	0.0	0.0	0.0	0.0	0.0	0.0
316 Josh Cox	Cox_josh@comcast.net	Yard	EveryMulti	5019439455	2317 Cherry Creek Cir. Bryant AR 72022	Email	No	No	The entire west side of Cherry Creek Cir. First moved to this home in 2005 and there would be standing water in the road that never drained. The ciry fixed it by grading the roadway to move the water to the west side of the street which resulted I. The East side Iosin; its curbing and all of the water now being moved from the roadway into the yards on the west side of the road. Their yards are constant mud pits and have standing water aimsty sear round. There needs to be drainage installed to route the water to the drainage ditch which runs to the creek. With all the new construction across Shobe the water is going to get worse.	Cherry Creek neighborhood	Crooked Cree	ək O	0 () 0	0.0	0.0	0.0 0.0	0.0	0.0 0) 0.0
317 Rebecca Taber	becksoptin@gmail.com	Yard	Every	8706882780	1609 S Lea Cir Bryant AR 72022	Phone	No		As a rule of thumb, every time rain fall causes water to cross over Boone Rd near the little church or over the Bishop Park bridge our yard and parts of Lea Cir flood. When there are heavy rain falls in a short amounts of time our yard and street will flash flood. My property will flood from the back due to the overflow on Boone Rd near the church, which I understand to come from Hurricane. This has caused significant flooding to my barm area and has damaged fencing. We purchased this home in 2007 and were not include in the floodzone requiring flood ins. but that changed for us in 2020.	Near Boone Road	Hurricane Creek	1	1 (2 3	0.5	0.7	0.5 1.3	3 0.7	2.8 0	3.4
318 Tiffany Flowers	tiffany_tipp@yahoo.com	Road	EveryMulti	501-837-3873	511 Martin Ln Bryant, AR 72022	Email	No	Yes	Flood water location is on Martin Ln. The water rises up into the yards close to the cars, trucks, and garages -92.49337751 34.58995886 N/A	Bryant Meadows	Hurricane Creek	1	1	1 1	0.1	1.1	0.1 1.5	2 0.1	1.4 0	1.5
319 Reagan McKinley		HouseBusiness	EveryMulti	870-703-1976	801 SW 3rd St	Phone	No	Yes	Ditches and culverts are not draining. Road, Yard, Garage a flooded previously due to this issue. Every time it rains. Please call -92.49811011 34.59251435 N/A 870-703-1976 to discuss.	Morden	Hurricane Creek	0	0 (0 0	0.0	0.0	0.0 0.0	0.0	0.0	0.0
320 The Ferguson's		Yard	EveryMulti	870-703-1976	802 Southwest 3rd St. Bryant, AR 72022	Phone	No	Yes	Please call 870-703-1976 to discuss. Rain does not drain through ditches and culverts. Rain floods yard, road, driveway every time it -92.49814339 34.59295327 N/A	Morden	Hurricane Creek	0	0 (0 0	0.0	0.0	0.0	0.0	0.0 0	0.0
321 Matt Phillips	matt.phillips@carkw.com	Yard	EveryMulti	5015290230	2312 Carywood Dr	Phone	No	Yes	Water stands during winter and after rain through out the year. Th curb has settled which does not allow water to drain down grade -92.48842499 34.61603916 37 from the area	Carywood/Raintree Acres area	Crooked Cree	ek 0	0 (0 0	0.0	0.0	0.0 0.0	0.0	0.0	0.0
322 sarah griffiths	stonegriffiths@yahoo.com	Road	EveryMulti	5014257471	1704 Forrest St Alexander AR 72002	Mail			Cannot drive through Hilltop Rd closer to the Hilldale end during heavy rains. Especially in front of 810 Hilltop Rd	Hilltop Road	Owen Creek	k 0	0	o 0	0.0	0.0	0.0 0.0	0.0	0.0 0	0.0 د
323 NATHAN R WILSON	nwilson705@gmail.com	Yard	EveryMulti	5012531959	6510 Springhill Rd	Phone	No	Yes	When Springall Village Drive was built it caused my property to start flooding. We have pictures of the flooding, issue that takes u a great portion of our yard running next to Springill Village Dr. Water coming down the hill from the north floods the area next to the Springilla Village sign on the corner, then turns down our yard to the east to flow into the open creek which then floods that end (our property.	Springhill Village	Hurricane Creek	0	0) 0	0.0	0.0	0.0 0.0	0 0.0	0.0 0	0.0
324 Janet A Shuttleworth	janken981@yahoo.com	Yard	EveryMulti	501-765-3109	2112 Cherry Creek Circle Bryant, Ar. 72022	Phone	No	Yes	Damaged storm drain that runs from the street through our front, side, and back yard has caused catastrophic erosion in our yard and in turn has damaged our shed in our backyard. I emailed our mayor regarding this issue in June 2021. He contacted Turn Fournier, Public Works Director. We were told in order to work on the drainage piping, we would have to "give temporary construction easement" and with "curner project load, it would be 2-3years before We can get to this project." I still have a copy of the emails and pictures I sent. The yard erosion and damage continues to worsen because of the danged storm drainage system that runs through our yard. Please help us!	Cherry Creek neighborhood	Crooked Cree	ak O	0) 0	0.0	0.0	0.0 0.0	0 0.0	0.0 0) 0.0
325 Stephen Williams	Willjc74@gmail.com	Yard	EveryMulti	5017222841	2414 Cherry Creek Circle Bryant, Arkansas 72022	Email	No		Every rain we have brings standing water in our back yard due to runoff from our neighborhood. All the water from our neighborhood entrance runs through our yard and into my neighbors yard causing very soft areas and mosquitoes. We also have standing water on Shobe Rd close to our property boundaries.	Cherry Creek neighborhood	Crooked Cree	ek O	0	0 0	0.0	0.0	0.0 0.0	0.0	0.0 0	0.0
326 Tim Lenahan	Timothy.Lenahan@me.com	Yard	EveryMulti	501-413-0817	3514 village green drive Bryant, AR 72022	Email	No	Yes	Storm water floods my back yard every time it rains. Water cover half my yard, 2-3 feet deep, and stays for days, which is a health hazard due to mosquitoe: 18	Meadowlake	Crooked Cree	ek 0	0	1 1	0.0	0.0	0.0	0 0.3	0.6 0	0.6
327 Donald Shauger	Clachef89@icloud.com	Yard	EveryMulti	862-293-8120	3600 village green drive Bryant Arkansas 72022	Phone	No	Yes	Raymar rd floods the water comes off the road and behind our houses and sits for weeks on end causing mosquitos bugs and snakes, we all have kids and this is very dangerous this is the responsibility of the town to help with it is not on the 5 acres behin ended to the company of the town to help with it is not on the 5 acres behin ended to the company of the town to help with it is not on the 5 acres behin ended to the company of the town to help with it is not on the 5 acres behin ended to the company of the c	Meadowlake	Crooked Cree	ek O	0) 0	0.0	0.0	0.0 0.0	0.0	0.0 0	0.0
330 Carolyn Slater	carolyn_a_slater@hotmail.com	Yard	EveryMulti	8658035610	89 Pinnacle Drive, Bryant AR 72022	Mail	No	Yes	Front yard is standing in water with any hard rain-the rainwater cannot get to the drainage system in the street. I also get all the rainwater draining from other (higher) yards. A virtual river runs from all that rainwater as a small river thu to back yard where it makes its way to the drainage ditch behind my house. When heavy rain occurs, my fence is 3 ft under water adjacent to the said drainage ditch. I have concerns as well about the pond behind the cul de sac in which live in Stoneybrock SD. The developer seems to be attempting to reroute the overflow to "said drainage ditch". With the issues I am having and the fack of oversight and involvement with agencies who can provide the knowledge and laws to cause the developer do what needs to be done, we may as well be living way out in the county on a farm. But we are living in the CITY OF BRYANT in a very large subdivision. I feel like I have a dark cloud over my headjust waitin	Midtown	Crooked Cree	∍k O	0 () 0	0.0	0.0	0.0 0.0	0 0.0	0.0 0) 0.0

331	Janet bass	Janetbass58@gmail.com	HouseBusiness	Every5	5018605660	1709 hidden creek drive, Bryant AR 72022	Email	Yes	Yes	The water from hidden Creek can flood over the bridge and onto the front of my property. This last year it flooded my house. I had my house in a upheaval state for approximately four months. When I bought the house I was told that it had flooded a couple of times before, but that the issues were not something that would be repeated for example, once they said it had some kind of construction cause). Apparently that was not true. Also, The drainage culvert ends behind my property and there are trees and growth that seem to block it which may contribute to it not flowing incely. I don't have photos of the flood, but I have photos of the drainage culver have photos of the flood. But I have photos of the drainage shat has growth in it or where the concrete stops. Last year when it flooded be believe the check that insurance wrote was for approx \$50k.	Hidden Creek	Hurricane Creek	0	0 1	1	0.0	0.0 0.	0 0.0	2.2 0.7	7 2.6 1.0
332	Leslie Witt	leslie.hudgeons@gmail.com	Yard	EveryMulti	4798860543	2013 cherry creek cirlce, Bryant, AR 72022	Phone	No	Yes	Our front yard is slightly sloped to the street and any time it rain water drains and sits at the front of our yard. It slays moddy for up _92.47380242 34.6116232 NA to a week after rain aimost making it impossible to mow the front half of our yard.	Cherry Creek neighborhood	Crooked Creek	k 0	0 0	0	0.0	0.0 0.	0.0	0.0 0.0	0.0 0.0
333	Han cho	Evan1004us@gmail.com	Road	EveryMulti	501-772-0880	2500 cherry creek cir Bryant AR 72022	Email	No	Yes	Every time rain comes, there are water in front of my lot and mes with soils until it dries out for several days. Aspals road is broken and cracked, puddled with. Definitely needed a repair or replacement of road here The neighborhood storm drains are either not large enough	Cherry Creek neighborhood	Crooked Creek	k 0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
334	Karen Bonvillain	keymckissock@yahoo.com	Yard	EveryMulti	5012475221	1520 Pleasant Pointe Circle Bryant, AR 72022	Email	No		damaged, or have a blockage at the outfall. When there is a large amount of rain in a short period of time or a long rain event all of the water ends up at the south end of the neighborhood, flooding yards. NA	Pleasant Pointe/Cedarwood	Hurricane Creek	1	1 1	1	0.5	0.9 0	6 1.0	0.8 1.2	2 0.8 1.3
335	6 Chalsie Sublett	Thesubletts@yahoo.com	Yard	EveryMulti	5015292169	807 Allyson Avenue Bryant Ar 72022	Email	No	Yes	Side and back yard flood every time we get a good rain. We were told it's because a neighbor has a public drain either way it's a mess! Our privacy fence is taking damage because of it.	Bryant Meadows	Hurricane Creek	0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
336	Ron Abrahams		HouseBusiness	Every2	479-857-0160	2616 Carywood Drive	Phone	No		Based on Phone Call 51/12/02/22: Water flows down Carywood, crosses from the west side of the road to the east side, and goes over the curb and flows between house his house and the house the north. The house to the north has been flooded for fits 92.48779165 as 4.61864434 36 foundation: Dors house has had allitle bit of water in it. He has talked with the city about this 2 years ago and he though a project was going to be done to fix. It.	Carywood/Raintree Acres	Crooked Creek	k 0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
343	B Debbie Fannon	fannondebb@yahoo.com	Yard	EveryMulti	501-366-3111	1723 Kensington Dr Bryant Ar 72022	Phone	No	Yes	No culvert on our cove. All storm water drains into our yard. Soil erosion so bad it was causing major damage. Paid 10,000 to have 192.51009711 trench installed. It helps but still a huge problem. Fence and trees are coming down. Reported it before.	Forest Cove	Hurricane Creek	0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
344	Billy R Hardin	billhardin@att.net	Yard	EveryMulti	501-658-0519	Billy R Hardin 706 Sanders Ln Bryant, AR 72022-3732	Email	No	No	I have a French drain underground that takes water from my back yard area to the front yard bordering Sanders Lane. The water from yard and water running south on Sanders Lane. The water for my yard and water running south on Sanders Ln collide at my driveway. There is no pathway going no south along street for the -92.49579025 at .88848705 N/A water to move on to the storm drain at the intersection of Sanders and Griffis. The water backs up and covers my backyard patio and can come into my house.	Bryant Meadows	Hurricane Creek	0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
345	j Jim Gass	Jgass11713@yahoo.com	Yard	EveryMulti	903-949-9209	2513 Johnswood Village Drive Bryant, AR 72022	Phone	No	Yes	Drainage pipe running through yard is not properly sized c Pipe raises out of the ground during heavy rain event We moved into our home in October and with the recent rains, w	Johnswood Village	Crooked Creek	k 0	0 0	0	0.0	0.0	0 0.0	0.0 0.0	0.0 0.0
350) Matthew Burks	radioscottshady@yahoo.com	Yard	EveryMulti	5013179416	412 Bryant Meadows Drive	Email	Yes		discovered that water severely pools all over our yard, so much that you can't walk to our front door without getting the tops of your shoes wet. In light of this, we hired a crew to put in French Drains. When they surveyed, they showed me where there are no storm drains on our road. I then noticed, nobody in our entitie neighborhood as one. I had to \$7,000 (including \$500 for the contractor to get a city permit) to get drainage to a storm drain which is way behind our property, through Bryant House senior living center.	Bryant Meadows	Hurricane Creek	0	0 0	0	0.0	0.0	0 0.0	0.0 0.0	0.0 0.0
351	William Knauf	bill_knauf@yahoo.com	Yard	EveryMulti	501-557-8555	2400 Cherry Creek Circle	Email	No		The street in front of my house needs repair several times a year due to underground springs causing road to fall apart. It is again showing signs. Also, my yard and that of my neighbors gets so wet that several neighbors wornt mow their lawn due to their lawn mower sinking into the mud. Yesterday I tried to mow one of their yards and had to give up after 3/4 of the yard as both my mower and my feet were sinking so bad. I have lived here almost 11 years and I know my yard never needs o be watered due to how damp the soil is. This is a problem for both the yard and street.	Cherry Creek neighborhood	Crooked Creek	k 0	1 1	1	0.0	0.0 0.	9 0.5	0.9 0.6	5 1.0 0.6
352	P. Danny Grupa	dannygrupa@gmail.com	Other	EveryMulti	501 722 3356	710 southwest 3rd Bryant, AR 72022	Email	No	Yes	The city has continuously dug my ditch deeper and deeper t where it holds water or mud constantly and is impossible to -92.49758306 34.59293717 NIA THE STREET DRAIN BESIDE MY DRIVEWAY HAS	Morden	Hurricane Creek	0	0 0	0	0.0	0.0	0 0.0	0.0 0.0	0.0 0.0
353	Steven D Epperson	sdepperson@gmail.com	Road	EveryMulti	5016587956	3319 MEADOW CREEK DR	Phone	No		COLLAPSED, ALONG WITH THE CONCRETE. THE DRAIN FLOWS INTO A DRAINAGE ASSEMBLY ON THE BACK OF MY PROPERTY, AND AS YOU FOLLOW THE EASEMENT TOWARDS SHOSE ROAD, THE DRAINAGE IS BLOCKED WITH DEBRIS SUCH AS CONCRETE PIECES AND OVERGROWN VEGETATION. THIS MAKES THE WATER STAND AND STAGNATE INSIDE THE EASEMENT, AND ALSO BREEDS MOSQUITOS. THE REMSHAYL AND ALSO BREEDS MOSQUITOS. THE REPOSION ALONG THIS DRAINAGE EASEMENT HAS ALSO CHANGED THE GRADE SO THAT WATER CANNOT CONTINUE FLOWING TOWARDS SHOBE ROAD. DURING HEAVY RAINS, THE ROAD FLOODS, AS WELL AS THE PORTION OF MY DRIVEWAY BY THE STREET. THERE IS ALSO AND LOER PIEP THAT WENT UNDER THE STREET BY MY DRIVEWAY THAT HAS COLLAPSED, AND LEFT SEVERAL DEEP HOLES IN THE GROUND WITHIN A COUPLE OF FEET OF MEADOW CREEK DRIVE. THIS AREA IS A DANGER TO CHILDREN PLAYING, AS WELL AS THOSE WHO RIDE BICYCLES ALONG THE STREET.	Lexington Park	Crooked Creek	k 0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
354	Michael Thompson	Double.dragon.mgt@gmail.com	Other	Every	5018135168	1601 South Lea Circle Bryant, Arkansas 72022	Phone	No		Flood water in barn, yard is often damaged by flood debris from other peoples property. An approximate 8 floot steel gate was torn from someone else's property and washed up under the bridge bit -92.5069324 goes over the water run off creek dividing my property. The water and the gate damaged my bridge.	Near Boone Road	Hurricane Creek	0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
355	6 Emilie Monk	Emonk8@att.net	HouseBusiness	EveryMulti	501-920-1717	Emilie Monk 1301 Boone Road Bryant, AR 72022	Phone	No	Yes	Water comes across Boone Road from Richardson Place Subdivision and straight down hill. It started this after new road wa replaced. A culvert was put under street and drains into my yard. It has caused my house to settle and I had to have Olshan to raise i I need the ditch replaced that was on the other side of the road. Water stands under my house causing mildew and moisture. I never had problems until so much building has taken place u steam. I've lived here over 30 years. I need the ditch replaced across the street. Every limit it and 1/2 inch it floods.	Boone Road	Hurricane Creek	0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0 0.0 0.0
356	i michaelreade	readeauto@yahoo.com	Other	EveryMulti	15018476364	1801 n Reynolds rd or PO box 28	Phone	No	No	the culvert is collapsed under dive way at reades automotive have culverts to replace but been argueing with state hely department flover 1 year to get them put in are sitting by road and ready to be install this would help the drainage on reynolds rd some thanks manager of reades automotive	Big Oak	Crooked Creek	k 0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
357	' Dorothy Weaver	dorothy.weaver@att.net	Yard	EveryMulti	5012135066	108 Canyon Way Bryant, AR 72022	Email	No	Yes	Drainage ditch located on Lombard goes through back c properties in Magnolia Village. The ditch was narrow now widen by rain and drainage from opposite of road, the debris has built up so water backs up into the back yard. Debris also has caused a snake problem. The ditch was moved years ago from the property behind the houses to the current location, but there was no rock or anything t prevent the washing out of sides of the ditch. Eventually this will cause	Magnolia Village	Owen Creek	0	0 0	0	0.0	0.0 0.	0 0.0	0.0 0.0	0.0 0.0
358	John Johnston	pastorjohnj618@gmail.com	Road	EveryMulti	501-213-6793	67 Crain Drive	Phone	No	Yes		Southwood Acres	Hurricane Creek	1	1 1	1	0.0	0.0	0 0.0	0.0 0.0	0.0 0.0

359	Danny Grupa	dannygrup@gmail.com	Other	EveryMulti	5017223356	710 sw 3rd Bryant, AR 72022	Email	No	Yes	The city has constantly dug my ditch deeper and deeper. constantly holds water or mud and is impossible to maintain. It has -92.49758306 34.59293717 N/A	Morden	Hurricane Creek	0	0 0	0	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
360	Cara Brookins	cara@carabrookins.com	Road	EveryMulti	5017657041	2107 Hickory Dr Bryant AR 72019	Email	No	Yes	been dug lower than the culverts Culvert under street completely filled with dirt and rocks. Ditch pile with dirthooks from flooding. Damage to yard, driveway, from repeated failed attempts to solve the ongoing flooding problem for 15 years. Water covers driveway and road during even mild storms. The solutions to date have made moving and yard management impossible. Snakes have infested the area. We need a long term solution for this mess. I would like to be involved in the process of creating a plan that can be executed and maintained lit's frustrating to deal with this for so long with no viable solutions.	Hickory Hill	Hurricane Creek	1	1 1	1	1.9 1.0	0 2.0	1.1 2	.5 1.3	2.7 1.4
361	KEVIN BETHEA	bethea_kevin@yahoo.com	Yard	EveryMulti	8707232619	6150 Remington Drive, Bryant, AR 72022	Email	No	Yes	Water is not draining properly because storm water basin in subdivision is not maintained by city or subdivision. A person that lives in subdivision yard was flooded. There are huge rats living in that basin because it is not maintained. Another comment would -92.51796875 be that the city needs to keep shoulders on major roads cleared other than moving 18 inches on the sides of major roads, that would cut back on roads in general flooding.	Remington Place	Hurricane Creek	0	0 0	0	0.0 0.0	0 0.0	0.0 0	.0 0.0	0.0 0.0
362	KRYSTYNA REINHARDT	krystynareinhardt@gmail.com	Yard	EveryMulti		2713 Johnswood Village Drive. Bryant, AR 72022	Email	No	Yes	After rain. Nothing crazy, no storm. There is one foot of water that is sitting at my fence line and doesn't go anywhere for a full day cr so. Provided it doesn't rain anymore. If there is a storm with heavy rainfall. Then there is much more water in that location. The property behind us also has sitting water for days. The subdivision has a retention pond, but never has any water in It. The back side of multiple properties need to be addressed and have that water directed towards our retention pond. Also there have been a few times with heavy storms that the culdesac would have standing water during the storm and start moving up to the driveways. Maybe not draining correctly?	Johnswood Village	Crooked Creel	¢ 0	0 0	0	0.0 0.0	0 0.0	0.0 0	.0 0.0	0.0 0.0
363	Greg Whitehead	greg@controlledautomation.com	Yard	EveryMulti	5017496897	501 Sanders Lane Bryant, AR 72022	Email	No	Yes	Culvert under street is undersized allowing water to backup int yard creating a major problem with flooding the entire yard, including several neighbors flooding	Bryant Meadows	Hurricane Creek	0	0 0	0	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
364	Melissa Lee	mtlee501@gmail.com	Yard	EveryMulti	479-518-6396	200 Ethel Drive Bryant, AR 72022	Phone	No	Yes	-92.49710009 34.61152367 N/A	Big Oak	Crooked Cree	¢ 0	0 0	0	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
365	Lori Anne Dilatush		Yard	EveryMulti	15014125815	4323 S Shobe Road	Email	No	Yes	The most resent time my back yard was flooded was April 13, 2022. The ditch that runs on my property comes from my neighbor's backyards out to S Shobe Road where it continues to flood. My backyard along with my spare lot has deep standing water in which I am unable to measure due to safety reasons. Every time there is a heavy rain the flooding becomes an issue. Please review the attached pictures.	Lexington Park	Crooked Cree	x 0	0 0	0 (0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
366	Rachel Cotton	okarkcotton@yahoo.com	Yard	EveryMulti	9188297988	2710 Lavern Street Bryant AR 72022	Email	No	Yes	There is a storm water ditch in my front yard at the road. Th culvert under my drieways is blocked resulting in water running back to my yard. We are down hill so this tends to be a very significant amount of water flooding our yard, drieway, porch steps, as well as our neighbors yard. I have had to relocate my Camaro several times due to the flood level and the running water across my driveway. The driveway is 4-5 inches raised above sol -92.49020576 level. There is a major mosquito problem here that I'm sure is from this issue and resulting standing water that never seems to completely dry out. I rent this home and am not sure if this is owner responsibility or	Carywood/Raintree Acres area	Crooked Cree	x 0	0 0	0 (0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
367	Julian owen	Julianowen2000@gmail.com	Yard	EveryMulti	5017723890	4322 Lexington park circle Bryant Ar 72022	Email	No	No	city. Behind my home behind the fence when we get heavy or regular rain the drainage floods coming into my yard and shed. My fence is ruined/ rotted and shed as had a new floor. I've raised my shed is inches. So it 18 si Inches from ground. So at least 7 - 92.45608408 34.63315444 34.63315444 34.63315444 34.63315444 34.63315444 34.63315444 34.63315444 34.63315444 34.63315444	Lexington Park	Crooked Cree	< 0	0 0	0 (0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
368	Michael & Tamara Guffey	tama_guff@yahoo.com	Other		501 350-7732	1302 Ashlea Place Drive Bryant, AR 72022	Phone	No	Yes	Open drainage easement is washing away soil and has a lot of erosion. Large pieces of the bank have fallen off. We have paid t re-sod and reseed the embankment with more vegetation which does not work because the water rounds the corner too swiftly on that side and also receives additional water from another incoming drain that dumps at that corner of the yard. We mow it to keep the snakes away. Last summer my husband fell into the creek when the ground under him broke off.	Sunset Meadows/Gardens	Hurricane Creek	4	4 4	4	7.0 1.9	9 7.5	2.2 8	.7 3.0	9.1 3.2
369	Elisa Smith	Elisamsmith60@yahoo.com	Yard	EveryMulti	5013505597	1408 Pleasant Pointe Circle Bryant, AR. 72022	Phone	No	Yes	May 2021 (last time I took pictures) but pretty much floods every time it rains. My back yard floods and the water comes up halfway to my house sometimes it is a floot or more deep. Has done this ever since I bought my house in 2008. Before the house behind me was built complained to the city and someone came out and looked at the problem. Said they talked to the builders and builder would make a didth to help with the problem. Only thing builder did was build up the ground so the house he was building was higher.	Pleasant Pointe/Cedarwood	Hurricane Creek	0	0 0	0	0.0 0.0	0 0.0	0.0 0	.0 0.0	0.0 0.0
370	John Willix c/o Willix Family Trust	Jwillix@cbrpm.com	Yard	EveryMulti	501-804-4761	3005 Glenbrook St Bryant , AR 72022	Email	No	Yes	5/22/2022. Front yard. Insufficient drainage under the street. Deepest spot 2 ft tappering towards the house to 0 ft about 15 foot -92.51486679 from house. 34.62255107 from house.	Sherwood Park/Sherwood Estates	Hurricane Creek	0	0 0	0	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
371	Ting	inti528@yahoo.com.hk	HouseBusiness	Every2	501-410-3505	3317 STILLMAN LOOP, BRYANT, AR 72022	Email	No		We moved in to this house in May 2016. The first flood was April- 2017 and then again April-2021. There were 3 inches of water inside our house/whole living room, dinning room, media room and one storage room were all flooded) both time. There is a draining apth on the right side of our house for the whole neighborhood and it seems it's not very effective. The flood happened to our next do neighbor as well. I do not have pictures of the flood as I was carrying my infant as I try to get the water out of my house.	Springhill Manor	Hurricane Creek	0	0 0	0	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
372	Langdon "Buh" Jones	buhjonesband@gmail.com	HouseBusiness			3508 Village Green Dr.				My house and the neighbors house both flood when it rains heavy -92.4683215 34.62607402 18	Meadowlake	Crooked Cree	¢ 0	0 0	0	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
373	Chante Tyson	tysonchante@yahoo.com	HouseBusiness		5017726065	201 Crossing Place Bryant, AR 72022				I've lived in Oak Glen for about 5 years and my house is next to the creek in the back. I've spent a lot more money than planned during storms that affected an entire area of my home due _92.48025615 to flooding. Please consider my recommendation to begin the drainage system in Byant! If I need to submit anything else let me know thanks Chante Tyson	Oak Glenn	Owen Creek	0	0 0	0	0.0 0.0	0 0.0	0.0 0	.0 0.0	0.0 0.0
374	Denise Townsend	denise.townsend@gmail.com	Yard	EveryMulti	5018477234	3210 Independence Circle Bryant, AR 72022	Email	No		City owned drain in out backyard is not capable of controlling the water. Retention pond overflows every time it rains heavily. The water has come up to our house and almost entered.	West Pointe	Hurricane Creek	0	0 0	0 (0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
375	Hannah Diotte	hannahsmothers98@gmail.com	HouseBusiness	EveryMulti	5012850065	50 Wagner St. Bryant, AR 72022	Email	No		Summer 2021 the storm drain was incapable of handlin; floodwater capacity. Our entire home flooded with water at least 2 in. deep throughout. Our entire outdoor property floods with any/alli 92.49765355 34.59009764 40	Southwood Acres	Hurricane Creek	0	1 1	1	0.0 0.0	0.0	0.0 0	.0 0.0	0.0 0.0
376	James Cox	jclakersfan@icloud.com	Road	EveryMulti	5016268266	1318 Crossing Loop				rainfall. I moved to 1318 crossing loop in Bryant at Back of oak Glenn in 2016. Creek was tiny and way away from my home yet w all the construction it's huge now and has flooded the neighborhood streets nearly every year at least once. Raging rapids and people having to be rescued by boats even. It's not as 1-92.47963036 34.6443003 30 and causes strees to us all. It's come up to halfway up my drivway multiple times and in no where close to the creek. City should not of allowed these Rausch Coleman houses to be built there but we love our street and just want it fixed.	Oak Glenn	Owen Creek	0	0 0	0	0.0 0.0	0 0.0	0.0 0	.0 0.0	0.0 0.0

