

APPENDIX A



Figure 4. Site US51-04: Ash Creek - 15 April 2008. **A.** Looking upstream.
B. Looking downstream. Photos by S.J. Taylor (INHS).



B

Figure 6. Site US51-06: Ramsey Creek - 15 April 2008. **A.** Looking upstream.
B. Looking downstream; note large, submerged, flat rocks.
Photos by S.J. Taylor (INHS).



Figure 9. Site US51-09: Kaskaskia River - 15 April 2008. **A.** Looking upstream.
B. Looking downstream. Photos by S.J. Taylor (INHS).



Figure 12. Site US51-12: Hickory Creek - 14 April 2008. **A.** Looking upstream.
B. Looking downstream. Photos by S.J. Taylor (INHS).



Figure 18. Site US51-18: North Fork Kaskaskia River - 14 April 2008. **A.** Looking upstream. **B.** Looking downstream. Photos by S.J. Taylor (INHS).



Figure 22. Site US51-22: East Fork Kaskaskia River - 22 July 2008. **A.** Looking upstream. **B.** Looking downstream. Photos by S.J. Taylor (INHS).



Figure 23. Site US51-24: Lost Creek - 14 April 2008. **A.** Looking upstream.
B. Looking downstream. Photos by S.J. Taylor (INHS).



Figure 24. Site US51-25: Prairie Creek - 14 April 2008. **A.** Looking upstream.
B. Looking downstream. Photos by S.J. Taylor (INHS).



Figure 27. Site US51-28: Crooked Creek - 14 April 2008. **A.** Looking upstream.
B. Looking downstream. Photos by S.J. Taylor (INHS).



Figure 28. Site US51-29: Sewer Creek - 14 April 2008. **A.** Looking upstream.
B. Looking downstream. Photos by S.J. Taylor (INHS).

**Appendix A.
Stream Survey Locations**



Figure 2. US51-42, Intermittent headwater tributary of Raboon Creek, at county road 1700N culvert – 28 April 2009. A. Looking upstream. B. Looking downstream.



Figure 3. US51-43, Unnamed tributary of Bear Creek, at farm lane crossing – 28 April 2009. A. Looking upstream. B. Looking downstream.



A.



B.

Figure 4. US51-44, Bear Creek, at long-abandoned ford, 120 feet E of eastern terminus of county road 1700N - 28 April 2019. A. Looking upstream. B. Looking downstream.



A.



B.

Figure 5. US51-45, unnamed tributary of Raccoon Creek, at county road 600E culvert - 28 April 2019. A. Looking upstream. B. Looking downstream.



Figure 6. US51-46. Kaskaskia River, at public boat ramp at southernmost edge of Vandalia - 23 April 2009. A. Looking upstream. B. Looking downstream.



Figure 7. US51-47. Racoon Creek, at county road 1375N bridge - 23 April 2009. A. Looking upstream. B. Looking downstream.



Figure 8. US51-48. Unnamed tributary of Raccoon Creek, at county road 1375N bridge - 28 April 2019. A. Looking upstream. B. Looking downstream.



Figure 9. US51-49. Fish Lake Dizan, at county road 750E - 30 June 2009. A. Looking upstream. B. Looking downstream.



Figure 10. USS1-52, Sear Creek, at Willett Street bridge - 28 April 2025. A. Looking upstream. B. Looking downstream.



Figure 11. USS1-51, Louse Run, at Farthing Road cement ford - 28 April 2025. A. Looking upstream (stream flowing across cement ford in foreground). B. Looking downstream.



Figure 13. USS1-53, Prairie Creek, at Barton Road bridge, 1.4 mi SW Sandowal – 29 June 2009. Looking downstream (W) of bridge, showing accumulation of junk, garbage, and fish carcasses that had been dumped here.



Figure 12. USS1-53, Prairie Creek, at Barton Road bridge, 1.4 mi SW Sandowal – 28 April 2009. A. Looking upstream. B. Looking downstream.

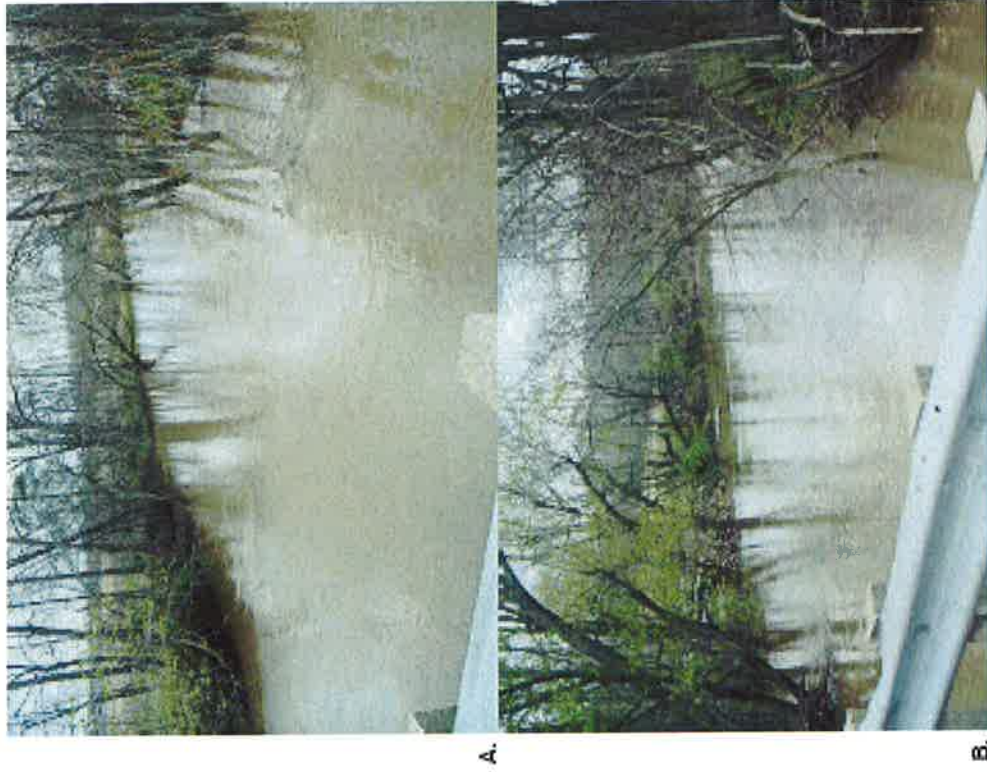


Figure 14. US51-54, Crooked Creek, at Norton Road bridge – 25 April 2019. A. Looking upstream. B. Looking downstream.



Figure 15. Mussels collected by IHNS personnel from Site US51-54 – Crooked Creek at Norton Road bridge, on 29 June 2019. A, Rock-pocketbook - *Arctioens contragosus* (Say, 1829) (top left); B, Giant toaler - *Pyganodon (Arctioenia) grandis* (Say, 1829) (top right); C, White neesplitter - *Lasmigona complanata* (Barnes, 1823) (center); D, Rock-pocketbook - *Arctioens contragosus* (Say, 1829) (bottom left); E, Fragile papershell - *Leprososa fragilis* (Rafinesque, 1820) (bottom right).

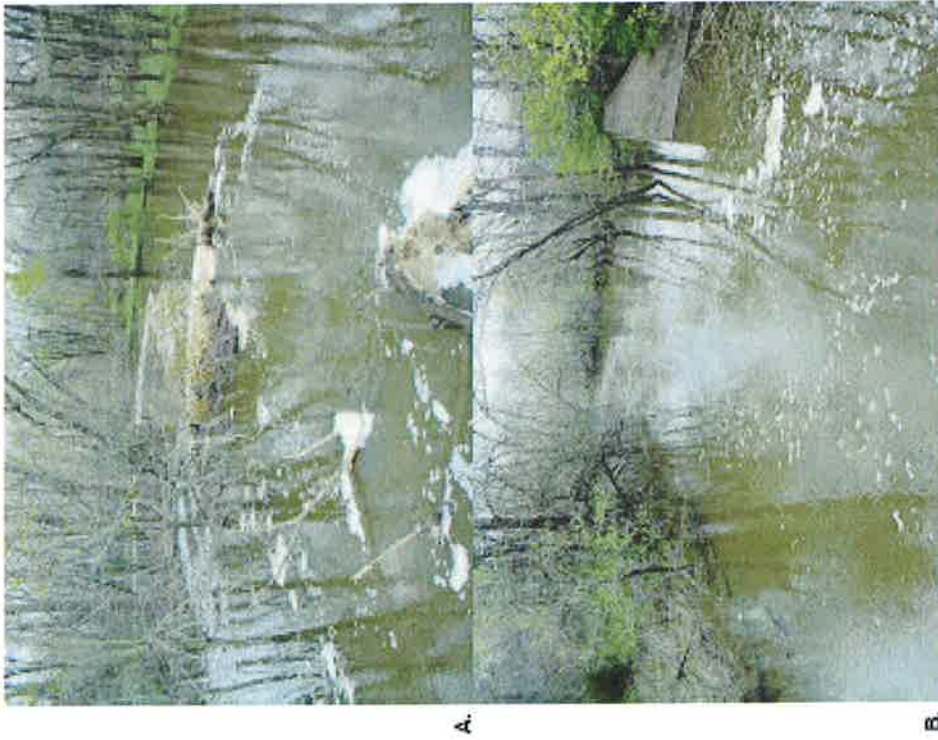


Figure 16. USS1-55, Raccoon Creek at Green Street Road bridge – 26 April 2009.
 A. Looking upstream. B. Looking downstream. Foam (and odor) during our visit on this date indicative of untreated sewage discharge from sewage treatment facility, just upstream.



