Use Attainability Analysis

for

WBID 3188 North Fork Spring River

Submitted by
Golden City Wastewater Department

To
Missouri Department of Natural Resources
Water Protection Program

North Fork Spring River (C) #3188 Barton County

Miles
0 0.3 0.6 1.2

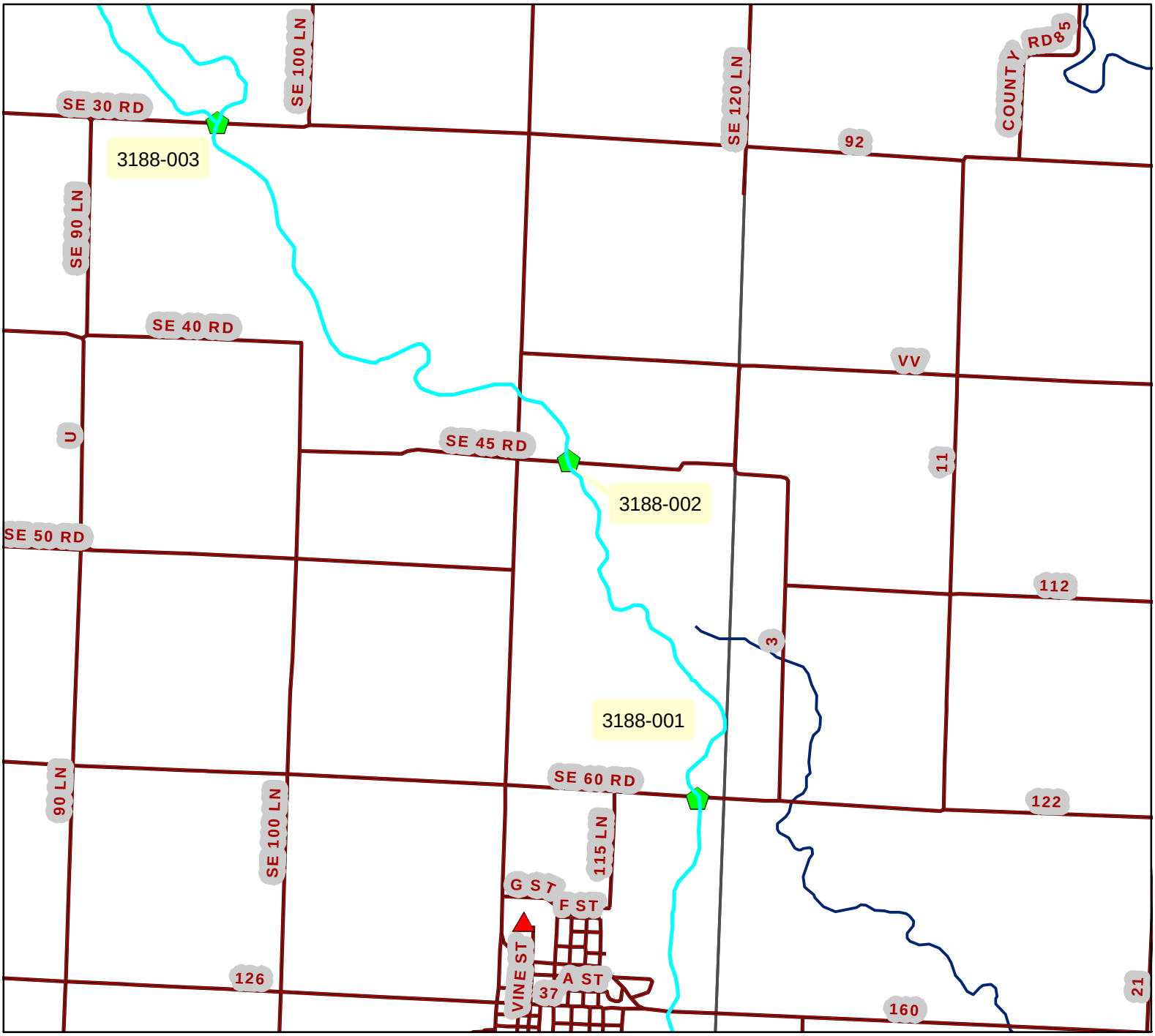
N
W E
S

Legend

Roads

Classified Waterbodies

North Fork Spring River (C) #3188 Barton County



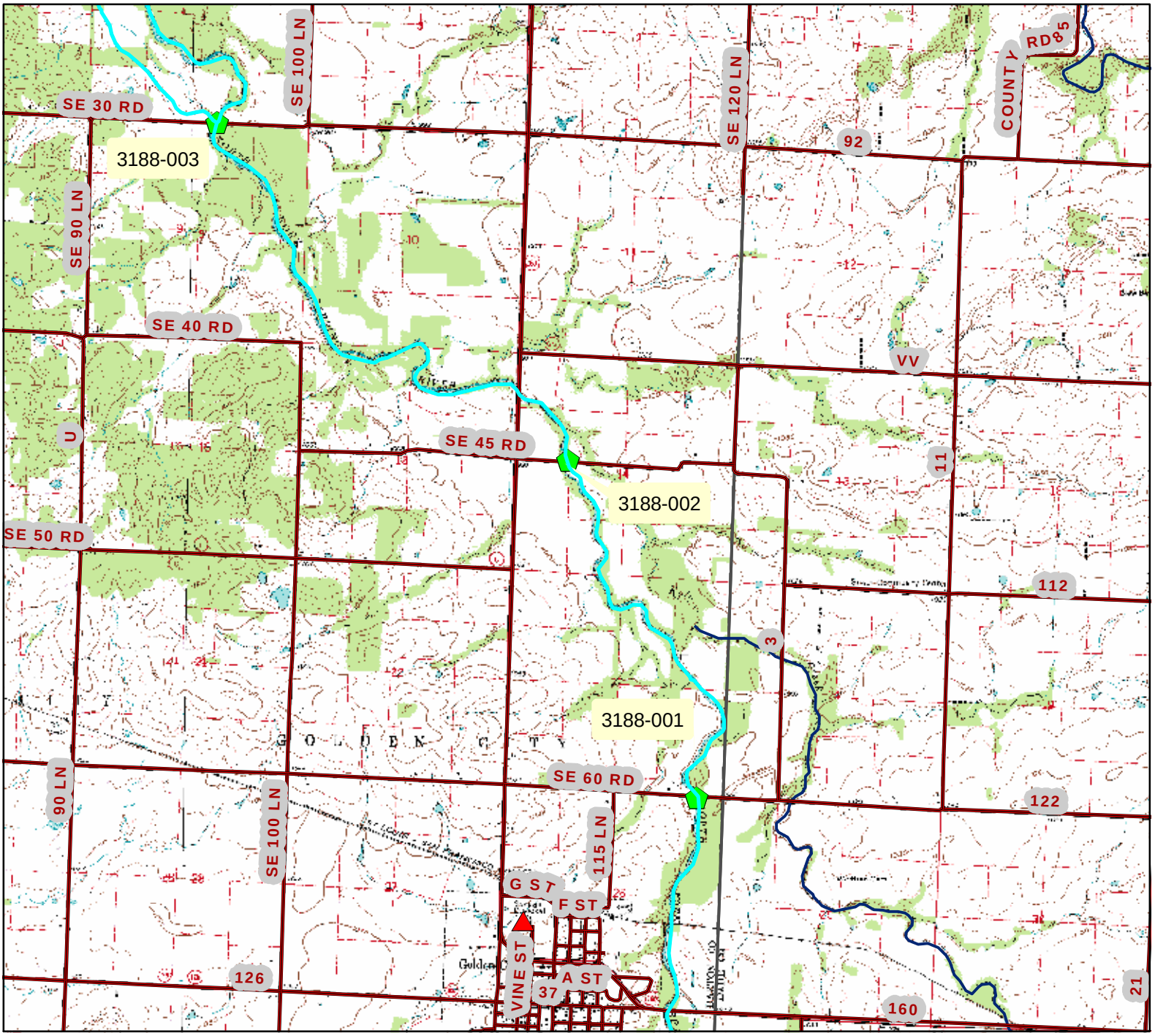
Legend

- Roads