377	Jennifer Thompson	jennifertcarson@gmail.com	Yard	EveryMulti	5019443590	1000 Flametree Drive Bryant, AR 72022	Email	No		During medium to heavy storms, 4-5 streams form in our neighbor's yards uphill from us and flow from the neighbor's yard immediately into our back yard. These streams saturate our backyard ofform pools of water. It takes days and sometimes weeks for this to dry out. The water in our front yard ard nino straight through our yard and into our neighbor's driveway, which has resulted in damage to the driveway and flooding to the garage. The character of our yard has changed distinctly within the last several years and we have concerns about the foundation of our home. One thing we'd like to note is there is an easement behind our fence that is supposed to run the length our street. In the event the easement could be used to somehow direct water to a storm drain the easement is blocked by fences and leaves and will need to be cleared.	Carywood/Raintree Acres	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0 0.	0.0 0.0	0.0 0.0
378	John Baldwin	jbaldwin@eastersealsar.com	Yard	EveryMulti	5019510516	4009 Commonwealth Dr. Bryant, AR 72022	Email		No	The storm drainage comes from the streets above my home and during heavy rain, the yard floods and the water jumps the curbs on Commonwealth and Robinwood into my front and backyard. W also receive water from the apartments behind my property. The storm drain in front of my yard and the house on Robinwood does not keep up during heavy rains	Stoneybrook/Springhill Acres	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0 0.	0.0	0.0 0.0
379	Justin Lee Hill	justin_hill@yahoo.com	Yard	EveryMulti	5019432799	603 Mills Park Rd. Bryant, AR 72022	Email	No		I bought my home in 2001 and have never had the problems I have had in the last 6 months because of drainage issues. The erosion has damaged trees, fencing and now i am getting cracks the walls. My fence is a foot lower on own side compared to the other. I am at the bottom of the hill so I'm getting everything that should be going through the drainage system that has failed. I also -92.48198098 and shave piles of gravel that have collected from the runoff that used to be a filter for the drop off that was left after repaiving the road but it is all in my road now. The street dept said they would get the grav up, they came and took a layer but left most of it. I will email pictures.	Bloomfield Hills	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0 0.	0.0 0.0	0.0 0.0
380	Karma Smoke	karma.smoke@gmail.com	Yard	EveryMulti	5018402430	2317 Chelsea Dr. Bryant, AR 72022	Email	No		My house has settled 5 in on the backside due to the lack of drainage from the rain water. My back porch concrete has dropped -92.48781345 34.61607873 37	Carywood/Raintree Acres area	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0 0	0.0	0.0 0.0
381	Keith Banks	kgbanks@yahoo.com	Yard	EveryMulti	8707182806	3513 Henson Place Bryant, AR 72022	Email	No		and cracked. My driveway is raising up unevenly and cracking My back yard is in a constant state of flooding, It wasn't like that this time last year. It hasn't rained in days, yet I still have standing water in my backyard. My front yard is consistently soggy. The street in front of my house is always wet. That is creating cracks in the asphalt and its effecting my property.	Springhill Manor	Hurricane Creek	0	0 0	0	0.0 0	.0 0.0	0.0 0	0.0	0.0 0.0
382	Kevin Bethea	bethea.kevin@yahoo.com	Road	EveryMulti	8707232619	6150 Remington Dr. Bryant, AR 72022	Email	Yes		water is not draining properly because area is not maintained t city or subdivision. A person that lives in subdivision house was floorled floorled.	Remington Place	Hurricane Creek	1	1 2	2	2.6 0	.9 2.7	1.1 2	2.9 1.5	2.9 1.7
383	Paul n Moropoulos	dogtags11@hotmail.com	Yard	EveryMulti	5012130134	706 Holly Lynn Dr. Bryant, AR 72022	Phone	No		The natural flow of water on Ruth ave. has diverted itself is between 701 and 703 Ruth ave. and travels into my yard. This habeen causing flooding and erosion and at times the depth is almo 12 in.	Park Hill	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0 0.	0.0	0.0 0.0
384	Sharon Steele	steele.sharon@ymail.com	Yard	EveryMulti	5018020944	42 Neal Cv. Bryant, AR 72022	Email	No		Yard floods every rain and retains moisture even in dry climate, water is at least ankle deep at minimum during time of flooding. N/A	Bryant Oaks	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0	0.0	0.0 0.0
385	Jeffery Brown	gphodwild66@gmail.com	Yard	EveryMulti	5017650369	705 SE 1st St. Bryant, AR 72022	Email	No		Two storm drains dump into our backyard and over the years have eroded half of our backyard. We extended one of the pipes at ou expense or more of the yard would be gone! 34.59541411 33	Hidden Forest	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0 0.	0.0	0.0 0.0
386	Ralph Williams	willaims7732@sbcglobal.net	HouseBusiness	Every10	5017724633	1727 Hidden Creek Dr. Bryant, AR 72022	Phone	No		My entire home has been flooded twice, 1st in 2008 and 2nd in 2017. My grarge has been flooded 5 times but the water receded before it entered the house. Slorm water travels down Pine Meadow Dr. from highway 5 and from the property of the funeral home and over the curb into my yard. The drop inlet in the intersection of cannot handle the high degree of storm water so th water floods my home. Storm water also overflows the creek on hidden creek dr. and backs up to my house and joins the storm water floor prine meadow. It would help is the creek that crosses hidden creek dr. was cleamed and cleared of all debris and foliage from Hidden Creek. Dr. to the frontage road on I-30. Also, it would be help greatly if the drop inlet pipes were enlarged at the intersection of Pine Meadow Dr. and Hidden Creek Dr.	Hidden Creek	Hurricane Creek	0	0 1	1	0.0 0	.0 0.0	0.0 2	2.1 1.0	2.5 1.2
387	Joyce Koozer				4694715608	2805 Barbara Court Bryant, AR 72022	Phone			-92.46030764 34.63946487 39	East Ridge		k 0	0 0	0	0.0	.0 0.0	0.0	0.0	0.0 0.0
388	Marian Langston				5018474218	1104 N Richardson Place Dr. Bryant, AR 72022 1206 Kynlee Cv	Phone			-92.50254372 34.59881372 32 cul-de-sac looks like a pond when flooded; last rainstorm washed	Richardson Place	Hurricane Creek Hurricane								0.0 0.0
389 390	Retta Patrick Richard Gentry		Yard		5016532424 4798570160	Bryant, AR 72022 2616 Carywood Dr.	Phone Phone			CUI-ge-sac rooks like a pond when hooded; last rainstorm washed -92.50565919 34.62475852 1 -92.48779165 34.61864434 36	Sunset Meadows/Gardens Carywood/Raintree Acres	Creek Crooked Cree								0.0 0.0
391	Richard Gentry				5014160685	Bryant, AR 72022 1203 Katrina Dr. Bryant, AR 72022	Phone			-92.49657957 34.58428927 N/A	Pleasant Pointe/Cedarwood	Hurricane Creek								0.0 0.0
392	Ron Abrahams				4798570160	2616 Carywood Dr. Bryant, AR 72022	Phone			-92.48779165 34.61864434 36	Carywood/Raintree Acres		k 0	0 0	0	0.0 0	.0 0.0	0.0 0.	0.0	0.0 0.0
393	Pam Gregory		Yard		5018403018	22660 Hwy I-30 N Bryant, AR 72022	Phone			house located at Country Woods Mobile Home Park: lot 43B; lot has flooded 3 times -92.50169321 34.61921033 N/A	Country Woods	Crooked Cree	k 0	0 0	0	0.0	.0 0.0	0.0	0.0	0.0 0.0
394	Emilie Monk	emonk8@att.net	HouseBusiness	EveryMulti	5019201717	1301 Boone Rd. Bryant, AR 72022 704 Ruth Drive	Email	No		Every time it rains yard floods. Water runs across street from Richardson Place. Cause flooding in both front and back yards. Plooding has also caused damage to house and sidewalk. Small ditch in backyard fills with liter carried from neighboring yards.	Boone Road	Hurricane Creek	0	0 0	0	0.0 0	.0 0.0	0.0 0	0.0	0.0 0.0
395	Kermit Gray		HouseBusiness		5015803356	Bryant, AR 72022	Phone			Damage to house and standing water in yard.	Park Hill	Crooked Cree	k 0	0 0	0	0.0 0	.0 0.0	0.0	0.0	0.0 0.0
396	Lisa newburn	oliverll1@yahoo.com	HouseBusiness	EveryMulti	5013131308	3905 mockingbird cove Benton AR	Email	No	Yes	with the state of	Outside City Limits	Hurricane Creek	0	0 0	0	0.0 0	.0 0.0	0.0 0.	0.0	0.0 0.0
397	Thomas Woodall	thomaswoodallsr@comcast.net	HouseBusiness	EveryMulti	501 7721194	1613 Rodeo Dr	Email	Yes	Yes	When there is more then 1 inch of rain my yard, front and back floods, more then that the water will get up to my house. The stor water drains for the area into my back yard and there was never a plan to get the water out of our area. The sewer line for this area runs thru the drainage creek behind my house and it floods over the sewer system on a regular basis.	Rodeo Drive	Hurricane Creek	0	0 0	1	0.0 0	.0 0.0	0.0 2	2.3 0.9	2.8 1.1
398	Rosa Reed	reed6611@yahoo.com	Yard		318-542-5389	1620 Pleasant Pointe Circle Bryant, AR 72202	Mail	No	No	My back yard floods and hold standing water when it rains. It i really terrible during medium to heavy rain stores that are consistent for several days 34.59081068 N/A	Pleasant Pointe/Cedarwood	Hurricane Creek	0	0 0	0	0.0 0	.0 0.0	0.0 0	0.0	0.0 0.0
399	Kathy Lewallen	jackielewallen@att.net	Yard	EveryMulti	501-837-3369	307 NW 4th Street Bryant, Arkansas. 72022	Email	No		Water coming off the high school property House was built in 1937 and haven't had water issues until new building started. Water under house, flooded storage bldg, top scil washed away 34.59769541 11	Original Town	Hurricane Creek	0	0 0	0	0.0	.0 0.0	0.0	0.0	0.0 0.0
400	Chris perry	cperry.sds@gmail.com	HouseBusiness	EveryMulti	870-405-7330	5915 Springdale road Alexander, AR 72002	Email	No	Yes	Since the subdivision retiningtion Essates was built and beveloped if forces water across Springdale road and my property in volumes 492.51937131 x 100 than what it was before. This is causing deterioration of my property.	Remington Place	Hurricane Creek	0	0 0	0	0.0 0	.0 0.0	0.0	0.0	0.0 0.0
401	Andrea Hooten	ahooten@aristotle.net	HouseBusiness	Every	501-249-5562	12 Pine Chapel Drive	Email	No	Yes	Floods our carport every flash flood we have92.4986292 34.59646222 N/A	Tanglewood Acres	Hurricane Creek Hurricane								0.0 0.0
402	Courtney Ashburn Michael Sanders	Courtney.ashburn@yahoo.com thesandersfive21557@yahoo.com	Road Road	EveryMulti EveryMulti	501-842-4004 501-944-4451	1113 Fox Chase Dr 3051 Mount McGregor Benton, AR 82019	Email	No No	No Yes	Over flowing Ditch, floods road and in front of my house 92.49982969 34.58662387 N/A Every time it rains the north bound lane of Springhill floods causing dangerous travel conditions and hydroplaning. Drainage ditches need to clean, and roadside scraped of debris. I have livel off of Springhill for 11 years, and City has Nalien enthing to address the issue. Just went thru this hazard today, 5/24 after raining. When there is torrential rain, conditions are even more severe. The flooding occurs between thirt and Baldwin drive. You can also see the homeowners gravel driveway washing in the street.	Bryant Meadows Springhill Road	Creek Hurricane Creek		0 0						0.3 0.9
407	ANDREW CALDWELL	punkshoo_83@yahoo.com	Yard	EveryMulti	7276887812	2316 Justus Loop	Phone	No	Yes	Recent water utility work in our area has caused a good bit of sc and rock build up in our gutter in the whole neighborhood. While the holes in the road did get patched no cleanup effort was made. The blockage is causing water to flow into varios and down	Springhill Manor	Hurricane Creek	0	0 0	0	0.0 0	.0 0.0	0.0 0	0.0	0.0 0.0

						0000 0 11 0				Back yard storm water drains all across back and collects on left												
408	Kenneth Redus Sr	kdbk0410@yahoo.com	Yard	EveryMulti	501-352-0176	8303 Sapphire Dr Alexander, AR 72002	Email	No		side of yard facing the house flowing out towards the street. Gets -92.48893979 very soggy and water stands for long periods of time after it rains. April 11 and May 25, 2022 we have storm drain issues. Attacher	34.66501239	N/A Stonehill/Stonegate	Owen Creek	k 0	0	0	0 0.0	0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
409	Jared Butler	Jbutler1975@yahoo.com	HouseBusiness	EveryMulti	5015803483	49 Neal Cove Bryant, AR 72022	Email	No	Yes	April 11 and May 25, 2022 we nave storm drain issues. Attached are pictures from the hard rain in April. I woke up this morning to similar issues, a flooded basement. The storm drain in the cul-desac in front of our house has very large cracks in it. This is causing the soil in and around our side of the street to flow downhill. The pipes under the street My water pressure is weak. I live 1 mil	34.61119719	N/A Bryant Oaks	Crooked Cree	ek 0	0	0	0 0.0	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
410	Renalta Brown	renaltabrown208@gmail.com	Yard		5016539192	208 South Walnut St 208 South Walnut St	Phone	No	Yes	away from Hill Farm Elem.& The Middle School on South Reynolds road.When either of the schools have drainage problems, the water bills around for people living around the school water bills get extremely expensiv	34.5922242	N/A Original Town	Hurricane Creek	0	0	1	1 0.	.0 0.0	0.0	0.0 0.9	0.5	0.9 0.6
411	Angela Rogers	Mccloyen@gmail.com	Other	EveryMulti	5019404444	2303 Defoe Circle Bryant AR 72022	Mail	No	No	Our Subdivision has several water issues from fencing floating Back yards flooding. Loss of Electricity. Loss of Wi-Fi the water is a nuisance for our area	34.61466789	22 Cambridge Place	Crooked Cree	ek 0	0	0	0.0	.0 0.0	0.0	0.0	0.0	0.0 0.0
412	Amyre Williams	amyrecollins@yahoo.com	Road	EveryMulti	(870) 821-0208	2117 Defoe Circle Bryant, Arkansas 72022	Mail	Yes	No	In front of my house we literally have a pool of water that will sit their during a storm. It got so bad that my car was damage due to it.	34.61355355	22 Cambridge Place	Crooked Cree	ek 0	0	0	0 0.	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
413	Jan Browning	janb0423@aol.com	Road	EveryMulti	5017736872	305 Roya Lane Apt. 7	Email	No		There is a damaged storm drain at 305 Roya Lane. Specifically over the small creek that runs behind Bryant Brake and Tire and runs along the back of Bright Ideas and Sally Body Shop. The storm drain doesn't clear out and is hindered by limbs, leaves, trash, etc. When it backs up it floods the driveway into our apartment complex and over time, this has caused the cement to	34.61339001	N/A Roya Lane	Crooked Cree	ek 0	0	0	0 0.9	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
414	Lezli Duke	lezli.duke76@gmail.com	Yard	EveryMulti	(501) 413-0118	2311 Defoe Circle Bryant, AR 72022	Email	No	Yes	The streets flood when it rains, my back yard and side yard floods And stays wet for days. The circles where the drains are you can't drive through it for an hour or hours. Some neighbors front yards have small rivers going through them when it rains. I have one in the back yard when it rains. The yards stay wet for days.	34.61486348	22 Cambridge Place	Crooked Cree	ek 0	0	0	0 0.0	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
416	Cheryl kendrick	Ckendrick86@comcast.net	Yard	EveryMulti	5013501169	2217 Defoe circle	Phone	No	Yes	I have severe flooding in my back yard! I've sent pictures. Thi: occurs several times per year. Water comes up to first step of my -92.47158098 deck and entire back yard looks like a lakt	34.61407755	22 Cambridge Place	Crooked Cree	ek 1	1	2	2 2.	.1 1.1	2.3	1.3 2.7	7 1.6	2.9 1.7
417	Charles Lucas	c.v.lucas00@gmail.com	Road	EveryMulti	5015291914	2411 Defoe Bryant, AR	Phone	No		Flash flooding often occurs during rainstorms in the lower lying area of the neighborhood. It make access to the Shobe entrance -92.47031442	34.6123328	22 Cambridge Place	Crooked Cree	ek 0	0	1	1 0.	.0 0.0	0.0	0.0 0.5	5 0.8	0.5 1.4
418	Jack Moaelwy	Jackmoseley1956@yahoo.com	Yard	EveryMulti	5014254046	1215 Woodland Park Road Bryant Ar.	Email	No	Yes	impassable at times On the southwest corner of my property after a significant rain m property floods because of unnatural and diverted storm drainage -92.51282496			Hurricane Creek	0	0	0	0 0.	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
419	Connie Murdock	wcajunconnie@sbcglobal.net	HouseBusiness	Every	501-590-1284	72022 2212 Defoe Circle Bryant	Phone	No		Problems. Yards completely flooded with water FEET deep. Flowing like a river. Home across the street has flooded. -92.47189838	34.61445953	22 Cambridge Place	-	ek 0	0	0	0 0.	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
										By backyard floods and backs up. It seems to be getting wors with each rain.					1			1				
420	Gail Taylor	gailbtaylor@yahoo.com	Yard	EveryMulti	5019207116	1308 Pleasant Pointe Circle	Phone	No	Yes	I have a video I can send you - please let me know how/where to send it.	34.58258	N/A Pleasant Pointe/Cedarwood	Hurricane Creek	0	0	0	0 0.0	.0 0.0	0.0	0.0	0.0	0.0 0.0
										I know there is a natural spring that runs behind and between my house and the houses on Katrina The street in front of my house and into the curve floods every tim there is a heavy rain. Sometimes coming over the curbs and sidewalks into my front yard and neighbors on both sides of the												
421	Charlotte Paape	permpart@gmail.com	Other	EveryMulti	501-258-0618	1503 Pleasant Pointe Circle Bryant, AR 72022	Email	No		Also, the back yard floods during these heavy rains. We have personally cleaned out the debris from the culvert area in the back yard for years and that helps, but the problem appears to be from where there is no where for the water to go in the back now for the homes at the entrance to Pleasant Pointe circle. Both front and back of properly is affected. Storage building in back has also been flooded. (Can't select more than 1 below so selected other.)	34.58173015	N/A Pleasant Pointe/Cedarwood	Hurricane Creek	0	0	0	0 0.0	0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
422	ANGIE L CARLOCK	angiecarlock@gmail.com	Yard	EveryMulti	8706721215	2201 Greenleaf Drive Bryant, AR 72022	Email	No		I live at the end of Greenieaf Drive. There is a significant drainage issue in my yard (the worst is in the backyard), the woods behind my fence and a large portion of the park beside my house. There currently nowhere for this area to drain because there isn't anywhere in the area that is lower than these locations.	34.62370576	18 Meadowlake	Crooked Cree	ek 0	0	0	0 0/	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
423	sally keffer	keffersck@yahoo.com	HouseBusiness	Every	8704568811	2209 DeFoe Circle Bryant, Ar. 72022	Email	No		Whenever it rains; not even a lot, it floods my backyard, and my house; It actually comes up in my house; It has washed sink holes in my, it glad by the hord of mey ard. It lears my flence down, if il am not home; which is a good thing; as the water has to pour out between my house and the neighborhs house to drain into the stree to get out of our entire neighborhous. That drainage pipe in my backyard is not sufficient enough to handle what comes down that hill behind me. And now that the large to thas been. Cleared for more development you can already see that the expected direction of drainage from that project will be even more water into our backyards and into our homes.	34.61401167	22 Cambridge Place	Crooked Cree	ek 0	0	1	1 0.0	.0 0.0	0.0	0.0 1.8	3 0.7	2.1 0.8
424	Donna Hanley	dnnhnly@yahoo.com	Yard	EveryMulti	5019934510	1806 Briarwood Cove Bryant	Phone	No	Yes	A large from the street empties onto my property. Also water drair onto my property from 1802 and 1804. I have numerous pictures of my backyard flooding	34.61170601	N/A Edgewood	Crooked Cree	ek 0	0	0	0 0.0	.0 0.0	0.0	0.0	0.0	0.0 0.0
425	Annetta Massanelli	annettamassanelli@sbcglobal.net	Yard	EveryMulti	501-541-0789	416 Derek Court Alexander, AR 72002 Can get clearer pictures-these are fron a video	Email	No	Yes	I've been in my home for 10 + yrs. The rain runoff from my neighborhood has progressively worsened. I recently had an engineering company assess the situation and they advised that french drain across the N and W side of my house, including a catch basins at the NN corner and along the N drain path would be required to alleviate the excessive amount of storm water. Neighbors to the W and N have downspouts directed toward my property along with both lawns sloping toward my property as well feel confident that the terrain beyond my adjacent neighbors' property also directs storm runoff into mine. I have lots of erosion issues. I have added flower beds around my house, as a harrier, to keep the water at bay and from. hopefully, adversely affecting my home's foundation. My grange side door and it's frame has recently been replaced due to water drainage and rot via flooding. I would gladly welcome any help ic an get to eliminate this perpetual rain water issue In have at my home.	34.63655182	N/A Meadowridge	Crooked Cree	ek 0	0	0	0 0.1	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
426	Verma Dalrymple		Yard	EveryMulti	5017470204	724 Elkhart	Phone	No	No	During rain events, water will cross yard to where they cannot access utility house where mower, shop vea are kept. Low area of yard cannot be mowed much of year. In 5 years of living there, water has gotten in the house I time. Sometimes water will get on patio. Next door neighbor Peterson has taken photos of the flooding.	34.5855435	N/A Bryant Meadows	Hurricane Creek	1	1	1	1 13	.2 0.5	1.4	0.6 1.8	3 0.7	1.9 0.8
427	Debbie Fannin		Yard	EveryMulti	5013663111	1723 Kensington Drive	Phone	No	No	When they built house, did not put culvert in cul-de-sac, but it looks like there should have been one there. House is on slant, and flooding has caused exposed pipes and trees to lean toward neighbors. Water has not gotten in the house. Lot receives lots of runoff from area, more than neighbors. Fence has fellen. Pald for landscaper to put in rock creek to flow into a ditch, but afraid this will cause flooding on other neighbors.	34.62771488	6 Forest Cove	Hurricane Creek	0	0	0	0 0.1	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
428	CJ Thomas		Yard	EveryMulti	5014633132	1003 Sunset Gardens	Phone	No		Based on phone call, water comes from the Plaza and leaves the plaza at the northwest corner and ponds behind her yard and he two neighbors yards to the north. It gets fairly deep in her back hard and has come all the way	34.62306345	6 Sunset Meadows/Gardens	Hurricane Creek	0	0	0	0 02	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
429	Patricia Louks		Yard		5018470220	1008 S. Richardson Place	Phone	No	No	Ditch next to house floods often. Not cleaned out by others. Oal tree in yard was ended and roots exposed - cut tree, but afraid w lose this area of land if it falls into channel. Channel has been dug out in the past but grown up down the road. Wather has not gotten! in house but most of yard floods, cannot get to utility house when it floods.			Hurricane Creek	0	0	0	0 0.0	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
430	Justin Hill	justin_hll@yahoo.com	Yard	EveryMulti	5019432799	603 mills park road Bryant AR 72022	Phone	No	Yes	I dug trenches to try and divert the water so more goes into the drain/ditch but I can't get it righ	34.60008698	35 Bloomfield Hills	Crooked Cree	ek 0	0	0	0 0.	.0 0.0	0.0	0.0 0.0	0.0	0.0 0.0
431	Marian Langston		Yard	EveryMulti	5018474218	1104 N Richardson Place	Phone	No		Per phone call, the water comes across the backyards from the west and a significant amount of water rushes across her backyar and erodes the dirt and has exposed the foundation of her patio, -92.50254372 She can not tell where exactly the water is coming from, she thinks it is just coming across everyones backyards.	34.59881372	32 Richardson Place	Hurricane Creek	0	0	0	0 0.0	0 0.0	0.0	0.0 0.0	0.0	0.0 0.0

4	32	Joyce Koozer		Yard	EveryMulti	4694715608	2805 Barbara Ct	Phone	No	floods her backyard and her two She thinks that it might have so dug along the edge of the field end of it. The water has come	rom the field NW of her house and neighbors to the south backyards mething to do with a dlich that was 1 that appears to have a dam at the e up to her back patio and takes a to recede	34.63946487	39	East Ridge	Crooked Creek	0 0	0	0	0.0 0	0.0	0.0	0.0 0.0	0.0	0.0
4	33	Richard Gentry		Yard	EveryMulti	5014160685	1203 Katrina Dr	Phone	No	backyard as well as water c driveway that keep his backy behind him covered in water fi	terground springs coming into his coming from the street down the -92.496579 and his neighbors backyard requently. The driveway looks as prevent water from exiting the street.	34.58428927	N/A	Pleasant Pointe/Cedarwood	Hurricane Creek	0 0	0	0	0.0 0	0.0	0.0	0.0 0.0	0.0	0.0
4	34	Joe Fast	accu-01@sbcglobal.net	Road	EveryMulti	870-917-8047	105 SW 4th Street Bryant, AR 72022	Phone	No	ditches are not deep enough a culvert on Reynolds Road befor poor installation of the culvert backs up on the street, build Have had flood water in build floods a couple block if the photos do not come thru	ures, it is several times a year. The and are not kept cleaned out. The re the church backs up because of L. What street at Reynolds Rd. ng facing Reynolds Road floods. Ing on several occasions. Road ks down by apartments. with this form please let me know, I mail them separately.	11 34.59143484	N/A	4th Street/Reynolds Rd	Hurricane Creek	0 0	0	0	0.0 0	0.0	0.0	0.0 0.0	0.0	0.0
4	35	Glenda Royal	glroyal@sbcglobal.net	Yard	EveryMulti	5015299775	1101 Sunset Gardens East	Phone	No		-92.504609	7 34.62269557	6	Sunset Meadows/Gardens	Hurricane Creek	0 0	0	0	0.0 0	0.0	0.0	0.0 0.0	0.0	0.0
4	36	Glenda Royal	glroyal@sbcglobal.net	Yard	EveryMulti	5015299775	1101 Sunset Gardens East Bryant, AR 72022	Phone	No	Back Yard stays very	y wet almost continually -92.5046	34.6227	6	Sunset Meadows/Gardens	Hurricane Creek	0 0	0	0	0.0 0	0.0	0.0	0.0 0.0	0.0	0.0
4	37	Duane Purtell		HouseBusiness	Every2	9134888656	12939 S Constance St Olathe, KS 66062	Email	No	Robinhood Drive and Springhill 2702 Springhill Rd. We have an blocking the pond overflow. In approximately \$8,000 to tra consistently remove the beaver beavers are left alone, the hou. The city has even installed Robinhood Dr to move water into the pond on our propert, into the pond on our propert,	treet and drainage ditch water from IR d into a pond on our property at in issue with beavers building dams in the past 5 years, we have spent by the beavers and have had if it uses bordering the pond will flood, and enlarged a culvert under our the north side of Robinhood Dr y in addition to the water from the outh side of Robinhood Dr.	25 34.6196614	N/A	Springhill Road	Hurricane Creek	0 0	0	0	0.0 0	0.0	0.0	0.0 0.0	0.0	0.0
4	38 F	Robert E Roedel	roblovesbryant@gmail.com	HouseBusiness	Every2	5019442220	204 Richwood Drive	Email	No		between Reynolds Road and -92.491314	2 34.59608616	i 11	Original Town	Hurricane Creek	0 0	0	0	0.0 0	0.0	0.0	0.0 0.0	0.0	0.0



Appendix B

Flood insurance policy data and repetitive loss data for the City of Bryant was acquired from the State NFIP Office. Insurance policy information is listed, followed by repetitive loss data.