Figure 17. USS1-55, Raccoon Creek, actual sampling site located 300 feet upstream (SE) Green Street Road bridge – 29 June 2009. From upstream, looking downstream.



Figure 18. USS1-56, Raccoon Creek Reservoir, at boat ramp in cove area on southern shoreline, northern terminus of County Club Lane – 28 April 2009. Looking at boat ramp area (center) and open fetch of lake (to left).



Figure 19. USS1-57, unnamed tributary of Crooked Creek, at Joliff Bridge Road / county road 2330E bridge – 28 April 2009. A. Looking upstream. B. Looking downstream.



A.



B.

Figure 20. USS1-58, Crooked Creek, ~1,200 ft downstream, (ESE), Illinois Route 161 bridge – 29 June 2019. A. Looking upstream. B. Looking downstream.



A.



B.

Figure 21. USS1-59, unnamed tributary of Raccoon Creek, at the Illinois Route 140 bridge – 30 June 2009. A. Looking upstream. B. Looking downstream.

Source: Wetzel et al 2009



A.

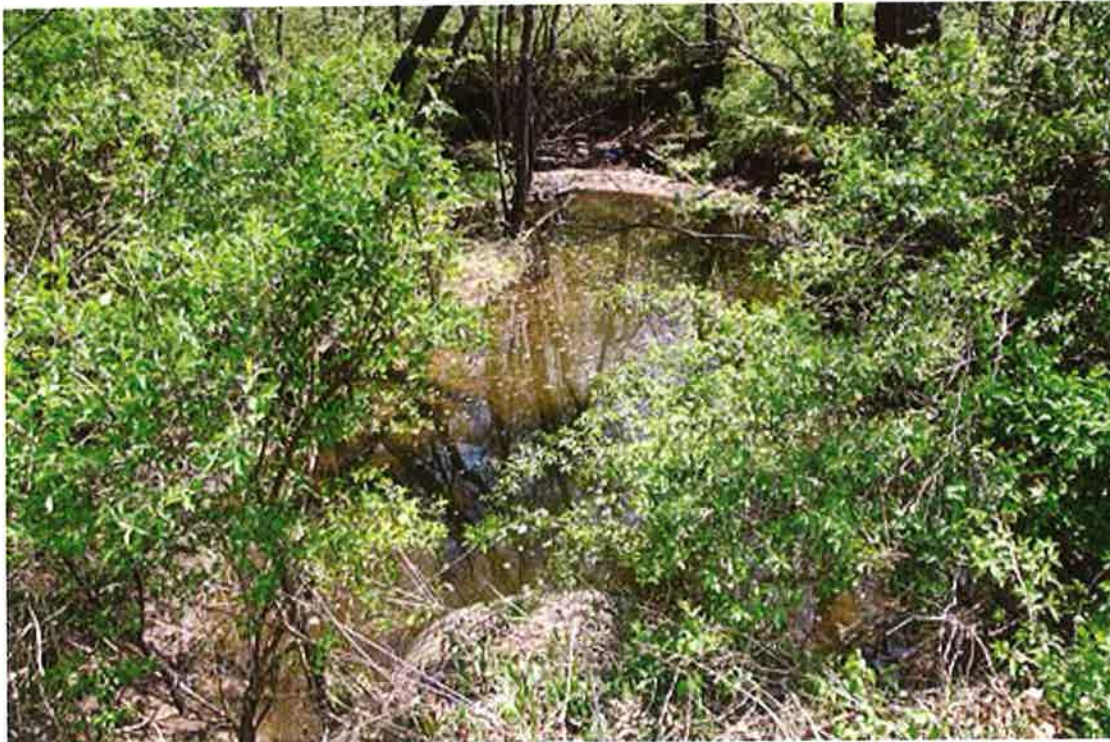


B.

Site US51-63. Unnamed tributary (b) of Vandalia Lake, at county road 2100N bridge, 2.9 mi (4.6 km) WNW Vera (town). **A.** looking 'upstream' / north; **B.** looking 'downstream' / south. Photos by M.J. Wetzel, 14 April 2011.



A.



B.

Site US51-64. Unnamed tributary (b) of Vandalia Lake, at county road 500E culvert, 2.4 mi (3.9 km) W Vera (town). **A.** looking upstream / west-northwest; **B.** looking downstream / southeast (note patches of floating algae and scum on water surface). Photos by M.J. Wetzel, 14 April 2011. [Additional photos for this site follow...]



A.



B.

Site US51-64. Unnamed tributary (b) of Vandalia Lake, at county road 500E culvert, 2.4 mi (3.9 km) W Vera (town). **A.** looking across stream / west (in foreground) into cattle yard with a shed and corral area; **B.** looking upstream /west-northwest, through cattle yard (with shed and corral area at left edge of picture). Photos by M.J. Wetzel, 14 April 2011.



A.



B.

Site US51-65. Unnamed tributary (c) of Vandalia Lake, at county road 2000N bridge, 3.3 mi (5.3 km) W Vera (town). **A.** looking upstream / north; **B.** looking downstream / south. Photos by M.J. Wetzel, 14 April 2011.



A.



B.

Site US51-66. Unnamed tributary (d) of Vandalia Lake, at county road 350E culvert, 3.9 mi (6.3 km) W Vera (town). **A.** looking upstream / northwest; **B.** looking downstream / southeast. Photos by M.J. Wetzel, 14 April 2011.



A.



B.

Site US51-67. Unnamed tributary (e) of Vandalia Lake, at county road 350E culvert, 4 mi (6.4 km) WSW Vera (town). **A.** looking upstream / west (septic field retention pond is located just to the foreground of the evergreen trees in left-center of this picture); **B.** looking downstream / east. Photos by M.J. Wetzel, 14 April 2011.



Site US51-68. Unnamed tributary (e) of Vandalia Lake, at the Illinois Route 185 box culvert, 3.7 mi (6.0 km) SW Vera (town). Looking upstream / north. Photo by M.J. Wetzel, 14 April 2011. [*a downstream photo follows...*]



Site US51-68. Unnamed tributary (e) of Vandalia Lake, at the Illinois Route 185 box culvert, 3.7 mi (6.0 km) SW Vera (town). Looking downstream / south. Photo by M.J. Wetzel, 14 April 2011. [*an upstream photo precedes this one*]

Table xxxxx. Aquatic Site US51-28 (Crooked Creek)

Location: Marion County, 500 feet upstream (SE), of old U.S. Route 51 Bridge, at north edge of Centralia, IL

Sampling Dates: Fish (May and October 2008)

Mussels (June 17-19, 2008)

Macroinvertebrates (Summer, 2008)

Water Quality (04/21/08, 08/07/08, 09/21/08)

Mean Habitat Score: 55 (Poor)

Sample Site Photographs: Fig. 27, page A168, INHS Report, Wetzel & Phillips, (Editors), 2009