- Point Sources
- Classified Waterbodies
- Counties

N W E S

0 0.5 1 2 Miles

North Fork Spring River (C) #3188 Barton County



Legend

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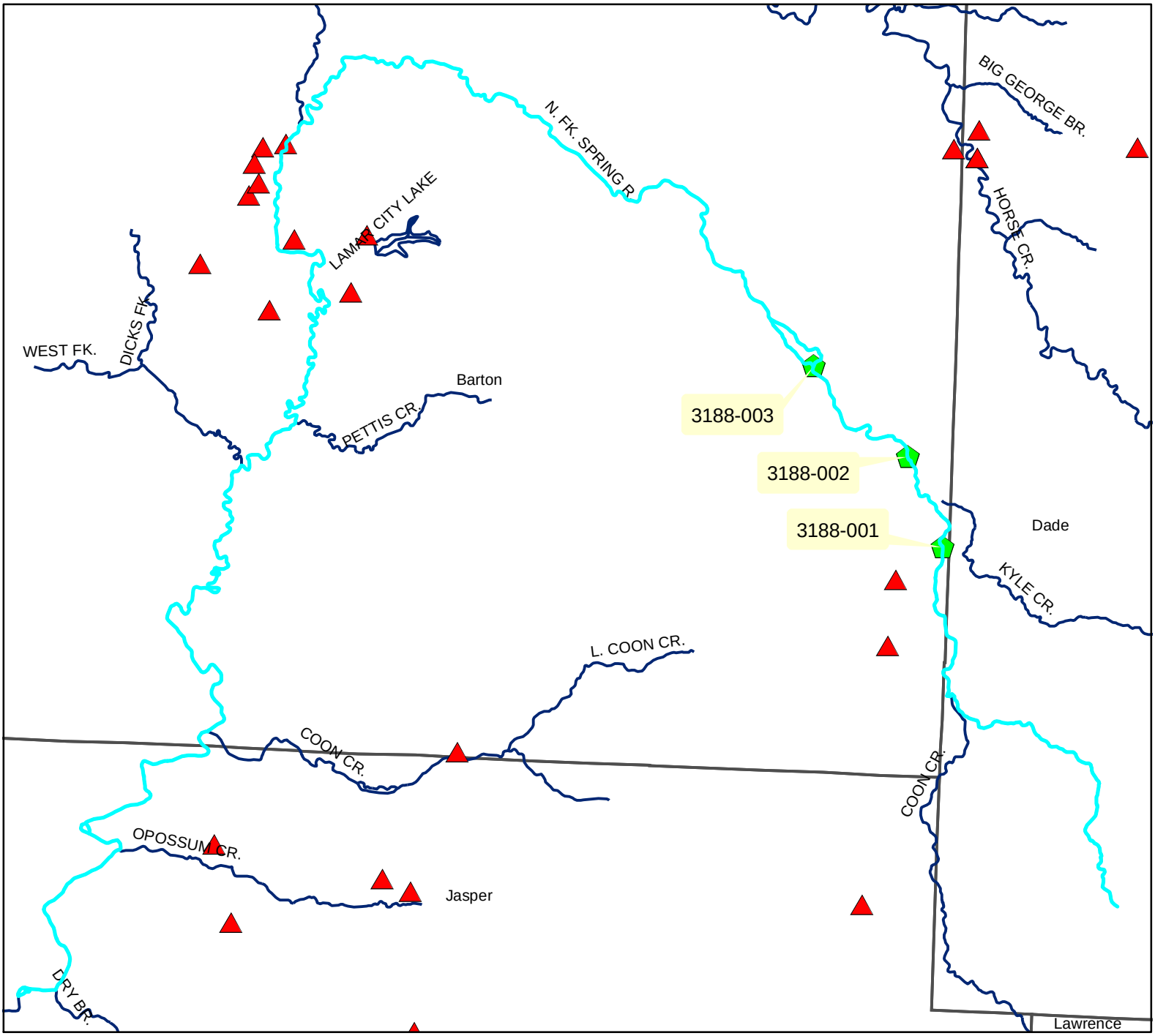