Insurance Provider	Parameters	Grand Total	BRYANT, CITY OF
			(050308)
Grand Total	Policy Count	67	67
	Contract Count	67	67
	Premium + FPF	\$43,091	\$43,091
	Building Coverage	\$14,050,70 0	\$14,050,700
	Contents Coverage	\$4,276,000	\$4,276,000
	Avg. Building Coverage	\$209,712	\$209,712
	Avg. Contents Coverage	\$77,745	\$77,745
Allstate Insurance	Policy Count	8	8
Company (19232)	Contract Count	8	8
	Premium + FPF	\$3,832	\$3,832
	Building Coverage	\$1,650,000	\$1,650,000
	Contents Coverage	\$620,000	\$620,000
	Avg. Building Coverage	\$206,250	\$206,250
	Avg. Contents Coverage	\$88,571	\$88,571
American National	Policy Count	1	1
Property & Casualty	Contract Count	1	1
Company (28401)	Premium + FPF	\$467	\$467
	Building Coverage	\$250,000	\$250,000
	Contents Coverage	\$100,000	\$100,000
	Avg. Building Coverage	\$250,000	\$250,000
	Avg. Contents Coverage	\$100,000	\$100,000
Assurant, DBA:	Policy Count	17	17
American Bankers	Contract Count	17	17
Insurance Company of	Premium + FPF	\$8,944	\$8,944
Florida (10111)	Building Coverage	\$3,502,000	\$3,502,000
	Contents Coverage	\$758,000	\$758,000





	Avg. Building Coverage	\$206,000	\$206,000
	Avg. Contents Coverage	\$63,167	\$63,167
Auto-Owners	Policy Count	2	2
Insurance Company	Contract Count	2	2
(18988)	Premium + FPF	\$1,224	\$1,224
	Building Coverage	\$500,000	\$500,000
	Contents Coverage	\$200,000	\$200,000
	Avg. Building Coverage	\$250,000	\$250,000
	Avg. Contents Coverage	\$100,000	\$100,000
Farmers Insurance	Policy Count	5	5
Group, DBA: Fire	Contract Count	5	5
Insurance Exchange	Premium + FPF	\$3,823	\$3,823
(21660)	Building Coverage	\$887,400	\$887,400
	Contents Coverage	\$214,000	\$214,000
	Avg. Building Coverage	\$177,480	\$177,480
	Avg. Contents Coverage	\$71,333	\$71,333
Hartford Fire Insurance	Policy Count	1	1
Company (19682)	Contract Count	1	1
	Premium + FPF	\$2,922	\$2,922
	Building Coverage	\$500,000	\$500,000
	Contents Coverage	\$0	\$0
	Avg. Building Coverage	\$500,000	\$500,000
	Avg. Contents Coverage		
Hartford Underwriters	Policy Count	2	2
Insurance Company	Contract Count	2	2
(30104)	Premium + FPF	\$905	\$905
	Building Coverage	\$400,000	\$400,000
	Contents Coverage	\$160,000	\$160,000
	Avg. Building Coverage	\$200,000	\$200,000
	Avg. Contents Coverage	\$80,000	\$80,000
Homesite Insurance	Policy Count	1	1
Company (17221)	Contract Count	1	1
	Premium + FPF	\$780	\$780





	Building Coverage	\$200,000	\$200,000	
	Contents Coverage	\$80,000	\$80,000	
	Avg. Building Coverage	\$200,000	\$200,000	
	Avg. Contents Coverage	\$80,000	\$80,000	
Liberty Mutual Fire	Policy Count	2	2	
Insurance Company	Contract Count	2	2	
(23035)	Premium + FPF	\$1,094	\$1,094	
	Building Coverage	\$400,000	\$400,000	
	Contents Coverage	\$160,000	\$160,000	
	Avg. Building Coverage	\$200,000	\$200,000	
	Avg. Contents Coverage	\$80,000	\$80,000	
National General	Policy Count	2	2	
Insurance Company	Contract Count	2	2	
(23728)	Premium + FPF	\$1,170	\$1,170	
	Building Coverage	\$450,000	\$450,000	
	Contents Coverage	\$180,000	\$180,000	
	Avg. Building Coverage	\$225,000	\$225,000	
	Avg. Contents Coverage	\$90,000	\$90,000	
NFIP Direct Servicing	Policy Count	8	8	
Agent (99999)	Contract Count	8	8	
	Premium + FPF	\$4,261	\$4,261	
	Building Coverage	\$1,523,300	\$1,523,300	
	Contents Coverage	\$520,000	\$520,000	
	Avg. Building Coverage	\$190,413	\$190,413	
	Avg. Contents Coverage	\$74,286	\$74,286	
Occidental Fire and	Policy Count	1	1	
Casualty Company of	Contract Count	1	1	
North Carolina (23248)	Premium + FPF	\$463	\$463	
	Building Coverage	\$200,000	\$200,000	
	Contents Coverage	\$80,000	\$80,000	
	Avg. Building Coverage	\$200,000	\$200,000	
	Avg. Contents Coverage	\$80,000	\$80,000	
Philadelphia Indemnity	Policy Count	1	1	
Insurance Company	Contract Count	1	1	
(18058)	Premium + FPF	\$2,033	\$2,033	





	Building Coverage	\$500,000	\$500,000	
	Contents Coverage	\$50,000	\$50,000	
	Avg. Building Coverage	\$500,000	\$500,000	
	Avg. Contents Coverage	\$50,000	\$50,000	
Southern Farm Bureau	Policy Count	8	8	
Casualty Insurance	Contract Count	8	8	
Company (18325)	Premium + FPF	\$5,869	\$5,869	
	Building Coverage	\$1,388,000	\$1,388,000	
	Contents Coverage	\$474,000	\$474,000	
	Avg. Building Coverage	\$173,500	\$173,500	
	Avg. Contents Coverage	\$79,000	\$79,000	
USAA General	Policy Count	6	6	
Indemnity Company	Contract Count	6	6	
(02003)	Premium + FPF	\$4,197	\$4,197	
	Building Coverage	\$1,325,000	\$1,325,000	
	Contents Coverage	\$530,000	\$530,000	
	Avg. Building Coverage	\$220,833	\$220,833	
	Avg. Contents Coverage	\$88,333	\$88,333	
Westfield Insurance	Policy Count	1	1	
Company (24112)	Contract Count	1	1	
	Premium + FPF	\$375	\$375	
	Building Coverage	\$125,000	\$125,000	
	Contents Coverage	\$50,000	\$50,000	
	Avg. Building Coverage	\$125,000	\$125,000	
	Avg. Contents Coverage	\$50,000	\$50,000	
Wright National Flood	Policy Count	1	1	
Insurance Company	Contract Count	1	1	
(11523)	Premium + FPF	\$732	\$732	
	Building Coverage	\$250,000	\$250,000	
	Contents Coverage	\$100,000	\$100,000	
	Avg. Building Coverage	\$250,000	\$250,000	
	Avg. Contents Coverage	\$100,000	\$100,000	



IC	NFIP Insured	Address	Date Of Loss 1	Occupancy	Currently Mapped Flood Zone	Building Payment 1	Contents Payment 1	Building Value	Date Of Loss 2	Building Payment 2	Contents Payment 2	Date Of Loss 3	Building Payment 3	Contents Payment 3	Date Of Loss 4	Building Payment 4	Cumulative Building Payment	Cumulative Contents Payment	Total Losses	Total Paid	Average Paid
1	NO	2617 HENSON PL	1/23/2020	SINGLE FMLY	Х	\$ 13,400.77	\$ 19,608.44	\$ 164,882.00	4/22/2018	\$ 29,368.86	\$27,047.17	4/3/2008	\$ 38,860.71	\$ 13,114.47	4/29/2006	\$ 10,337.31	\$ 91,967.65	\$ 59,770.08	4	\$ 151,737.73	\$ 37,934.43
2	NO	1302 KENSINGTON DR	4/29/2017	SINGLE FMLY		\$ 13,604.01	\$ -	\$ 248,473.00	4/4/2008	\$ 15,567.65	\$ -						\$ 29,171.66	\$ -	2	\$ 29,171.66	\$ 14,585.83
3	YES	1703 RODEO DR	5/18/2021	SINGLE FMLY	X	\$ 20,565.90	\$ 62.14	\$ 485,674.00	4/18/2019	\$ 31,907.26	\$ 20.96						\$ 52,473.16	\$ 83.10	2	\$ 52,556.26	\$ 26,278.13
4	NO	2616 HENSON PL	5/18/2021	SINGLE FMLY	Х	\$ 20,809.90	\$ -	\$ 249,224.00	4/30/2017	\$ 10,412.86	\$ 7,071.59						\$ 31,222.76	\$ 7,071.59	2	\$ 38,294.35	\$ 19,147.18



Appendix C

The City of Bryant currently has 35 Letters of Map Amendments. They are listed below.

Case Number	Street Address	Outcome - What is removed from SFHA	Flood Zone	1% Annual Chance Flood Elev	Lowest Adjacent Grade Elev	Lowest Lot Elev
22-06- 0450A	3001 Creekside Dr.	Property	X (shaded)	-	-	330.3
22-06- 3699A	2331 Abigail Dr.	Structure	X (unshaded)	-	441.9	-
22-06- 1241A	6133 Creekside Dr.	Property	X (shaded)	-	-	330.4
22-06- 2782A	1805 Boone Rd.	Structure (Residence)	AE	357.3	355.7	-
03-06- 1589A	312 Fair Oaks Dr.	Structure	X (unshaded)	379.5	381.5	-
03-06- 2164A	1101 South Richardson Place Dr.	Structure	A	375.2	375.5	-
04-06- 1646A	201 Fair Oaks Dr.	Structure	X (unshaded)	374.6	375.5	-
04-06-480X	1101 South Richardson Place Dr.	Structure	X (unshaded)	374.6	375.5	
11-06- 0025A	1301 Boone Rd.	Property	X (unshaded)	365	378.6	365.1
12-06- 3701A	2109 Defoe Circle	Structure	X (unshaded)	-	349.5	-
12-06- 4143A	5409 Glenn Cove	Structure	AE	-	362.7	-





Case Number	Street Address	Outcome - What is removed from SFHA	Flood Zone	1% Annual Chance Flood Elev	Lowest Adjacent Grade Elev	Lowest Lot Elev
13-06- 1295A	Lot 62, Kings Crossing	Structure	X (unshaded)	346.2	348.8	-
13-06- 1437A	2202 Ridgecrest Dr.	Structure (Residence)	AE	373.2	371.3	-
13-06- 1893A	100 Medinah Blvd.	Structure (Building 1)	X (unshaded)	361	362	-
13-06- 3085A	600 Par Dr.	Structure (Building 1)	X (shaded)	-	368.6	-
14-06- 0513A	803 Mills Park Road	Structure	X (unshaded)	-	378.3	-
14-06- 4256A	1008 Hazelwood Circle	Structure (Residence)	X (unshaded)	-	378.6	-
15-06- 0063A	1805 Boone Rd.	Structure (Residence)	X (shaded)	-	355.7	-
15-06- 1282A	Lots 19, 20, 21, 70, 75, 76, 77 and 78, Oak Glenn Subdivision	Portion of Property	X (shaded)	-	-	366.5
15-06- 1283A	Lots 28-32, The crossing at Oak Hill	Property	X (shaded)	366.9	-	367.5
15-06- 1362A	1014 North Richardson Place	Structure	X (unshaded)	-	382.2	-
16-06- 0950A	2119 Byron Dr.	Structure (Residence)	X (unshaded)			-
16-06- 2592A	204 Crossing Place	Structure	X (shaded)	-	369.3	-
16-06- 3583A	5354 Buckingham Place	Structure	X (unshaded)	-	352.4	-





Case Number	Street Address	Outcome - What is removed from SFHA	Flood Zone	1% Annual Chance Flood Elev	Lowest Adjacent Grade Elev	Lowest Lot Elev
17-06- 0060A	14 Eastwood Dr.	Structure	X (shaded)	-	352.7	-
17-06- 0900A	2514 Ridgecrest Dr.	Structure (Residence)	X (unshaded)	-	386.6	-
17-06- 3332A	1109 Boone Road	Structure	Structure X (unshaded) - 3		370.8	-
17-06- 4286A	5334 Buckingham Place	Structure (Residence)	X (shaded)	-	350.1	-
19-06- 2159A	5409 Glenn Cove	Structure	X (shaded)	-	364.2	-
19-06- 3179A	1102 Oak Glenn Loop	Structure (Residence)	X (shaded)	-	363.5	-
20-06- 0848A	1002 South Richardson Place	Structure	X (unshaded)	-	377.1	-
98-06- 1118A	Lots 1-4, Cambridge Place Subdivision	Structure	А	-	-	-
99-06- 1947A	304 Fair Oaks Dr.	Structure	X (unshaded)	379.6	389.4	-
99-06- 2083A	1013 S. Richardson Place Dr.	Structure	X (unshaded)	373	374	-
99-06-247A	Lot 34, Richardson Place	Structure	А	-	-	-





Appendix D

Roadway functional classification data was taken from ARDOT and listed below.

Route Type	Cross Drain Design Event	Storm Drain/Side Drain/Pavement Drainage Design Event
Interstate Projects	50-year	50-year
Principal Arterials	50-year	10-year
Minor Arterials	50-year	10-year
Major Collectors	25-year	10-year
Minor Collectors	25-year	10-year
Local Highways	10-year	2-year

Street Name	Functional Class
I-30E/I-30W	Interstate
Highway 183	Minor Arterial
Highway 5	Minor Arterial
Boone Road	Minor Arterial
Mills Park Road	Minor Arterial
Springhill Road	Minor Arterial
Alcoa Road	Minor Arterial
Alcoa Overpass	Minor Arterial
Hilldale Road	Minor Arterial
Midland Road	Minor Arterial
S. Shobe Road	Minor Arterial
Wilkerson Road	Minor Arterial
Cynamide Road	Minor Arterial
Springhill Road	Minor Arterial
Anderson Lake Road	Major Collector
Bishop Road	Major Collector
Boswell Road	Major Collector
Brookwood Road	Major Collector
Carmichael Road	Major Collector
Carrie Drive	Major Collector
Cedar Driver	Major Collector
Commonwealth Drive	Major Collector





Street Name	Functional Class
Debswood Drive	Major Collector
Elaine Place	Major Collector
Evans Loop Road	Major Collector
Hickory Drive	Major Collector
Hilltop Road	Major Collector
Hurricane Lake Road	Major Collector
Indian Springs Drive	Major Collector
Johnswood Road	Major Collector
Lexington Avenue	Major Collector
Lombard Road	Major Collector
Lora Drive	Major Collector
Miller Road	Major Collector
Mills Park Road	Major Collector
Neal Street	Major Collector
Northlake Road	Major Collector
N. Prickett Road	Major Collector
N. Shobe Road	Major Collector
NW 4 th Street	Major Collector
Park Road	Major Collector
Pine Drive	Major Collector
Prange Road	Major Collector
Prickett Road	Major Collector
Raymar Road	Major Collector
Ridgecrest Drive	Major Collector
Ruth Drive	Major Collector
Snow Lane	Major Collector
Springdale Road	Major Collector
Springhill Road	Major Collector
S. Shobe Road	Major Collector
S. Spruce Street	Major Collector
SW 3 rd Street	Major Collector
SW 4 th Street	Major Collector
Wildwood Road	Major Collector
W. Meadowbrook Street	Major Collector
Woodland Drive	Major Collector





Street Name	Functional Class
Woodland Park Road	Major Collector
Zuber Road	Major Collector

\\\





	Project Prioritization and Opinion of Project Cost Summary								
³ Project Prioritization	Project Name	¹ Flooding Severity	² Flooding Frequency		Total Estimated Construction Cost		otal Estimated Project Cost		
3	Boone Road at Boswell Creek Improvements	Moderate	< 3 Years	\$	409,204.00	\$	532,000.00		
1	Hidden Forest Subdivision Improvements	Minor	6 - 25 Years	\$	863,399.00	\$	1,122,400.00		
3	Hidden Creek Drive at Shoal Creek Improvements	Major	< 3 Years	\$	1,522,373.00	\$	1,979,100.00		
1	Meadow Lake Subdivision Improvements	Minor	1 - 5 Years	\$	2,077,058.00	\$	2,700,200.00		
3	Hilldale Road at Owen Creek Improvements	Moderate	< 3 Years	\$	2,451,455.00	\$	3,186,900.00		
2	Lea Circle near Hurricane Creek	Moderate	3 - 7 Years	\$	-	\$	3,697,700.00		
3	Oak Glenn Subdivision Improvements	Major	< 5 Years	\$	2,865,615.00	\$	3,770,000.00		
2	Midland Road at Owen Creek Improvements	Moderate	3 - 7 Years	\$	4,686,374.00	\$	6,092,300.00		
2	Shobe Road at Unnamed Tributary to Crooked Creek Improvements	Moderate	3 - 7 Years	\$	10,809,380.00	\$	14,052,200.00		
3	Cynamide Road at Hurricane Creek Improvements	Major	< 5 Years	\$	12,394,577.00	\$	16,113,000.00		
3	Rodeo Drive at Shoal Creek Improvements	Major	< 5 Years	\$	13,441,794.00	\$	17,474,300.00		
3	Boone Road at Hurricane Creek Improvements	Major	< 5 Years	\$	19,000,526.00	\$	24,700,700.00		
1	Millspark & Ruth Drive Drainage Improvements	Minor	1 - 5 Years	\$	125,000.00	\$	143,000.00		
1	Walmart Basin City Owned	Minor	1 - 5 Years	\$	200,000.00	\$	230,000.00		
1	Vicki Drive Drainage Improvements	Minor	1 - 5 Years	\$	175,000.00	\$	201,250.00		
2	Pleasant Pointe Subdivision Drainage Improvements	Moderate	< 5 Years	\$	1,100,000.00	\$	1,180,000.00		
1	Sunset Meadows Subdivision Drainage Improvements	Minor	6 - 25 Years	\$	1,500,000.00	\$	1,620,000.00		
2	Springhill Road Crossing Improvements	Moderate	< 5 Years	\$	50,000.00	\$	57,500.00		
1	6141 Remington Subdivision	Minor	8-25 Years	\$	175,000.00	\$	201,250.00		
1	Stivers Drainage Improvements	Minor	< 5 Years	\$	300,000.00	\$	380,000.00		
1	Lacross Drainage Improvements	Minor	< 5 Years	\$	70,000.00	\$	120,000.00		
3	Walmart Super Center Subdivison Drainage Improvements (Failing and Collapsed Drainage System)	Minor	No Rating	\$	3,000,000.00	\$	3,450,000.00		

 $^{^{\}rm 1}$ Definitions for Major, Moderate and Minor flooding impacts are as follows:

- a. Major (at least one of the following):
 - i. Damage to structures or homes
 - ii. Significantly impedes traffic flow on a collector, minor arterial, or major arterial
 - iii. Prevents access to a residence or business
- b. Moderate (at least one of the following):
 - i. Damage to property other than structures or homes (i.e. erosion, fences, etc.)



- ii. Significantly impedes traffic flow on a local road
- c. Minor (at least one of the following):
 - i. Nuisance flooding such as standing water or ponding caused by inadequate stormwater infrastructure within Public Right-of-Way.
 - ii. Does not meet city's drainage criteria but does not impede traffic flow
- ² A rough estimate of the frequency of the flooding targeted by the project can be obtained by one of the following ways:
 - i. Engineering Judgement and knowledge of the flooding issue within the city.
 - ii. Referring to previous drainage studies
- ³ See attached Drainage Project Scoring Matrix.

D	Drainage Scoring Matrix							
Flooding Severity	Flooding Frequency	Score						
Major	< 5 Years	2						
Moderate	< 3 Years	3						
Major	5 - 10 Years							
Moderate	3 - 7 Years	2						
Minor	< 1 Year							
Major	11 - 25 Years							
Moderate	8 - 25 Years	1						
Minor	1 - 5 Years	1						
Minor	6 - 25 Years							

Comprehensive Drainage Master Plan City of Bryant

Phase 2 Report

Prepared by:



4701 Northshore Drive North Little Rock, Arkansas 72118

January 2025

Garver Project No.: 20T20090



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Appendix A: Boone Road at Hurricane Creek Improvements

Appendix B: Boone Road at Boswell Creek Improvements

Appendix C: Cynamide Road at Hurricane Creek Improvements

Appendix D: Hidden Forest Subdivision Improvements

Appendix E: Meadow Lake Subdivision Improvements

Appendix F: Midland and Hilldale Roads at Owen Creek Improvements

Appendix G: Hidden Creek Drive and Rodeo Drive at Hurricane Creek Improvements

Appendix H: Shobe Road at Unnamed Tributary to Crooked Creek Improvements

Appendix I: Oak Glenn Subdivision Improvements

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1.0 Overall Project Description

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

- Evaluate the existing drainage conditions of the City and Extra-Territorial Jurisdiction (ETJ), also known as the planning area;
- Identify current and future drainage problems;
- · Generate proposed solutions to identified problems;
- · Develop a Capital Improvement Plan (CIP); and
- Provide tools for managing future development.

The CDMP project is being performed in two (2) phases. Phases 1 and 2 will be divided into major tasks, with subtasks listed as applicable below these major tasks. **Figure 1** shows a flow chart of the overall project process.

- Phase 1: Data Collection and Initial Drainage Study Screening
- Phase 2: Survey Collection, Hydrologic and Hydraulic Modeling, Identification of Drainage Problems, Alternative Development, and CIP Development

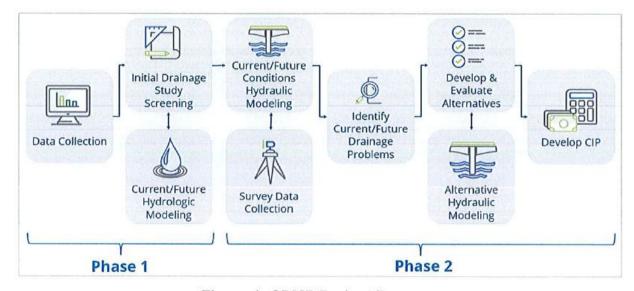


Figure 1. CDMP Project Process

This report discusses the processes and findings of Phase 2.





2.0 Phase 2 Overview

Phase 1 was completed and submitted to the City in 2023. At the end of Phase 1, Garver met with the City to discuss the identified potential problem areas and select locations for detailed study in Phase 2. These problem areas were listed in the Phase 1 report. Along with these identified problem areas, Garver provided a list of recommended hydraulic models for Phase 2. This list is shown below in Table 1. During the Phase 2 process, some additions and removals were made based on discussions with the City. These are noted in the table.

Table 1. Recommended Hydraulic Models for Phase 2

Stream/ Location	Model Extents	Model Type	Project Location	Phase 2 Updates
Shoal Creek	Confluence with Hurricane Creek up to Kensington Drive	1D HEC-RAS	Forest Cove/ Hidden Forest Drive/ Rodeo Drive	Model substantially complete; LOMR to be completed following addition of City project work
Shoal Creek Tributary (previously called Unnamed Tributary)	Confluence with Shoal Creek up to Kensington Drive	1D HEC-RAS	Sherwood Estates/ Northridge Ph 2/Forest Cove/Springhi Il Manor	Model substantially complete; LOMR to be completed following addition of City project work
Hurricane Creek	Highway 183 to Hurricane Lake	1D and 2D HEC-RAS (Boone Road portion performed during Phase 1)	Boone Road/ Cynamide Road	N/A
Boswell Creek	Confluence with Hurricane Creek to Boswell Road	1D HEC-RAS	Boone Road	Richardson Place removed as problem location to be analyzed





Stream/ Location	Model Extents	Model Type	Project Location	Phase 2 Updates
Meadowlake Subdivision	Meadowlake neighborhood	XPSWMM	Whole neighborhood	N/A
Unnamed Tributary to Crooked Creek	Confluence with Crooked Creek to southwest corner of Meadowlake neighborhood	1D HEC-RAS	Shobe Road	N/A
Owen Creek	Confluence with Fourche Creek to 1,000 ft upstream of Hilldale Road (East-West)	1D HEC-RAS	Hilldale Road/ Midland Road	N/A
Owen Creek Tributary and Tributary A	Confluence with Owen Creek to upstream of Roman Heights Ave; Lombard Road	1D HEC- RAS (downstream reach performed in Phase 1)	Oak Glenn Neighborhood	Model extended; City decided to remove study of Oak Meadows/Roman Heights/Dawson Pointe; potential additional study of Oak Glenn discussed
Hidden Forest Subdivision	Hidden Forest neighborhood	XPSWMM	Whole neighborhood	Neighborhood added to list by City following Phase 1 report

3.0 Phase 2 Study Locations

The project study areas for Phase 2 are described in detail in separate reports included in the appendices to the Phase 2 report. A description of each is given below.





Table 2. List of Problem Locations and Solutions

Appendix	Problem Location	Conceptual Solution
Α	Boone Road at Hurricane Creek	Lengthen Hurricane Creek bridge; add relief culvert to west; raise roadway
В	Boone Road at Boswell Creek	Upsize culverts at Hurricane Creek; improve channel in vicinity of Boone Road
c	Cynamide Road at Hurricane Creek	Replace culverts with longer bridge; raise roadway
D	Hidden Forest Subdivision	Improve ditches; increase storm pipe capacity
E	Meadowlake Subdivision	Improve ditches; increase storm pipe capacity
F	Midland and Hilldale Roads at Owen Creek	Lengthen bridges; raise roadways
G	Hidden Creek Drive and Rodeo Drive at Shoal Creek	Increase culvert size at Hidden Creek Drive; detention pond near Shoal Creek
Н	Shobe Road at Unnamed Tributary to Crooked Creek	Raise roadway; lengthen bridge; detention pond
T	Oak Glenn Subdivision	Improve channel throughout neighborhood; increase culvert sizes
J	Lea Circle	Buyout properties

4.0 Conceptual Layout and Planning Level Opinion of Project Costs

Conceptual layout drawings and planning level opinions of project costs are provided in the appendix following each project report. These layouts are for graphical and planning purposes only and are not for construction.





5.0 Prioritization of Projects

A preliminary prioritization project list will be provided to the City for review and comment. The final list of prioritization will be included in the final draft of this report.

6.0 Next Steps

Once prioritization of the projects has been completed, the City can utilize this list to focus on procuring construction level plans for those projects listed as highest priority.

Additionally, the Letter of Map Revision (LOMR) planned for Shoal Creek and Shoal Creek Tributary should be finalized and submitted to FEMA following completion of drainage improvements currently being performed by the City.



Appendix A

Phase 2

Boone Road at Hurricane Creek Improvements

Comprehensive Drainage Master Plan City of Bryant

Phase 2 Boone Road at Hurricane Creek Improvements

Prepared by:



4701 Northshore Drive North Little Rock, Arkansas 72118

January 2025

Garver Project No.: 20T20090



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1.0 Overall Project Description

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

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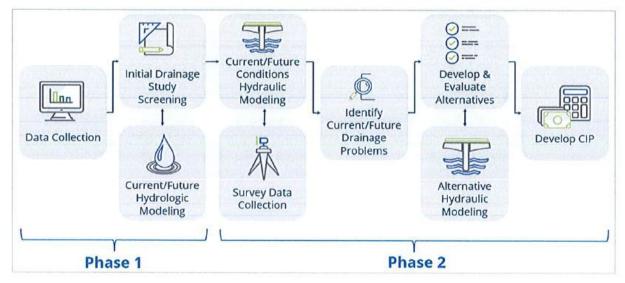


Figure 1. CDMP Project Process

This report discusses the processes and findings of a Phase 2 study of Boone Road at Hurricane Creek.





2.0 General Location Information

Boone Road is a minor arterial class roadway in the City of Bryant connecting Alcoa Road and Reynolds Road (Highway 183). The entirety of Boone Road is located in the Hurricane Creek Basin, with a bridge crossing over Hurricane Creek located near Bishop Park. A project location map is shown in **Figure 2**.

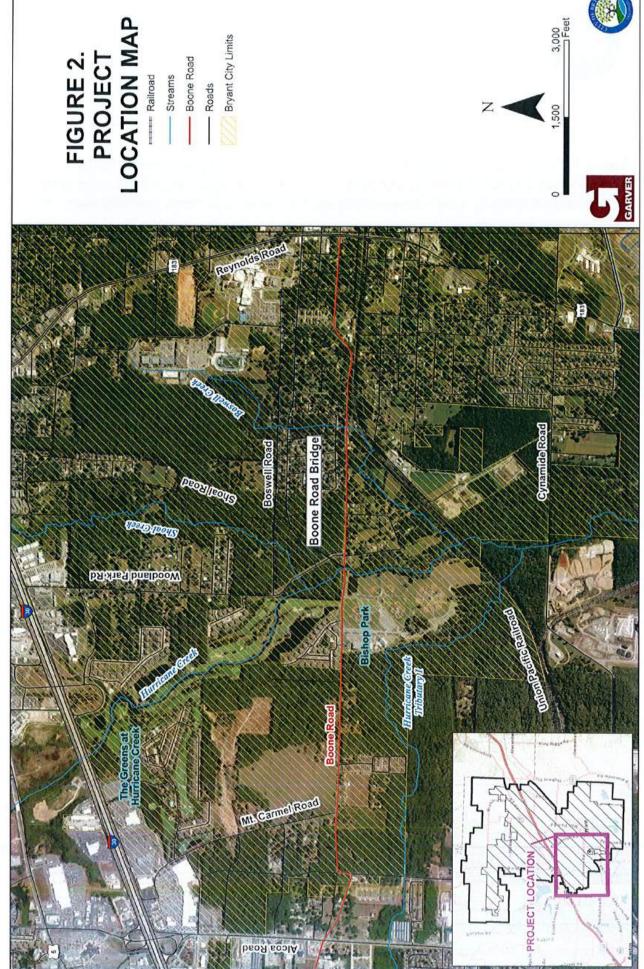
3.0 National Flood Insurance Program (NFIP) Data

The City of Bryant participates in the FEMA National Flood Insurance Program (NFIP). Current floodplain information and mapping is available in Flood Insurance Study (FIS) Report numbers 05125CV0001B and V0002B for Saline County, Arkansas, and Incorporated Areas. The City is mapped within Flood Insurance Rate Map (FIRM) Panels 0225E, 0240E, 0360E, 0370E, and 0380E. The project area of Boone Road at Hurricane Creek is within FIRM panel 0360E.