Riparian Vegetation: Trees

Stream Substrate: gravel, sand, cobble, silt

Stream Width: 55.8 feet

Stream Depth: 8.2 feet

Fish Species	Numbers	Percent of Catch	Tolerance Designation	Trophic Designation
Blackstripe Topminnow	3	1.0	M	NA
Bluegill	26	9.1	M	Gen
Bluntnose Minnow	41	14.3	T	Gen
Brook Silversides	6	2.1	M	NA
Bullhead Minnow	42	14.6	M	Gen
Channel Catfish	1	0.4	M	NA
Common Carp	1	0.4	T	Gen
Gizzard Shad	44	15.3	M	Gen
Green Sunfish	28	9.8	T	Gen
Johnny Darter	5	1.7	M	SBI
Largemouth Bass	1	0.4	M	NA
Longear Sunfish	17	5.9	M	NA
Orangespotted Sunfish	8	2.8	M	NA
Warmouth	1	0.4	M	NA
Red Shiner	43	15	T	Gen
Redfin Shiner	1	0.4	M	Gen
Shortnose Gar	1	0.4	M	NA
Slough Darter	3	1	M	SBI
Mud Darter	1	0.4	M	SBI
Spotted Sucker	2	0.7	I	Gen
Tadpole Madtom	1	0.4	M	SBI
Yellow Bass	6	2.1	M	NA
Yellow Bullhead	1	0.4	T	Gen
White crappie	4	1.4	M	NA
Total Specimens	287	100.4		
Total Species	24			
Total Intolerant Species	1			
Total Illinois T&E Species	0			

Freshwater Mussels US51-28

Rock Pocketbook	Relic
White Heelsplitter	2
Giant floater	13
Mapleleaf	Relic
Pondhorn	7
Fragile Papershell	3
Pondmussel	3
Lilliput	1

Date sampled	06/26/08
Total number of live individuals	29
Total number of live species	6
Total number of species	8
Effort (person-hours)	2

Aquatic Macroinvertebrates Site US51-28

Fresh Water Snails (Gastropoda)	3
Fingernail Clams (Sphaeriidae)	1
Aquatic Worms (Oligochaeta)	31
Riffle Beetles (Stenelmidae)	6
Aquatic True Bugs (Hemiptera)	1
Biting Midges (Ceratopgonidae)	2
Non-biting Midges (Chironomidae)	93
Mayflies (Caenis sp)	160
Mayflies (Heptageniidae)	7
Narrow-wing Damselflies (Coenagrionidae)	3
Dragonflies (Gomphidae et al.)	1
Asst. Minor Taxa: Mites, roundworms, cladocera	6

Total Number of Examined Specimens	314
Total Number of Taxa	19
Number of EPT Taxa	4
Number of EPT Specimens	167
Mean Taxa Richness	12.3
% of EPT Specimens	53.2
% of Oligochaete Specimens	9.9
% of Chironomid Specimens	29.6

Table xxxxx. Aquatic Site US51-28 (Crooked Creek)

Location: Marion County, 500 feet upstream (SE), of old U.S. Route 51 Bridge, at north edge of Centralia /

Watershed: Kaskaskia River

Sampling Dates: Fish (May and October 2008)

Mussels (June 17-19, 2008)

Macroinvertebrates (Summer, 2008)

Water Quality (04/21/08, 07/07/08, 09/21/08)

Mean Habitat Score: 55 (Poor)

Sample Site Photographs: Fig. 27, page A168, INHS Report, Wetzel & Phillips, (Editors), 2009

Riparian Vegetation: Trees

Stream Substrate: gravel, sand, cobble, silt

Stream Width: 55.8 feet

Stream Depth: 8.2 feet

Fish Species	Numbers	Percent of Catch	Tolerance Designation	Trophic Designation
Blackstripe Topminnow	3	1.0	M	NA
Bluegill	26	9.1	M	Gen
Bluntnose Minnow	41	14.3	T	Gen
Brook Silversides	6	2.1	M	NA
Bullhead Minnow	42	14.6	M	Gen
Channel Catfish	1	0.4	M	NA
Common Carp	1	0.4	T	Gen
Gizzard Shad	44	15.3	M	Gen
Green Sunfish	28	9.8	T	Gen
Johnny Darter	5	1.7	M	SBI
Largemouth Bass	1	0.4	M	NA
Longear Sunfish	17	5.9	M	NA
Orangespotted Sunfish	8	2.8	M	NA
Warmouth	1	0.4	M	NA
Red Shiner	43	15	T	Gen
Redfin Shiner	1	0.4	M	Gen
Shortnose Gar	1	0.4	M	NA
Slough Darter	3	1	M	SBI
Mud Darter	1	0.4	M	SBI
Spotted Sucker	2	0.7	I	Gen
Tadpole Madtom	1	0.4	M	SBI
Yellow Bass	6	2.1	M	NA
Yellow Bullhead	1	0.4	T	Gen
White crappie	4	1.4	M	NA
Total Specimens	287	100.4		
Total Species	24			
Total Intolerant Species	1			
Total Illinois T&E Species	0			

Freshwater Mussels US51-28

Rock Pocketbook	Relic
White Heelsplitter	2
Giant floater	13
Mapleleaf	Relic
Pondhorn	7
Fragile Papershell	3
Pondmussel	3
Lilliput	1
Date sampled	06/26/08
Total number of live individuals	29
Total number of live species	6
Total number of species	8
Effort (person-hours)	2
Aquatic Macroinvertebrates Site US51-28	
Fresh Water Snails (Gastropoda)	3
Fingernail Clams (Sphaeriidae)	1
Aquatic Worms (Oligochaeta)	31
Riffle Beetles (Stenelmidae)	6
Aquatic True Bugs (Hemiptera)	1
Biting Midges (Ceratopgonidae)	2
Non-biting Midges (Chironomidae)	93
Mayflies (Caenis sp)	160
Mayflies (Heptageniidae)	7
Narrow-wing Damselflies (Coenagrionidae)	3
Dragonflies (Gomphidae et al.)	1
Asst. Minor Taxa: Mites, roundworms, cladocera	6
Total Number of Examined Specimens	314
Total Number of Taxa	19
Number of EPT Taxa	4
Number of EPT Specimens	167
Mean Taxa Richness	12.3
% of EPT Specimens	53.2
% of Oligochaete Specimens	9.9
% of Chironomid Specimens	29.6

Central City

Table xx. Aquatic Site US51-06 (Ramsey Creek)

Location: Fayette County, 30-100 feet downstream (E), U.S. Rt. 51 Bridge

Watershed: Kaskaskia River

Sampling Dates: Fish (May and October 2008)

Mussels (June 17-19, 2008)

Macroinvertebrates (Summer, 2008)

Water Quality (04/22/08, 07/08/08, 09/22/08)

Mean Habitat Score: 99 (Good)

Sample Site Photographs: Fig. 6, page A147, INHS Report, Wetzel & Phillips, (Editors), 2009

Riparian Vegetation: Trees, Herbaceous Vegetation

Stream Substrate: Sand, Gravel, Boulder, Bedrock

Stream Width: 36 feet

Stream Depth: 5 feet

Fish Species	Numbers Collected	Percent of Catch	Tolerance Designation	Trophic Designation
Central Stoneroller	7	0.4	M	NA
Red Shiner	103	6.5	T	Gen
Redfin Shiner	406	25.7	M	Gen
Bigmouth Shiner	22	1.4	M	Gen
Sand Shiner	1	0.1	M	Gen
Suckermouth Minnow	1	0.1	M	I
Bluntnose Minnow	999	63.2	T	Gen
Bullhead Minnow	14	0.9	M	Gen
Freckled Madtom	2	0.1	M	SBI
Blackstripe Topminnow	2	0.1	M	NA
Green Sunfish	1	0.1	T	Gen
Orangespotted Sunfish	2	0.1	M	NA
Johnny Darter	4	0.3	M	SBI
Orangethroat darter	7	0.4	M	SBI
Blackside darter	8	0.5	M	SBI
Logperch	1	0.1	M	SBI
		100		
Total Specimens	1580			
Total Species	16			
Total Intolerant Species	0			
Total Illinois T&E Species	0			

Native Mussels US51-06

White Heelsplitter	1
Giant Floater	Relic
Mapleleaf	5
Plain Pocketbook	Relic
Fat Mucket	Relic
Yellow Sandshell	1

Fragile Papershell	Relic
Pink Papershell	2
Date sampled	06/26/08
Total number of live individuals	9
Total number of live species	4
Total number of species	8
Effort, (person-hours)	2

