CITY OF JASPER

Storm Water Quality Management Plan
Part B
Baseline Characterization Report
327 IAC 15-13-7

April 30, 2004

Part B Baseline Characterization Report
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Section One
Summary of Data Collection and Evaluation

A. Summary of General Data on MS4 Entity and System

The following describes the MS4 entity in general, providing a context for the evaluation of the water quality data and other data sources in the preparation of this report.

Jasper is located in southern Indiana approximately 16 miles north of Interstate 64 in Dubois County. The Patoka River runs through the city from northeast to southwest. The city is traversed by US 231/ SR 45, SR 56, SR 164 and SR 162. The annexed area of the City of Jasper contains 11.97 square miles (7661 acres) and has a population of 12,100 (2000 U.S. Census). This equates to 1011 people per square mile (1.58 people per acre). Jasper is the industrial center of Dubois County and the surrounding area. The main industries include manufacturing of office furniture, cabinetry and electronic products and the remanufacturing of engines and transmissions. Jasper is located in the north central part of Dubois County and is surrounded by agricultural and wooded lands. With floodplains and wetlands located along the Patoka River most development and growth in Jasper is occuring along its north and west boundaries. There are five subbasins within Jasper. Four of the five subbasins drain into Patoka River and within these four areas lie most of the industrial and commercial area of Jasper. We have designated Patoka River as a sensitive water due to these factors and that the water intake for the Jasper Municipal Water Utility is located in the river near 8th Street. The Mill Creek subbasin contains mostly residential and agricultural lands. This subbasin drains north and west to the East fork of White River.

B. Summary of Baseline Data Collection and Evaluation

The following describes the process utilized to identify, gather, and evaluate data for this Baseline Characterization Report.

When characterizing the land useage in the City of Jasper the main source of information used was the City of Jasper Comprehensive Plan (April 2002) prepared by A&F Consulting Co., LLC. This source allowed to break down the city into open areas, commercial areas, industrial areas and residential areas. This allowed us to pinpoint possible hotspots as sources of pollution within the city. As noted above Jasper is

directly located on Patoka River with a small portion of the city draining north and west to the East Fork of the White River. The Mill Creek subbasin which drains north and west begins in a mostly residential area and travels through agricultural lands. This is a rapidly developing residential area in the city and the largest corncerns for this area are sedimentation from construction activities and pollutants related to residential and agricultural activities. The remaining portion of the city which drains directly into the Patoka River has been the main focus of concern. Within this portion of the city are concentrations of industrial and commercial areas with the potential of pollutants getting into river.

Jasper is surrounded by mainly agricultural and wooded lands and is located approximately 18 miles downstream from Patoka Lake. Patoka River's bottom and banks are mostly clay with some rock outcroppings. The river's rate of flow varies greatly throughout the year depending on the amount of precipitation and the amount of water released from Patoka Lake by the Corps of Engineers. Therefore, there is also a fluctuation in the water quality conditions of the river. Typically the river is muddy in appearance carrying sediment as it flows downstream. This is also the typical characteristics of the other streams within the system.

When looking for data we found three sources of existing information concerning water quality for the Jasper area: Patoka River Basin 1996 Statistical Analysis by IDEM, Hoosier Riverwatch Database and the Monthly Reports of Operation of Water Treatment Plant by Jasper Municipal Water Utility. This data was then reviewed by the office of the City Engineer and particular attention was paid to possible pollutants introduced to the river by our system. The main focus being on turbidity and other urban pollutnants.

There was no data created during this process, but it might become necessary to do additional testing in the future in pinpoint particular pollutants and their sources.