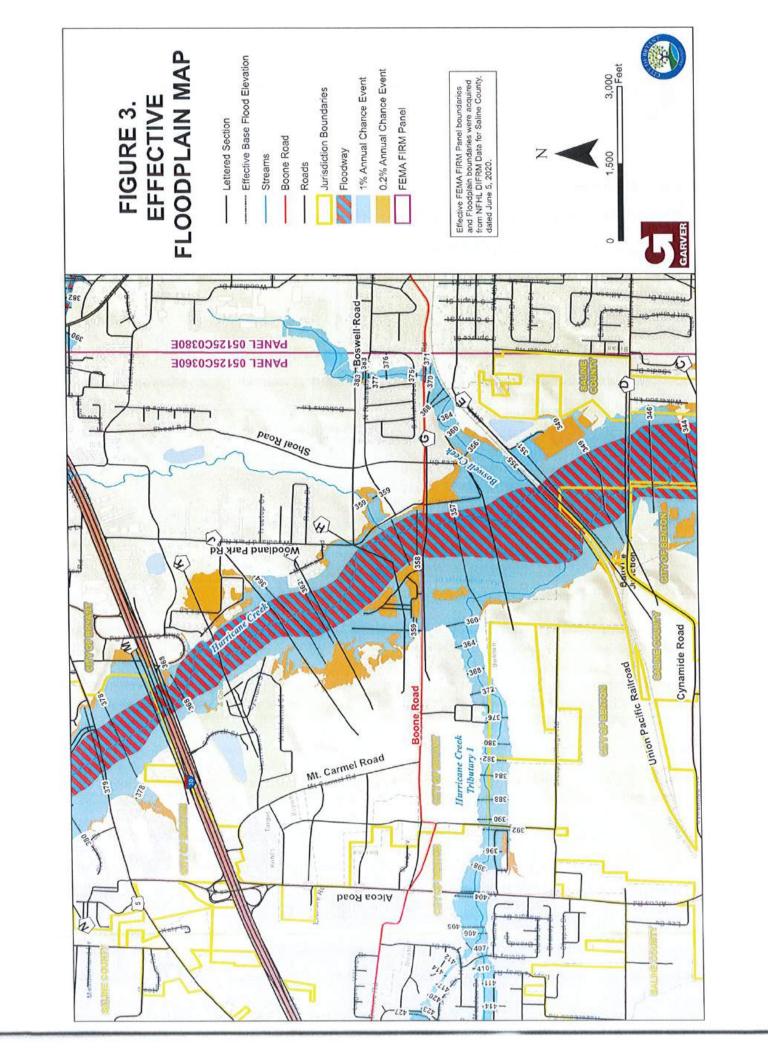
Hurricane Creek is mapped as Zone AE with floodway. The Effective floodplain mapping for the project area is shown in **Figure 3**.

Since Hurricane Creek is a Zone AE mapped floodplain, Effective hydrologic and hydraulic (H&H) studies were available. A FEMA data request was submitted, and Effective data was received from FEMA on March 23, 2022. In addition to hydrologic and hydraulic models, Technical Support Data Notebooks (TSDN) for the Effective hydrologic and hydraulic studies were received. The hydrology TSDN was dated March 31, 2014, and the hydraulic TSDN was dated November 11, 2014.











4.0 Data Collection

4.1 Historical Records of Drainage and Flooding

4.1.1 City and Public News Records

The City has documented many past flood events along Boone Road, with at least six documented events occurring since 2011. These events involve overtopping of the roadway in the vicinity of the Hurricane Creek bridge and the culvert located just to the east of the bridge that drains the golf course pond. **Table 1** lists the documented events and the estimated rainfall amounts.

Table 1. Major Flood Events along Boone Road near Hurricane Creek

Total Event Precipitation (in)
6.26*
7.02*
5.53*
6.22*
5.14*
8.44*
3.35*
3.87**

^{*}Total event precipitation from NOAA weather station at Adams Field at Little Rock National Airport.

Figure 4 displays the location of typical flooding along Boone Road near the pond relief culverts. **Figure 5** shows the flooding experienced within Bishop Park during a typical roadway-overtopping event.

4.1.2 Resident Comment Database

For this CDMP, a public comment period was issued to allow city residents to submit drainage issues. The comment period ran from April 10 to May 22, 2022. A total of 264 comments were received for the city planning area. Several comments were made within the area of Boone Road and Hurricane Creek; eight comments are within half a mile of the Boone Road bridge at Hurricane Creek. The known flood areas and resident comment locations are provided on **Figure 6**.



^{**} Total event precipitation from RJN rainfall monitoring site BRRG06 near Hurricane Creek





Figure 4. Boone Road near Hurricane Creek, looking west (November 28, 2015)

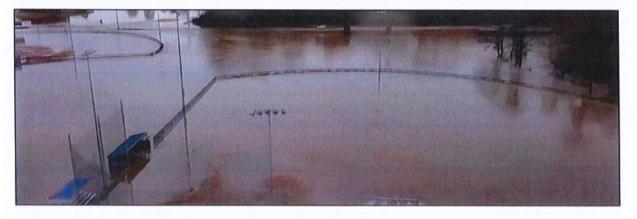
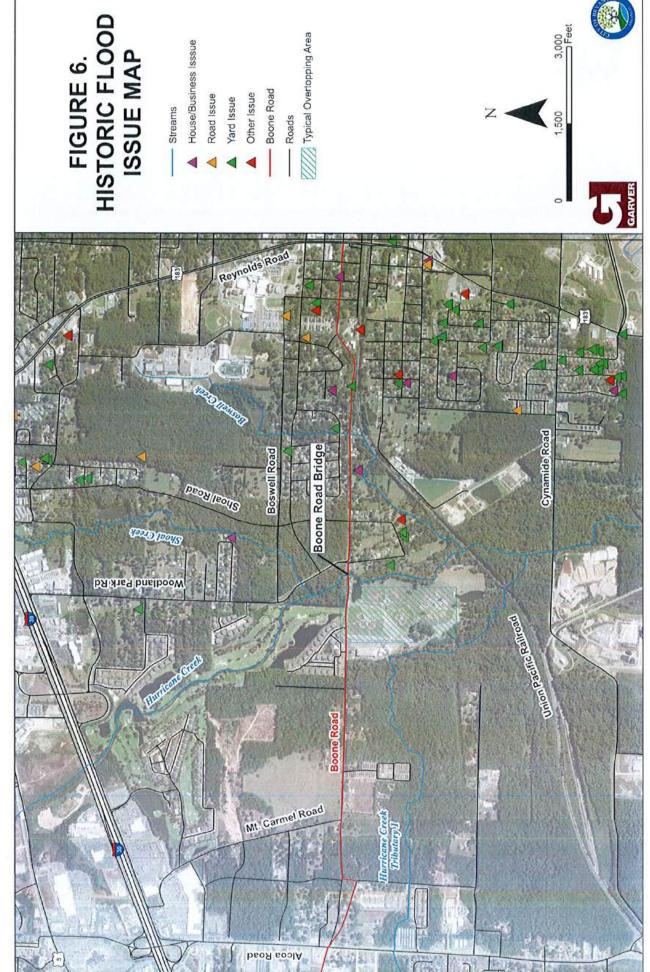


Figure 5. Bishop Park, looking north (February 23, 2018)









4.2 GIS and Topographic Data

For this project, 1-meter Digital Elevation Model (DEM) lidar topography from USGS Ouachita study was acquired from the Arkansas GIS Office. Project survey throughout the project area was collected by Garnat to supplement the lidar data.

5.0 Initial Screening Study

During Phase 1, an Initial Screening Study was performed for the Hurricane Creek basin. For this screening, a hydraulic model was developed for the entire basin using 2D HEC-RAS and utilized rain-on-grid methodology to apply precipitation directly to the ground surface. This model was used to identify flood issues throughout the City, so is considered a qualitative model and not to be used for design. However, the data is useful in determining relative flood risk, and a flood severity index (FSI) was developed using the model results. Flood severity ranges from 0 to 4, with 4 being the most severe. The FSI classifications are listed in **Table 2**. **Table 3** displays the FSI rankings for Boone Road area.

Table 2. Flood Severity Index Classes

Class	Description	Maximum Flood Depth (ft)	Maximum Flood Velocity (ft/s)
FS0	Minimal severity	< 0.5	
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0





Table 3. Flood Severity Index For Hurricane Creek Model Area

Location	Stream	Basin	Potential Drainage		Sev	ood erit dex	
	Name	Dasiii	Issue	5 yr	10 yr	50 yr	100 yr
Boone Road	Hurricane Creek	Hurricane Creek	Roadway overtopping; home flooding	2	3	3	3

Because of the high likelihood of flooding at multiple storm events, and historical flood issues in the area, Boone Road was selected for further hydraulic study in order to identify conceptual drainage improvements.

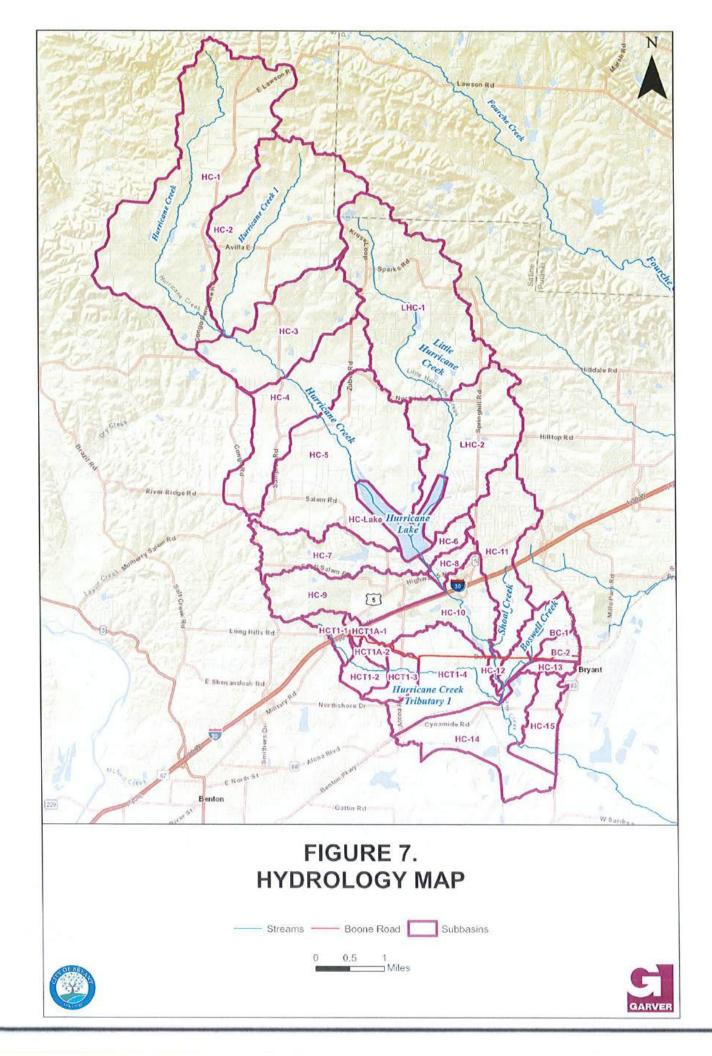
6.0 Hydrology

In Phase 1 of the CDMP, the Effective hydrologic model of the Hurricane Creek basin was updated using HEC-HMS 4.10. The determined flow rates are provided in **Table 4**. Delineated subbasins for Hurricane Creek are shown in **Figure 7**.

Table 4. Summary of Discharges for Hurricane Creek

Location along Stream	Drainage	Flow Rate (cfs)						
	area (sq mi)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
Hurricane Lake Outfall	24.88	4,820	6,921	8,684	11,697	14,076	16,593	22,633
Immediately upstream of Interstate 30	28.05	5,748	8,317	10,410	13,967	16,681	19,494	26,550
Immediately upstream of Boone Road	30.88	5,682	8,343	10,567	13,995	16,773	19,762	27,051
Immediately upstream of Cynamide Road	34.55	5,881	8,642	10,926	14,724	17,687	20,812	28,511
Immediately upstream of State Highway 183	36.83	5,698	8,455	10,827	14,825	17,951	21,256	29,353







7.0 Hydraulics

Two model scenarios were created, one using 1D analysis and the other using 2D analysis. For the 1D analysis, the Effective model received from FEMA was utilized and updated as needed. The hydraulic analysis was performed using HEC-RAS version 6.3.1. Additionally, in order to understand flow patterns throughout the project area, including the diversion of flow within the golf course and the general flow patterns of a potential development area near the intersection of Boone Road and Mt. Carmel Road, a 2D HEC-RAS model was also developed. These models are described in more detail in the following sections.

The 2-, 5-, 10-, 25-, 50-, 100-, and 500-year flows obtained from the updated HEC-HMS model discussed in Section 6.0 were utilized in both models.

7.1 2D HEC-RAS Model

Initially, a 2D HEC-RAS model was created and run to best understand the complex flow patterns of the floodplain in the vicinity of Boone Road as well as the potentially developing area at Mt. Carmel and Boone Roads.

7.1.1 Model Domain

To be comparable to FEMA data for this stream and to also allow for appropriate flow inputs, the model boundary was set from just downstream of I-30 to just downstream of the railroad. Lateral extents were set outside of the mapped floodplain, with tributaries modeled to points upstream enough from Hurricane Creek so that the flow inputs for these creeks did not have a direct effect on Hurricane Creek results.

7.1.2 2D Mesh Development

The mesh was structured so that the elements are larger in the fringes of the floodplain and in higher elevations that are less likely to be inundated during the model simulations. The element density is generally the greatest at the bridge openings, roadway embankments, and major streams. A finer mesh (more nodes and elements) will lead to longer model runtimes, so the mesh was developed to produce acceptable results but minimize excessive runtimes. The mesh contains 11,153 cells with a maximum cell size of 25,927 square feet and a minimum cell size of 98 square feet.





The main channel of Hurricane Creek was represented with rectangular adaptive elements. Likewise, roadway embankments are generally represented by quadrilateral elements. The remainder of the mesh is composed of square non-adaptive elements. Breaklines were drawn along the thalweg of smaller channels to ensure that the channels were represented in the mesh. Breaklines were also used to define significant breaks in topography and to adjust the mesh density.

7.1.3 2D Model Terrain

The terrain data for the 2D model was built from 1-meter (DEM) lidar topography discussed in **Section 4.2**.

7.1.4 2D Model Boundary Conditions

The 2D hydrology was set up with multiple inflow locations. Inflow hydrographs were set at the inflow locations for Hurricane Creek from the north, Shoal Creek from the northeast, Boswell Creek from the east, and Hurricane Creek Tributary 1 from the west. Inflow hydrographs were taken from the updated Effective HEC-HMS model for the Hurricane Creek basin performed in Phase 1 of the CDMP.

As the inflow hydrographs were set to only include flow for areas outside of the model boundaries, the additional runoff within the model boundary was represented utilizing the rain-on-mesh feature in 2D HEC-RAS. This allows for precipitation to be represented in a hyetograph, with the 2D model determining runoff for a specific storm event. It also allows for non-fluvial areas within the model to be analyzed, with low lying areas that pond to be mapped. Additional inputs required for this methodology include land cover and soil information. The downstream channel boundary was set to normal depth slope of 0.002 ft/ft, and the overbank boundary conditions were set to normal depth slope of 0.001 ft/ft.

The model domain, mesh, and boundary locations are all shown in Figure 8.





7.1.5 2D Model Roughness Coefficients

The land use types, and their corresponding Manning's n roughness coefficients are listed in Table 3-5.

Table 5. Land Use Types and Roughness Coefficients

Land Use Type	Manning's <i>n</i> Value
Barren Land	0.06
Deciduous Forest	0.1
Developed Open Space	0.0404
Developed Low Density	0.0678
Developed Medium Density	0.0678
Developed High Density	0.0404
Grassland	0.0368
Open Water	0.001
Parking Lot	0.016
Road	0.02

7.1.6 2D Model Structures

Existing Conditions parameters for the Boone Road bridge are given in Table 6.

Table 6. Existing Boone Road Bridge Structure

Parameter	Value
Culvert Size & Type	3-10'x3' RCB
Upstream Invert Elevation	353.51 ft NAVD88
Downstream Invert Elevation	353.01 ft NAVD88
Box Length	45 ft
Minimum Top of Road within Floodplain	357.04 ft NAVD88
Open Flow Area	90 sq. ft



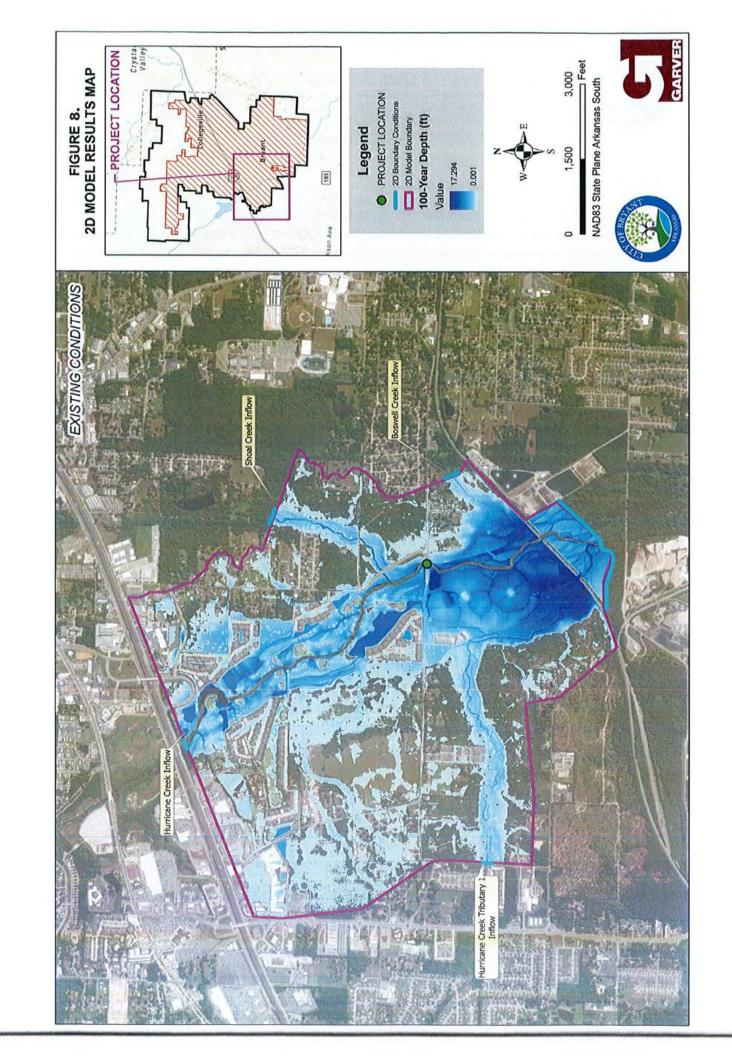


7.1.7 2D Existing Conditions Results

The 100-year water depth results are shown in Figure 8. The results of the 2D Existing Conditions model were reviewed to determine the existing flow patterns of the area. The results provided information regarding flow patterns in the model area. Of particular interest are the flow patterns in the area near Mt. Carmel Road and Boone Road. Several parcels of land near this intersection have been planned for development of a subdivision (Magnolia Development Phase 1 and Phase 2). Because of the nearby floodplain and known flood issue along Boone Road, the City requested that Garver determine the flow patterns within this area. The flow patterns are shown in Figure 9.

While the flow patterns were reviewed in the 2D model and utilized to develop preliminary design plans to improve flooding at Boone Road, the model itself was not utilized for the purposes of determining a no-rise design. The 1D no-rise analysis will be discussed in the following section.







7.2 1D HEC-RAS Model

Because a no rise design is inherently difficult to model in a 2D model, a 1D model of the stream was created. As discussed in Section 3.0, a data request was made to FEMA for all Effective hydraulic models along Hurricane Creek. Garver received a HECRAS model of the creek from approximately 2,300 feet downstream of Zuber Road to Highway 183 (Reynolds Road). The received model was created in HEC-RAS v4.1, and the accompanying Technical Support Data Notebook (TSDN) was dated November 11, 2014.

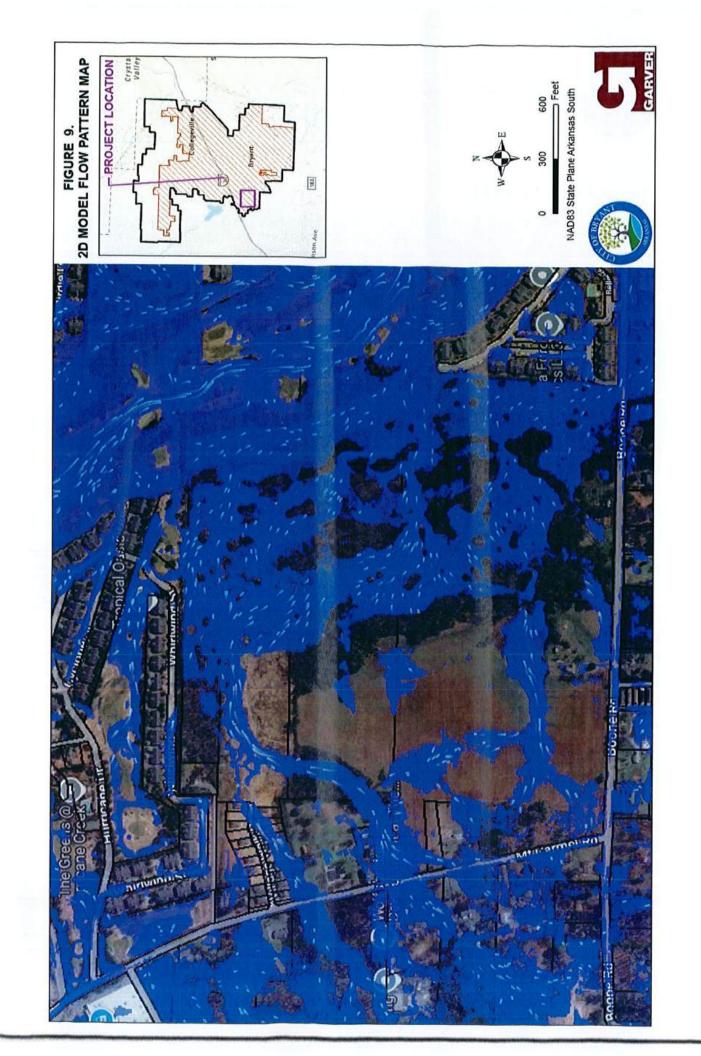
7.2.1 Duplicate Effective Model

The received Effective model was brought into HEC-RAS v6.3.1 and run as the Duplicate Effective Model (full DEM). After running the full model, it was trimmed to Lettered Section M, which is located just upstream of the I-30 westbound service road. The trimmed Duplicate Effective Model (DEM) was compared to the full DEM to show that trimming of the model did not significantly affect results. The comparison showed that a few profiles were changed by 0.01 ft at a few cross sections. This change is considered acceptable, so the trimmed DEM was utilized for future comparisons.

7.2.2 Corrected Effective/Existing Conditions Model

The Effective FEMA model was utilized and updated in order to represent the current conditions of the project area, and the updated flowrates calculated for the project. Several cross sections were also reoriented to be more normal to the overall floodplain. Additionally, parameters such as reach lengths, ineffective area settings, and bank stations were updated were necessary. This Corrected Effective Model (CEM) was then run and compared to the DEM. Survey data was also collected for this project. Where available, channel or structure information was updated to reflect project survey. Where not available, structure information reflects input in the Effective model. **Table 7** provides a comparison of the Trimmed DEM and CEM models. Results show differences of up to 0.57 ft between the two models; however, the average difference is 0.05 ft. These differences can be attributed to adjustments to the geometry as well as the change in flow rates.







DEM River Station	FEMA Lettered Section	DEM 100-YR WSEL (ft NAVD88)	CEM River Station	CEM 100-YR WSEL(ft NAVD88)	Difference e (ft)
325403	В	340.45	325403	340.79	0.34
324913	-	340.22	324913	340.54	0.32
324645		339.79	324645	340.15	0.36
324531		Highwa	y 183/Reynol	ds Road	
324427	A	338.8	324427	338.9	0.10
324233	-	338.84	324233	338.95	0.11
323990		338.72	323990	338.85	0.13

The results of the Corrected Effective Model show that Boone Road overtops considerably for all modeled storm events, with the 2-year event overtopping the roadway by approximately 1.5 feet. The model results are verified by the multiple known overtopping events of Boone Road.

Existing Conditions parameters for the Boone Road bridge are given in Table 8.

Table 8. Existing Boone Road Bridge Structure

Parameter	Value
Bridge Configuration	6 @ 31' (186 total feet)
Pier Type and Size	1'-4" square
Abutment Type	Vertical
Minimum Top of Road within Floodplain	353 ft NAVD88
Open Flow Area	1,327 sq. ft

7.3 Proposed Conditions

It is noted that while Boone Road overtops in all modeled events, the bridge crossing is not in pressure flow except for the 500-year event. This suggests that in order to prevent overtopping of the roadway, the road embankment should be raised throughout the floodplain. The most significant design constraint for this project is the requirement of no-rise to the 100-year WSEL, since Hurricane Creek is mapped as Zone AE with floodway. A map revision is not feasible in this location because of the multiple buildings within the floodplain in the immediate area of Boone Road, including the Lakes at Hurricane Creek apartment complex located on the north side of the roadway. Some of



the apartment buildings are mapped within the Corrected Effective 100-year floodplain. FEMA requires that no rise occur at any structure, so a no rise condition must be met for this project.

Since the roadway should be raised to prevent overtopping, the bridge should also be lengthened to mitigate a rise in WSEL. 25-year design condition was utilized for the proposed design. Proposed Conditions parameters for the Boone Road bridge are given in Table 9.

Table 9. Proposed Boone Road Bridge Structure

Parameter	Value
Bridge Configuration	17 @ 60' (1,020 total feet
Pier Type and Size	2' square
Abutment Type	Vertical
Minimum Top of Road within Floodplain	356.3 ft NAVD88
Open Flow Area	4,058 sq. ft

In addition to the proposed Boone Road Bridge, a relief culvert is proposed to the immediate west of the apartment complex. Modeling shows that some flow currently passes along the west side of the apartments and overtops Boone Road in that area, continuing south to the west of the Bishop Park complex. A Triple-10'x3' box culvert is proposed to carry flow under the road at this location, with a proposed channel to carry the flow southward. Proposed Conditions parameters are given in Table 10..

Table 10. Proposed Boone Road Relief Culvert Structure

Parameter	Value
Culvert Size and Type	3-10'x3' RCB
Upstream Invert Elevation	353.55 ft NAVD88
Downstream Invert Elevation	353.00 ft NAVD88
Open Flow Area	90 sq. ft

A comparison of existing and proposed water surface elevations during the 100-year event is given in **Table 11**.