Aquatic Macroinvertebrates Site US51-06

Selected Taxa	Numbers
Aquatic Worms (Clitellata)	17
Leeches (Branchiobdellidae)	32
Crayfish (Decapoda)	1
Riffle Beetles (Dubiraphia & Stenelmis)	13
Non-biting Midges (Chironomidae)	110
Blackflies (Simuliidae)	110
Craneflies (Tipulidae)	1
Mayflies (Baetidae)	98
Mayflies (Caenidae)	96
Mayflies (Heptageniidae)	17
Mayflies (Siphonuridae)	2
Caddisflies (Hydropsychidae)	142
Caddisflies (Hydroptilidae)	1
Stoneflies (Plecoptera)	12
Alderflies (Megaloptera)	3
Asst. Minor Taxa: mites, roundworms, copepod	8
Total Number of Examined Specimens	663
Total Number of Taxa	19
Number of EPT Taxa	11
Number of EPT Specimens	368
Mean Taxa Richness	9
% of EPT Specimens	55.6
% of Oligochaete Specimens	7.4
% of Chironomid Specimens	36.2

Fresh Water Snails (Gastropoda)	17
Fingernail Clams (Sphaeriidae)	26
Aquatic Worms (Clitellata)	38
Leeches (Branchiobdellidae)	5
Crayfish (Decapoda)	9
Scuds (Amphipoda)	30
Riffle Beetles (Dubiraphia sp)	1
Swimming/Diving Beetles (Coleoptera)	20
Water Bugs (Hemiptera)	26
Non-biting Midges (Chironomidae)	154
Biting Midges (Ceratopogonidae)	15
Mosquito (Culicidae)	44
Blackflies (Simuliidae)	119
Deer-House Flies (Tabanidae)	5
Craneflies (Tipulidae)	3
Mayflies (Baetidae)	8
Mayflies (Caenidae)	37
Mayflies (Siphonuridae)	131
Narrow-wing Damselflies (Coenagrionidae et al.)	15
Dragonflies (Gomphidae et al.)	6
Caddisflies (Limnephilidae)	1
Caddisflies (Rhyacophilidae)	10
Stoneflies (Plecoptera)	178
Asst. Minor Taxa: mites, roundworms, copepods	29
Total Number of Examined Specimens	927
Total Number of Taxa	21
Number of EPT Taxa	8
Number of EPT Specimens	365
Mean Taxa Richness	15.7
% of EPT Specimens	39%
% of Oligochaete Specimens	5%
% of Chironomid Specimens	18%

Table xx. Aquatic Summary US51-22 (E. Fork Kaskaskia River)

Location: Marion County, 0-600 feet upstream (SE), U.S. Rt. 51 Bridge; 4.5 mi S. Patoka, IL

Watershed: Kaskaskia River

Sampling Dates: Fish (May and October 2008)

Mussels (08/07/06)

Macroinvertebrates (Summer, 2008)

Water Quality (04/21/08, 08/08/08, 09/22/08)

Mean Habitat Score: 79 (Poor)

Sample Site Photographs: Fig. 22, page A163, INHS Report, Wetzel & Phillips, (Editors), 2009

Riparian Vegetation: Trees, Herbaceous Vegetation

Stream Substrate: Sand, Silt, Gravel

Stream Width: 14.7 feet

Stream Depth: 4.9 feet

Fish Species	Numbers Collected	Percent of Catch	Tolerance Designation	Trophic Designation
Red Shiner	15	4.5	T	Gen
Spotfin Shiner	1	0.3	M	Gen
Redfin Shiner	100	30.3	M	Gen
Sand Shiner	16	4.8	M	Gen
Bluntnose Minnow	77	23.3	T	Gen
Creek chub	7	2.1	T	Gen
White Sucker	1	0.3	T	Gen
Bigmouth Buffalo	1	0.3	M	Gen
Spotted Sucker	1	0.3	I	Gen
Yellow Bullhead	1	0.3	T	Gen
Tadpole Madtom	1	0.3	M	SBI
Blackstripe Topminnow	19	5.8	M	NA
Pirate Perch	4	1.2	M	NA
Mosquitofish	2	0.6	M	NA
Brook Silversides	8	2.4	M	NA
Bluegill	4	1.2	M	Gen
Largemouth Bass	1	0.3	M	NA
Johnny Darter	31	9.4	M	SBI
Logperch	2	0.6	M	SBI
Blackside Darter	7	2.1	M	SBI
Slough Darter	31	9.4	M	SBI
		99.8		
Total Species	330			
Total Intolerant Species	1			
Total Illinois T&E Species	0			
Native Mussels US51-22				
White Heelsplitter	1			
Giant Floater	1			
Threeridge	3			
Fat Mucket	44			

Pondmussel	1
Fragile Papershell	1
Lilliput	D
Date sampled	08/07/06
Total number of live individuals	51
Total number of live species	6
Total number of species	7
Effort, (person-hours)	4

Aquatic Macroinvertebrates Site US51-22

Selected Taxa

Fresh Water Snails (Gastropoda)	37
Leeches (Branchiobdellidae)	2
Crayfish (Decapoda)	2
Riffle Beetles (Dubiraphia & Stenelmis)	98
Swimming/Diving Beetles (Coleoptera)	2
Water Bugs (Hemiptera)	6
Non-biting Midges (Chironomidae)	63
Biting Midges (Ceratopgonidae)	1
Blackflies (Simuliidae)	29
Deer-House Flies (Tabanidae)	2
Craneflies (Tipulidae)	2
Mayflies (Baetidae)	49
Mayflies (Caenidae)	32
Mayflies (Heptageniidae)	5
Mayflies (Siphonuridae)	2
Narrow-wing Damselflies (Coenagrionidae et al.)	1
Caddisflies (Hydropsychidae)	144
Caddisflies (Hydroptilidae)	5
Caddisflies (Leptoceridae)	1
Alderflies (Megaloptera)	1
Asst. Minor Taxa: mites, roundworms, copepods	46
Total Number of Examined Specimens	530
Total Number of Taxa	25
Number of EPT Taxa	14
Number of EPT Specimens	239
Mean Taxa Richness	12.3
% of EPT Specimens	45.1
% of Oligochaete Specimens	0.4
% of Chironomid Specimens	12.1

Table xxx. Aquatic Site US51-09 (Kaskaskia River)

Location: Fayette Co., at Co. Rd. 2000N, ~1 mile E U.S. Rt. 51

Sampling Dates: Fish (May and October 2008)

Mussels (June 17-19, 2008)

Macroinvertebrates (Summer, 2008)

Water Quality (04/22/08, 07/08/08, 09/22/08)

Mean Habitat Score: 55 (Poor)

Sample Site Photographs: Fig. 9, page A150, INHS Report, Wetzel & Phillips, (Editors), 2009

Riparian Vegetation: Trees, herbaceous vegetation

Stream Substrate: Silt, Sand

Stream Width: 82.1 feet

Stream Depth: 13.1 feet

Fish Species	Numbers	Percent of Catch	Tolerance Designation	Trophic Designation
Longnose Gar	2	0.9	M	NA
Shortnose Gar	3	1.3	M	NA
Bowfin	1	0.4	M	NA
Gizzard Shad	3	1.3	M	Gen
Red Shiner	140	59.3	T	Gen
Common Carp	4	1.7	T	Gen
Silverjaw Minnow	1	0.4	M	Gen
Bluntnose Minnow	8	3.4	T	Gen
Creek Chub	19	8.0	T	Gen
River Carpsucker	30	12.7	M	Gen
Smallmouth Buffalo	4	1.7	M	I
Brook Silversides	3	1.3	M	NA
Channel Catfish	1	0.4	M	NA
Golden Redhorse	1	0.4	M	SBI
White Bass	1	0.4	M	NA
Bluegill	2	0.9	M	NA
Longear Sunfish	4	1.7	M	NA
Freshwater Drum	9	3.8	M	NA
		100%		
Total Specimens	236			
Total Species	18			
Total Intolerant Species	0			
Total Illinois T&E Species	0			

Native Mussels

Fragile Papershell Historical Record

Pink Papershell Historical Record

Date sampled	07/15/08
Total number of live individuals	0
Total number of live species	0
Total number of species	0

Effort, (person-hours)