C. *Summary of Evaluation Approach*

1. Land-use evaluation

The annexed area of the City of Jasper contains 11.97 square miles (7661 acres). 47% of Jasper is considered open area. This consists of parks, cemeteries, golf courses, open fields, wooded areas, floodplain, wetlands and agricultural area. Some of this area has potential for future development, especially along the north and west sides of the city. Future development along the river is unlikely due to soil types and floodplain issues. The remaining 53% of the city is divided by 38% residential area, 8% commercial area and 7% industrial area. Jasper, like many cities, developed with a central commercial district surrounded by residential areas. Much of the initial industry was built along the river and the railroad adjacent to the dowtown area. As the city continued to grow commercial and industrial development spread along the main highway corridors. Along with this development residential areas grew adjacent to the commercial and industrial areas. This strip development has created 4 commercial areas within the city, downtown, north, south and southeast. Industrial areas have continued to develop in more campus-like settings on the south and north sides of the city. Residential areas have continued growth along the the major arterials as well as

larger developments within areas of the city. This information was compiled from the City of Jasper Comprehensive Plan (April 2002) prepared by A&F Consulting Co., LLC.

2. Evaluation of Structural and Nonstructural BMPs

As a part of preparing for Phase II implementation the City of Jasper organized a Storm Water Phase II Advisory Group consisting of city officials and citizens. This group set up the structure of the Storm Water Management Board and the Stormwater Department. The Storm Water Management Board consists of three members, that are appointed by the mayor. The board meets monthly and functions as the policy making entity for storm water issues and has set up the user fee structure through an ordinance. The board also oversees the Storm Water Department. The Stormwater Department is headed by the City Engineer and employs a Stormwater Coordinator who works with the City Engineer in preparing permits and coordinates storm water issues and needs with other departments within the city. The Storm Water Management Board began a public education program by placing brochures in 4 different montly utility bills to all utility customers within the city. These brochures discussed storm water and possible pollution sources throughout the city and also detailed the user fees and how these fees will be utilized. Also, an information session for contractors and developers was held on March 16, 2004. This session was co-sponsored by the Dubois County SWCD and the City of Jasper. The recent changes in Rule 5 and their effect on development were presentented by Lynn Miller of IDNR. 65 developers, contactors, engineers, designers and city officials attended. These non-structural BMP's have had a qualitative effect on the public in the city, however we do not have any measurable results at this time.

There are several other non-stuctural BMP's currently in place in the city. The street department has a city-wide street cleaning program in which all streets throughout the city are swept on a monthly basis. Currently there are no records being kept on the amount of debris being collected, but plans are to implement quantitative records as a part of our SWQMP. Also, the street department has a weekly curbside trash and recycling program. Once again we do not currently keep records on the quantities of the collected materials, but will implement this into our plan. All city utility departments require regular maintenance on their vehicles. This is either done at local service centers or in-house. Also, all departments participate in oil, oil filters and anti-freeze recycling program by using recycling contractors. Local residents are encouraged to recycle oil, oil filters and anti-freeze by using the free collection site at the southeast side of Jasper provided by the Dubois County Solid Waste District. Also, the Solid Waste District has an annual household hazardous waste day. Both of these programs are free to any resident of Dubois County. Also, in conjunction with the Dubois County SWCD 406 storm sewer inlets in the downtown area of Jasper have been marked.

There are a few structural BMP's throughout the city. At the Jasper Electric Generating Plant there are overflow protection and storage basins for coal storage and several other materials. These are in good condition and are maintained on a regular basis. The street department has two salt storage buildings for storage of salt used in winter de-icing of city streets. Both of these buildings are in excellent condition, one was just built this past winter, and allow for all de-icing materials to be stored under roof.

Also, there are several stormwater detention ponds throughout the city. These are all located in private developments and are maintained as a part of those developments. The following ponds are all well established with grassed bottoms and slopes are in

good working condition: St. Charles Estates, Columbus Container, First Baptist Church, Church of Jesus Christ of Latter Day Saints, Presbyterian Church, St. Charles Medical Clinic and two at the new Jasper Middle School. The main function of these ponds is for stormwater storage and slowing down runoff. Also, there are three stormwater detention ponds at the Walmart development. These ponds are in good working condition and are effective, but need constant attention due to the amount of trash that collects in these ponds. Likewise, the two ponds at Kmart are functioning, but need constant attention for trash removal.