Legend

- Point Sources
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N
W E
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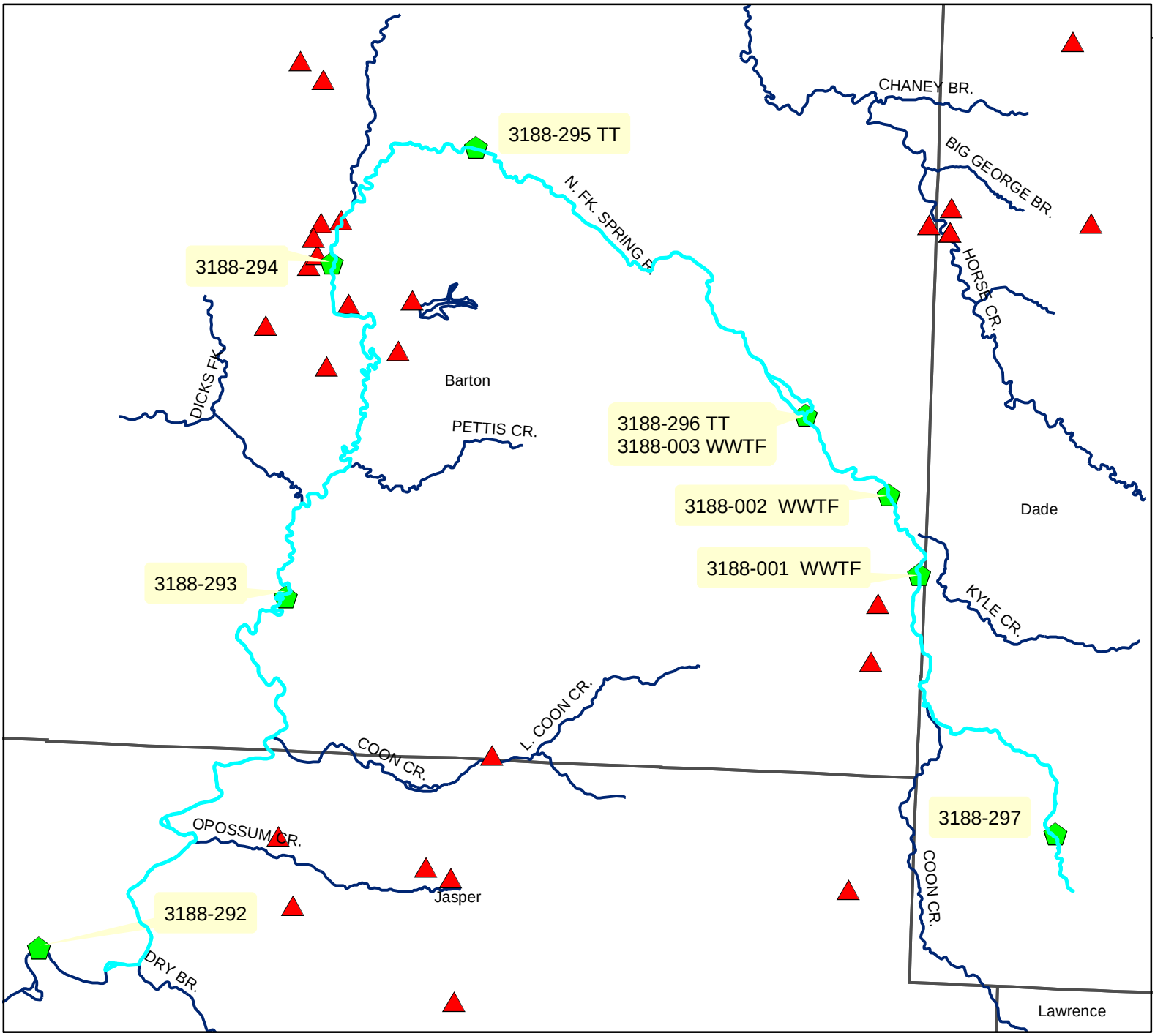
0 2 4 8 Miles