0.5 hours, using brail

Macroinvertebrates

No macroinvertebrate collection
made for US51-09

APPENDIX B

Project Name: US 51
 Date: September 24, 2012

Inputs	Units	East Fork											
		Sewer Creek (US51 Build Alt)	Crooked Creek (US51 Build Alt)	Prairie Creek (CS Alt 2)	Lost Creek (CS Alt 1)	Lost Creek (CS Alt2)	Kaskaskia River (US51 Build Alt)	Kaskaskia River (US51 Build Alt)	Hickory Creek (US51 Build Alt)	Kaskaskia River (US51 Build Alt)	Ramsey Creek (RCO A)	Ramsey Creek (RCO B)	
Total right of way	acres	57.41	116.10	86.70	173.50	112.20	61.20	71.70	82.98	97.00	64.90	46.60	
Paved Surface	acres	13.93	34.83	22.90	41.51	21.60	13.50	21.50	24.90	29.10	24.40	24.40	
Watershed Drainage Area	square miles	3.57	173.01	10.7	6.45	6.45	128	77.6	142	1,944	96.04	96.04	
ADT	vehicles/day	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	
Hardness	mg/l	242	170.1	209	211	211	138	111	211	194	301	301	
Lead													
Once in 3 year stream pollutant concentration	mg/l	0.024	0.007	0.021	0.027	0.024	0.005	0.009	0.007	0.001	0.008	0.008	
IEPA Acute Criterion	mg/l	0.20	0.13	0.17	0.17	0.17	0.11	0.08	0.17	0.15	0.25	0.25	
IEPA Chronic Criterion	mg/l	0.041	0.028	0.035	0.035	0.035	0.023	0.018	0.035	0.032	0.051	0.051	
IEPA Acute Criterion Test	mg/l	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Zinc													
Once in 3 year stream pollutant concentration	mg/l	0.096	0.030	0.085	0.108	0.095	0.019	0.035	0.027	0.004	0.033	0.031	
IEPA Acute Criterion	mg/l	0.25	0.19	0.22	0.22	0.22	0.16	0.13	0.22	0.21	0.30	0.30	
IEPA Chronic Criterion	mg/l	0.046	0.034	0.040	0.041	0.041	0.028	0.024	0.041	0.038	0.055	0.055	
IEPA Acute Criterion Test	mg/l	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Copper													
Once in 3 year stream pollutant concentration	mg/l	0.026	0.008	0.023	0.030	0.026	0.005	0.010	0.008	0.001	0.009	0.009	
IEPA Acute Criterion	mg/l	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.05	0.05	
IEPA Chronic Criterion	mg/l	0.024	0.018	0.021	0.021	0.021	0.015	0.012	0.021	0.020	0.029	0.029	
IEPA Acute Criterion Test	mg/l	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
TSS													
Once in 3 year stream pollutant concentration	mg/l	123.262	38.370	108.445	138.938	122.000	24.665	45.379	35.004	4.696	41.832	40.210	

APPENDIX C

CHLORIDE CONCENTRATIONS ASSOCIATED WITH US 51
EXISTING

Alignment	Stream Name	Drainage Area, sq. mi.	Lane Miles	Slope, ft/mi	Annual Precip., in	Salt Applied, tons/mi	Salt Applied, tons	Ann. Avg. Flow, cfs	Ann. Daily Avg. Cl, mg/l	Ann. Daily Max. Cl, mg/l	Chloride Load ^a , tons
Existing	Sewer Creek	---	---	---	---	---	---	---	---	---	---
Existing	Crooked Creek	173.0	7.2	21.4	38.9	10	68	244.1	0.7	26.7	18
Existing	Turkey	---	---	---	---	---	---	---	---	---	---
Existing	Prairie Creek	10.7	7.0	8.5	38.9	10	67	16.8	4.4	34.4	17
Existing	Lost Creek	6.5	9.4	11.0	38.9	10	89	10.3	10.3	44.2	35
Existing	E Fork Kaskaskia River	112.9	3.7	24.1	38.9	10	36	162.0	0.8	26.6	-9
Existing	North Fork Kaskaskia River	1.0	4.5	11.2	38.9	10	43	1.8	29.3	77.1	-3
Existing	Hickory Creek Levee Ditch	142.0	3.5	---	38.9	10	33	201.9	---	26.4	-11
Existing	Kaskaskia River	1944.2	8.5	1.5	38.9	10	81	2496.2	-0.8	26.2	28
Existing	Ramsey Creek	95.9	17.2	6.7	38.9	10	164	138.5	0.9	28.6	96
Existing	Ash Creek	6.6	17.2	15.6	38.9	10	164	10.6	18.8	58.4	96

^a If due to the regression analysis the chloride load has been calculated as a negative value, the actual load will be taken as 0 tons.

Input Sources:

Lane Miles, mi => From Huff & Huff data

Slope, ft/mi => From CDU/HDR data (note: The maximum slope was used for combined stream crossings)

Annual Precipitation, in. => Vandalia, Illinois data

Salt Applied, tons/mi => IDOT Data for D7 for 4 years

Salt Applied, tons = Salt Applied, tons/mi x Lane Miles

Annual Average Flow, cfs = 0.045 x Drainage Area ^0.961 x Precip ^0.996

Annual Daily Average Increase Cl, mg/l = -0.94 + (1.22 x (Salt Applied, tons / Ann. Avg. Flow, cfs)) + (0.06 x Slope)

Annual Daily Maximum Increase Cl, mg/l = 26.1 + (2.1 x (Salt Applied, tons / Ann. Avg. Flow, cfs)) - (3.2 x Storage)

Chloride Load = -37.8 + (50 x Storage) + (0.816 x Salt Applied, tons)

CHLORIDE CONCENTRATIONS ASSOCIATED WITH US 51
PROPOSED 09/17/12

Alignment	Number	Stream Name	Drainage Area, sq. mi.	Lane Miles	Slope, ft/mi	Annual Precip., in	Salt Applied, tons/mi	Salt Applied, tons	Ann Avg. Flow, cfs	Ann. Daily Avg. Cl, mg/l	Ann. Daily Max. Cl, mg/l	Chloride Load ^a , tons	Existing Annual Daily Max Cl, mg/l
US51 Build Alternative	S-T	Sewer Creek	3.6	5.7	14.1	38.9	10	55	5.9	11.3	45.7	7	---
US51 Build Alternative	43-44-R	Crooked Creek	173.0	9.1	21.4	38.9	10	86	244.1	0.8	26.8	33	26.7
CS AH 1	Q	Prairie Creek	10.7	8.9	8.5	38.9	10	85	16.8	5.7	36.7	31	34.4
CS AH 2	40-41	Prairie Creek	8.2	14.8	8.5	38.9	10	141	13.0	12.8	48.8	77	34.4
CS AH 1	37-38-39	Lost Creek	6.5	18.7	11.0	38.9	10	178	10.3	20.7	62.2	107	44.2
CS AH 2	37	Lost Creek	6.5	10.7	11.0	38.9	10	102	10.3	11.7	46.8	45	44.2
US51 Build Alternative	P-32-33	E Fork Kaskaskia River	112.9	7.9	24.1	38.9	10	75	162.0	1.1	27.1	23	26.6
US51 Build Alternative	25-28	North Fork Kaskaskia River	1.0	8.0	11.2	38.9	10	76	1.8	52.3	116.5	25	77.1
US51 Build Alternative	16	Hickory Creek Levee Ditch	142.0	7.0	---	38.9	10	67	201.9	---	26.8	16	26.4
US51 Build Alternative	13	Kaskaskia River	1,944.2	5.0	1.5	38.9	10	48	2496.2	-0.8	26.1	1	26.2
RCO A	9	Ramsay Creek	95.9	9.9	32.1	38.9	10	94	138.5	1.8	27.5	39	28.6
RCO B	9	Ramsay Creek	95.9	9.9	32.1	38.9	10	94	138.5	1.8	27.5	39	28.6
US51 Build Alternative	6	Ash Creek	6.6	8.8	15.6	38.9	10	84	10.6	9.6	42.6	30	58.4

^a If due to the regression analysis the chloride load has been calculated as a negative value, the actual load will be taken as 0 tons.