The following developments are still undergoing construction and the detention ponds in these areas are currently being used as silt basins. These have all been designed using standards set by IDNR as a part of Rule 5: Applebee's - good working condition, but needs to be seeded; North Brook Park - it is working, but needs to be cleaned out and seeded; Maryville Second Addition - it is working, but needs to be cleaned out and seeded; Catherine Estates - it is in good condition; five ponds in Red Oak Estates - all are working, but need cleaning out and maintenance; three ponds in Mill Creek Park - all are working, but need cleaning out and maintenance; and four ponds in Canterbury Green II - all are working, but need to be cleaned out and spot seeding.

3. Identification of Sensitive Waters

The Patoka River has been identified as a sensitive water because the intake for the Jasper Municipal Water Utility is located in the river near 8th Street.

4. Review of Existing/Available Water Quality Data:

As mentioned above there are five subbasins within Jasper. Four of the five subbasins drain into Patoka River and within these four areas lie most of the industrial and commercial area of Jasper. The Mill Creek subbasin contains mostly residential and agricultural lands. This subbasin drains north and west approximately 4 miles to the East fork of White River. There was no existing data for this area, but is mostly likely to contain characteristics that are similar to the Patoka River-Crooked/Altar Creek Subbasin which begins in a residential area with agricultural activity downstream. The remaining four subbasins drain into Patoka River and have been the main focus of concern. Within this portion of the city are concentrations of industrial and commercial areas with the potential of pollutants getting into river.

When looking for data we found three sources of existing information concerning water quality for the Jasper area: Patoka River Basin 1996 Statistical Analysis by IDEM, Hoosier Riverwatch Database and the Monthly Reports of Operation of Water Treatment Plant by Jasper Municipal Water Utility. This data was then reviewed by the office of the City Engineer and particular attention was paid to possible pollutants introduced to the river by our system. The main focus being on turbidity and other urban pollutants.

There was no data created during this process, but it might become necessary to do additional testing in the future in order to pinpoint particular pollutants and their sources.

5. Identification of Potential Areas of Concern

Of course the area along the Patoka River is an area of concern due to the proximity of the industrial areas to the river. There is a possiblity of pollution entering directly into the

river before containment. Also, the outfall of the Jasper Sewage Treatment enters the river along Clay Street. Ditch Branch enters the Patoka River near the south end of the downtown area and passes through a commercial and industrial area and adjacent to a scrapyard. This also creates the opportunity for pollution entering the river quickly. There is considerable industrial development along Buffalo Stream on the Northeast side of Jasper once again creating a pollution hazard. As residential development continues on Jasper's north and west sides concern arises from erosion and silt leaving construction sites.

D. Definition of MS4 System and Waters of the State

1. Provide the definition you applied to the MS4 regarding open ditches. Give your rationale for the definition.

A "receiving water" is defined as any named conveyance of water within the MS4 boundaries as shown on the USGS quadrangle map. This definition provides the MS4 with clearly defined "receiving waters" and will minimize the number of outfalls within the MS4.

2. Update the list of receiving waters identified in the NOI submittal, based on the definition applied to the open ditches in your entity.

Number Added	New Receiving Water for Discharges from MS4
1	Dick Creek
2	Jasper Drain
3	Fish Run
4	Evans Brook
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E. Report on New Data

The following new data sources were created in order to provide additional information on water quality conditions within this community.

There were no new data sources created as a part of this characterization.

Section Two
Results of Data Evaluation

A. Characterization of MS4 Conditions

1. Sensitive Areas for Priority Attention:

Based on the evaluation of the MS4 land use and other data sources, the following areas have been identified as "sensitive" for priority attention during permit implementation:

1	Patoka River - water source for Jasper Municipal Water Utility
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2. Areas with Potential for Storm Water Quality Problems

The following list represents areas with potential for storm water quality problems based on land use data evaluation as well as other information gathered during this process.