North Fork Spring River (C) #3188 Barton County



Legend

- Point Sources
- Classified Waterbodies
- Counties

0 2 4 8 Miles

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Use Attainability Analysis
North Fork Spring Rive
(Muddy Creek)

Statement of Issue

The UAA consisted of 4 Steps;

1. Reviewing UAA protocol
2. Conducting a survey of Muddy Creek
3. Interviews with landowners who live next to the creek, and their uses
4. Compiling data into a final report.

The survey occurred on June 17 and 22, 2005. The purpose of this report is to find out depths, widths, and human uses of the creek. During the survey, observed signs of human use were; 1 farm equipment crossing and 1 camp area, no other human uses were observed. The farm equipment crossing is located about 75 yards downstream of 3188-001. The camp area is located about ¼ mile upstream of 3188-003. Maximum water depths in the creek were measured at 2 feet and the average depth was 1 foot. Maximum and average depths listed in criteria #2 of the evaluation protocol for recreational use attainability analysis, are 3.28 feet (1m), and 1.64 feet (0.5m) respectively.

For the interview phase of the study, questions were asked to people living on or near the creek and their uses and or observations of uses. Three interviews were conducted. The interviews revealed that the primary use of the creek is for farm equipment crossing, 1 camp area for fishing, and some livestock watering. The vast majority use is for wildlife watering and habitat. There is no livestock watering in the part of the creek that I surveyed.

Based on data colleted from the creek survey and interviews, the following attainment of uses were documented,

1. Farm equipment crossing
2. Fishing
3. Wildlife watering
4. Habitat for wildlife species.

Presentation and Evaluation of Data

North Fork Spring River (Muddy Creek) Study Area

There are two parts of Muddy Creek;

1. Big Muddy starts in western Lawrence County
2. Little Muddy starts in Southeastern Jasper County,

It runs through agriculture land through Barton County. The area that was studied is very lightly populated; some houses, a 100 acres apart, with others across the section. Flow is estimated at .25 cubic feet per second.

Site # 1 (3188-001)

Picture # 1

An upstream view of Muddy Creek (location 37.40720 N; 94.08221 W)

This view shows logs resting on the bottom, steep slopes with heavy vegetation to the waters surface make it difficult to get to the water. Large rocks, mud and clay make up the bottom of this portion of the creek, with algae growth on approximately 50% of the creek bottom. Maximum run depth measured 2 feet.

Picture # 2

A downstream view of Muddy Creek (location 37.40754 N; 94.08244 W)

This view shoes the farm equipment crossing. This is the only human use that was observed except for the bridge, maximum pool depth was measured at 2 feet. The crossing measured 8" in depth. There have been people observed wading in this area. Flow was estimated at .25 cubic feet per second.

Site # 2 (3188-002)

Picture # 3

A upstream view of this east fork at this site (location 37.42934 N; 94.09111 W)

This view shows heavy vegetation along the banks. Maximum run depth measured 1 foot. This area has a gravel bottom with a gravel bar visible. Logs rest on the bottom, the run is connected by riffle, and algae growth is estimated at 50% on the bottom. No human use was observed except the bridge. Flow is estimated at .25 cubic feet per second.

Picture # 4

Downstream view of the east fork at this site (location, 37.42969 N; 94.09153 W)

This view shows a long narrow run, very few riffles, large rocks, and gravel make up 80% of the bottom, with algae growth estimated at 50% on the bottom. Heavy vegetation along the banks make it very difficult to get to the creek. No human use was observed. Flow is estimated at .25 cubic feet per second.