Input Sources:

- Lane Miles, mi => From Huff & Huff data
- Slope, ft/mi => From CD/HDR data (note: The maximum slope was used for combined stream crossings)
- Annual Precipitation, in => Vandalia, Illinois data
- Salt Applied, tons/mi => IDOT Data for D7 for four years
- Salt Applied, tons = Salt Applied, tons/mi x Lane Miles
- Annual Average Flow, cfs = 0.045 x Drainage Area ^0.961 x Precip ^0.996
- Annual Daily Average Increase Cl, mg/l = 0.94 + (1.22 x (Salt Applied, tons / Ann. Avg. Flow, cfs)) + (0.06 x Slope)
- Annual Daily Maximum Increase Cl, mg/l = 26.1 + (2.1 x (Salt Applied, tons / Ann. Avg. Flow, cfs)) + (3.2 x Storage)
- Chloride Load = -37.8 + (50 x Storage) + (0.816 x Salt Applied, tons)

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	US 51 Build						RAI1						RAI2						VAI1					
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft
Webster Creek	5.74	Mainline	2	0	---	---	2	100	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	6	0	---	---	6	100																		
		Total	8	0	---	---	8	100																		
Fulton Branch	3.88	Mainline	1	0	---	---	1	60	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	60																		
Sewer Creek	3.57	Mainline	1	0	---	---	1	70	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	70																		
Unnamed Tributary to Sewer Creek		Mainline						Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to Crooked Creek #2		Mainline						Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to Crooked Creek #1	1.01	Mainline	2	2	10x8	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	2	2	---	---	0	0																		
Crooked Creek	173	Mainline	1	0	---	---	1	130	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	130																		
Crileys Branch																										
Prairie Creek	10.7	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Lost Creek	6.45	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary to Lost Creek North		Mainline						Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to East Fork Kaskaskia River 3		Mainline						Stream is not crossed						Stream is not crossed						Stream is not crossed						
East Fork Kaskaskia River	112.2	Mainline	2	0	---	---	2	120	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	2	0	---	---	2	120																		
Unnamed Tributary to East Fork Kaskaskia River 1		Mainline						Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to East Fork Kaskaskia River 1		Mainline						Stream is not crossed						Stream is not crossed						Stream is not crossed						
Louse Run Trib South 2		Mainline						Stream is not crossed						Stream is not crossed						Stream is not crossed						
Louse Run Trib South 1	3.02	Mainline	1	0	---	---	1	90	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	90																		
Louse Run	5.37	Mainline	1	0	---	---	1	60	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	60																		
Louse Run Tributary	0.35	Mainline	1	1	12x5	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	1	1	12x5	box	0	0																		
		Total	2	2	---	---	0	0																		
Deer Creek	4.88	Mainline	3	3	10x10	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	3	3	---	---	0	0																		
North Fork Kaskaskia River	39.6	Mainline	1	0	---	---	1	400	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	400																		
Unnamed Tributary of North Fork Kaskaskia River	1.03	Mainline	2	2	10' x 10'	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	2	2	---	---	0	0																		
Flat Creek	19.9	Mainline	1	0	---	---	1	140	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	140																		
Unnamed Tributary to Flat Creek	0.15	Mainline	1	1	7 x 5	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	1	---	---	0	0																		
Steve Creek	0.64	Mainline	2	2	14' x 6'	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	2	2	---	---	0	0																		
Cassar Creek	5.96	Mainline	3	3	12' x 12'	box	0	0																		

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	US 51 Build						RAI1						RAI2						VAI1					
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft
		Side	0	0	---	---	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Total	3	3	---	---	0	0																		
Unnamed Tributary to Richland Creek	0.46	Mainline	1	1	8 x 6	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	1	---	---	0	0																		
Richland Creek	12.6	Mainline	1	0	---	---	1	100	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	100																		
Hickory Creek	85.3	Mainline	1	0	---	---	1	510	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	510																		
Kaskaskia River	1944	Mainline	11	10	10 @ 72"	72"RCP	1	700	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	11	10	---	---	1	700																		
Fish Lake Ditch	0.07	Mainline	1	1	10 x 6	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	1	---	---	0	0																		
Unnamed Tributary of Raccoon Creek #1	0.94	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	1	1 @ 10 x	box	0	0
		Side																			0	0	---	---	0	0
		Total																			1	1	---	---	0	0
Unnamed Tributary of Raccoon Creek #2	0.71	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						3	3	3 @ 8 x 7	box	0	0
		Side																			0	0	---	---	0	0
		Total																			3	3	---	---	0	0
Unnamed Tributary of Raccoon Creek #3	0.45	Mainline	This Site no longer exists.						This Site no longer exists.						This Site no longer exists.						This Site no longer exists.					
Unnamed Tributary of Bear Creek #1	0.75	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side																								
		Total																								
Bear Creek	28.5	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side																								
		Total																								
Unnamed Tributary to Hoffman Creek	1.05	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	2	2 @ 10 x	box	0	0
		Side																			0	0	---	---	0	0
		Total																			2	2	---	---	0	0
Unnamed Tributary of Vandalia Lake #1	0.97	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	2	2 @ 10 x	box	0	0
		Side																			0	0	---	---	0	0
		Total																			2	2	---	---	0	0
Unnamed Tributary of Vandalia Lake #2	0.93	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	2	2 @ 10 x	box	0	0
		Side																			0	0	---	---	0	0
		Total																			2	2	---	---	0	0
Unnamed Tributary of Vandalia Lake #3	5.38	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	0	0	---	1	80
		Side																			0	0	---	---	0	0
		Total																			1	0	---	---	1	80
Unnamed Tributary of Kaskaskia River	0.89	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side																								
		Total																								
Unnamed Tributary of Vandalia Lake #4	1.3	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						2	2	2 @ 11 x	box	0	0
		Side																			0	0	---	---	0	0
		Total																			2	2	---	---	0	0
Bear Creek	3.75	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	0	0	---	1	80
		Side																			0	0	---	---	0	0
		Total																			1	0	---	---	1	80
Unnamed Tributary of Vandalia Lake #5	0.98	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	2	2 @ 10 x	box	0	0
		Side																			0	0	---	---	0	0
		Total																			2	2	---	---	0	0
Unnamed Tributary to Hurricane Creek	1.67	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						2	2	2 @ 11 x	box	0	0
		Side																			0	0	---	---	0	0
		Total																			2	2	---	---	0	0
Hoffman Creek	7.16	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	0	0	---	1	95
		Side																			0	0	---	---	0	0
		Total																			1	0	---	---	1	95
Ramsey Creek	95.9	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side																								
		Total																								
Unnamed Tributary of Ramsey Creek #2	0.73	Mainline	Stream is not crossed						3	3	3 @ 5 x 5	box	0	0	3	3	3 @ 5 x 5	box	0	0	Stream is not crossed					
		Side							0	0	---	---	0	0	0	0	---	---	0	0						
		Total							3	3	---	---	0	0	3	3	---	---	0	0						
Ash Creek	6.63	Mainline	1	0	---	---	1	130	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	130																		
Unnamed Tributary S. of Little Creek	2.13	Mainline	2	2	2 @ 8 x 5	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	2	2	---	---	0	0																		
Unnamed Tributary N. of Little Creek	0.5	Mainline	2	2	2 @ 8 x 4	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	US 51 Build						RAIt1						RAIt2						VAIt1					
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft
		Total	2	2	---	---	0	0																		
Matney Branch	2.05	Mainline	2	2	2 @ 8 x 6	box	0	0	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	2	2	---	---	0	0																		
Opossum Creek	10.9	Mainline	1	0	---	---	1	130	Stream is not crossed						Stream is not crossed						Stream is not crossed					
		Side	0	0	---	---	0	0																		
		Total	1	0	---	---	1	130																		
			55	33			22	2740	3	3			0	0	3	3			0	0	19	16			3	255

Note: Culvert sizes will be finalized upon completion of drainage analysis by CDI in early Spring 2014.