Table 11. Comparison of Existing and Proposed WSELs for 100-year event

River Station	CEM WSEL (ft NAVD88)	Proposed WSEL (ft NAVD88)	Difference (ft)		
344367	378.18	378.18	0.00		
344270		I-30 W Service Road			
344244	375.22	375.22	0.00		
344231	375.21	375.21	0.00		
344160		I-30 E&W Main Lanes			
344073	374.19	374.19	0.00		
344064	373.47	373.47	0.00		
344047		I-30 E Service Road			
343984	368.5	368.5	0.00		
343895	368.29	368.29	0.00		
343514	367.77	367.77	0.00		
343367	367.63	367.63	0.00		
343359	Gol	f Course Cart Path Bridge			
343342	367.52	367.52	0.00		
343197	367.52	367.52	0.00		
342824	367.22	367.22	0.00		
342252	367.22	367.23	0.01*		
342167	366.91	366.91	0.00		
342139		Golf Course Pond Dam			
342132	366.81	366.81	0.00		
342124	Gol	f Course Cart Path Bridge			
342111	366.77	366.77	0.00		
341986	366.81	366.81	0.00		
341045	364.85	364.85	0.00		
340646	364.78	364.78	0.00		
340508	364.76	364.76	0.00		
340500	Gol	f Course Cart Path Bridge			
340493	364.45	364.45	0.00		
340327	363.02	363.04	0.02*		
339747	361.02	361.01	-0.01		
339023	360.56	360.53	-0.03		
338266	360.22	360.18	-0.04		





River Station	CEM WSEL (ft NAVD88)	Proposed WSEL (ft NAVD88)	Difference (ft)
338110	359.95	359.9	-0.05
338106	Golf	Course Cart Path Bridge	
338082	359.74	359.7	-0.04
337989	359.29	359.19	-0.10
337411	358.16	358.17	0.01*
337140	357.94	357.87	-0.07
336872	357.77	357.72	-0.05
336696	357.34	357.29	-0.05
336623		Boone Road	
336529	357.15	357.15	0.00
336409	357.13	357.13	0.00
336047	357.01	357.01	0.00
335843	356.89	356.89	0.00
335217	356.77	356.77	0.00
334476	356.67	356.67	0.00
334001	356.43	356.43	0.00
333871	355.21	355.21	0.00
333812		Railroad	
333713	350.85	350.85	0.00
332978	349.95	349.95	0.00
332497	349	349	0.00
332034	348.38	348.38	0.00
331979	348.32	348.32	0.00
331922		Cynamide Road	
331852	346.46	346.46	0.00
331715	346.22	346.22	0.00
331172	345.09	345.09	0.00
330046	343.79	343.79	0.00
329418	342.9	342.9	0.00
328479	342.03	342.03	0.00
327262	341.47	341.47	0.00
326159	341.02	341.02	0.00
325403	340.79	340.79	0.00





River Station	CEM WSEL (ft NAVD88)	Proposed WSEL (ft NAVD88)	Difference (ft)	
324913	340.54	340.54	0.00	
324645	340.15	340.15	0.00	
324531	Highway 183/Reynolds Road			
324427	338.9	338.9	0.00	
324233	338.95	338.95	0.00	
323990	338.85	338.85	0.00	

^{*} Currently the proposed model shows very slight rises at three cross sections; however, the bridge design is conceptual and multiple design aspects will change for preliminary and final design. Therefore it is anticipated that the proposed WSELs may change slightly over the course of detailed design, and final design parameters may need to be iterated to meet no rise conditions. The conceptual design is a best approximation in order to prepare cost estimates.

8.0 Conceptual Layout and Planning Level Opinion of Project Costs

A conceptual layout drawing and planning level opinion of project costs are provided in Appendix A-1. This layout is for graphical and planning purposes only and is not for construction.



Appendix A-1

Phase 2 Boone Road at Hurricane Creek Improvements Conceptual Layout and Planning Level Opinion of Project Costs



Table 7. 100-Year DEM and CEM Results along Hurricane Creek

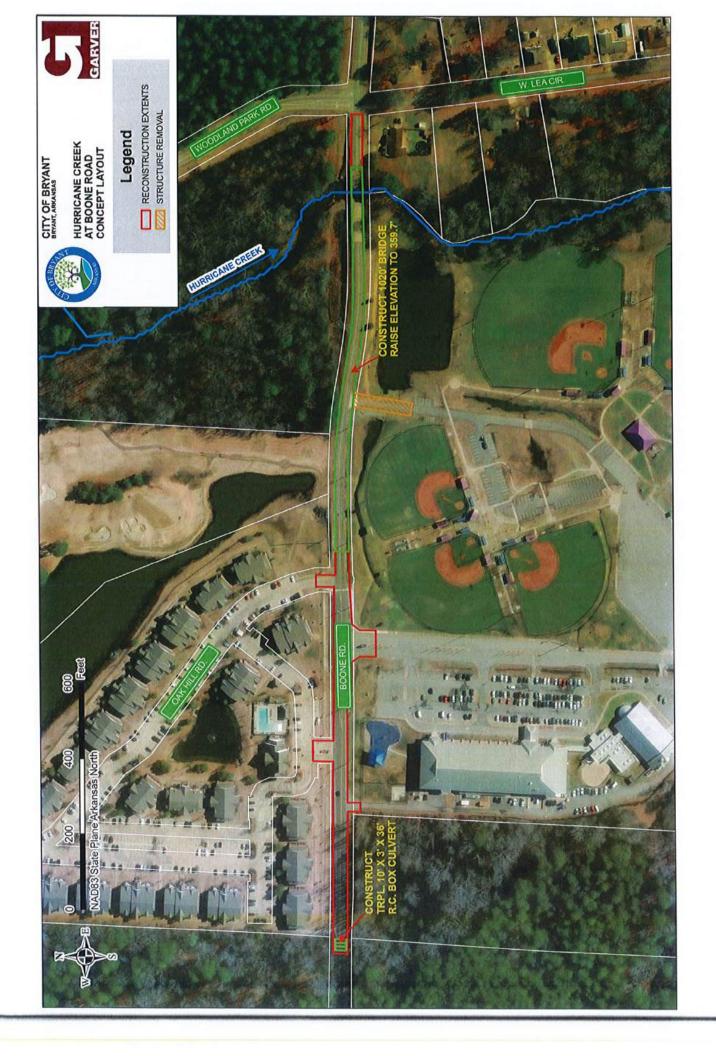
DEM River Station	FEMA Lettered Section	DEM 100-YR WSEL (ft NAVD88)	CEM River Station	CEM 100-YR WSEL(ft NAVD88)	Difference e (ft)
344367		378.25	344367	378.18	-0.07
344270	I-30 W Service Road				
344244		375.27	344244	375.22	-0.05
344231		375.26	344231	375.21	-0.05
344160	I-30 E&W Main Lanes				
344073		374.21	344073	374.19	-0.02
344064		373.47	344064	373.47	0.00
344047		1-3	0 E Service R	oad	
343984	L	368.54	343984	368.5	-0.04
343895	-	368.3	343895	368.29	-0.01
343514	Francisco	367.79	343514	367.77	-0.02
343367	-	367.6	343367	367.63	0.03
343359		Golf Co	ourse Cart Pat	th Bridge	
343342	-	367.49	343342	367.52	0.03
343197	-	367.48	343197	367.52	0.04
342824	-	367.33	342824	367.22	-0.11
342252		367.3	342252	367.22	-0.08
342167	-	367.02	342167	366.91	-0.11
342139	Golf Course Pond Dam				
342132	K	366.86	342132	366.81	-0.05
342124	Golf Course Cart Path Bridge				
342111	-	366.83	342111	366.77	-0.06
341986		366.87	341986	366.81	-0.06
341045	-	365.03	341045	364.86	-0.17
340646	J	364.89	340646	364.78	-0.11
340508	-	364.87	340508	364.77	-0.10
340500	Golf Course Cart Path Bridge				
340493	(*)	364.46	340493	364.46	0.00
340327	-	363.05	340327	363.01	-0.04
339747	1	361.62	339747	361.05	-0.57
339035		361.42	339023	360.6	-





DEM River Station	FEMA Lettered Section	DEM 100-YR WSEL (ft NAVD88)	CEM River Station	CEM 100-YR WSEL(ft NAVD88)	Difference (ft)
338264	-	361.21	338266	360.27	-
338109	Н	361.16	338110	360.01	A CARLON NAME OF THE
338106	1	Golf Co	urse Cart Pat	h Bridge	
338085	-	360.07	338082	359.81	
337980	-	359.86	337989	359.42	_
337402	-	359.27	337411	358.55	
336798	-	357.98	337140	358.41	_
	-		336872	358.28	
336650	-	357.51	336696	358	-
336623			Boone Road		
336545	G	357.34	336529	357.15	-
336451	-	357.33	336409	357.13	
	-	-	336047	357.01	-
335843		356.96	335843	356.89	-0.07
335217	F	356.82	335217	356.77	-0.05
334476	21/2	356.72	334476	356.67	-0.05
334001	-	356.5	334001	356.43	-0.07
333871		355.32	333871	355.21	-0.11
333812		Railroad			
333713	E	351.51	333713	350.85	-0.66
332978	•	350.1	332978	349.95	-0.15
332497	-	349.07	332497	349	-0.07
332034	-	348.35	332034	348.38	0.03
331979	D	348.35	331979	348.32	-0.03
331922		C	ynamide Roa	nd	
331852	-	346.69	331852	346.46	-0.23
331715	-	346.49	331715	346.22	-0.27
331172	-	345.53	331172	345.09	-0.44
330046	-	343.94	330046	343.79	-0.15
329418	С	343.09	329418	342.9	-0.19
328479	-	341.99	328479	342.03	0.04
327262	-	341.2	327262	341.47	0.27
326159	-	340.73	326159	341.02	0.29







Planning Level Opinion of Project Costs Boone Road at Hurricane Creek Improvements Item Description Unit Quantity Unit Cost **Total Cost Roadway Construction** Mile 0.24 \$ 7,395,833.33 \$ 1,775,000.00 Hurricane Creek Bridge (30' x 1020') S.F. \$ \$ 10,404,000.00 30600 340.00 Triple 10' x 3' Reinforced Concrete Box Culvert (36') S.F. 1080 \$ 185.00 \$ 199,800.00 **Driveway Pavement Repair** S.Y. 525 \$ 140.00 \$ 73,500.00 \$ \$ **Asphalt Pavement Repair** S.Y. 538 200.00 107,600.00 1 \$ 1,891,279.00 Site Preparation (10%) L.S. \$ 1,891,279.00 Traffic Control (1%) L.S. 1 189,473.00 \$ 189,473.00 1 \$ **Erosion Control (3%)** L.S. 568,492.00 568,492.00 L.S. Contingency (20%) 1 \$ 3,791,382.00 \$ 3,791,382.00 **Total Estimated Construction Cost** \$ 19,000,526.00 Additional Associated Costs Utility Relocation (10%) \$ 1,900,053.00 \$ 1,900,053.00 L.S. 1 Engineering and Survey Fee (18%) \$ 3,420,095.00 L.S. 1 \$ 3,420,095.00 RW Acquisition and Easements (2%) L.S. 1 380,011.00 \$ 380,011.00 **Total Estimated Project Cost** \$ 24,700,700.00

Appendix B

Phase 2 Boone Road at Boswell Creek Improvements

Comprehensive Drainage Master Plan City of Bryant

Phase 2

Boone Road at Boswell Creek Improvements

Prepared by:



4701 Northshore Drive
North Little Rock, Arkansas 72118

January 2025

Garver Project No.: 20T20090



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Appendices

Appendix B-1: Conceptual Layout and Planning Level Opinion of Project Costs





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1.0 Overall Project Description

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

- Evaluate the existing drainage conditions of the City and Extra-Territorial Jurisdiction (ETJ), also known as the planning area;
- · Identify current and future drainage problems;
- Generate proposed solutions to identified problems;
- Develop a Capital Improvement Plan (CIP); and
- Provide tools for managing future development.

The CDMP project is being performed in two (2) phases. Phases 1 and 2 will be divided into major tasks, with subtasks listed as applicable below these major tasks. **Figure 1** shows a flow chart of the overall project process.

- Phase 1: Data Collection and Initial Drainage Study Screening
- Phase 2: Survey Collection, Hydrologic and Hydraulic Modeling, Identification of Drainage Problems, Alternative Development, and CIP Development

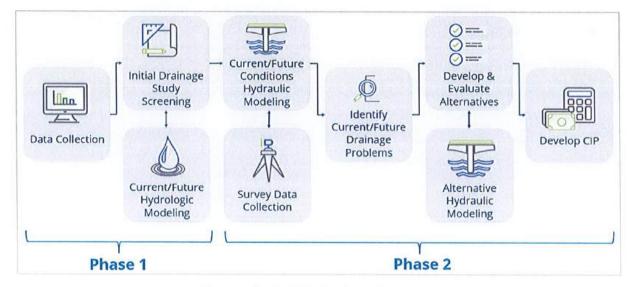


Figure 1. CDMP Project Process

This report discusses the processes and findings of a Phase 2 study for Boone Road at Boswell Creek.





2.0 General Information

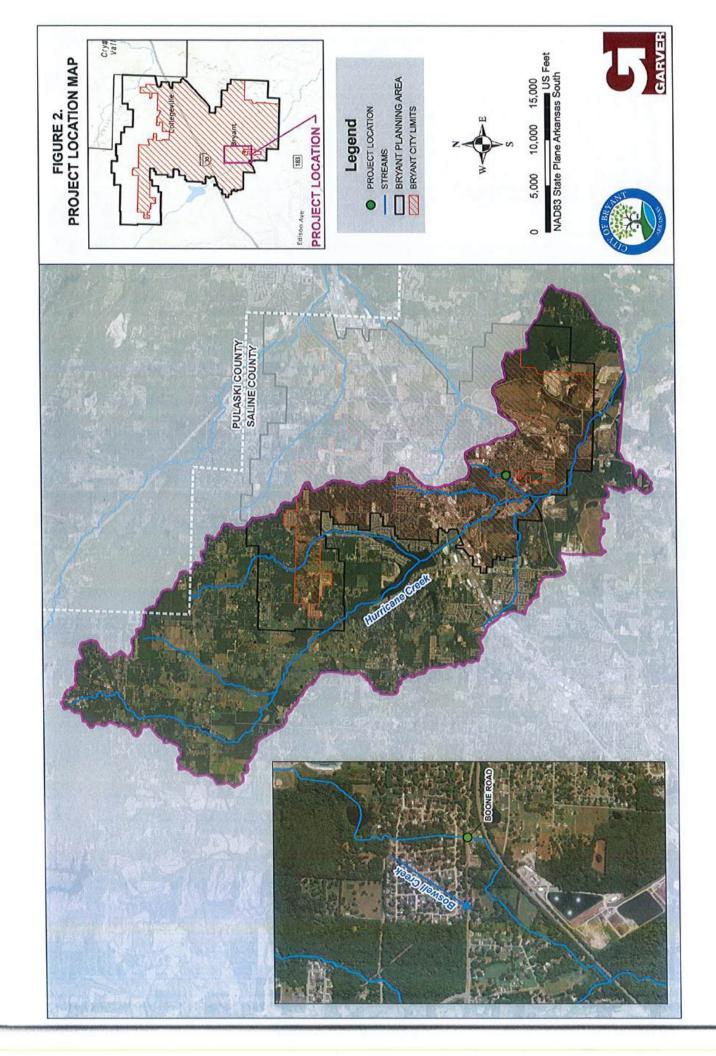
Boone Road is a minor arterial class roadway in the City of Bryant connecting Alcoa Road and Reynolds Road (Highway 183). The entirety of Boone Road is located in the Hurricane Creek Basin. Boswell Creek is a tributary to Hurricane Creek, with a culvert crossing under Boone Road approximately half a mile east of the intersection with Woodland Park Road. This crossing was identified in Phase 1 of the CDMP as a drainage problem. The project location map is shown in **Figure 2**.

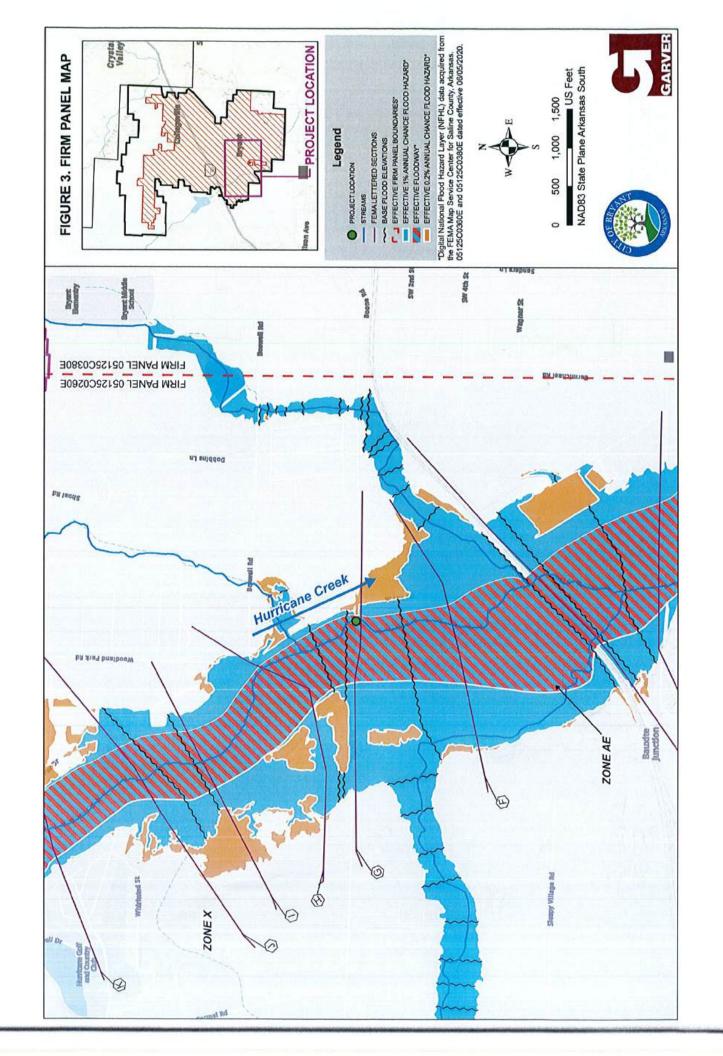
3.0 National Flood Insurance Program (NFIP) Data

The City of Bryant participates in the FEMA National Flood Insurance Program (NFIP). Current floodplain information and mapping is available in Flood Insurance Study (FIS) Report numbers 05125CV0001B and V0002B for Saline County, Arkansas, and Incorporated Areas. The City is mapped within Flood Insurance Rate Map (FIRM) Panels 0225E, 0240E, 0360E, 0370E, and 0380E. The project area of Boone Road at Boswell Creek is within FIRM Panel 0360E.

Boswell Creek is mapped as Zone AE. The Effective floodplain mapping for the project area is shown in **Figure 3**.









4.0 Data Collection

4.1 GIS and Topographic Data

For this project, 1-meter Digital Elevation Model (DEM) lidar topography from USGS Ouachita study was acquired from the Arkansas GIS Office. No survey data was collected for this location. Garver conducted a site visit to collect culvert sizes. Figures 4 and 5 show Boswell Creek in the area of Boone Road.

4.2 Resident Comment Database

For this CDMP, a public comment period was issued to allow city residents to submit drainage issues. The comment period ran from April 10 to May 22, 2022. A total of 264 comments were received for the city planning area. 119 comments were within the Hurricane Creek Drainage Basin. One comment was received for Boone Road within the project area for Boswell Creek. This comment referenced flow crossing over Boone Road every time it rains.







Figure 4. Upstream face of culverts at Boone Road



Figure 5. Looking downstream of Boone Road





5.0 Initial Screening Study

During Phase 1, an Initial Screening Study was performed for the Hurricane Creek basin. For this screening, a hydraulic model was developed for the entire basin using 2D HEC-RAS and utilized rain-on-grid methodology to apply precipitation directly to the ground surface. This model was used to identify flood issues throughout the City, so is considered a qualitative model and not to be used for design. However, the data is useful in determining relative flood risk, and a flood severity index (FSI) was developed using the model results. Flood severity ranges from 0 to 4, with 4 being the most severe. The FSI classifications are listed in **Table 1**. **Table 2** displays the FSI rankings for Boswell Creek.

Table 1. Flood Severity Index Classes

Class	Description	Maximum Flood Depth (ft)	Maximum Flood Velocity (ft/s)
FS0	Minimal severity	< 0.5	- 1
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0

Because of the high likelihood of flooding at multiple storm events, and historical flood issues in the area, Boone Road at Boswell Creek was selected for further hydraulic study in order to identify conceptual drainage improvements.





Table 2. Flood Severity Index for Boone Road at Boswell Creek

Location			Potential	Flood Severity Index				
	Stream Name	Basin	Drainage Issue	5 yr	10 yr	50 yr	100 yr	
Boone Road	Boswell Creek	Hurricane Creek	Roadway overtopping; home flooding	1	1	2	2	

6.0 Hydrology

In Phase 1 of the CDMP, an Effective hydrologic model of the Hurricane Creek basin was updated using HEC-HMS 4.10. Boswell Creek was included as a subbasin of Hurricane Creek. Calculated flow rates were compared to the Effective FIS flows. The Effective flows were slightly higher for published events. For this project, the Effective FIS flows were used for all storm events 10-year and greater; the HEC-HMS flows were utilized for the 2- and 5-year events, as these were not published in the FIS.

The determined flow rates for Boswell Creek are provided in Table 3.

Table 3. Summary of Discharges for Boswell Creek

Location along	Drainage	Flow Rate (cfs)								
Stream	Area (sq mi)	2-yr	5-yr	10-yr	25-yr	50-yr	100- yr	500-yr		
Approx. 200 feet downstream of Boone Road	0.40	250	340	417	530	625	720	851		
Just upstream of confluence with Hurricane Creek	0.77	439	595	729	942	1,116	1,289	1,522		





7.0 Hydraulics

The hydraulic analysis was performed using HEC-RAS version 6.3.1. The Effective model received from FEMA was utilized and updated as needed.

The 2-, 5-, 10-, 25-, 50-, 100-, and 500-year flows discussed above were used in the model. The downstream boundary condition was set to a normal depth slope of 0.0056 ft/ft. The slope was determined based on the average slope of the thalweg in the downstream portion of the modeled reach.

7.1 Duplicate Effective Model

The received Effective model was brought into HEC-RAS v6.3.1 and run as the Duplicate Effective Model (DEM).

7.2 Corrected Effective Model

The Effective FEMA model was utilized and updated in order to represent the current conditions of the project area. Parameters such as reach lengths, ineffective area settings, and bank stations were updated were necessary. Existing conditions structure data for the Boone Road are given in **Table 4**.

 Parameter
 Value

 Culvert Size & Type
 3-2.5' RCP

 Upstream Invert Elevation
 367.5

 Downstream Invert Elevation
 367.18

 Box Length
 31

 Open Flow Area
 14.73 sq. ft

Table 4. Existing Conditions Structure Data at Boone Road

In existing conditions, the structure overtops during all modeled flood events (2-year through 500-year).

7.3 Proposed Conditions

Based on the existing conditions results, drainage improvements were iterated to upsize these culverts as well as improve the flow capacity of the stream channel. After multiple iterations, a design was developed to convey the 10-year event storm without overtopping roadways. Boone Road is a minor arterial and should be able to pass a 50-





year event. However, there is no feasible solution for passing the 50-year event without significant redesign of Boone Road. As the current culvert will not pass the 2-year without overtopping, the 10-year design will significantly improve the drainage at this site. The proposed structure data is provided in **Table 5**.

Table 5. Proposed Structure Data at Boone Road

Parameter	Value
Culvert Size & Type	3-6'x3' RCB
Upstream Invert Elevation	367.5
Downstream Invert Elevation	367.18
Box Length	31
Open Flow Area	54 sq. ft

In addition to the upsized culvert under Boone Road, channel improvements were recommended. This would include a concrete trapezoidal channel with a 20ft channel bottom and 3:1 side slopes. Channelization is recommended from approximately 20 upstream of Boone Road to approximately 200 feet downstream. A comparison of the existing and proposed water surface elevations during the 50-year event is given in **Table 6**, as the 50-year event is the design event for a minor arterial. The model layout and floodplain boundaries are shown in **Figure 6**.

Table 6. Comparison of Existing and Proposed WSELs for 50-year event

Model Cross Section	Existing Conditions WSEL (ft NAVD88)	Proposed Conditions WSEL (ft NAVD88)	Difference in WSEL (ft)
5335	383.10	383.43	0.33
5144	382.98	383.34	0.36
5122		Boswell Road	
5105	382.87	382.87	0.00
5010	382.81	382.81	0.00
4949	382.43	382.43	0.00
4926		N. Richardson Place	
4887	380.03	380.03	0.00
4720	376.97	376.97	0.00
4378	375.10	375.10	0.00
4072	374.46	374.46	0.00





Model Cross Section	Existing Conditions WSEL (ft NAVD88)	Proposed Conditions WSEL (ft NAVD88)	Difference in WSEL (ft)
4009	374.10	374.10	0.00
3984		S. Richardson Place	
3951	372.58	372.58	0.00
3912	371.76	371.41	-0.35
3810	371.46	370.68	-0.78
3788		Boone Road	
3758	370.69	370.11	-0.58
3692	369.91	369.37	-0.54
3564	N/A	369.39	N/A
3476	369.53	369.53	0.00
3274	368.03	368.03	0.00
3078	366.70	366.70	0.00
2553	363.83	363.83	0.00
2471	363.10	363.10	0.00
2384	362.72	362.72	0.00
2383		Inl Struct	
2105	359.91	359.91	0.00
1689	356.83	356.83	0.00
1595	356.36	356.36	0.00
1584		Pedestrian Bridge	
1563	355.77	355.77	0.00
1480	354.86	354.86	0.00
1464		Pedestrian Bridge	
1450	354.91	354.91	0.00
1202	352.97	352.97	0.00
1194		Pedestrian Bridge	
1173	352.47	352.47	0.00
808	351.23	351.23	0.00
160	349.27	349.27	0.00

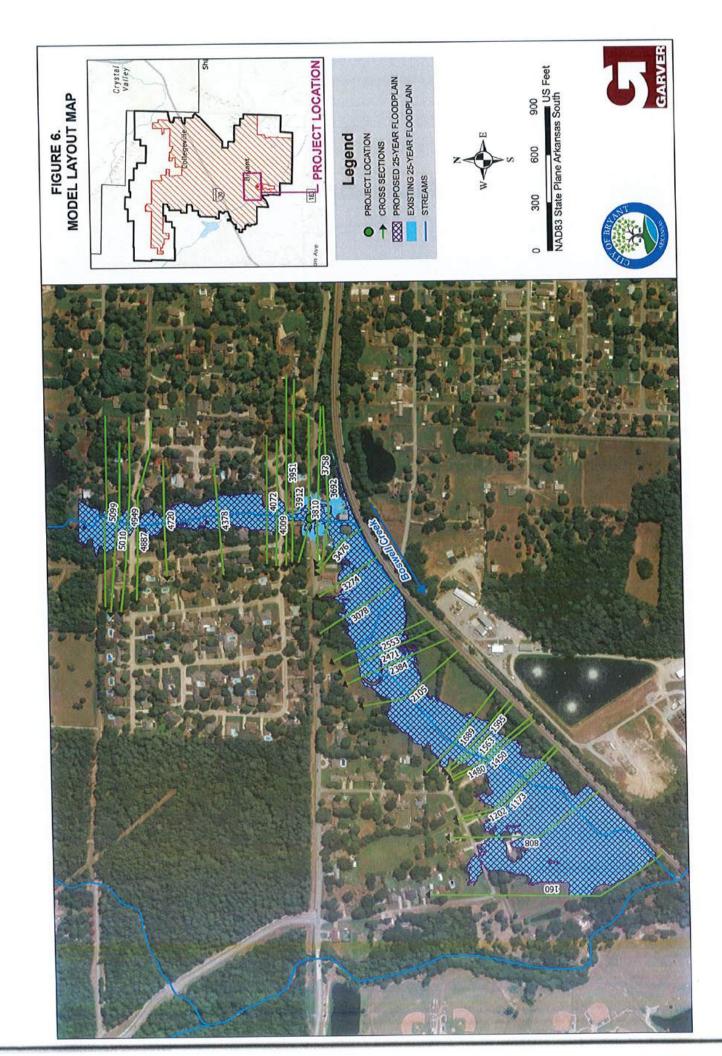




8.0 Conceptual Layout and Planning Level Opinion of Project Costs

A conceptual layout drawing and planning level opinion of project costs are provided in Appendix B-1. This layout is for graphical and planning purposes only and is not for construction.





Appendix B-1

Phase 2 Boone Road at Boswell Creek Improvements Conceptual Layout and Planning Level Opinion of Project Costs





Planning Level Opini Boone Road at Boswell			ts		
Item Description	Unit	Quantity		Unit Cost	Total Cost
Unclassified Excavation	C.Y.	480	\$	30.00	\$ 14,400.00
Aggregate Base Course (Class 7)	TON	34	\$	50.00	\$ 1,700.00
Concrete Ditch Paving	S.Y.	920	\$	75.00	\$ 69,000.00
Quintuple 6' x 3' Reinforced Concrete Box Culvert (31')	S.F.	930	\$	185.00	\$ 172,050.00
Asphalt Pavement Repair	S.Y.	73	\$	200.00	\$ 14,600.00
Site Preparation (10%)	L.S.	1	\$	40,175.00	\$ 40,175.00
Traffic Control (1%)	L.S.	1	\$	4,046.00	\$ 4,046.00
Erosion Control (3%)	L.S.	1	\$	12,145.00	\$ 12,145.00
Contingency (20%)	L.S.	1	\$	81,088.00	\$ 81,088.00
Total Estimated Construction	on Cost				\$ 409,204.00
Additional Associated Costs					
Utility Relocation (10%)	L.S.	1	\$	40,920.00	\$ 40,920.00
Engineering and Survey Fee (18%)	L.S.	1	\$	73,657.00	\$ 73,657.00
RW Acquisition and Easements (2%)	L.S.	1	\$	8,184.00	\$ 8,184.00
Total Estimated Project C	Cost				\$ 532,000.00

Appendix C

Phase 2

Cynamide Road at Hurricane Creek Improvements

Comprehensive Drainage Master Plan City of Bryant

Phase 2

Cynamide Road at Hurricane Creek Improvements

Prepared by:



4701 Northshore Drive North Little Rock, Arkansas 72118

January 2025

Garver Project No.: 20T20090



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Overall Project Description 1.0

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

- Evaluate the existing drainage conditions of the City and Extra-Territorial Jurisdiction (ETJ), also known as the planning area;
- Identify current and future drainage problems;
- Generate proposed solutions to identified problems;
- Develop a Capital Improvement Plan (CIP); and
- Provide tools for managing future development.