Picture # 5

Upstream view of the west fork at this site (location 37.42943 N; 94.09361 W)

This view shows a wider run than the east fork. You can also see the rocks on the bottom. You can also see that the banks are steep and are lined with heavy vegetation making entrance to the creek difficult, maximum depth measured 1 foot. No human use was observed at this location. Algae growth is estimated at 50% on the bottom and flow is estimated at .25 cubic feet per second.

Picture # 6

Downstream view of the west fork at this site (location, 37.42948 N; 94.09632 W)

This view shows a pool that ends with riffle. Maximum depth measured 1 foot, heavy vegetation along the banks makes it difficult to get to the creek. No human use was observed at this site, and algae growth is estimated at 50% on the bottom. Flow is estimated at .25 cubic feet per second.

Site # 3 (3188-003)

Picture # 7

This view is upstream of site #3 3188-003 about ¼ mile. The landowner along the east side of the creek uses this area for fishing and camping only. As you can see there are logs and large trees that rest on the bottom, maximum depth in this area is estimated at 3 feet. The landowner has carved holes in the steep bank to make access easier. Flow was estimated at .25 cubic feet per second.

Picture # 8

This view is the camp area of the same location as picture # 7. As you can see it is maintained very well to help control the insects. He does allow some visitors to fish and camp, but recommends no swimming.

Picture # 9

A upstream view at this site (location 37.45107 N; 94.12399 W)

This view shows very heavy vegetation along the steep banks, but access to the creek can be made at the bridge. Maximum depth was measured at 2 feet. Flow is estimated at .25 cubic feet per second. Algae growth was estimated at 50% on the bottom.

Picture # 10

A downstream view at this site (location 37.45306 N; 94.12289 W)

This view shows very heavy vegetation on the creek bottom as well as along the banks, making access difficult there but access can be made at the bridge. Maximum depth was measured at 2 feet. Flow was estimated at .25 cubic feet per second. Algae growth in the bottom was estimated at 50%. No human use was observed.

Site # 1 Picture # 1 Upstream view
Location: R 29W T31N Section 26
Site GPS Coordinates: 37.40720N: 94.08221W
Date & Time: 06/17/05 10:49
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes, log jams, heavy vegetation
Evidence of Human Use: None

Upstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Run	40 feet	600 feet	2 foot	1 feet
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 90% gravel, 10% mud & clay Surface Deposit: None

Site # 1 Picture # 2 Downstream View
Location: R 29W T31N Section 23
Site GPS Coordinates: 34.40754N; 94.08244W
Date & Time: 06/17/05 10:49
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes, log jams, heavy vegetation
Evidence of Human Use: None

Downstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Riffle	20 feet	40 feet	1 foot	.66 feet
Run	50 feet	150 feet	2 foot	1 foot
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 90% gravel, 10% mud & clay Surface Deposit: None

Site # 2 Picture # 3 Upstream View
Location: R 29W T31N Section 14
Site GPS Coordinates: 37.42934N; 94.09111W
Date & Time: 06/17/05 13:16
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes
Evidence of Human Use: None

Upstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Riffle	8 feet	100 feet	1 foot	.5 feet
Run	20 feet	300 feet	1 foot	.5 foot
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 80% gravel, 10% sand, 10% mud & clay Surface Deposit: None

Site # 2 Picture # 4 Downstream View
Location: R 29W T31N Section 14
Site GPS Coordinates: 37.42969N; 94.09153W
Date & Time: 06/17/05 13:16
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes, heavy vegetation
Evidence of Human Use: None

Downstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Riffle	8 feet	30 feet	1 foot	.5 feet
Run	30 feet	450 feet	1 foot	.5 foot
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 80% gravel, 10% sand, 10% mud & clay Surface Deposit: None