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	VAI2						VAI3						VAI4						CS-Alt 1					
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft
Webster Creek	5.74	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Fulton Branch	3.88	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Sewer Creek	3.57	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary to Sewer Creek		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary to Crooked Creek #2		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary to Crooked Creek #1	1.01	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Crooked Creek	173	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Crileys Branch																										
Prairie Creek	10.7	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Lost Creek	6.45	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	0	0	0	1	40
Unnamed Tributary to Lost Creek North		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0	0	0	0	0	---
Unnamed Tributary to East Fork Kaskaskia River 3		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						1	0			1	40
East Fork Kaskaskia River	112.2	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary to East Fork Kaskaskia River 1		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary to East Fork Kaskaskia River 1		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Louse Run Trib South 2		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Louse Run Trib South 1	3.02	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Louse Run	5.37	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Louse Run Tributary	0.35	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Deer Creek	4.88	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
North Fork Kaskaskia River	39.6	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary of North Fork Kaskaskia River	1.03	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Flat Creek	19.9	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Unnamed Tributary to Flat Creek	0.15	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Steve Creek	0.64	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Cassar Creek	5.96	Mainline																								

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	VAI2						VAI3						VAI4						CS-Alt 1											
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft						
		Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary to Richland Creek	0.46	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Richland Creek	12.6	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Hickory Creek	85.3	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Kaskaskia River	1944	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Fish Lake Ditch	0.07	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary of Raccoon Creek #1	0.94	Mainline Side Total	1	1	1 @ 10 x	box	0	0	1	1	1 @ 10 x	box	0	0	1	1	1 @ 10 x	---	0	0	1	1	1 @ 10 x	---	0	0	Stream is not crossed					
Unnamed Tributary of Raccoon Creek #2	0.71	Mainline Side Total	3	3	3 @ 8 x 7	box	0	0	3	3	3 @ 8 x 7	box	0	0	3	3	3 @ 8 x 7	---	0	0	3	3	3 @ 8 x 7	---	0	0	Stream is not crossed					
Unnamed Tributary of Raccoon Creek #3	0.45	Mainline Side Total	This Site no longer exists.						This Site no longer exists.						This Site no longer exists.						This Site no longer exists.											
Unnamed Tributary of Bear Creek #1	0.75	Mainline Side Total	3	3	3 @ 5 x 5	box	0	0	3	3	3 @ 5 x 5	box	0	0	Stream is not crossed						Stream is not crossed											
Bear Creek	28.5	Mainline Side Total	1	0	0	---	1	170	1	0	0	---	1	170	1	0	0	---	1	170	1	0	0	---	1	170	Stream is not crossed					
Unnamed Tributary to Hoffman Creek	1.05	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary of Vandalia Lake #1	0.97	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary of Vandalia Lake #2	0.93	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary of Vandalia Lake #3	5.38	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary of Kaskaskia River	0.89	Mainline Side Total	1	0	0	---	1	100	1	0	0	---	1	100	1	0	0	---	1	100	1	0	0	---	1	100	Stream is not crossed					
Unnamed Tributary of Vandalia Lake #4	1.3	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Bear Creek	3.75	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary of Vandalia Lake #5	0.98	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary to Hurricane Creek	1.67	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Hoffman Creek	7.16	Mainline Side Total	1	0	0	---	1	95	1	0	0	---	1	95	1	0	0	---	1	95	1	0	0	---	1	95	Stream is not crossed					
Ramsey Creek	95.9	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary of Ramsey Creek #2	0.73	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Ash Creek	6.63	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary S. of Little Creek	2.13	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											
Unnamed Tributary N. of Little Creek	0.5	Mainline Side	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed											

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	VAR2						VAR3						VAR4						CS-Alt 1					
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft
		Total																								
Matney Branch	2.05	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
Opossum Creek	10.9	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						Stream is not crossed					
			10	7			3	365	10	7			3	365	7	4			3	365	1	0			1	40

Note: Culvert sizes will be finalized upon completion of drainage at

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	CS-Alt 2						RCO-A						RCO-B						
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Number of Piers
Webster Creek	5.74	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Fulton Branch	3.88	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Sewer Creek	3.57	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						1
Unnamed Tributary to Sewer Creek		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to Crooked Creek #2		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to Crooked Creek #1	1.01	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Crooked Creek	173	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						2
Crileys Branch																					
Prairie Creek	10.7	Mainline Side Total	1	0	0	0	1	100	Stream is not crossed						Stream is not crossed						2
Lost Creek	6.45	Mainline Side Total	1	0	0	0	1	40	Stream is not crossed						Stream is not crossed						0
Unnamed Tributary to Lost Creek North		Mainline Side Total	1	0	0	0	1	40	Stream is not crossed						Stream is not crossed						
Unnamed Tributary to East Fork Kaskaskia River 3		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
East Fork Kaskaskia River	112.2	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						2
Unnamed Tributary to East Fork Kaskaskia River 1		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to East Fork Kaskaskia River 1		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Louse Run Trib South 2		Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Louse Run Trib South 1	3.02	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						1
Louse Run	5.37	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Louse Run Tributary	0.35	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Deer Creek	4.88	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
North Fork Kaskaskia River	39.6	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						4
Unnamed Tributary of North Fork Kaskaskia River	1.03	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Flat Creek	19.9	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						2
Unnamed Tributary to Flat Creek	0.15	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Steve Creek	0.64	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Cassar Creek	5.96	Mainline	Stream is not crossed						Stream is not crossed						Stream is not crossed						0

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

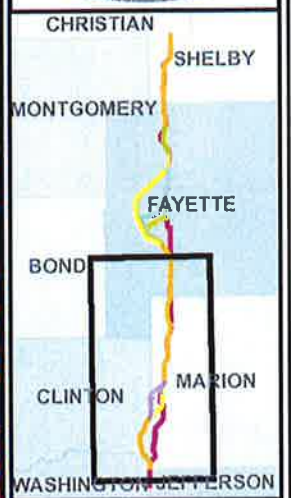
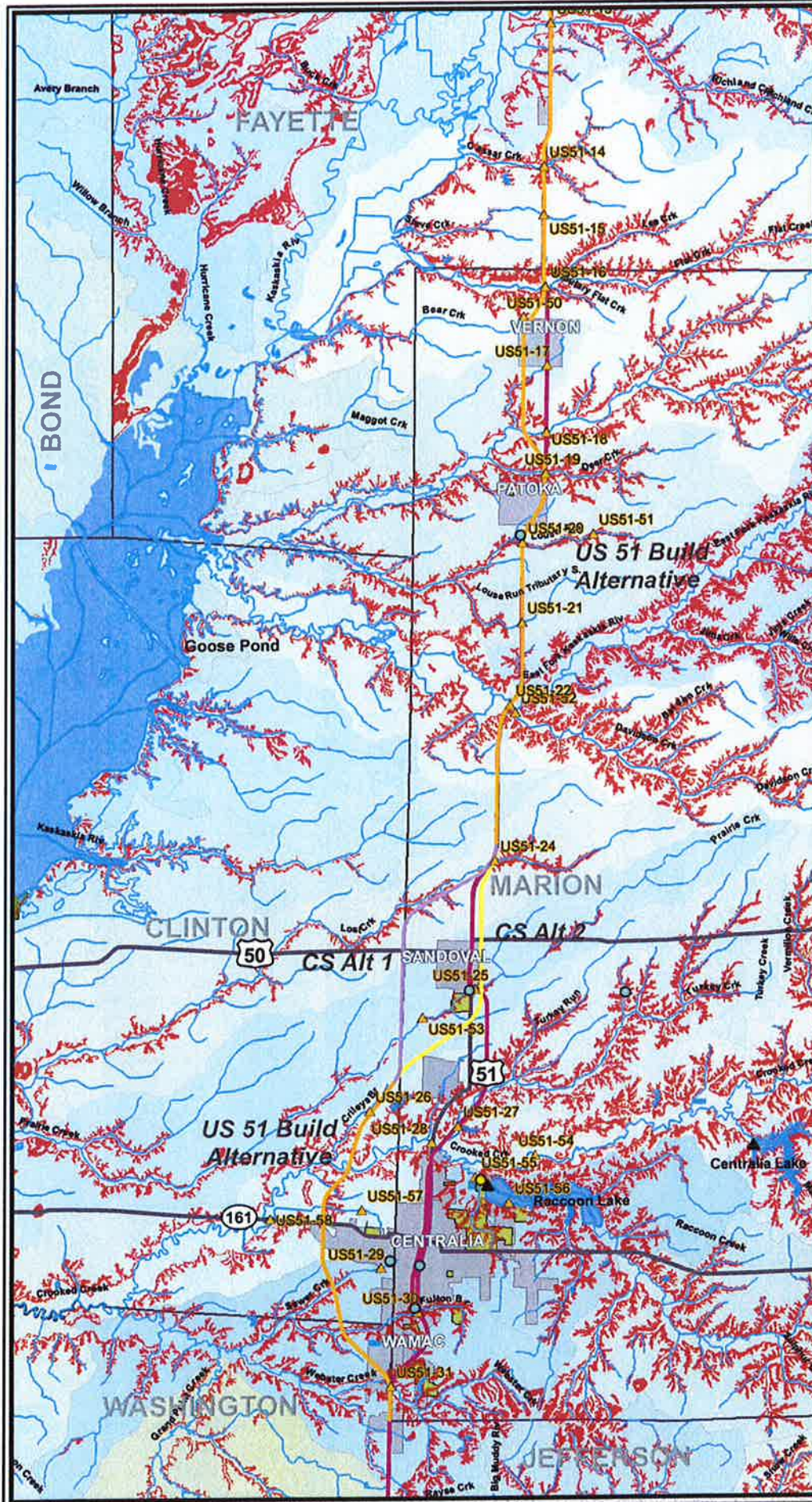
Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	CS-Alt 2						RCO-A						RCO-B						
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Number of Piers
		Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to Richland Creek	0.46	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Richland Creek	12.6	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Hickory Creek	85.3	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						4
Kaskaskia River	1944	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						7
Fish Lake Ditch	0.07	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Unnamed Tributary of Raccoon Creek #1	0.94	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Unnamed Tributary of Raccoon Creek #2	0.71	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Unnamed Tributary of Raccoon Creek #3	0.45	Mainline Side Total	This Site no longer exists.						This Site no longer exists.						This Site no longer exists.						
Unnamed Tributary of Bear Creek #1	0.75	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Bear Creek	28.5	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						1
Unnamed Tributary to Hoffman Creek	1.05	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary of Vandalia Lake #1	0.97	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary of Vandalia Lake #2	0.93	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary of Vandalia Lake #3	5.38	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary of Kaskaskia River	0.89	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						2
Unnamed Tributary of Vandalia Lake #4	1.3	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Bear Creek	3.75	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Unnamed Tributary of Vandalia Lake #5	0.98	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						
Unnamed Tributary to Hurricane Creek	1.67	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Hoffman Creek	7.16	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						2
Ramsey Creek	95.9	Mainline Side Total	Stream is not crossed						1	0	0	---	1	235	1	0	0	---	1	235	4
		Side Total	Stream is not crossed						0	0	0	---	0	0	0	0	0	---	0	0	
		Total	Stream is not crossed						1	0	---	---	1	235	1	0	---	---	1	235	
Unnamed Tributary of Ramsey Creek #2	0.73	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Ash Creek	6.63	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						1
Unnamed Tributary S. of Little Creek	2.13	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Unnamed Tributary N. of Little Creek	0.5	Mainline Side	Stream is not crossed						Stream is not crossed						Stream is not crossed						0