1	Industrial area along Patoka River due to the proximity of the industrial areas to the river. There is a possiblity of pollution entering directly into the river before containment.
2	Ditch Branch enters the Patoka River near the south end of the downtown area and passes through a commercial and industrial area and adjacent to a scrapyard. This creates the opportunity for pollution entering the river quickly.
3	Buffalo Stream on the northeast side of Jasper has considerable industrial development.
4	15th Street area near the river has a large amount of the industrial development and the city's electric generating plant.
5	Continued residential development along Jasper's north and west sides will present erosion and sediment runoff during construction.
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3. BMP Evaluation Results

The following results were obtained during the evaluation of existing structural and non-structural BMPs located or utilized in the MS4 area.

As a part of preparing for Phase II implementation the City of Jasper organized a Storm Water Phase II Advisory Group consisting of city officials and citizens. This group set up the structure of the Storm Water Management Board and the Stormwater Department. The Storm Water Management Board consists of three members, that are appointed by the mayor. The board meets monthly and functions as the policy making entity for storm water issues and has set up the user fee structure through an ordinance. The board also oversees the Storm Water Department. The Stormwater Department is headed by the City Engineer and employs a Stormwater Coordinator who works with the City Engineer in preparing permits and coordinates storm water issues and needs with other departments within the city. The Storm Water Management Board began a public education program by placing brochures in 4 different montly utility bills to all utility customers within the city. These brochures discussed storm water and possible pollution sources throughout the city and also detailed the user fees and how these fees will be utilized. Also, an information session for contractors and developers was held on March 16, 2004. This session was co-sponsered by the Dubois County SWCD and the City of Jasper. The recent changes in Rule 5 and their effect on development were presentented by Lynn Miller of IDNR. 65 developers, contactors, engineers, designers and city officials attended. These non-structural BMP's have had a qualitative effect on the public in the city, however we do not have any measurable results at this time.

There are several other non-stuctural BMP's currently in place in the city. The street department has a city-wide street cleaning program in which all streets throughout the city are swept on a monthly basis. Currently there are no records being kept on the amount of debris being collected, but plans are to implement quantitative records as a part of our SWQMP. Also, the street department has a weekly curbside trash and recycling program. Once again we do not currently keep records on the quantities of the collected materials, but will implement this into our plan. All city utility departments require regular maintenance on their vehicles. This is either done at local service centers or in-house. Also, all departments participate in oil, oil filters and anti-freeze recycling program by using recycling contractors. Local residents are encouraged to recycle oil, oil filters and anti-freeze by using the free collection site at the southeast side of Jasper provided by the Dubois County Solid Waste District. Also, the Solid Waste District has an annual household hazardous waste day. Both of these programs are free to any resident of Dubois County. Once again the above described programs appear to be very effective, but results will be monitored in the future by establishing a record keeping procedure for each BMP to help quantify effectiveness. Also, in conjunction with the Dubois County SWCD 406 storm sewer inlets in the downtown area of Jasper have been marked. We are planning on continuing this program to mark all inlets within the city.

There are a few structural BMP's throughout the city. At the Jasper Electric Generating Plant there are overflow protection and storage basins for coal storage and several other materials. These are in good condition and are maintained on a regular basis. The street department has two salt storage buildings for storage of salt used in winter de-icing of city streets. Both of these buildings are in excellent condition, one was just built this past winter, and allow for all de-icing materials to be stored under roof. Both of these BMP's provide for total containment for their respective potential pollutants.