Site # 2 Picture # 5 Upstream View
Location: R 29W T31N Section 14
Site GPS Coordinates: 37.42943N; 94.09361W
Date & Time: 06/17/05 14:00
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes
Evidence of Human Use: None

Upstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Riffle	8 feet	20 feet	.5 foot	.25 feet
Pool	20 feet	40 feet	1 foot	.5 feet
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 80% gravel, 20% sand Surface Deposit: None

Site # 2 Picture # 6 Downstream View
Location: R 29W T31N Section 14
Site GPS Coordinates: 37.42948N; 94.09362W
Date & Time: 06/17/05 14:00
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes
Evidence of Human Use: None

Downstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Riffle	5 feet	20 feet	.5 foot	.25 feet
Pool	20 feet	20 feet	1 foot	.5 foot
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 80% gravel, 20% sand Surface Deposit: None

Site # 3 Picture # 7 Upstream View
Location: R 29W T31N Section 9
Site GPS Coordinates:
Date & Time: 06/22/05 11:30
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes, logs
Evidence of Human Use: Fishing

Upstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Run	40 feet	600 feet	3 foot	1 foot
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 50% sand, 50% mud & clay Surface Deposit: None

Site # 3 Picture # 8 Upstream View
Location: R 29W T31N Section 9
Site GPS Coordinates:
Date & Time: 06/22/05 11:30
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes
Evidence of Human Use: Camping

Site # 3 Picture # 9 Upstream View
Location: R 29W T31N Section 9
Site GPS Coordinates: 37.45107N; 94.12399W
Date & Time: 06/17/05 15:06
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes, fence
Evidence of Human Use: None

Upstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Run	50 feet	1320 feet	2 feet	1 foot
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 90% gravel, 10% mud & clay Surface Deposit: None

Site # 3 Picture # 10 Downstream View
Location: R 29W T31N Section 4
Site GPS Coordinates: 37.45306N; 94.12289W
Date & Time: 06/17/05 15:06
Personnel: Greg Lowe
Uses Observed: None
Surrounding Conditions: Steep slopes, heavy vegetation
Evidence of Human Use: None

Downstream View Physical Dimensions

Feature	Width	Length	Max Depth	Avg. Depth
Riffle	50 feet	100 feet	1 foot	.5 feet
Run	50 feet	1700 feet	2 foot	1 foot
Flow	.25 cubic feet per second estimated			

Water Characteristics
Odor: None Color: Clear Bottom Deposit: 90% gravel, 10% mud & clay Surface Deposit: None

North Fork Spring River (Muddy Creek) Survey

General notes:

*Greg Lowe conducted a survey on Muddy Creek on June 17th and June 22nd, 2005

*The survey started at a bridge crossing (site #1) and concluded at another bridge crossing (site #3), covering a distance of approximately 4.6 miles.

*The Survey was conducted by walking up and down the creek to take pictures, water depth measurements and GPS readings at significant locations.

*There were 4 bridge crossings, 2 at site # 2, 1 farm equipment crossing at site # 1 and a camp/fishing area at site # 3.

*No other evidence of human use was observed. I specifically looked for burnt wood, fire rings, rope swings, trash (beer cans, bottles, etc..), footpaths and foot tracks.

*Several species of wildlife and several schools of fish were observed.

*Field data sheet B, side characterization, , is incorporated into the presentation of data collected from the Muddy Creek Survey.

Data:

*Widths, lengths of runs, riffles and pools are approximations. Maximum depths are accurate measurements taken by a tape measure. Average depths were calculated by averaging all measurements recorded. Flow was estimated by using floating devices such as leaves, sticks, etc..