Table B: Stream Crossings Construction Impacts Alternatives within the U.S. 51 Corridor

Stream	Upstream of US 51 Crossing Area (square miles)	Mainline Freeway or Side Street/Ramp Crossing	CS-Alt 2						RCO-A						RCO-B						
			Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Total Number	Number of Culverts	Size of Culvert	Type of Culvert	Number of Bridges	Length of Bridge, ft	Number of Piers
		Total																			
Matney Branch	2.05	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						0
Opossum Creek	10.9	Mainline Side Total	Stream is not crossed						Stream is not crossed						Stream is not crossed						2
			2	0			2	140	1	0			1	235	1	0			1	235	37

Note: Culvert sizes will be finalized upon completion of drainage at

APPENDIX D

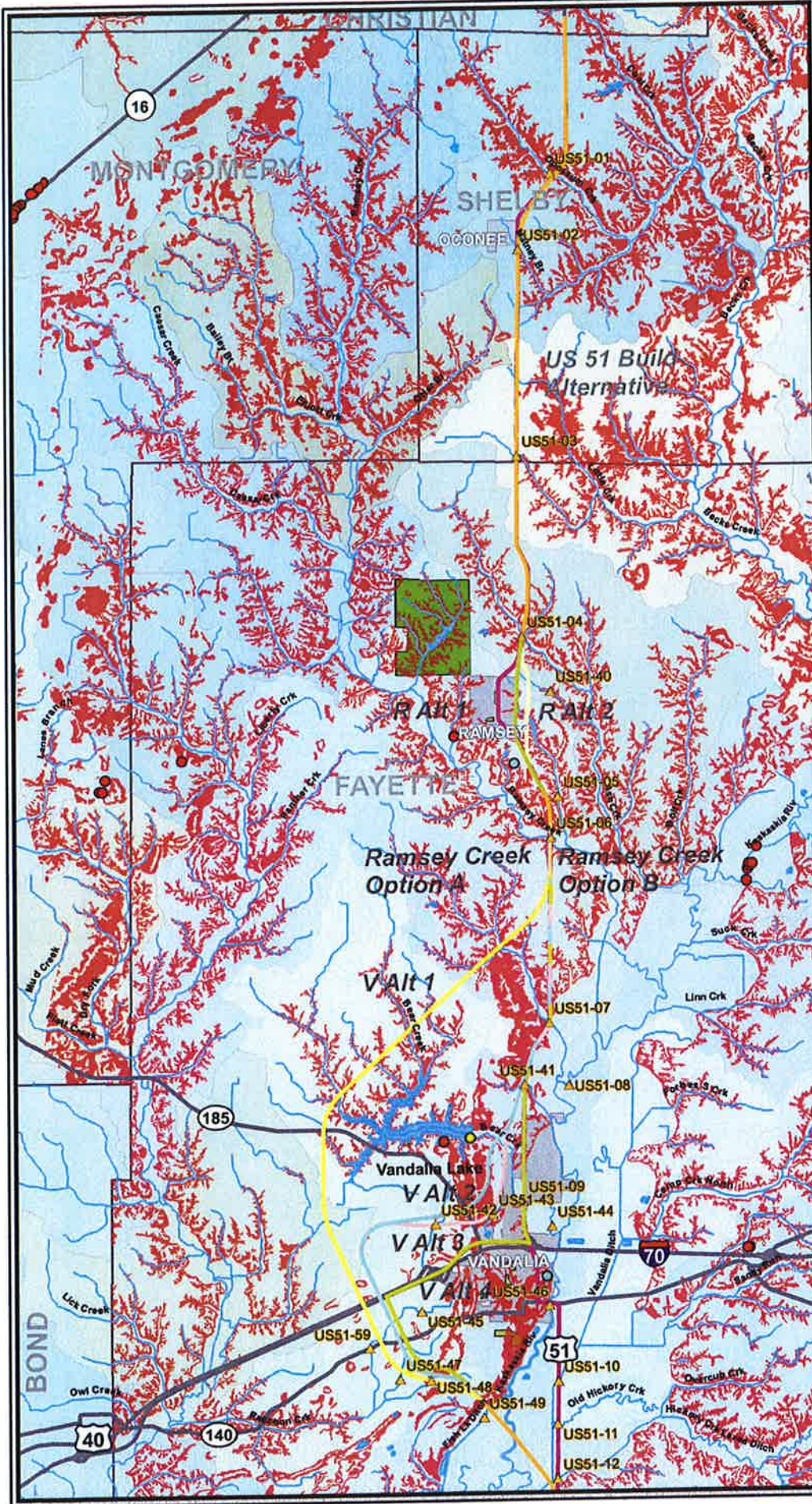


- Legend**
- ▲ PWS SURFACE WATER INTAKE
 - DAM
 - WASTEWATER TREATMENT PLANT
 - CWS WELL
 - ▲ INHS SAMPLING LOCATIONS
 - CS Alt 1
 - CS Alt 2
 - US 51 BUILD ALTERNATIVE
 - EXISTING US 51
 - STATE ROUTE
 - US HIGHWAY
 - STREAMS
 - COUNTIES
 - PARKS
 - PONDS
 - LAKES
 - HIGHLY ERODIBLE SOIL
 - STATE PARKS
 - MUNICIPAL BOUNDARY

Sources:
Data to be used for reference only



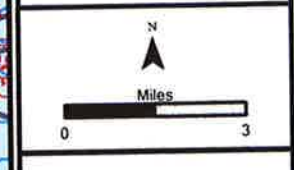
HIGHLY ERODIBLE SOILS SHEET 1 of 2



Legend

- DAM
- WASTEWATER TREATMENT PLANT
- CWS WELL
- INHS SAMPLING LOCATIONS
- R Alt 1
- R Alt 2
- RAMSEY CREEK OPTION B
- RAMSEY CREEK OPTION A
- V Alt 1
- V Alt 2
- V Alt 3
- V Alt 4
- US 51 BUILD ALTERNATIVE
- EXISTING US 51
- STATE ROUTE
- US HIGHWAY
- INTERSTATE
- STREAMS
- HIGHLY ERODIBLE SOIL
- COUNTIES
- PARKS
- PONDS
- LAKES
- STATE PARKS
- MUNICIPAL BOUNDARY

Sources:
Data to be used for reference only



HIGHLY ERODIBLE SOIL SHEET 2 of 2