Also, there are several stormwater detention ponds throughout the city. These are all located in private developments and are maintained as a part of those developments. The following ponds are all well established with grassed bottoms and slopes are in good working condition: St. Charles Estates, Columbus Container, First Baptist Church, Church of Jesus Christ of Latter Day Saints, Presbyterian Church, St. Charles Medical Clinic and two at the new Jasper Middle School. The main function of these ponds is for stormwater storage and slowing down runoff. Also, there are three stormwater detention ponds at the Walmart development. These ponds are in good working condition and are effective, but need constant attention due to the amount of trash that collects in these ponds. Likewise, the two ponds at Kmart are functioning, but need constant attention for trash removal.

The following developments are still undergoing construction and the detention ponds in these areas are currently being used as silt basins. These have all been designed using standards set by IDNR as a part of Rule 5: Applebee's - good working condition, but needs to be seeded; North Brook Park - it is working, but needs to be cleaned out and seeded; Maryville Second Addition - it is working, but needs to be cleaned out and seeded; Catherine Estates - it is in good condition; five ponds in Red Oak Estates - all are working, but need cleaning out and maintenance; three ponds in Mill Creek Park - all are working; but need cleaning out and maintenance; and four ponds in Canterbury Green II - all are working, but need to be cleaned out and spot seeding.

The initial purpose of all of these detention ponds was to prevent sediment from leaving the sites during construction. At the completion of construction of these sites the ponds were converted to dry detention ponds to slow stormwater runoff from the developments. Results of the effectiveness of sediment basins are difficult to measure and quantify as they are designed as the last chance to catch silt before it leaves the site and their effectiveness varies throughout the construction process and each rain event.

4. Potential Sites for Additional BMPs

Potential sites for additional BMP's will be further evaluated and will be waiting for implementation in Part C.

B. Characterization of Water Quality Data

1. Key Observations on Water Quality

The following key observations were developed during the data review and evaluation process regarding the existing water quality conditions in the MS4 area.

When looking for data we found three sources of existing information concerning water quality for the Jasper area: Patoka River Basin 1996 Statistical Analysis by IDEM, Hoosier Riverwatch Database and the Monthly Reports of Operation of Water Treatment Plant by Jasper Municipal Water Utility. This data was then reviewed by the office of the City Engineer and particular attention was paid to possible pollutants introduced to the river by our system. The main focus being on turbidity and other urban pollutants.

We looked at two testing sites that were a part of the 1996 Patoka River Basin Analysis. One was located 3.5 miles upstream from Jasper and the other was 6.5 miles

downstream. Also, there two sites with sampling done by Dubois County SWCD for Hoosier Riverwatch. The upstream location was the same as for the 1996 study and the other was located 13.5 miles downstream. Our last source of data comes from the the Jasper Municipal Water Utility Monthly Reports of Operation of Water Treatment Plant. This testing is taken from the water drawn at the intake for the city's water supply in the river near 8th Street.

The results varied greatly depending on river flows, precipitation and the season. For instance, turbidity at the upstream sampling site ranged from typically from 12-20 with a high of 60. At the intake the turbidity typically ranged from 9-30 during dry months and 30-80 during wetter months with an average between 25 and 40 and a high of 425. Comparably 13.5 miles downstream turbidity ranged from 20-48. There is an increase in turbidity as the water moves downstream. There is also an increase in pH levels as the water flows downstream. This can be attributed to the amount of wooded areas upstream with added agricultural activities and urbanization further downstream.

It can also be noted that TOC and total phosphorus gradually increased as the water moved downstream along the Patoka River due to agricultural runoff and urban input. Total phosphorus and TKN had the highest concentrations in the spring due to fertilizer runoff. TOC had the highest concentration in the winter due to foliage decompostion. dissolved solids, hardness and sulfate were typically highest during the summer due to high flow conditions.

From this information it can be observed that Jasper's main pollutant concern would be sediment entering the river causing the increase in turbidtiy and carrying other pollutants with it. Most of this sediment comes from the increase in construction as the city continues to grow. Also, as the residential areas grow, there is an increase in commercial growth. With that brings about an increase in number of streets and parking lots which adds oils and salts into the system. We also need to recognize the wide ranging sources of pollution from the various industrial areas of the city.