The CDMP project is being performed in two (2) phases. Phases 1 and 2 will be divided into major tasks, with subtasks listed as applicable below these major tasks. Figure 1 shows a flow chart of the overall project process.

- Phase 1: Data Collection and Initial Drainage Study Screening
- Phase 2: Survey Collection, Hydrologic and Hydraulic Modeling, Identification of Drainage Problems, Alternative Development, and CIP Development

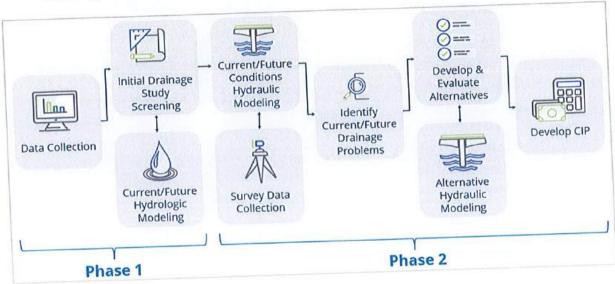


Figure 1. CDMP Project Process

This report discusses the processes and findings of a Phase 2 study for Cynamide Road at Hurricane Creek.





2.0 **General Information**

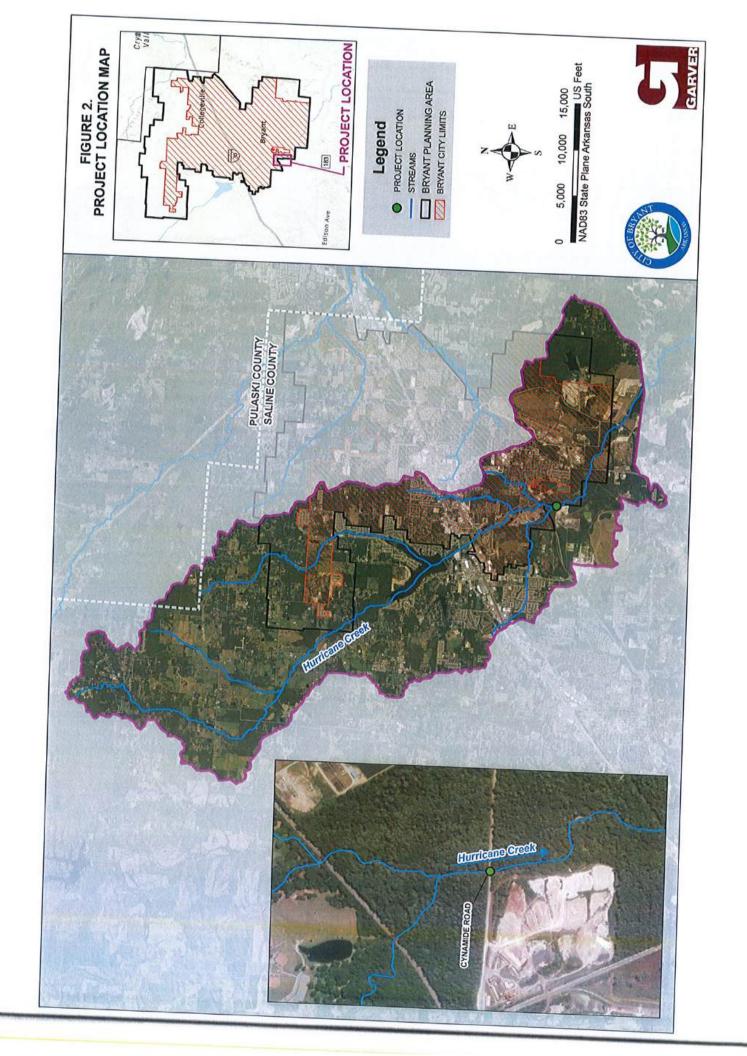
Cynamide Road is a minor arterial class roadway connecting Alcoa Boulevard to South Reynolds Road, with a box culvert crossing over Hurricane Creek. The project location map is shown in Figure 2.

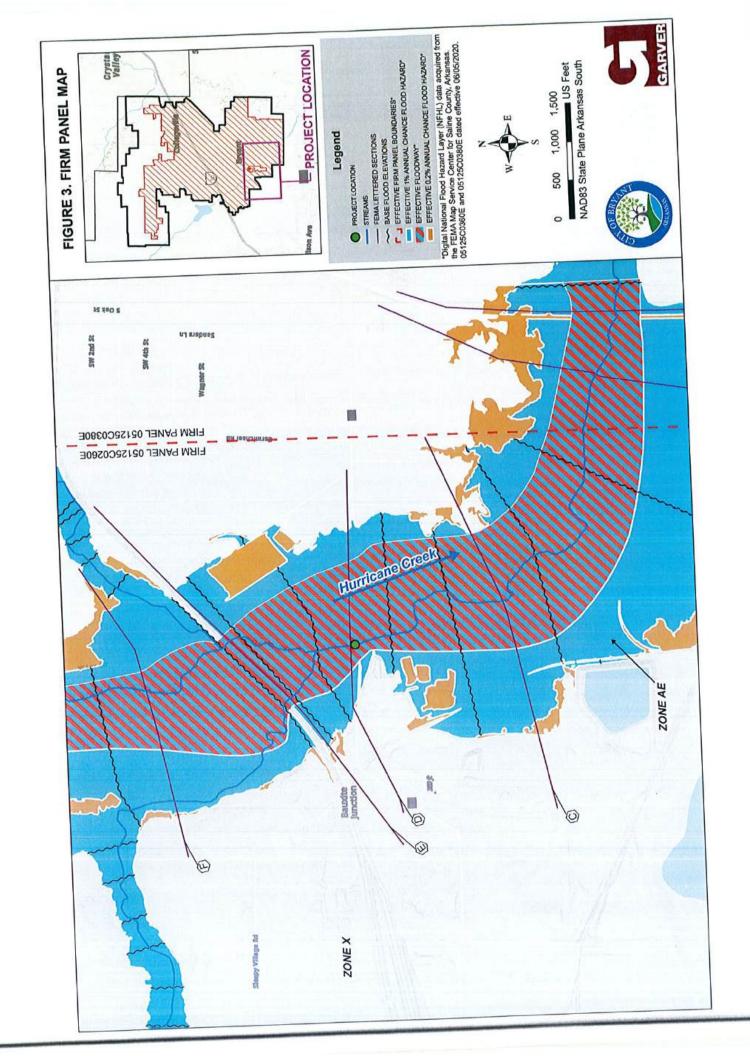
3.0 National Flood Insurance Program (NFIP) Data

The City of Bryant participates in the FEMA National Flood Insurance Program (NFIP). Current floodplain information and mapping is available in Flood Insurance Study (FIS) Report numbers 05125CV0001B and V0002B for Saline County, Arkansas, and Incorporated Areas. The City is mapped within Flood Insurance Rate Map (FIRM) Panels 0225E, 0240E, 0360E, 0370E, and 0380E. The Cynamide Road crossing is within Panel 0360E.

Hurricane Creek is mapped as Zone AE with floodway. The Effective floodplain mapping for the project area is shown in Figure 3.









4.0 Data Collection

4.1 GIS and Topographic Data

For this project, 1-meter Digital Elevation Model (DEM) lidar topography from USGS Ouachita study was acquired from the Arkansas GIS Office. No survey was collected for this location. Structure data included in the Effective hydraulic model for Hurricane Creek was used. Garver conducted a site visit to the location to confirm structure information. The Cynamide Road crossing is shown in **Figure 4**.

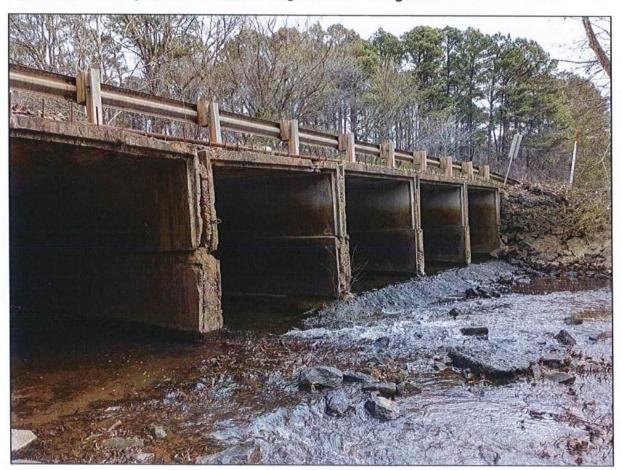


Figure 4. Cynamide Road at Hurricane Creek





4.2 Resident Comment Database

For this CDMP, a public comment period was issued to allow city residents to submit drainage issues. The comment period ran from April 10 to May 22, 2022. A total of 264 comments were received for the city planning area. 119 comments were within the Hurricane Creek drainage Basin. Zero resident comments were made for Hurricane Creek near the project area for Cynamide Road.

5.0 Initial Screening Study

During Phase 1, an Initial Screening Study was performed for the Hurricane Creek Basin. For this screening, a hydraulic model was developed for the entire basin using 2D HEC-RAS and utilized rain-on-grid methodology to apply precipitation directly to the ground surface. This model was used to identify flood issues throughout the City, so is considered a qualitative model and not to be used for design. However, the data is useful in determining relative flood risk, and a flood severity index (FSI) was developed using the model results. Flood severity ranges from 0 to 4, with 4 being the most severe. The FSI classifications are listed in **Table 1**. **Table 2** displays the FSI rankings for Cynamide Road.

Table 1. Flood Severity Index Classes

Class	Description	Maximum Flood Depth (ft)	Maximum Flood Velocity (ft/s)
FS0	Minimal severity	< 0.5	
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0





Table 2. Flood Severity Index for Cynamide Road

			Potential Drainage Issue		Flood Severit Index		
Location	Stream Name	Basin			10 vr	50 vr	100 vr
Cynamide Road	Hurricane Creek	Hurricane Creek	Roadway overtopping	0	2	2	3

Because of the high likelihood of flooding at multiple storm events, Cynamide Road was selected for further hydraulic study in order to identify conceptual drainage improvements.

6.0 Hydrology

In Phase 1 of the CDMP, a hydrologic model of the Hurricane Creek basin was created using HEC-HMS 4.10. Flows determined in the updated Garver model were compared to Effective flows used in the Effective hydraulic model, the updated flows were within 1.4% on average, with a maximum difference of 5.3%. Differences in values are considered acceptable. HEC-HMS flow rates were used in the design hydraulic model.

The determined flow rates are provided in Table 3.

Table 3. Summary of Discharges for Hurricane Creek

Location along	Drainag Flow Rate (cfs)									
Location along Stream	e Area (sq mi)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr		
Upstream of I-30	28.05	5,748	8,317	10,410	13,967	16,681	19,494	26,550		
Immediately upstream of Boone Rd	30.88	5,682	8,343	10,567	13,995	16,773	19,762	27,051		
Immediately upstream of Cynamide Rd	34.55	5,881	8,642	10,926	14,724	17,687	20,812	28,511		
Immediately upstream of Highway 183	36.83	5,698	8,455	10,827	14,825	17,951	21,256	29,353		





7.0 Hydraulics

The hydraulic analysis was performed using HEC-RAS version 6.3.1. the Effective model received from FEMA was utilized and updated as needed.

The 2-, 5-, 10-, 25-, 50-, 100-, and 500-year flows obtained from the HEC-HMS model discussed above were used in the models. The downstream boundary condition was set to a normal depth slope of 0.00049 ft/ft. The slope was determined based on the average slope of the thalweg in the downstream portion of the modeled reach.

7.1 Duplicate Effective Model

The received Effective model was brought into HEC-RAS v6.3.1 and run as the Duplicate Effective Model (DEM).

7.2 Existing Conditions

The Effective FEMA model was utilized and updated in order to represent the current conditions of the project area. Parameters such as reach lengths, ineffective area settings, and bank stations were updated were necessary. Parameters for the existing structure at Cyanamide Road is given in **Table 4**.

Table 4. Existing Cynamide Road Structure Data (from Effective FIS Model)

Parameter	Value	
Culvert Size	6- 10x8 RCB	
Upstream Invert Elevation	336.84 ft NAVD88	
Downstream Invert Elevation	336.82 ft NAVD88	
Culvert Length	36 feet	
Minimum Top of Road within Floodplain	346.23 ft NAVD88	
Open Flow Area	480 sq. ft	

In existing conditions, the structure overtops during all modeled flood events (2-year through 500-year).

7.3 Proposed Conditions

Based on the existing conditions results, drainage improvements were iterated to increase the open flow area by replacing the existing culvert structure with a bridge.





After multiple iterations, a design was developed to convey the 25-year event storm without overtopping the roadway. Parameters for the proposed bridge updates are provided in **Table 5**.

Table 5. Proposed Cynamide Road Structure Data

Parameter	Value	
Bridge Configuration	700 foot bridge (spans TBD)	
Pier Type and Size	To be determined	
Abutment Type	To be determined	
Minimum Top of Road within Floodplain	347.3 ft NAVD88	
Open Flow Area	2,583 sq. ft	

A comparison of existing and proposed water surface elevations during the 25-year event is given in **Table 6**. The existing and proposed floodplain boundaries are shown in **Figure 7**.

Table 6. Comparison of Existing and Proposed WSELs for 25-year event

Model Cross Section	Existing Conditions WSEL (ft NAVD88)	Proposed Conditions WSEL (ft NAVD88)	Difference in WSEL (ft)
333871	355.21	355.21	0.00
333812		Bridge	
333713	351.04	350.97	-0.07
332978	350.01	349.86	-0.15
332497	349.13	348.72	-0.41
332034	348.62	347.98	-0.64
331979	348.34	347.64	-0.70
331922		Cynamide Road	
331852	346.33	346.32	-0.01
331715	346.07	346.06	-0.01
331172	345.06	345.06	0.00
330046	343.77	343.77	0.00
329418	342.95	342.95	0.00
328479	342.25	342.25	0.00
327262	341.55	341.55	0.00
326159	341	341	0.00



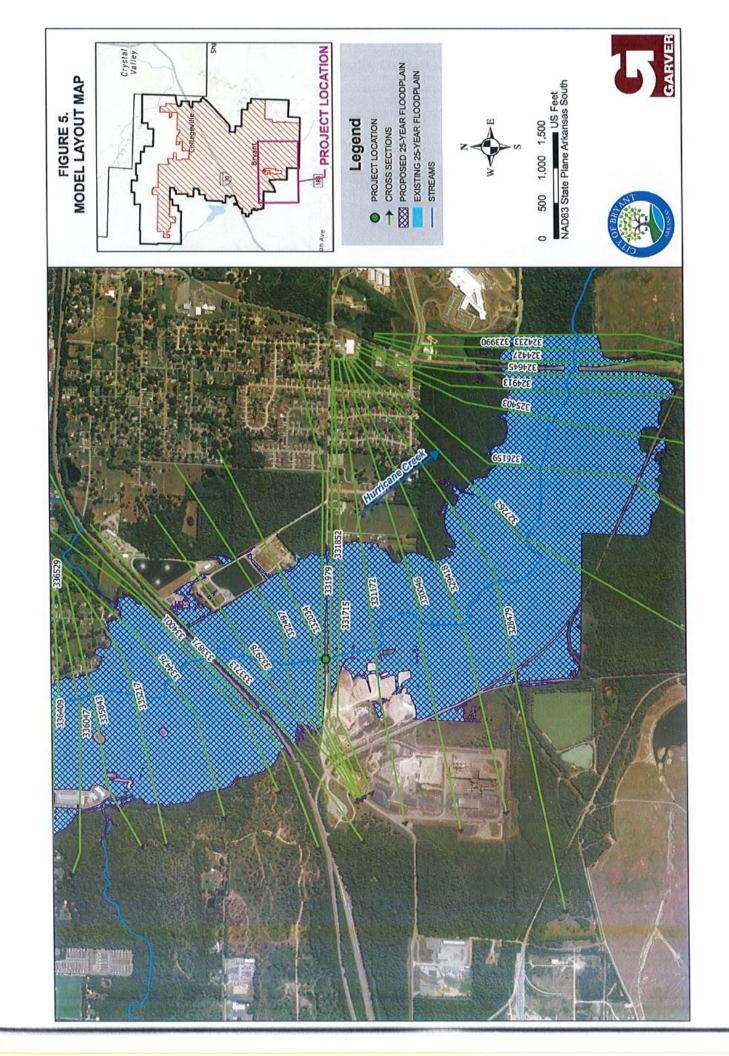


Model Cross Section	Existing Conditions WSEL (ft NAVD88)	Proposed Conditions WSEL (ft NAVD88)	Difference in WSEL (ft)
325403	340.79	340.79	0.00
324913	340.54	340.54	0.00
324645	340.15	340.15	0.00
324531		Bridge	
324427	338.9	338.9	0.00
324233	338.95	338.95	0.00
323990	338.85	338.85	0.00

8.0 Conceptual Layout and Planning Level Opinion of Project Costs

A conceptual layout drawing and planning level opinion of project costs are provided in Appendix C-1. This layout is for graphical and planning purposes only and is not for construction.





Appendix C-1

Phase 2 Cynamide Road at Hurricane Creek Improvements Conceptual Layout and Planning Level Opinion of Project Costs





Planning Cynamide Roa	ALL DESCRIPTION OF A PROPERTY OF THE PROPERTY	nion of Proje ane Creek I		
Item Description	Unit	Quantity	Unit Cost	Total Cost
Roadway Construction	Mile	0.34	\$ 5,000,000.00	\$ 1,700,000.00
Hurricane Creek Bridge (28' x 700')	S.F.	19600	\$ 340.00	\$ 6,664,000.00
Site Preparation (10%)	L.S.	1	\$ 1,236,512.00	\$ 1,236,512.00
Traffic Control (1%)	L.S.	1	\$ 124,531.00	\$ 124,531.00
Erosion Control (3%)	L.S.	1	\$ 373,789.00	\$ 373,789.00
Contingency (20%)	L.S.	1	\$ 2,295,745.00	\$ 2,295,745.00
Total Estimated C	onstructio	n Cost		\$ 12,394,577.00
Additional Associated Costs				
Utility Relocation (10%)	L.S.	1	\$ 1,239,458.00	\$ 1,239,458.00
Engineering and Survey Fee (18%)	L.S.	1	\$ 2,231,024.00	\$ 2,231,024.00
RW Acquisition and Easements (2%)	L.S.	1	\$ 247,892.00	\$ 247,892.00
Total Estimate	d Project C	ost		\$ 16,113,000.00

Appendix D

Phase 2

Hidden Forest Subdivision Improvements

Comprehensive Drainage Master Plan City of Bryant

Phase 2 Hidden Forest Subdivision Improvements

Prepared by:



4701 Northshore Drive North Little Rock, Arkansas 72118

January 2025 Garver Project No.: 20T20090



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1.0 Overall Project Description

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

- Evaluate the existing drainage conditions of the City and Extra-Territorial Jurisdiction (ETJ), also known as the planning area;
- · Identify current and future drainage problems;
- · Generate proposed solutions to identified problems;
- · Develop a Capital Improvement Plan (CIP); and
- · Provide tools for managing future development.

The CDMP project is being performed in two (2) phases. Phases 1 and 2 will be divided into major tasks, with subtasks listed as applicable below these major tasks. **Figure 1** shows a flow chart of the overall project process.

- Phase 1: Data Collection and Initial Drainage Study Screening
- Phase 2: Survey Collection, Hydrologic and Hydraulic Modeling, Identification of Drainage Problems, Alternative Development, and CIP Development

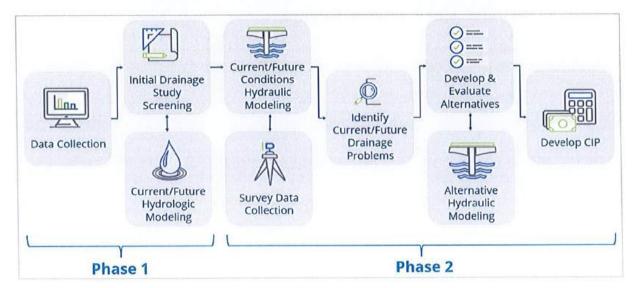


Figure 1. CDMP Project Process

This report discusses the processes and findings of a Phase 2 study within the Hidden Forest Subdivision.





2.0 General Subdivision Information

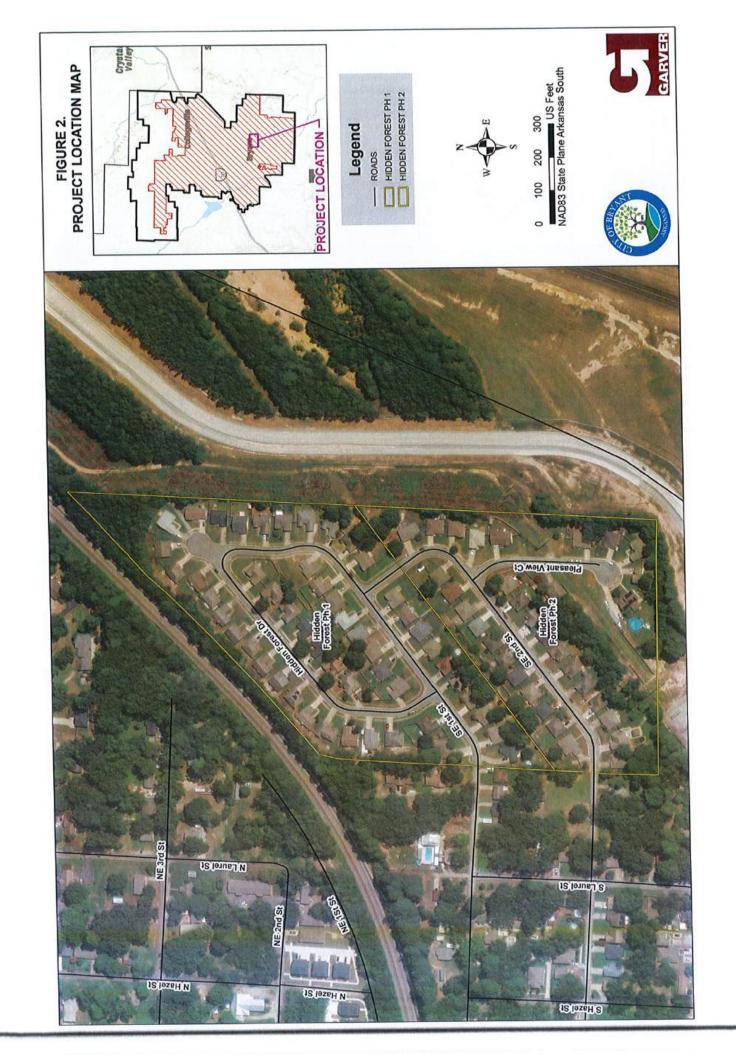
The Hidden Forest subdivision is located within the Crooked Creek drainage basin. The subdivision is located just south of the Union Pacific Railroad and alongside the newly completed Bryant Parkway. The subdivision was constructed in the early 2000's, showing complete as of December 2005 according to Google Earth Historical Imagery. A project location map is shown in **Figure 2**.

3.0 National Flood Insurance Program (NFIP) Data

The City of Bryant participates in the FEMA National Flood Insurance Program (NFIP). Current floodplain information and mapping is available in Flood Insurance Study (FIS) Report numbers 05125CV0001B and V0002B for Saline County, Arkansas, and Incorporated Areas. The City is mapped within Flood Insurance Rate Map (FIRM) Panels 0225E, 0240E, 0360E, 0370E, and 0380E. The Hidden Forest subdivision is entirely within Panel 0380E.

The Hidden Forest Subdivision is located within Zone X. The Effective floodplain mapping for the project area is shown in **Figure 3**.









4.0 Data Collection

4.1 Historical Records of Drainage and Flooding

4.1.1 City and Public News Records

The City has received many complaints concerning drainage within the Hidden Forest Subdivision, including issues with drainage ditches that are located behind homes, as well as some street flooding. Some of these locations are shown in photographs in Figures 5 and 6.

4.1.2 Resident Comment Database

For this CDMP, a public comment period was issued to allow city residents to submit drainage issues. The comment period ran from April 10 to May 22, 2022. A total of 264 comments were received for the city planning area. Two comments were within the Hidden Forest subdivision project area.

The known flood areas and resident comment locations are provided on Figure 4.



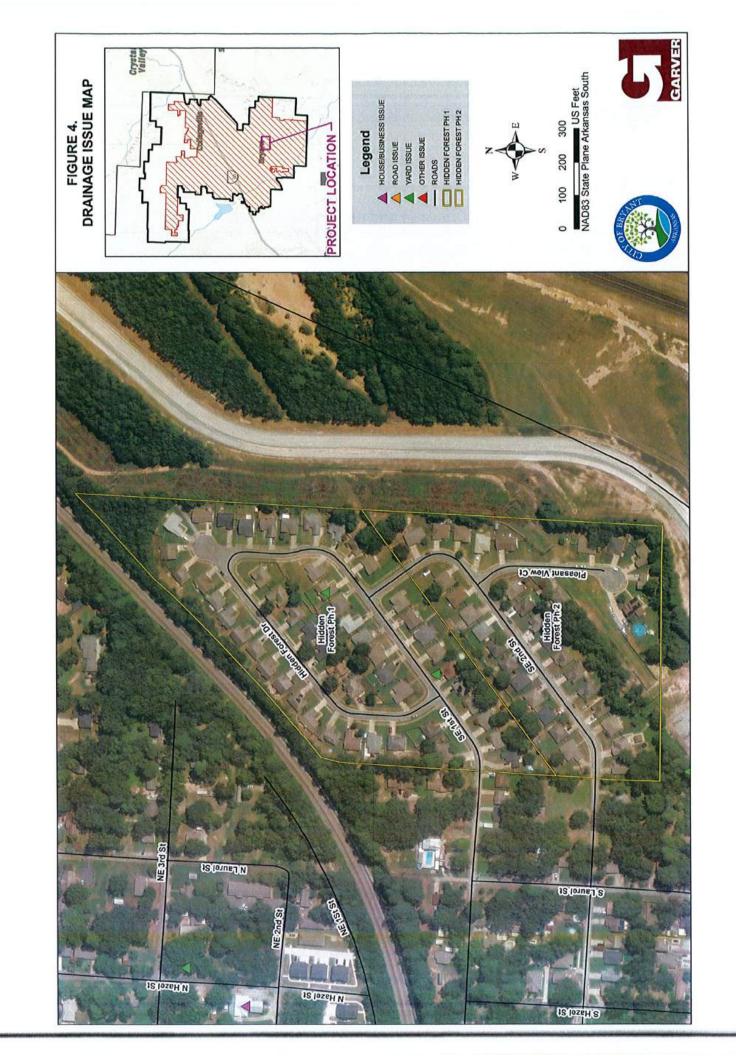






Figure 5. Drainage Ditch between SE 1st Street and Hidden Forest Drive



Figure 6. Cove at intersection of SE 1st Street and Hidden Forest Drive





4.2 As-built Plans and Data for Existing Infrastructure

The City provided as-built plans for Phases 1, and 2 of the Hidden Forest subdivision. This data was utilized to identify the existing stormwater network location and sizing.

4.3 GIS and Topographic Data

GIS data was collected for the CDMP and utilized for the Hidden Forest subdivision study. Collected data included city and planning area limits, stormwater points and flowlines, subdivision boundaries, NFHL data, land use data, and topographic data.

For this project, 1-meter Digital Elevation Model (DEM) lidar topography from USGS Ouachita study was acquired from the Arkansas GIS Office. Additionally, Garnat collected drainage structure survey throughout the subdivision.

5.0 Initial Screening Study

During Phase 1, an Initial Screening Study was performed for the Crooked Creek basin. For this screening, a hydraulic model was developed for the entire basin using 2D HEC-RAS and utilized rain-on-grid methodology to apply precipitation directly to the ground surface. This model was used to identify flood issues throughout the City, so is considered a qualitative model and not to be used for design. However, the data is useful in determining relative flood risk, and a flood severity index (FSI) was developed using the model results. Flood severity ranges from 0 to 4, with 4 being the most severe. The FSI classifications are listed in **Table 1**. **Table 2** displays the FSI rankings for the Hidden Forest Subdivision.