Weather:

*Weather for the day of the survey and seven days before is listed in the table below

Date	High Temp	Low Temp	Precipitation	Wind
06/10/05	94	66	0.50	1.7 to 20 mph SSE
06/11/05	91	62	0.09	2.5 to 19 mph SE
06/12/05	96	63	1.18	2.0 to 24 mph SE
06/13/05	93	49	0.30	1.9 to 21 mph SSE
06/14/05	86	56	0.00	1.3 to 14 mph NNW
06/15/05	91	43	0.00	1.3 to 14 mph NNW
06/16/05	92	55	0.07	1.1 to 12 mph SE
06/17/05	93	57	0.00	0.6 to 11 mph SSE
06/21/05	94	55	0.00	0.7 to 11 mph NNW
06/22/05	98	60	0.00	0.3 to 7 mph SSE

*At the times of the survey, it was mostly sunny skies.

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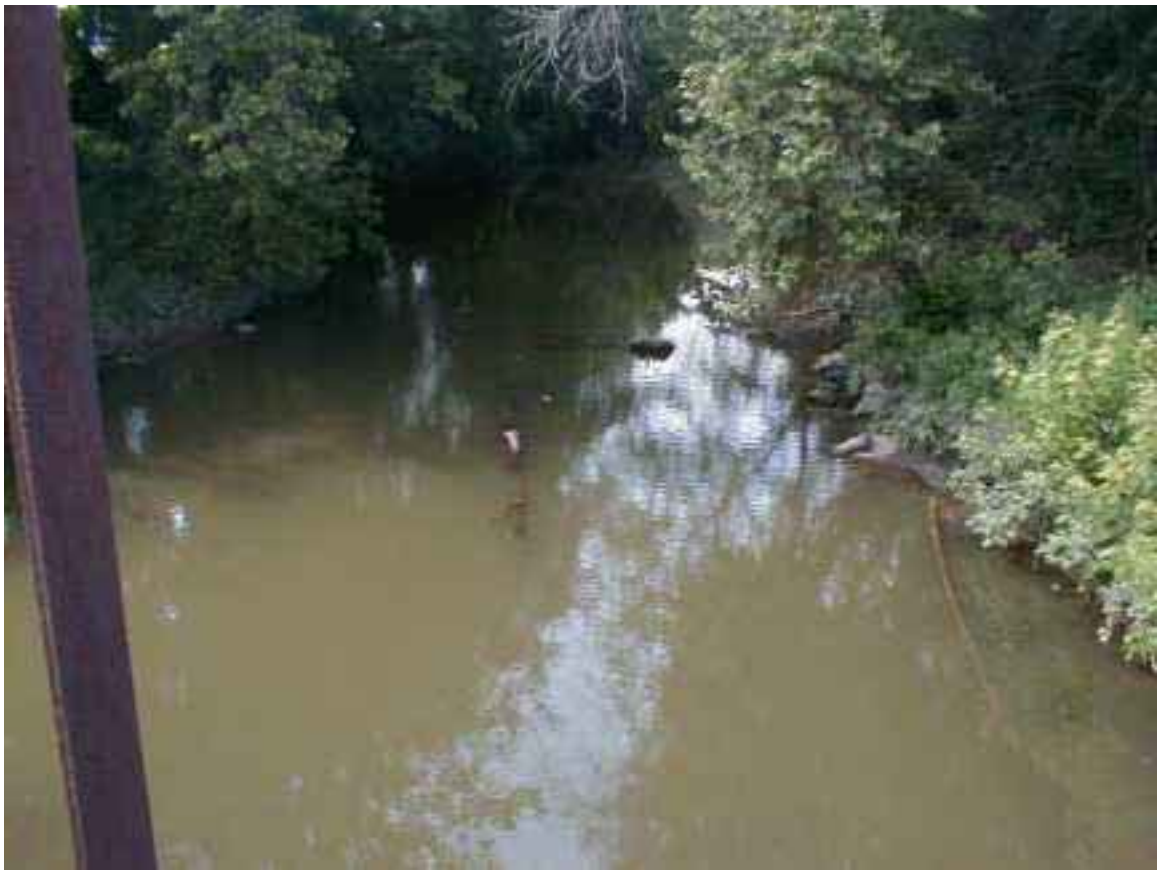

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