2. Conclusions from Data Analysis

The following conclusions have been drawn from the analysis of the existing/available data.

As stated above Jasper's main pollutant concern would be sediment entering the river causing the increase in turbidtiy and carrying other pollutants with it. Most of this sediment comes from the increase in construction as the city continues to grow. Also, as the residential areas grow, there is an increase in commercial growth. With that brings about an increase in number of streets and parking lots which adds oils and salts into the system. We also need to recognize the wide ranging sources of pollution from the various industrial areas of the city.

A concentration on construction site erosion control and post-constuction runoff control should be a help in reducing sediment and other pollutants in the river from new construction. Continued efforts to detect illicit discharges and measures to prevent accidental spills and pollution in industrial areas are needed.

C. Strategy for Continued Characterization Efforts

The following strategy is being considered for inclusion in the SWQMP for on-going water quality characterization efforts during the life of the permit.

Water quality characterization within the MS4 will continue using the on-going data collection by the Jasper Municipal Water Utility. Also, a regular visual inspection schedule of the receiving waters within the MS4 will be implemented to detect possible illicit discharges in the system. Educating all city employees to be able to detect and recognize illicit discharges will be implemented. This will allow us to use existing employees in this effort. As a part of the our public education and participation we will attempt to train and use volunteer groups and students in cleanup and collection of data.

D. Follow-up Work Prior to Submittal of Storm Water Quality Management Plan – Part C

The following approach will be taken during the first year of the permit to continue efforts to characterize general and specific water quality conditions in the MS4 area and will help guide the development of the SWQMP.

As stated above, water quality characterization within the MS4 will continue using the on-going data collection by the Jasper Municipal Water Utility. Also, a regular visual inspection schedule of the receiving waters within the MS4 will be implemented to detect possible illicit discharges in the system. No new data will be collected during this time.

Appendices

Appendix A: Data Sources Utilized
Appendix B: Updated List of "Waters of the State"
Appendix C: Inventory of BMPs Evaluated and Potential New Sites for Structural BMP Implementation
Appendix D: Land Use Characterization by Residential, Commercial, Industrial, Open Space

Appendix A
Data Sources Utilized

	List of Data Sources Utilized in this Report
1	City of Jasper Comprehensive Plan (April 2002) prepared by A&F Consulting Co., LLC
2	2000 U. S. Census
3	Patoka River Basin 1996 Statistical Analysis by Indiana Department of Environmental Management
4	Monthly Report of Operation of Water Treatment Plant by Jasper Municipal Water Utility (March 2003 - March 2004)
5	Hoosier Riverwatch Database at www.hoosierriverwatch.com
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Appendix B
Updated List of Waters of the State

The following is a complete list of Waters of the State (receiving waters of discharges from MS4), including the original list submitted in the NOI and updated based on the data evaluation completed for the Characterization Report.

	Waters of the State (Receiving Discharges from MS4)
1	Patoka River
2	Crooked Creek
3	Jahn Creek
4	Ditch Branch
5	Pat Run
6	Calumet Run
7	Buffalo Stream
8	Mill Creek
9	Ackerman Branch
10	Dick Creek
11	Jasper Drain
12	Fish Run
13	Evans Brook
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Appendix C
List of BMPs Evaluated and Potential New Sites for Structural and Non-structural BMPs