Table 1. Flood Severity Index Classes

Class	Description	Maximum Flood Depth (ft)	Maximum Flood Velocity (ft/s)
FS0	Minimal severity	< 0.5	
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0

Table 2. Flood Severity Index For Hidden Forest Subdivision

Lacation	Ct. N		Potential Drainage	Flood Severity Index				
Location	Stream Name	Basin	Issue	5 yr	10 yr	50 yr	100 yr	
Hidden Forest Subdivision	N/A	Crooked Creek	Neighborhood flooding; home flooding	1	1	1	1	

Because of the high likelihood of flooding at multiple storm events, and historical flood issues in the area, the Hidden Forest subdivision was selected for further hydraulic study in order to identify conceptual drainage improvements.





6.0 XPSWMM Hydraulic Model

6.1 Existing Conditions Model

The Existing Conditions model was developed to represent the current conditions of the project area at the time the project modeling was performed. Details are given in the following sections.

6.1.1 Model Hydrology

The XPSWMM model utilizes rain-on-grid precipitation data to represent the flow within the model limits. This modeling approach used an excess precipitation hyetograph input as a distributed inflow boundary condition for the 2D model mesh. The excess precipitation hyetograph represents the precipitation that is converted to runoff from the watershed; i.e., the precipitation that is not infiltrated, evaporated, stored, or otherwise consumed by environmental features.

HEC-HMS v. 4.12 software was used to transform the precipitation hyetograph to the excess precipitation hyetograph for application of the rain-on-mesh methodology. The land use and soil characteristics of the area were used to develop a composite Natural Resources Conservation Service (NRCS, formerly Soil Conservation Service, SCS) curve number for the drainage area. Since the excess precipitation hyetograph is required for input to the rain-on-mesh 2D hydraulic model, the NRCS curve number is the only required hydrologic parameter in the HEC-HMS model.

Atlas 14 data was utilized to determine the point-precipitation hyetograph for each hypothetical frequency storm simulated in the HEC-HMS program. The HEC-HMS program output provided the excess precipitation hyetograph for each of the flow frequencies modeled for this project.

6.1.2 Existing Conditions Model Geometry

The downstream boundary condition was set to normal depth slope at the downstream end of the model. The DTM for the 2D model was built from the lidar data, project survey, and design plans for newer constructed areas not reflected in the lidar. The Manning's n layer was set based on land use. The rainfall layer was set to the same extents as the grid layer and set to use a SCS Type III rainfall distribution with a





cumulative depth equal to the 24-hour NOAA Atlas 14 precipitation depth for the corresponding storm interval.

The 1D elements were compared to the survey data and updated as needed. The conduit and junction shapefiles included in the model accurately represented the elevations and lengths in the received survey, with few assumptions regarding connections. Channels were added as 1D elements using surveyed cross sections. The existing stormwater system is displayed in Figure 10.

The model was set to run for 24 hours at a 1-minute time step. This run time allowed for the outflow hydrograph to reach its peak and for the falling limb to dissipate.

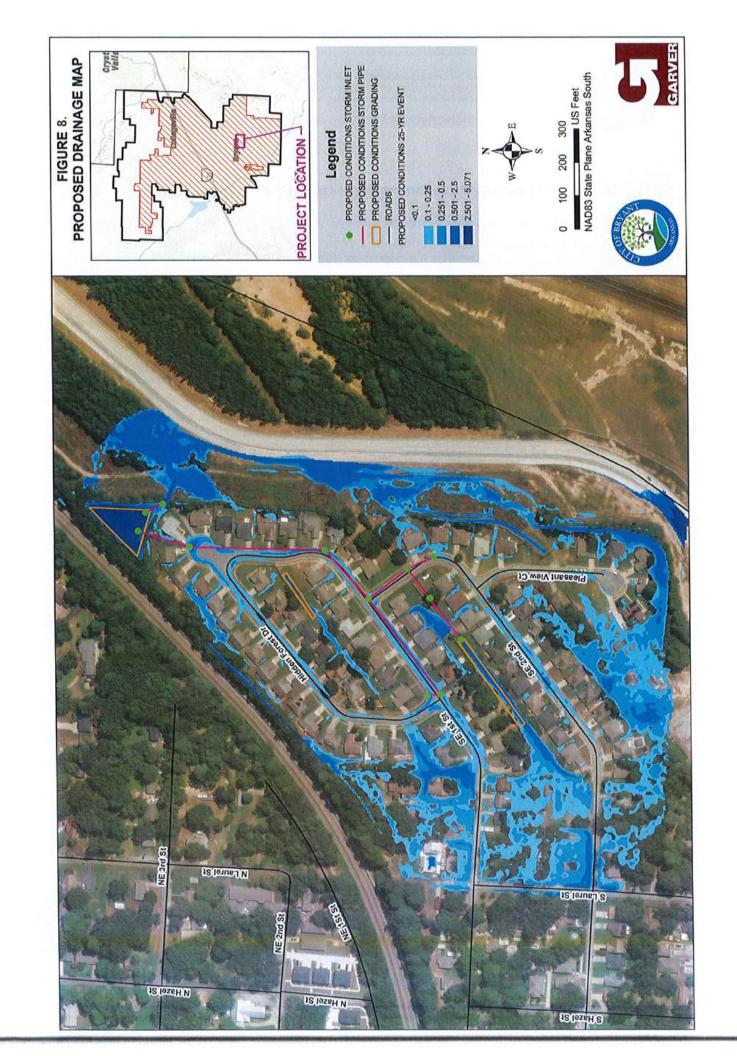
6.2 Proposed Conditions Model Geometry

The existing conditions model results was reviewed and problem areas within the subdivision were identified. After discussions with the City, specific locations within the Hidden Forest subdivision were selected for proposed alternative development. The proposed alternatives were developed in order to meet a 25-year design event. Model geometry was updated for proposed conditions to reflect any updated pipe sizes, inlet sizes and locations, and grading. The proposed design is shown in Figure 8.

In order to improve flood conditions in the Hidden Forest subdivision, drainage improvements along the Northeastern section of the neighborhood are recommended. This includes the installation of additional stormwater drainage along SE 1ST Street and SE 2nd Street as well as regrading the drainage ditches throughout the Phase 1 section of neighborhood. It is also recommended to regrade the detention pond that sits in the Northeastern corner of the neighborhood.









7.0 Conceptual Layout and Planning Level Opinion of Project Costs

A conceptual layout drawing and planning level opinion of project costs are provided in Appendix D-1. This layout is for graphical and planning purposes only and is not for construction.



Appendix D-1

Phase 2 Hidden Forest Subdivision Improvements Conceptual Layout and Planning Level Opinion of Project Costs





Planning Level O Hidden Forest Sul	•			
Item Description	Unit	Quantity	Unit Cost	Total Cost
Unclassified Excavation	C.Y.	374	\$ 30.00	\$ 11,220.00
18" Reinforced Concrete Pipe Culvert, Class III	L.F.	450	\$ 114.00	\$ 51,300.00
24" Reinforced Concrete Pipe Culvert, Class III	L.F.	60	\$ 146.00	\$ 8,760.00
36" Reinforced Concrete Pipe Culvert, Class III	L.F.	1045	\$ 252.00	\$ 263,340.00
48" Reinforced Concrete Pipe Culvert, Class III	L.F.	160	\$ 380.00	\$ 60,800.00
Drop Inlets	Each	6	\$ 9,000.00	\$ 54,000.00
Area Inlets	Each	3	\$ 9,000.00	\$ 27,000.00
Junction Box (Type E)	Each	4	\$ 8,000.00	\$ 32,000.00
Concrete Headwall (36")	Each	1	\$ 5,000.00	\$ 5,000.00
Driveway Pavement Repair	S.Y.	99	\$ 140.00	\$ 13,860.00
Asphalt Pavement Repair	S.Y.	130	\$ 200.00	\$ 26,000.00
Pipe Embedment	C.Y.	335	\$ 60.00	\$ 20,100.00
Site Preparation (10%)	L.S.	1	\$ 84,767.00	\$ 84,767.00
Traffic Control (1%)	L.S.	1	\$ 8,537.00	\$ 8,537.00
Erosion Control (3%)	L.S.	1	\$ 25,624.00	\$ 25,624.00
Contingency (20%)	L.S.	1	\$ 171,091.00	\$ 171,091.00
Total Estimated Constr	uction C	ost		\$ 863,399.00
Additional Associated Costs				
Utility Relocation (10%)	L.S.	1	\$ 86,340.00	\$ 86,340.00
Engineering and Survey Fee (18%)	L.S.	1	\$ 155,412.00	\$ 155,412.00
RW Acquisition and Easements (2%)	L.S.	1	\$ 17,268.00	\$ 17,268.00
Total Estimated Proj	ect Cost			\$ 1,122,400.00

Appendix E

Phase 2

Meadow Lake Subdivision Improvements

Comprehensive Drainage Master Plan City of Bryant

Phase 2 Meadow Lake Subdivision Improvements

Prepared by:



4701 Northshore Drive North Little Rock, Arkansas 72118

January 2025

Garver Project No.: 20T20090



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Appendices

Appendix E-1: Conceptual Layout and Planning Level Opinion of Project Costs





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1.0 Overall Project Description

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

- Evaluate the existing drainage conditions of the City and Extra-Territorial Jurisdiction (ETJ), also known as the planning area;
- Identify current and future drainage problems;
- · Generate proposed solutions to identified problems;
- Develop a Capital Improvement Plan (CIP); and
- · Provide tools for managing future development.

The CDMP project is being performed in two (2) phases. Phases 1 and 2 will be divided into major tasks, with subtasks listed as applicable below these major tasks. **Figure 1** shows a flow chart of the overall project process.

- Phase 1: Data Collection and Initial Drainage Study Screening
- Phase 2: Survey Collection, Hydrologic and Hydraulic Modeling, Identification of Drainage Problems, Alternative Development, and CIP Development

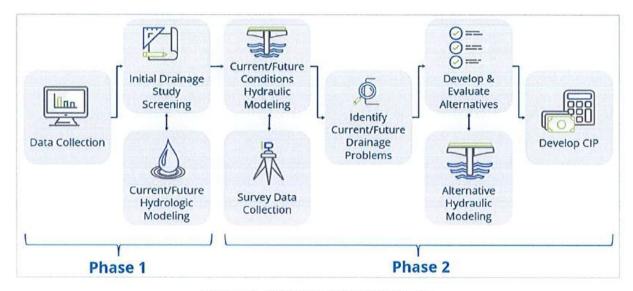


Figure 1. CDMP Project Process

This report discusses the processes and findings of a Phase 2 study within the Meadow Lake Subdivision.





2.0 General Subdivision Information

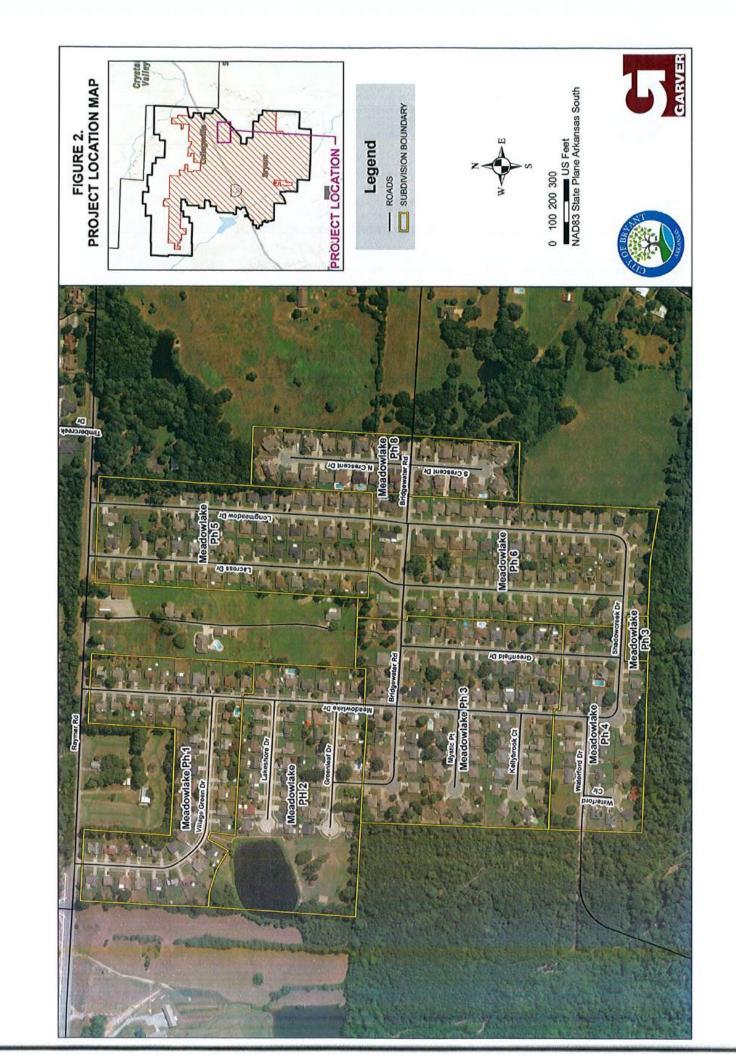
The Meadowlake subdivision is located within the Crooked Creek drainage basin. The subdivision located within the east-central region of the city planning boundary. The subdivision was constructed in 7 phases, Phases 1 through 6 and Phase 8. Construction of the subdivision began in the late 1990's, with all phases constructed by 2009, according to Google Earth Historic Imagery. A project location map is shown in Figure 2.

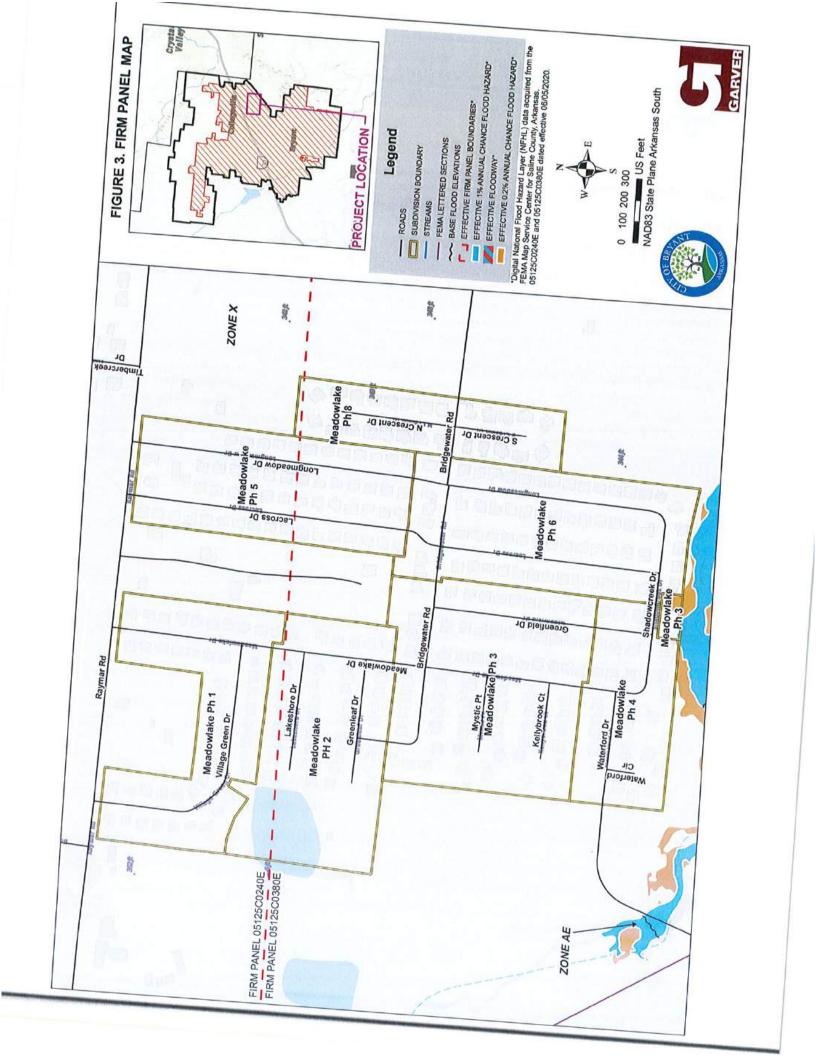
3.0 National Flood Insurance Program (NFIP) Data

The City of Bryant participates in the FEMA National Flood Insurance Program (NFIP). Current floodplain information and mapping is available in Flood Insurance Study (FIS) Report numbers 05125CV0001B and V0002B for Saline County, Arkansas, and Incorporated Areas. The City is mapped within Flood Insurance Rate Map (FIRM) Panels 0225E, 0240E, 0360E, 0370E, and 0380E. The Meadowlake subdivision is located within Panel 0240E and Panel 0380E.

Crooked Creek is mapped as Zone AE with floodway. However, the Meadowlake subdivision is located within Zone X. An unnamed tributary to Crooked Creek flows just south of the subdivision; a portion of it is mapped as backwater Zone AE from Crooked Creek The Effective floodplain mapping for the project area is shown in Figure 3.









Data Collection 4.0

Historical Records of Drainage and Flooding 4.1

4.1.1 City and Public News Records

The City has received multiple drainage complaints in past years about areas within the Meadowlake Subdivision, including yard flooding and roadway flooding during frequent storm events. A photograph of the pond located near Village Green Drive, which has had reported flooding, is shown in Figure 5. One of the many large inlet structures located throughout the subdivision is shown in Figure 6.

4.1.2 Resident Comment Database

For this CDMP, a public comment period was issued to allow city residents to submit drainage issues. The comment period ran from April 10 to May 22, 2022. A total of 264 comments were received for the city planning area. Twelve comments were within the Meadowlake subdivision project area.

The known flood areas and resident comment locations are provided on Figure 4.









Figure 5. Pond at Northwestern Corner of Meadowlake Subdivision



Figure 6. Inlet Structure near Waterford Drive





4.2 As-built Plans and Data for Existing Infrastructure

The City provided as-built plans for the Meadowlake subdivision. This data was utilized to identify the existing stormwater network location and sizing. Additionally, Garnat collected extensive survey data for the stormwater network for this project.

4.3 GIS and Topographic Data

GIS data was collected for the CDMP and utilized for the Meadowlake subdivision study. Collected data included city and planning area limits, stormwater points and flowlines, subdivision boundaries, NFHL data, land use data, and topographic data.

For this project, 1-meter Digital Elevation Model (DEM) lidar topography from USGS Ouachita study was acquired from the Arkansas GIS Office.

5.0 Initial Screening Study

During Phase 1, an Initial Screening Study was performed for the Crooked Creek basin. For this screening, a hydraulic model was developed for the entire basin using 2D HEC-RAS and utilized rain-on-grid methodology to apply precipitation directly to the ground surface. This model was used to identify flood issues throughout the City, so is considered a qualitative model and not to be used for design. However, the data is useful in determining relative flood risk, and a flood severity index (FSI) was developed using the model results. Flood severity ranges from 0 to 4, with 4 being the most severe. The FSI classification are listed in **Table 1**. **Table 2** displays the FSI rankings for Meadowlake subdivision.





Table 1. Flood Severity Index Classes

Class	Description	Maximum Flood Depth (ft)	Maximum Flood Velocity (ft/s)
FS0	Minimal severity	< 0.5	STATE OF BUILDING
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0

Table 2. Flood Severity Index For Meadowlake Subdivision

1	O		Potential Drainage		Flood Severity Index		
Location	Stream Name	Basin	Issue	5 yr	10 yr	50 yr	100 yr
Meadowlake	Unnamed Tributary to Crooked Creek	Crooked Creek	Neighborhood flooding	2	2	2	2

Because of the high likelihood of flooding at multiple storm events, and historical flood issues in the area, Meadowlake subdivision was selected for further hydraulic study in order to identify conceptual drainage improvements.





6.0 XPSWMM Hydraulic Model

6.1 Existing Conditions Model

The Existing Conditions model was developed to represent the current conditions of the project area at the time the project modeling was performed. Details are given in the 6.1.1 Model Hydrology

The XPSWMM model utilizes rain-on-grid precipitation data to represent the flow within the model limits. This modeling approach used an excess precipitation hyetograph input as a distributed inflow boundary condition for the 2D model mesh. The excess precipitation hyetograph represents the precipitation that is converted to runoff from the watershed; i.e., the precipitation that is not infiltrated, evaporated, stored, or otherwise consumed by environmental features.

HEC-HMS v. 4.12 software was used to transform the precipitation hyetograph to the excess precipitation hyetograph for application of the rain-on-mesh methodology. The land use and soil characteristics of the area were used to develop a composite Natural Resources Conservation Service (NRCS, formerly Soil Conservation Service, SCS) curve number for the drainage area. Since the excess precipitation hyetograph is required for input to the rain-on-mesh 2D hydraulic model, the NRCS curve number is the only required hydrologic parameter in the HEC-HMS model.

Atlas 14 data was utilized to determine the point-precipitation hyetograph for each hypothetical frequency storm simulated in the HEC-HMS program. The HEC-HMS program output provided the excess precipitation hyetograph for each of the flow

6.1.2 Existing Conditions Model Geometry

The downstream boundary condition was set to normal depth slope at the downstream end of the model. The DTM for the 2D model was built from the lidar data, project survey, and design plans for newer constructed areas not reflected in the lidar. The Manning's n layer was set based on land use. The rainfall layer was set to the same extents as the grid layer and set to use a SCS Type III rainfall distribution with a





cumulative depth equal to the 24-hour NOAA Atlas 14 precipitation depth for the corresponding storm interval.

The 1D elements were compared to the survey data and updated as needed. The conduit and junction shapefiles included in the model accurately represented the elevations and lengths in the received survey, with few assumptions regarding connections. Channels were added as 1D elements using surveyed cross sections. The existing stormwater system is displayed in Figure 7.

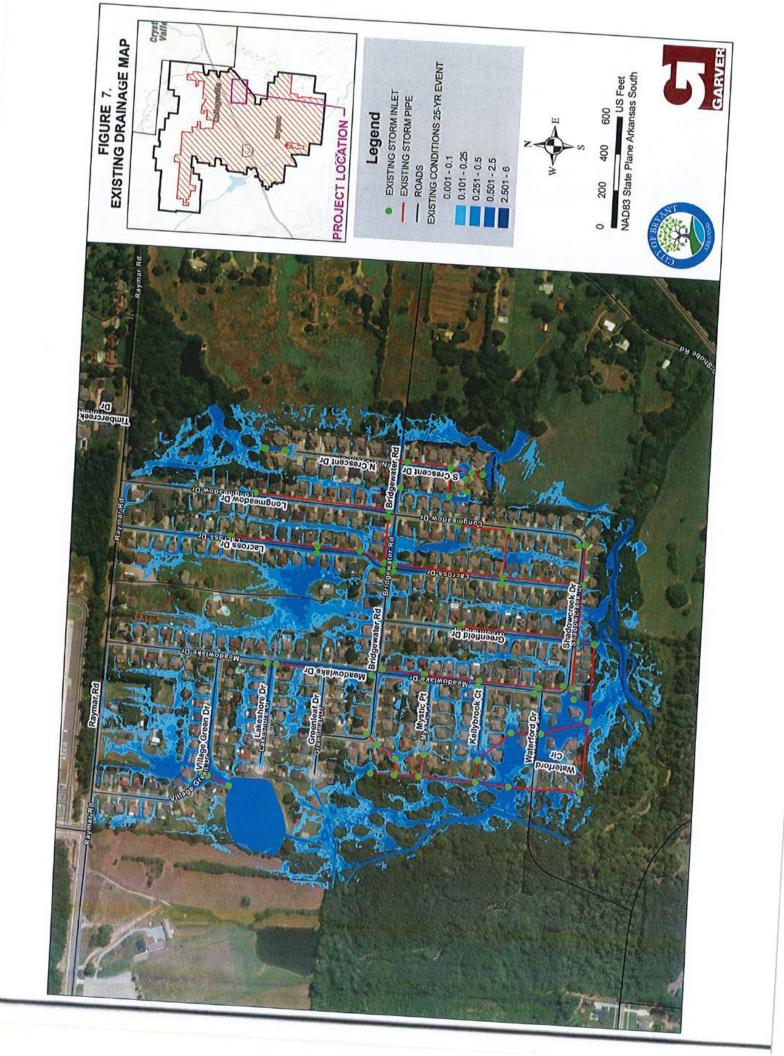
The model was set to run for 24 hours at a 1-minute time step. This run time allowed for the outflow hydrograph to reach its peak and for the falling limb to dissipate.

Proposed Conditions Model Geometry 6.2

The existing conditions model results was reviewed and problem areas within the subdivision were identified. After discussions with the City, the meadowlake subdivision was selected for proposed alternative development. The proposed alternatives were developed in order to meet a 25-year design event. Model geometry was updated for proposed conditions to reflect any updated pipe sizes, inlet sizes and locations, and grading. The proposed design is shown in Figure 8.

In order to improve flood conditions in the Meadowlake subdivision, drainage improvements along the Southwestern section of the neighborhood and at the detention pond in the northwestern section of the neighborhood are recommended. This includes the installation of additional stormwater drainage at Kellybrooke Court, replacing the majority of the stormwater drainage in the southwestern corner of the neighborhood (around Waterford Drive), and some regrading.









7.0 Conceptual Layout and Planning Level Opinion of Project Costs

A conceptual layout drawing and planning level opinion of project costs are provided in Appendix E-1. This layout is for graphical and planning purposes only and is not for construction.



Appendix E-1

Phase 2 Meadowlake Subdivision Improvements Conceptual Layout and Planning Level Opinion of Project Costs







Planning Level O Meadow Lake Sul	•			
Item Description	Unit	Quantity	Unit Cost	Total Cost
Unclassified Excavation	C.Y.	280	\$ 30.00	\$ 8,400.00
Embankment Construction	C.Y.	89	\$ 35.00	\$ 3,115.00
Aggregate Base Course (Class 7)	TON	38	\$ 50.00	\$ 1,900.00
Concrete Ditch Paving	S.Y.	1012	\$ 75.00	\$ 75,900.00
30" Reinforced Concrete Pipe Culvert, Class III	L.F.	180	\$ 178.00	\$ 32,040.00
36" Reinforced Concrete Pipe Culvert, Class III	L.F.	1150	\$ 252.00	\$ 289,800.00
42" Reinforced Concrete Pipe Culvert, Class III	L.F.	1130	\$ 303.00	\$ 342,390.00
48" Reinforced Concrete Pipe Culvert, Class III	L.F.	200	\$ 380.00	\$ 76,000.00
4' x 8' Reinforced Concrete Box Culvert (440')	S.F.	1760	\$ 185.00	\$ 325,600.00
48" Reinforced Concrete Flared End Section	Each	2	\$ 5,000.00	\$ 10,000.00
Drop Inlets	Each	14	\$ 9,000.00	\$ 126,000.00
Asphalt Pavement Repair	S.Y.	265	\$ 200.00	\$ 53,000.00
Pipe Embedment	C.Y.	587	\$ 60.00	\$ 35,220.00
Site Preparation (10%)	L.S.	1	\$ 203,922.00	\$ 203,922.00
Traffic Control (1%)	L.S.	1	\$ 20,537.00	\$ 20,537.00
Erosion Control (3%)	L.S.	1	\$ 61,644.00	\$ 61,644.00
Contingency (20%)	L.S.	1	\$ 411,590.00	\$ 411,590.00
Total Estimated Constr	uction C	ost		\$ 2,077,058.00
Additional Associated Costs				
Utility Relocation (10%)	L.S.	1	\$ 207,706.00	\$ 207,706.00
Engineering and Survey Fee (18%)	L.S.	1	\$ 373,870.00	\$ 373,870.00
RW Acquisition and Easements (2%)	L.S.	1	\$ 41,541.00	\$ 41,541.00
Total Estimated Proj	ect Cost			\$ 2,700,200.00

Appendix F

Phase 2

Midland and Hilldale Roads at Owen Creek Improvements



Table 1. Flood Severity Index Classes

Class	Description	Maximum Flood Depth (ft)	Maximum Flood Velocity (ft/s)
FS0	Minimal severity	< 0.5	
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0

Because of the high likelihood of flooding at multiple storm events, and historical flood issues in the area, Oak Glenn Subdivision was selected for further hydraulic study in order to identify conceptual drainage improvements.

Table 2. Flood Severity Index For Oak Glenn Subdivision

Location Stream			Potential Drainage	Flood Severity Index				Com
	Stream Name	Basin	Issue	5 yr	10 yr	50 yr	100 yr	Resident Comments
Oak Glenn Subdivision	Owen Creek Tributary	Owen Creek	Neighborhood flooding; home flooding	1	2	2	3	6

6.0 Hydrology

In Phase 1 of the CDMP, a hydrologic model of the Owen Creek basin was created using HEC-HMS 4.10. This model included Owen Creek Tributary. The determined flow rates are provided in Table 3. Delineated subbasins for Owen Creek Tributary are shown in Figure 8.