E= Existing P= Proposed S= Structural N=Non-structural

	BMP Location	E	P	S	N	Condition
1	Storm Water Management Board	☒	☐	☐	☒	Meets monthly and is the policy making board for storm water issues in the City of Jasper
2	Storm Water Phase II Advisory Group	☒	☐	☐	☒	Advisory panel consisting of city officials and citizens established to set up the structure of the Storm Water Board and Department.
3	Public Education	☒	☐	☐	☒	Sent out 4 brochures notifying customers about storm water and user fees. Held information session on erosion control for contractors and developers.
4	Street Cleaning Program	☒	☐	☐	☒	Regular monthly cleaning program, but no quantitative results at this time.
5	Storm Inlet marking program	☒	☐	☐	☒	approximately 406 inlets are marked at this time.
6	Curbside trash collection and recycling program	☒	☐	☐	☒	Weekly program, no quanitative results at this time.
7	Salt storage facility	☒	☐	☒	☐	All salt for de-icing stored under roof.
8	Regular vehicle maintenance	☒	☐	☐	☒	All city departments require routine maintenance on city vehicles.
9	Oil, oil filters & anti-freeze recycling	☒	☐	☐	☒	All city departments require recycling of oil, oil filters and anti-freeze.
10	Overflow protection & storage basins - Jasper Electric Generation plant	☒	☐	☒	☐	Good condition with routine maintenance and inspection.
11	Oil, oil filters and anti-freeze recycling program by Dubois County Solid Waste District	☒	☐	☐	☒	On going program for all county residents available at all county dump sites.
12	Household hazardous waste day by Dubois County Solid Waste District	☒	☐	☐	☒	Free annual collection of household hazardous waste for all county residents at all county dump sites.
13	Storm water detention pond - St. Charles Estates	☒	☐	☒	☐	Good working condition
14	Storm water detention pond - Columbus Container	☒	☐	☒	☐	Good working condition
15	3 Storm water detention ponds - Walmart	☒	☐	☒	☐	Good working condition
16	2 Storm water detention ponds - Kmart	☒	☐	☒	☐	Good working condition
17	2 Storm water detention ponds - new Jasper Middle School	☒	☐	☒	☐	Good working condition

18	Storm water detention pond - First Baptist Church	☒	☐	☒	☐	Good working condition
19	Storm water detention pond - Church of Jesus Christ of Latter Day Saints	☒	☐	☒	☐	Good working condition
20	Storm water detention pond - Presbyterian Church	☒	☐	☒	☐	Good working condition
21	Storm water detention pond - St. Charles Medical Clinic	☒	☐	☒	☐	Good working condition
22	Storm water detention pond - Applebee's	☒	☐	☒	☐	Pond is currently being used as a sediment basin during time of construction activity.
23	5 Storm water detention ponds - Red Oak Estates	☒	☐	☒	☐	Ponds ares currently being used as sediment basins during time of construction activity.
24	3 Storm water detention ponds - Mill Creek Park	☒	☐	☒	☐	Ponds are currently being used as sediment basins during time of construction activity.
25	Storm water detention pond - North Brook Park	☒	☐	☒	☐	Pond is currently being used as a sediment basin during time of construction activity.
26	Storm water detention pond - Catherine Estates	☒	☐	☒	☐	Pond is currently being used as a sediment basin during time of construction activity.
28	Storm water detention pond - Maryville Second Addition	☒	☐	☒	☐	Pond is currently being used as a sediment basin during time of construction activity.
29	4 Storm water detention ponds - Canterbury Green II	☒	☐	☒	☐	Ponds are currently being used as sediment basins during time of construction activity.
30		☐	☐	☐	☐	
31		☐	☐	☐	☐	
32		☐	☐	☐	☐	
33		☐	☐	☐	☐	
34		☐	☐	☐	☐	
35		☐	☐	☐	☐	
36		☐	☐	☐	☐	
38		☐	☐	☐	☐	
39		☐	☐	☐	☐	
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Appendix D
Land Use Characterization by Residential, Commercial, Industrial, Open Space

The following data represents the land use by the categories of residential, commercial, industrial and open space by percent of total community.

Land Use Category	Percent
Residential (including multifamily)	38
Commercial (light and heavy)	8
Industrial (light and heavy)	7
Open Space	47