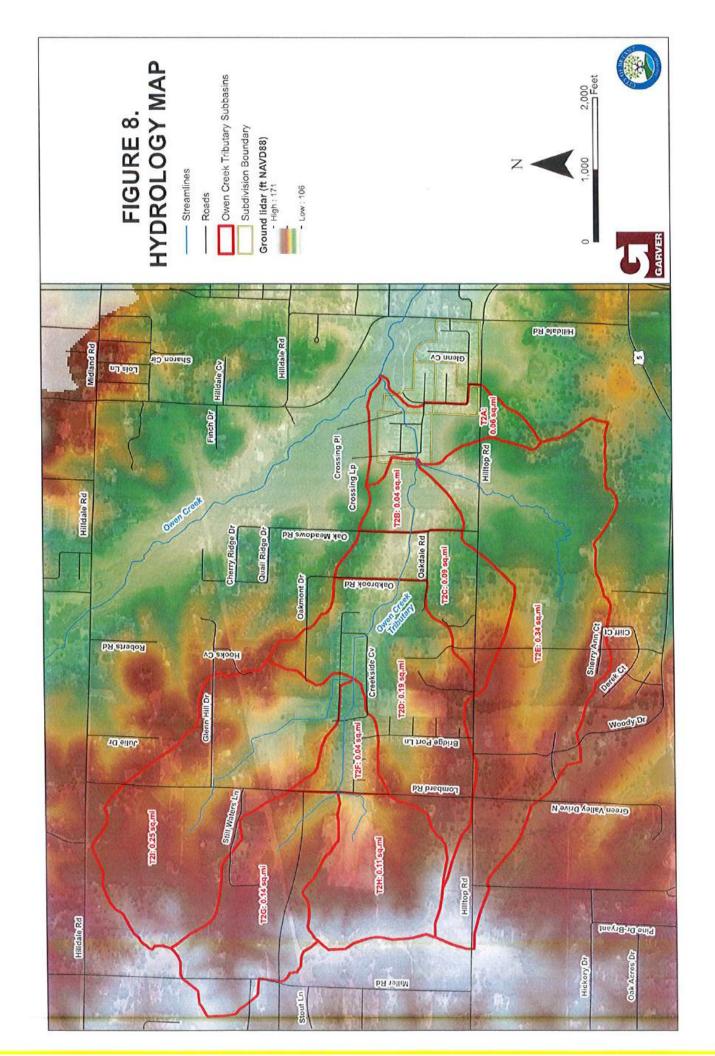


Table 3. Summary of Discharges for Owen Creek Tributary

	Drainage			Flo	w Rate	(cfs)			
Location along Stream	Area (sq mi)	2-yr	5-yr	10-yr	25-yr	50-yr	100- yr	500-yr	
At Oak Meadows Road	0.81	644	857	1,04 2	1,29 7	1,504	1,715	2,175	
At Crossing Loop	1.19	903	1,19 5	1,46 1	1,81 8	2,097	2,397	3,043	
Just upstream of confluence with Owen Creek	1.25	919	1,21 2	1,47 6	1,78 6	2,042	2,308	2,988	

Flows determined in the HEC-HMS were compared to those calculated by the initial screening study model. For the 5-year and 10-year events, flows in the HEC-HMS model were slightly higher than in the screening model by up to 17%. For the 50-year and 100-year events, flows in the HEC-HMS model were slightly lower than the screening model by up to 18%. These differences are due to differences in calculation methodology and well as the fact that the screening model is based on lidar only and not fully representative of the drainage system. Differences in values are considered acceptable. HEC-HMS flow rates were used in the design hydraulic model.







7.0 Hydraulics

The hydraulic analysis was performed using HEC-RAS version 6.3.1. Because the project area is mapped as Zone X, no effective FEMA model exists. Therefore, a new hydraulic model was created for the project.

The 2-, 5-, 10-, 25-, 50-, 100-, and 500-year flows obtained from the HEC-HMS model discussed above were used in the models. The downstream boundary condition was set to a normal depth slope of 0.01 ft/ft. The slope was determined based on the average slope of the thalweg in the downstream portion of the modeled reach.

7.1 Existing Conditions

RAS Mapper was utilized to create the stream centerline, bank stations, flowpaths, cross sections, and profile lines for the model. Cross sections were located and oriented as required for proper hydraulic modeling of the floodplain. Cross section geometry data was updated with survey data where appropriate. Figure 9 shows a map of the model layout. The upstream model limits were set from approximately 1,100 feet upstream of Crossing Loop to the confluence with Owen Creek.

Cross section geometry was taken from 2016 USGS lidar data for the area and supplemented with project survey points collected by Garnat.

Manning's *n* values in the model were determined based on aerial imagery and site visit information. Ineffective areas for the flow were set based on topography and ineffective areas due to structures were set based on roadway elevations per the ARDOT Drainage Manual.

Existing structure data for the three stream crossings in the project model was determined from project survey as well as as-built drawings for the subdivision. Parameters for the existing structures are given in Tables 4, 5, and 6.





Table 4. Existing Crossing Loop Structure Data

Parameter	Value
Culvert Size & Type	2-8'x6' RCB
Upstream Invert Elevation	366.375
Downstream Invert Elevation	366.533
Box Length	48 ft
Open Flow Area	96 sq. ft

Table 5. Existing Crossing Place Structure Data

Parameter	Value
Culvert Size & Type	2-8'x6' RCB
Upstream Invert Elevation	361.292
Downstream Invert Elevation	360.783
Box Length	50 ft
Open Flow Area	96 sq. ft

Table 6. Existing Access Easement Structure Data

Parameter	Value
Culvert Size & Type	2-8'x6' RCB
Upstream Invert Elevation	361.163
Downstream Invert Elevation	361.163
Box Length	25 ft
Open Flow Area	96 sq. ft

In existing conditions, all structures overtop during all modeled flood events (2-year through 500-year). This aligns with the frequency of known flood events in the subdivision. The existing 25-year flood boundaries are displayed in Figure 9.





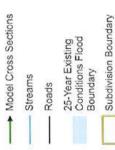
7.2 Proposed Conditions

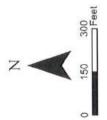
Based on the existing conditions results, all three culvert crossings of Owen Creek Tributary were identified as deficient for conveying storm flows at even lower rainfall amounts. Therefore, drainage improvements were iterated to upsize these culverts as well as improve the flow capacity of the stream channel. After multiple iterations, a design was developed to convey the 25-year event storm without overtopping roadways. This design involves upsizing the culverts at Crossing Loop and Crossing Place and removing the access easement crossing. In addition to these changes, the stream throughout the subdivision will be redesigned into a rectangular concrete channel to allow for improved conveyance during storm events. Parameters for the proposed updates are provided in Tables 7, 8, and 9.





FIGURE 9. EXISTING CONDITIONS MODEL MAP





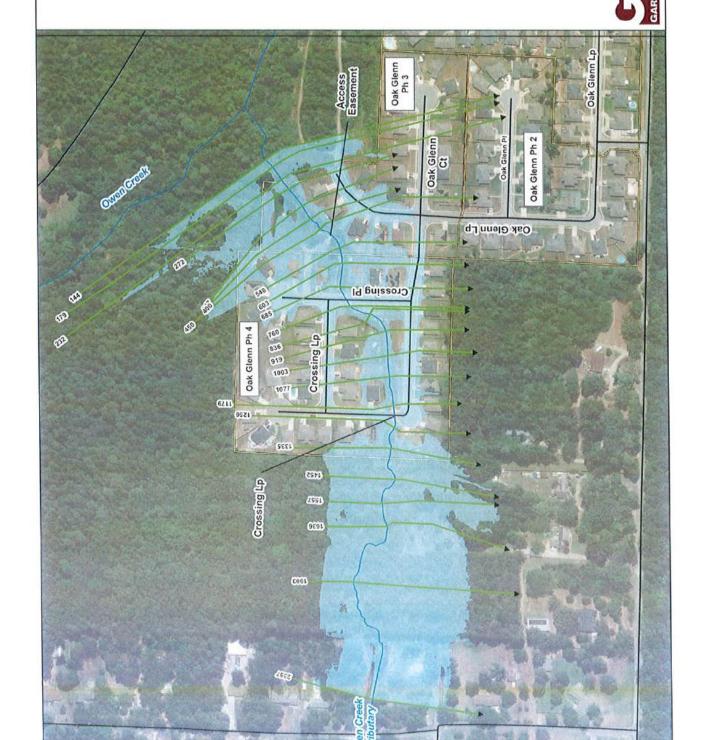




Table 7. Proposed Crossing Loop Structure Data

Parameter	Value
Culvert Size & Type	3-10'x6' RCB
Upstream Invert Elevation	366.375
Downstream Invert Elevation	365.74
Box Length	48
Open Flow Area	180 sq. ft

Table 8. Proposed Crossing Place Structure Data

Parameter	Value
Culvert Size & Type	3-10'x6' RCB
Upstream Invert Elevation	361.292
Downstream Invert Elevation	360.783
Box Length	50
Open Flow Area	180 sq. ft

Table 9. Proposed Channel Improvement Data

Parameter	Value
Channel Width	25 ft
Channel Height	6 ft
Chanel Shape	Rectangular
Channel Slope	0.01 ft/ft to 0.002 ft/ft
Channel Extents	100 ft upstream of Crossing Loop to 215 ft downstream of existing easement (1,050 ft total)
Other Features	Safety fence along creek banks

A comparison of existing and proposed water surface elevations during the 25-year event is given in Table 10. The proposed improvement design layout and floodplain boundaries are shown in Figure 10.





Table 10. Comparison of Existing and Proposed WSELs for 25-year event

Model Cross Section	Existing Conditions WSEL (ft NAVD88)	Proposed Conditions WSEL (ft NAVD88)	Difference in WSEL (ft)
2357	383.17	383.17	0.00
1903	380.07	380.07	0.00
1636	377.80	377.80	0.00
1557	377.17	377.17	0.00
1452	375.97	375.97	0.00
1335	375.64	372.69	-2.95
1256	373.57	371.92	-1.65
1216		Crossing Loop	
1179	373.60	371.14	-2.46
1077	372.46	370.12	-2.34
1003	371.75	369.49	-2.26
919	370.34	368.54	-1.8
836	370.17	367.71	-2.46
760	370.23	367.38	-2.85
732		Crossing Place	
685	370.12	366.66	-3.46
603	369.72	366.76	-2.96
548	369.73	366.82	-2.91
500		Access Easement	
450	369.27	366.79	-2.48
400	369.27	366.65	-2.62
347	367.31	366.5	-0.81
272	367.28	365.69	-1.59
232	365.69	365.68	-0.01
179	365.17	365.17	0.00
144	364.65	364.65	0.00



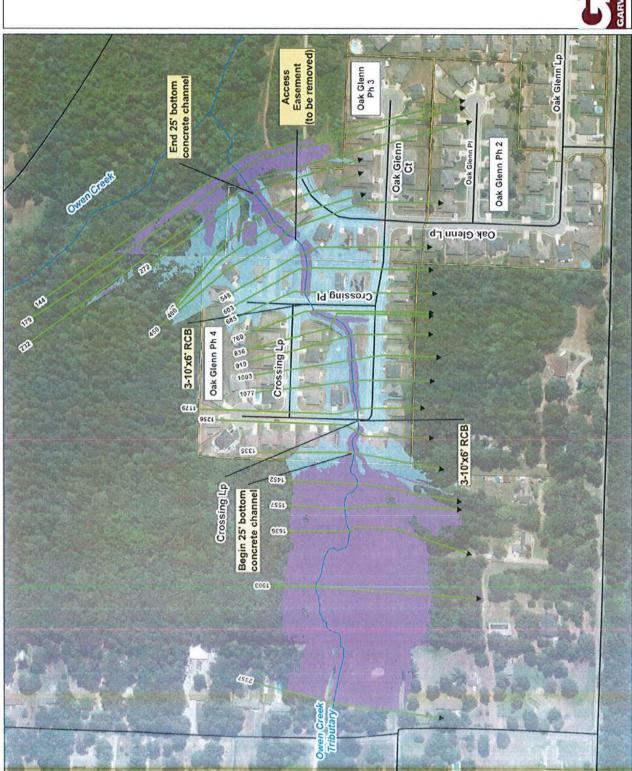


FIGURE 10. PROPOSED CONDITIONS MODEL MAP

→ Model Cross Sections - Streams

- Roads

25-Year Proposed Conditions Flood Boundary

25-Year Existing Conditions Flood Boundary

Subdivision Boundary







8.0 Conceptual Layout and Planning Level Opinion of Project Costs

A conceptual layout drawing and planning level opinion of project costs are provided in Appendix I-1. This layout is for graphical and planning purposes only and is not for construction.

9.0 Summary and Next Steps

In order to improve flood conditions in the Oak Glenn neighborhood, drainage improvements along Owen Creek Tributary are recommended. This includes the installation of new 3-10'x6' box culverts under Crossing Loop and Crossing Place, as well as channelization of the creek throughout the neighborhood with a 25-foot wide, 6-foot-tall rectangular concrete channel. For safety reasons, a fence is recommended along the channel banks throughout the neighborhood. Based on the hydraulic model results, the proposed drainage improvements decrease the likelihood of roadway and neighborhood flooding from approximately 99% annual chance event (1-year) to less than 4% annual chance event (25-year).

Prior to construction, a detailed design should be completed to optimize the layout while ensuring consistency with the parameters of the hydraulic model in this study. Due to the length of impacts to this USACE jurisdictional stream, a Section 404 Individual Permit will likely be required by USACE as well as the purchase of stream credits for compensatory mitigation.

Following construction of these proposed improvements, the City has requested that a Letter of Map Revision (LOMR) application be submitted to FEMA in order to map Owen Creek Tributary as Zone AE. Following construction, as-built survey of the proposed improvements should be collected and applied in the hydraulic model. A proposed floodway along the stream should also be developed prior to the LOMR application submittal. After updates to the model are performed, it can be submitted to FEMA for the map revision.



Appendix I-1

Phase 2 Oak Glenn Subdivision Improvements Conceptual Layout and Planning Level Opinion of Project Costs





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PLANNING LEVEL OPINION OF **PROJECT COSTS**

Concept Design Oak Glenn Channel Improvements City of Bryant March 21, 2023

\$3,770,000

Oak Glenn Channel Improvements

hannel				
<u> Jilamiei</u>		Cost (per Lin Ft.)	Length (Feet)	Total Cost
C	Concrete Channel	\$2,271	943	\$2,140,000
Box Culvert	_	1 Cost (per Sq. Ft.)	Area (Sq. Ft.)	Total Cost
7	Triple Box Culvert	\$145	3,217	\$465,105
		Conti	ingency (10%) =	\$260,510
	S	Subtotal Construction	n Costs (2024) =	\$2,865,615
<u>Miscellaneous</u>	s	Subtotal Construction		
			Percentage	Total Cost
	² Planning and Eng	Subtotal Construction ineering Services = spection Services =		
	² Planning and Eng Engineering and Ins	ineering Services =	Percentage	Total Cost \$343,874
	² Planning and Eng Engineering and Ins ² ;	ineering Services = spection Services =	Percentage 12% 10%	Total Cost \$343,874 \$286,561
	² Planning and Eng Engineering and Ins ² ; ² F	ineering Services = spection Services = Stream Mitigation =	Percentage 12% 10% 3.5%	Total Cost \$343,874 \$286,561 \$100,297

Notes:

- ArDOT 2021 Planning Estimate Escalated at 7.00% per Year
 Detailed estimates are not available at this time. These percentage based estimates may vary from actual costs.

³ Total Opinion of Probable Planning and Construction Costs (2024) =

3. A conceptual layout has been performed for this projet at the time of this estimate. An effort has been made to include costs that are typical for this type of project, however, a full review of site specific costs has not been performed or included in this estimate.

Appendix J

Phase 2 Lea Circle near Hurricane Creek

Comprehensive Drainage Master Plan City of Bryant

Phase 2 Lea Circle near Hurricane Creek

Prepared by:



4701 Northshore Drive North Little Rock, Arkansas 72118

January 2025
Garver Project No.: 20T20090



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1.0 Overall Project Description

A Comprehensive Drainage Master Plan (CDMP) is being developed for the City of Bryant. The purpose of the City of Bryant CDMP is to:

- Evaluate the existing drainage conditions of the City and Extra-Territorial Jurisdiction (ETJ), also known as the planning area;
- · Identify current and future drainage problems;
- Generate proposed solutions to identified problems;
- Develop a Capital Improvement Plan (CIP); and
- Provide tools for managing future development.

The CDMP project is being performed in two (2) phases. Phases 1 and 2 will be divided into major tasks, with subtasks listed as applicable below these major tasks. **Figure 1** shows a flow chart of the overall project process.

- Phase 1: Data Collection and Initial Drainage Study Screening
- Phase 2: Survey Collection, Hydrologic and Hydraulic Modeling, Identification of Drainage Problems, Alternative Development, and CIP Development

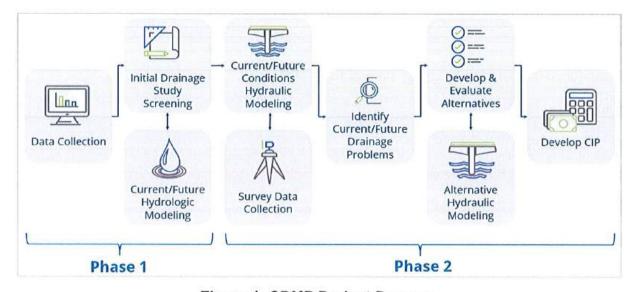


Figure 1. CDMP Project Process

This report discusses the processes and findings of a Phase 2 study for Lea Circle near Hurricane Creek.





2.0 General Information

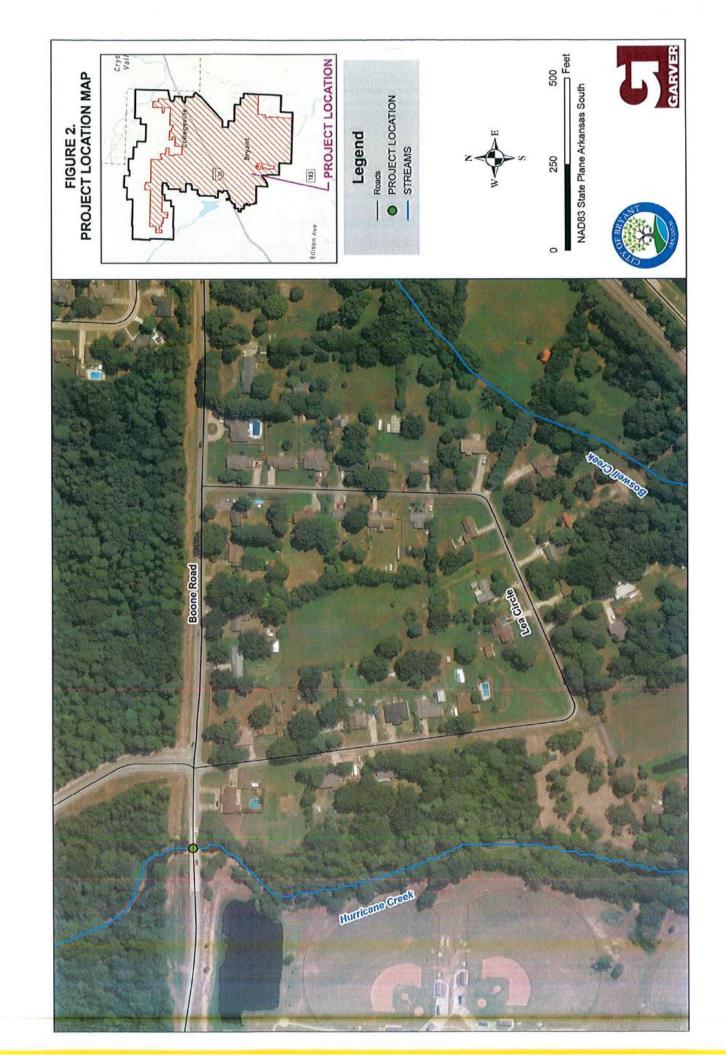
Lea Circle is a local road located just off of Boone Road east of Hurricane Creek. Several homes along Lea Circle have experienced reported flood losses due to flooding along Hurricane Creek and Boswell Creek. The project location map is shown in **Figure 2**.

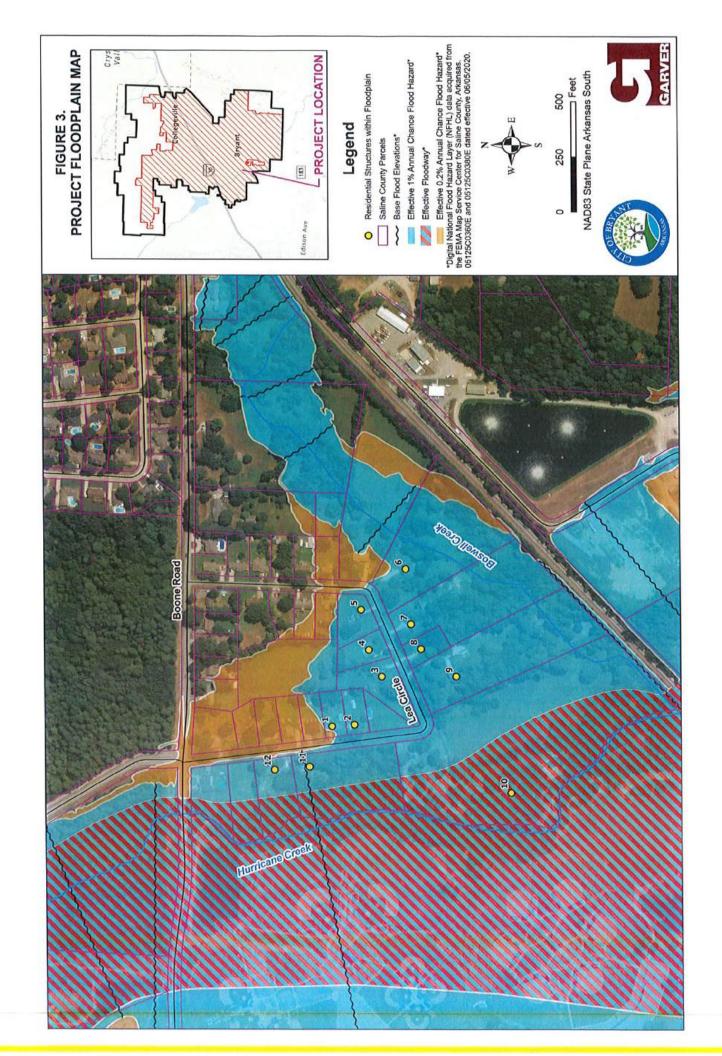
3.0 National Flood Insurance Program (NFIP) Data

The City of Bryant participates in the FEMA National Flood Insurance Program (NFIP). Current floodplain information and mapping is available in Flood Insurance Study (FIS) Report numbers 05125CV0001B and V0002B for Saline County, Arkansas, and Incorporated Areas. The City is mapped within Flood Insurance Rate Map (FIRM) Panels 0225E, 0240E, 0360E, 0370E, and 0380E. The project area of Lea Circle near Hurricane Creek is within FIRM panel 0360E. Hurricane Creek is mapped as Zone AE with floodway, and Boswell Creek is mapped as Zone AE. The Effective floodplain mapping for the project area is shown in Error! Reference source not found..

As shown in Figure 3, twelve residential structures are located within the Zone AE floodplain. This count does not include any detached garages, sheds, or other outbuildings located on the properties. One residential structure is located within the regulatory floodway of Hurricane Creek.









4.0 Data Collection

4.1.1 Resident Comment Database

For this CDMP, a public comment period was issued to allow city residents to submit drainage issues. The comment period ran from April 10 to May 22, 2022. A total of 264 comments were received for the city planning area. Three resident comments were received on Lea Circle. All three comments mention water over the roadway during flood events with damage to outbuildings, fences, and yards.

5.0 Initial Screening Study

During Phase 1, an Initial Screening Study was performed for the Hurricane Creek basin. For this screening, a hydraulic model was developed for the entire basin using 2D HEC-RAS and utilized rain-on-grid methodology to apply precipitation directly to the ground surface. This model was used to identify flood issues throughout the City, so is considered a qualitative model and not to be used for design. However, the data is useful in determining relative flood risk, and a flood severity index (FSI) was developed using the model results. Flood severity ranges from 0 to 4, with 4 being the most severe. The FSI classifications are listed in **Table 1**. **Table 2** displays the FSI rankings for Owen Creek.

Table 1. Flood Severity Index Classes

Class	Description	Maximum Flood Depth (ft)	Maximum Flood Velocity (ft/s)
FS0	Minimal severity	< 0.5	
FS1	Unsafe for vehicles and pedestrians	< 1.5	< 6.0
FS2	Moderate flooding hazard for buildings	< 3	< 6.0
FS3	Potential for structural damage	> 3	< 6.0
FS4	Unsafe for vehicles and pedestrians; Potential for structural damage	> 0.5	>6.0





Because of the high likelihood of flooding at multiple storm events, and historical flood issues in the area, Midland Road and Hilldale Road were selected for further hydraulic study in order to identify conceptual drainage improvements.

Flood Severity Index Potential Location Stream Name Basin Drainage Issue 100 50 5 ¥ ٧r Yr ¥ Hurricane Roadway Hurricane Lea Circle and Boswell overtopping; 3 3 3 3 Creek Creeks home flooding

Table 2. Flood Severity Index for Lea Circle

6.0 Proposed Drainage Solution

The floodplain at Lea Circle cannot be substantially decreased in size due to the railroad crossing downstream. This railroad crossing is causing significant backwater that cannot be minimized without improvements to the railroad bridges. Coordination with railroad companies is arduous and complex, therefore, improvement of the railroad bridges is unlikely.

Because of the likelihood of repetitive losses to the properties located in the floodplain, a potential solution would be for the City to buy out these properties. A list of the properties and their estimated values are provided in Table 4. These values were acquired online. Prior to property buyout, elevation certificates for each property should be completed to determine if a Letter of Map Amendment (LOMA) can be completed for the property. If structure elevations are adequate, a LOMA could remove structures from the floodplain and remove the requirement for flood insurance. Properties able to meet the requirements for a LOMA would not need to be bought out by the City. Additionally, each property should be formally assessed to determine actual property value. Note: the property located at the corner of Boone Road and W. Lea Circle was not included in the potential buyout list because it has already been removed from the floodplain via a LOMA.





Table 3. Estimated Property Values

Map ID	Property Address	Estimated Value*
1	207 W. Lea Circle	\$179,300
2	211 W. Lea Circle	Not Available
3	1702 S. Lea Circle	\$140,100
4	1610 S. Lea Circle	\$147,700
5	1602 S. Lea Circle	\$136,900
6	1601 S. Lea Circle	\$364,200
7	1609 S. Lea Circle	\$284,100
8	1613 S. Lea Circle	\$177,000
9	1705 S. Lea Circle	\$412,000
10	1713 S. Lea Circle	\$626,100
11	200 W. Lea Circle	\$163,200
12	112 W. Lea Circle	\$193,900

^{*} Estimated values obtained from Zillow.com in December 2024; values are subject to change based on market fluctuations.

7.0 Planning Level Opinion of Project Costs

A planning level opinion of project cost is provided in Appendix J-1. As mentioned in Section 5, in order to determine actual property value, each property should be formally assessed.



Appendix J-1

Phase 2 Lea Circle Buyout Planning Level Opinion of Project Costs



		iing Level Opin ea Circle near I				
Item Description	Unit	Quantity	Unit Cost		Total Cost	
207 W. Lea Circle¹	L.S.	1	\$	179,300.00	\$	179,300.00
211 W. Lea Circle²	L.S.	1	\$	257,000.00	\$	257,000.00
1702 S. Lea Circle ¹	L.S.	1	\$	140,100.00	\$	140,100.00
1610 S. Lea Circle ¹	L.S.	1	\$	147,700.00	\$	147,700.00
1602 S. Lea Circle ¹	L.S.	1	\$	136,900.00	\$	136,900.00
1601 S. Lea Circle ¹	L.S.	1	\$	364,200.00	\$	364,200.00
1609 S. Lea Circle ¹	L.S.	1	\$	284,100.00	\$	284,100.00
1613 S. Lea Circle ¹	L.S.	1	\$	177,000.00	\$	177,000.00
1705 S. Lea Circle ¹	L.S.	1	\$	412,000.00	\$	412,000.00
1713 S. Lea Circle ¹	L.S.	1	\$	626,000.00	\$	626,000.00
200 W. Lea Circle ¹	L.S.	1	\$	163,200.00	\$	163,200.00
112 W. Lea Circle ¹	L.S.	1	\$	193,900.00	\$	193,900.00
Contingency (20%)	L.S.	1	\$	616,280.00	\$	616,280.00
Total Estimated Project Cost					\$	3,697,700.00

¹ Estimated values obtained from Zillow.com in December 2024; values are subject to change based on market fluctuations

 $^{^{\}rm 2}$ Estimated value is not available; an average price was used for the unit cost